School- and Community-Based Approaches to Healthy Eating and Food Security in Aotearoa New Zealand

A Comprehensive Report Prepared for the Agri-food Systems Working Group in the Our Land and Water Toitū te Whenua Toiora te Wai National Science Challenge, for the 'Aotearoa Food Cultures' Programme

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Executive Summary

Food insecurity and related issues of nutritionally deficient diets negatively impact on the health and wellbeing of individuals, whānau and wider communities, and can negatively impact on educational outcomes for rangatahi. The resilience and diversity of local, national and international food production and distribution systems influence the accessibility, availability and affordability of food, thus have an impact on food security. Furthermore, improving food security requires a nuanced understanding of how diverse conceptual frameworks of "healthy eating", food cultures and dietary preferences impact on the food consumption patterns of individuals, whānau and their communities. Culturally informed knowledge systems also underpin people's dietary choices and the way in which they access, store, cook and consume food, and are thus also fundamental considerations in programmes seeking to improve food security and healthy eating.

This research compiles and explores the plethora of healthy eating frameworks and initiatives that have been implemented to address food insecurity and improve peoples' dietary health, both in Aotearoa New Zealand and overseas, with many being devised and then assessed according to the biochemistry and nutritional content of their ingredients. However, it is evident that, despite the abundance of food grown and produced in Aotearoa New Zealand, and the promulgation of various public "healthy eating" initiatives across Aotearoa New Zealand and indeed the world, some people continue to experience significant food poverty and consume suboptimal levels of critical key food groups such as fruit and vegetables. The report also explores the scale of food poverty in Aotearoa New Zealand and considers contributing factors.

To meet the varied dietary needs and preferences of Aotearoa New Zealand's increasingly multicultural population, our agri-food sector needs to produce a range of affordable food for domestic consumption that meets people's dietary needs and preferences. However, there are often gaps in our food production and distribution systems, that result in both food poverty in some cases, and food waste in other cases. Systems need to be established to ensure people can access affordable, culturally preferred foods, particularly within community groups for whom food poverty is an ongoing issue. Increasingly, community- and school-based programmes are being implemented to address food insecurity within local communities. Government and community led efforts to address food insecurity in local communities can foster significant benefits both for the recipients of the food programmes, as well as for the people involved in the delivery of these programmes, in addition to the actual food provided.

Thus, this research programme was conducted to, firstly, improve our understanding of how the relationship between food, eating and health is conceptualised, as this tacitly guides the direction of dietary policy in Aotearoa New Zealand. The bulk of this report then documents the second phase of the research programme, which built upon the findings of phase one. Reviews of national and international literature were undertaken of Aotearoa New Zealand's food production and distribution systems, frameworks and prevalence of food insecurity, "healthy eating" frameworks, and community- and school-based food provision initiatives, in order to increase our understanding about their intent, effectiveness and factors that hinder or aid their successful implementation.

This was followed up by case studies with school- and community-based food providers throughout Aotearoa New Zealand, to improve our understanding of how such programmes help to address food insecurity in local communities. Collective insights for participating organisations and other educational institutions and/or food outreach organisations are provided on factors that contribute to the effectiveness of such food delivery programmes, and ways to mitigate or overcome barriers.

In the case study research, workshops, interviews and/or site visits were conducted with various entities involved in food provision through schools and communities at grass-roots levels, including:

- Kura Kai, a voluntary community-based charity operating a food provision programme in 37 schools throughout Aotearoa New Zealand; and
- Manawatū-based organisations involved in agri-food network collaborations and innovations including a school that is delivering meals in-house via the Ka Ora, Ka Ako Health School Lunches government-funded programme, the Manawatū Food Action Network and live2give Organics.

The case study organisations shared common traits that contribute to their success in food provision, including having: a clear vision and purpose to address food insecurity, requisite leadership and personal attributes, a sustainable customisable operating model where people work to their strengths and collaborate with others to draw on the resources within their networks, and clearly linked operations to ensure delivery of impact in the community.

Well designed and operated school food programmes deliver significant benefits to rangatahi, their whānau and the wider community, and there are widespread calls for programmes such as KOKA to be continued and even extended to other schools and into the early childhood education sector, where early food habits are established. Effective school food programmes are well supported by the school principal and other teachers involved in relevant courses and incorporate the initiative throughout the school syllabus and activities, thereby enabling a holistic education linked to the food programme. They are appropriately resourced and run by the "right" people who are passionate about both food and people, and tailor the programme to the food needs and preferences of the particular demographic in their school or community. This reduces food waste and encourages positive participation in the programme. Furthermore, school food programmes were able to facilitate greater impact if they had an in-situ kitchen space in which rangatahi were able – and encouraged – to go if they needed food, or wanted to talk to the teachers/staff in the kitchen about anything that was troubling them, thereby recreating a "safe space" for rangatahi, akin to a "kitchen being the heart of the home" environment at school.

Alternatively, school food programmes are less successful when they are inadequately or inappropriately resourced, have minimal integration of the programme into the school curriculum, and the programme managers have less understanding of the specific food needs and preferences of their community and do not therefore adequately cater to those diverse needs. School food programmes that are designed and then assessed according to the nutritional content of the ingredients, without also taking into consideration the social and cultural components of people's diets, tend to have less successful uptake of the programme, resulting in reduced consumption of "healthy food", or indeed reduced consumption of any food provided at school, with resultant food waste.

It is critical that people involved in food provision policy development and programme delivery, particularly to people experiencing food poverty, consider the factors affecting peoples' capacity and capability to grow, store, prepare and heat "optimally nutritious" meals. Food delivery programmes that intentionally plan and then deliver "good food that people want to eat" consider far more than the nutritional content of the meals, but also its appropriateness for the people the food is being provided to. This necessitates an awareness of the food norms and preferences of whānau and communities and the attractiveness of the meals at the time of consumption. For food distribution programmes that are designed for people to take food home to eat, this also requires consideration

about the “shelf” life of the food, and whether people have the equipment at home to store or reheat it.

Schools are well placed to act as community hubs connecting other groups with similar food related initiatives to collaborate and support each other, creating synergistic benefits for all. Involving rangatahi/students in food provision programmes provides mana-enhancing opportunities for them to contribute to their whānau and the wider community, whilst developing life skills through a holistic education that will enhance their own food security into the future. Reconnecting rangatahi and the wider community to knowledge systems about the growing, harvesting, cooking, preserving and consumption of culturally preferred diets also helps (re)-build social connectedness, cultural identity and wellbeing. Furthermore, integrated local and regional food delivery networks have the potential to boost local economies and provide buffers from external shocks. Such factors offer significant health, socio-cultural and economic benefits, above the dietary benefits of the food itself.

This research identified the importance of consistent and reliable provision of food to people who need it. While New Zealand’s agri-food system meets the needs of many people, it is failing others who continue to experience food poverty. Food provision programmes must be designed to consistently meet the diverse food-related needs of targeted at-risk groups, including addressing the social, cultural and financial factors that contribute to food poverty. There was also widespread acknowledgement by participants of the depth and complexity of food insecurity issues, and the need for prioritisation of government spending on the most critical needs first, such as for food and housing, to ensure most basic needs are provided before other higher-level goals can be considered. In this way, food poverty is interlinked with wider socio-economic issues, and it is critical that they are holistically addressed in a systematic way. Additionally, further research and policy emphasis is required to better understand the extent of food insecurity and related social issues in rural communities, where accessibility can be even more problematic than in bigger cities.

Government agencies can bolster the effectiveness of community based initiatives in a number of ways: facilitating collaboration between groups operating within the food resilience space; helping to connect people in need of resources with those who have underutilised resources within the community – e.g., underutilised commercial kitchen spaces for bulk cook ups or storage of surplus food resources; garden spaces; providing requisite expertise in areas such as grant writing, gardening, menu planning and budgeting; and syllabus development in related topics.

Additionally, government funding should be directed to those groups who are already operating on the ground and have well-functioning distribution networks in place to efficiently get food directly to the people who need it in a timely manner. Government supports to coordinate school food programmes within regions, and between local growers and school food programmes were also recommended as a way to reduce the load on school staff while maximising the potential gains from such programmes. Facilitating the collaboration between all groups engaged in local and regional food provision with people linked to schools providing food, would also enable better use of resources and improved outcomes for all. Recommendations are made for future research and policy development, including for the KOKA programme.

Acknowledgements

We wish to acknowledge the Our Land and Water Toitū te Whenua Toiora te Wai National Science Challenge who funded this research, and the other researchers involved in parallel projects within the wider programme who contributed to the initial conceptualisation of this research. We also appreciate the feedback from Bill Kaye-Blake in the finalisation of this report and the assistance from the Our Land and Water Challenge Directorate in communicating the findings.

We also wish to acknowledge and thank the people who agreed to be interviewed and generously gave up time to talk about the school and community food provision programmes they are involved in and for the personal experiences and insights they shared.

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1. Overview

1.1 Background

Food insecurity and related issues of nutritionally deficient diets negatively impact on the health and wellbeing of individuals, whānau and wider communities. To sustainably reduce food insecurity, a complex array of interconnected economic, socio-cultural, political and environmental issues must be addressed in a coordinated manner. The resilience and diversity of local, national and international food production and distribution systems influence food accessibility, availability and affordability. Furthermore, improving food security requires a nuanced understanding of how diverse conceptual frameworks of "healthy eating", food cultures and dietary preferences impact on the food consumption patterns of individuals, whānau and their communities. Culturally informed knowledge systems underpin people's dietary choices and the way in which they access, store, cook and consume food.

A plethora of community and school-based food provision initiatives have arisen that aim to foster optimal health, wellbeing and educational outcomes for students, whānau and wider communities. Many of these programmes are devised and then assessed according to the biochemistry and nutritional content of their ingredients. However, it is evident that, despite the abundance of food grown and produced in New Zealand and the promulgation of various public "healthy eating" initiatives across Aotearoa New Zealand, and indeed the world, some people still experience significant food poverty and consume suboptimal levels of critical key food groups such as fruit and vegetables.

To meet the varied dietary preferences of Aotearoa New Zealand's increasingly multicultural population, a range of affordable food needs to be produced for domestic consumption by our agri-food sector that meets people's dietary needs and preferences, that they can then access. Transportation and logistics networks, the food provision industry, and community-based providers play a pivotal role in connecting food that is affordable and desirable with the people who want it. However, there are often gaps in these food production and distribution systems, that result in both food poverty in some cases, and food waste in other cases. Increasingly, community and school-based programmes are being implemented to fill these gaps. Such grass-roots efforts to address food insecurity in local communities can foster significant benefits both for the recipients of the food programmes, as well as for the people involved in the delivery of these programmes.

Thus, in 2022-202, a two-phased programme of research (MAUX40224) was funded by the Our Land and Water Toitū te Whenua Toiora te Wai National Science Challenge[i]. The first phase, summarised in the next section, conceptualised the categories and relationships for food, eating and health, as this tacitly guides the direction of dietary policy in Aotearoa New Zealand. A more comprehensive analysis of this review can be found in Henry & Morris (2023[1]) and will also be explored further in an article to be published in the Journal of the Royal Society of New Zealand's (JRSNZ) upcoming Special Issue on 'Feeding New Zealand people better – from farm to fork'.[2]

The bulk of the report goes on to document the second phase of the research programme, which built upon the findings of phase one by reviewing the national and international literature about food insecurity, "healthy eating" programmes and community- and school-based food provision initiatives to better understand their effectiveness and factors that hinder or aid their successful implementation. This was followed up by case studies with school- and community-based food

[i] https://ourlandandwater.nz/

providers throughout Aotearoa New Zealand, to generate collective insights for participating organisations and other educational institutions and/or food outreach organisations on effective implementation of food delivery programmes, and ways to mitigate or overcome barriers. Key frameworks and analysis emanating from this second phase of the research are being published in, for example, an article by Venkateswar et al. (2024[3]) in the Journal of the Royal Society of New Zealand's (JRSNZ) upcoming Special Issue on 'Feeding New Zealand people better – from farm to fork'; and other articles in development including Palakshappa et al.[4] and Hardy et al.[5] A summary report of key findings was also prepared by Hardy et al. (2024a[6]) for the Land and Water Challenge.

1.2 Research Phase 1: Between What We Eat and What We Should Eat: Towards a Synthesis Framework

Below is a summary of the four key themes addressed by Henry and Morris (2023) in the development of their synthesis framework for conceptualising the relationships between food, eating and health. (See also Hardy et al., 2024c).

1.2.1 Eating as Conceived

The first theme identified by Henry and Morris notes that the state in Aotearoa New Zealand has had long standing concerns with the diet and health of Aotearoa New Zealanders. The character of those problems has changed over time, and consequently so too has the range of policy and programme interventions designed to improve specific matters of concern among a range of different populations. The current nutrition framework articulated through the Food and Nutrition Guidelines (see section 2.5) represents a particular nutritional territorialisation that has long historical roots. While the advice contained within this framework has changed as the benefits of specific foods have been reassessed, the enduring focus of this assemblage has been guided by the nutricentric logic of identifying 'good' and 'bad' foods, and of promoting the consumption of the former.

1.2.2 What We Eat

The second theme relates to how nutrition policy in Aotearoa New Zealand has been framed around what should be eaten to optimise health. Less attention has been paid to what is actually eaten and why. What we eat on a daily basis is rarely the simple product of individual choice. Instead, what it is possible to eat, what we actually eat, and what we aspire to eat when we think of eating better (questions of availability, accessibility and affordability), is a day-to-day assemblage framed by wider sets of relationships (culture, capitalism, colonialism), that are historically embedded, ubiquitous and largely taken-for-granted (see Figure 1.1). Our eating is channelled on a day-to-day basis because we eat within food worlds that have invisible walls. In the face of these invisible walls, food policies that rely on the exercise of individual choice are largely irrelevant in changing behaviours.

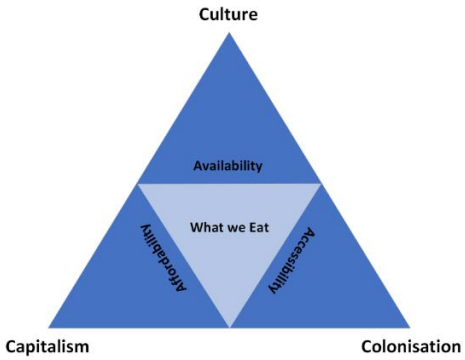


Figure 1.1 What We Eat

1.2.3 Te Ao Māori Health Frameworks

The third theme outlines how the development of health frameworks rooted in Te Ao Māori offer alternative ways of thinking about food and eating relations. Two key ideas flow from this way of thinking about healthy eating. First, hauora is the sum of relationships – corporeal and spiritual, individual and collective – whose combined presence is necessary. Wellbeing cannot be said to exist unless all these relationships are positive, and work in one dimension needs to simultaneously, recognise, maintain and enhance the other dimensions. Second, wellbeing is not simply an individual quality, but rather is enabled through an individual's connection and embeddedness into larger collectivities beginning with whānau. Wellbeing, then, is as much social as it is individual.

1.2.4 Theme 4: Beyond nutricentric individualism

The final theme identified by Henry and Morris (ibid.) argues that the traditional agent of implementation for dietary policy has been the responsible, rational individual who has the capacity and desire to prioritise health through nutrition centric eating. This person is a unicorn, and devising policy based on the universality of this subject is doomed to failure. We know that generally people understand what a nutritionally defined 'good' diet is. We also know that people define 'good' diets in terms that are much broader than exist in nutritional advice. Choices about eating do not begin with either individuals or with a blank slate. Policy models need to frame good health and nutrition as the emergent product of economic, political, and cultural wellbeing rather than treating eating as a biophysical relationship between an individual and food. This relationship is synthesised in Figure 1.2.

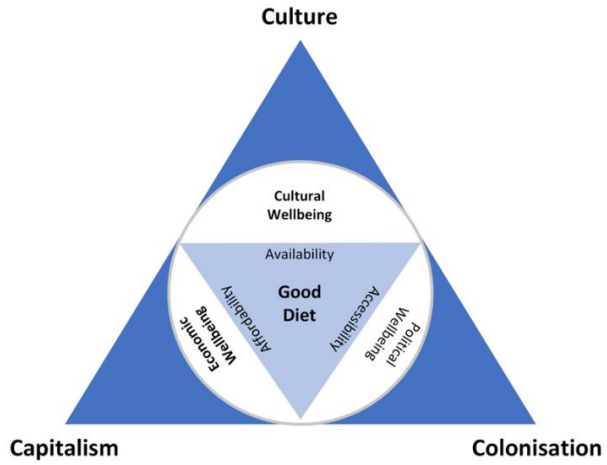


Figure 1.2 Synthesis Framework

1.3 Research Phase 2: School and Community-Based Food Provision

Building on the synthesis framework developed by Henry and Morris (2023, 2024), this second phase of the research programme sought to a) facilitate a more nuanced understanding of Aotearoa New Zealand's food production and distribution systems, contributors to and extent of food insecurity, "healthy eating" frameworks and initiatives, and school- and community-based food provision programmes; and b) explore factors that affect the accessibility, affordability and availability of culturally preferred "good food", particularly to groups at greater risk of experiencing food poverty.

1.3.1 Research Aims

Thus, the aims of this second phase of the research programme were to:

- review the national and international literature about food security, resilient food systems, and "healthy eating" programmes, including school- and community-based food provision initiatives;
- assess the effectiveness of such school- and community-based food provision programmes;
- explore the aspirations and goals of such programmes, their observed impacts and barriers to their successful implementation; and
- generate collective insights for our case study participants and other school- and community-based food provision organisations as well as for those involved food security policy, about effective food security programmes at the community level.

1.3.2 Design and Methods

There were two main stages to our research: a review of relevant national and international literature, and a series of interviews. A literature review was conducted of popular and academic articles relating to: food insecurity, food production and distribution systems, "healthy eating" policies and promotions, and school- and community-based food education and food provision programmes.

Our primary research focussed on three main case studies, in which workshops and/or interviews were conducted with people involved in food provision through schools and communities at grass-roots levels, including:

1) Kura Kai[ii] – a voluntary school community-based charity operating in 37 schools throughout Aotearoa New Zealand;

2) Ka Ora, Ka Ako| Health School Lunches (Ministry of Health, 2023[7]) – the government-funded programme operating in 974 schools throughout Aotearoa New Zealand. This included a detailed exploration of the programme offered through one school in the Manawatū, and discussion about the programme that arose during some Kura Kai interviews; and

3) Manawatū-based organisations involved in agri-food network collaborations and innovations including:
-Manawatū Food Action Network[iii], and
-a farm visit/workshop with live2give Organics (formerly Wholegrain Organics)[iv] showcasing their MPI-funded research in climate change-resilient regenerative, organic farming practices and collective business model.

[ii] https://kurakai.co.nz/
[iii] See: https://enm.org.nz/ and https://enm.org.nz/manawatu-food-action/About-MFAN
[iv] https://live2giveorganics.nz/

1.3.3 Data Collection

A total of 14 semi-structured interviews were conducted during October to December 2022, of which eight were conducted in person in the home region/town of the interviewee, and the rest via zoom. The lead author attended all of the interviews, of which seven were also attended by either of the other two research team members. Interviews were either documented at the time by at least one researcher taking notes during the interview, or an oral recording of the interview was taken and then transcribed by a professional transcriber.

Ten of the interviews were with people involved in Kura Kai's school food programme (two with the Kura Kai managers, seven with teachers, counsellors/nurses or coordinators in schools, and one with an industry organisation (AsureQuality) who is engaged in Kura Kai's school food programme). The Kura Kai interview transcripts were analysed during a 2-day workshop in Palmerston North between two of the researchers, with five main themes emerging.

Researchers took notes during the interview with the Ka Ora, Ka Ako (KOKA) Healthy Lunches programme coordinator at a school in the Manawatū, which were analysed for key themes. Some sections of the Kura Kai interviews were relevant to the KOKA programme so were included in the analysis for the KOKA case study (see Chapter 4).

One member of the research team was invited to attend two workshops hosted by Manawatū Food Action Network (MFAN) during 2022. These were designed for people interested in food security and related issues in the region to come together to learn more about initiatives underway or planned in the region, share ideas including for fundraising, and to consider activities being undertaken by the wider group that those in attendance could both contribute to or benefit from. A huge array of people representing diverse groups within the community attended these workshops, including from the secondary and tertiary education sectors, local and regional government, charitable organisations in the food resilience and redistribution space, food growers, community garden collectives, ethnic and cultural groups, and interested members of the community. For the purposes of the research detailed in this report, published information about the activities of MFAN was reviewed and key messages noted. An interview was then undertaken with the MFAN Coordinator, which was recorded and analysed for key themes.

Two members of the research team also attended a field workshop at live2give and noted pertinent information. Other information about their business model and MPI-funded research available online was also reviewed.

1.4 Intended Research Outcomes

An intended outcome of this research is that people and organisations involved in New Zealand's agri-food and health promotion networks – whether they be food producers, farmers, food industry groups, school- and community-based food providers, government policy makers or researchers – better understand some the complexity around food insecurity and related issues of food accessibility, affordability and availability. It is hoped that such improved understanding will enhance efforts to improve the diversity, resilience and sustainability of our food production and distribution systems so that they are more effective in alleviating the food poverty experienced by our most at-risk groups, as well as contributing to enhanced community cohesion and wellbeing.

It is also hoped that the compilation of national and international food-related and healthy eating frameworks and initiatives and exploration of the scale of food poverty in Aotearoa New Zealand (see Chapter 2) highlights the importance of the initiatives of people and groups who are working at the coalface in areas related to food provision, health and wellbeing within communities. The innovative insights and cross-learnings gleaned from the national and international literature of

successful healthy eating and food provision initiatives can enhance and further empower local communities to be active players in food security and healthy eating.

Furthermore, in our case studies, we sought to identify and shine a light on the best practice exemplars of food provision initiatives through schools and community networks that help meet the culturally diverse dietary needs of people and whānau within their local communities. We intentionally included many quoted narratives shared in interviews, in an effort to ensure the voice and insights of people working in school- and community-based food provision initiatives are heard. It is hoped that, in highlighting their experiences in school- and community-based food distribution programmes and initiatives, such exemplars are helpful to other groups who are striving to enhance food resilience and sovereignty in their own communities at grass-roots levels, or through related government policy, to help improve people's health and wellbeing, including through improved engagement in education.

Thus, another intended outcome of this project is enhancement of community health and education-based food policies and programmes that are respectful of food cultures and appropriate to the diverse food, diet and health needs of multi-cultural communities in New Zealand; and a better understanding of the benefits of a community-focused approach to food security, healthy eating and wellbeing.

1.5 Outline of the Report

The following chapter provides an overview of food provision and distribution in Aotearoa New Zealand, including an exploration of factors that contribute to, and the extent of, food poverty in this country. It presents a summary of the literature on food and diet, including how "healthy eating" is conceptualised and promoted internationally and in New Zealand, and factors affecting access to and consumption of culturally preferred healthy diets. It then reviews national and international school-based food provision and/or education programmes that aim to address perceived issues around child obesity/food poverty and the impact of this children's under-performance at school.

The report then details the key findings from interviews conducted with three groups regarding their community-based local food provision initiatives – Kura Kai (Chapter 3), Ka Ora, Ka Ako (KOKA) | Health School Lunches (Chapter 4), and Manawatū-based agri-food networks and organisations (Chapter 5).

Chapter 6 summarises the main conclusions of the study, including key success factors or barriers to implementation of school and community-based food provision initiatives, and makes recommendations for future research and policy development.

2. Secure, Diverse and Resilient Food Systems for Optimal Health

2.1 Introduction

This chapter provides an overview of the literature related to "healthy eating" and related issues of resilient food supply systems in Aotearoa New Zealand, with a particular focus on the effectiveness of national and international community- and school-based food programmes for children and whānau. Public health guidelines for healthy eating and wellbeing are also analysed.

2.2 Resilience of New Zealand's Food Production and Distribution Systems

2.2.1 Food Production

Underpinning the food provision discussion in New Zealand is a substantial body of literature about the dynamics and resilience of the agri-food sector itself, including how economic considerations determine what food is produced in New Zealand and for whom. Another project in this "Aotearoa's Food Cultures" research programme conducted by Henry and Morris (2023) reviewed the dominant food regimes that have driven food production in New Zealand, including the impact of colonisation as immigrant settlers converted land for agricultural and livestock farming, and the move towards capital-intensive food production for export markets – all of which heavily influenced what foods are available for purchase and/or consumption by New Zealanders.

Rush and Obolonkin (2020)[8] report that in 2016 in New Zealand, 12.1 million hectares (45% of the total land area) was farmed for agricultural and horticultural use, broken down as follows:

-sheep and beef (71%)
-dairy (21%)
-grain (1.7%)
-horticulture including fruit, vegetables and wine (2%).[9]

In New Zealand from 2012 to 2017 the hectares devoted to growing onions increased by 5% but potatoes, buttercup/squash, peas and sweetcorn reduced by 18, 15, 40, and 17%. The number of dairy cattle increased 1% (Rush et al., 2019). As only 0.2% of the total land area of NZ is used for growing vegetables, Curran-Cournane & Rush (2021[10]) argue that expansion of the area used for vegetables should be considered in the context of sustainable production and irreversible pressures confronting the unique land and soils the land use requires, as well as current environmental impacts of intensive conventional outdoor vegetable production. They conclude that an environmentally sustainable and diverse supply of vegetables for domestic use needs to be strategically and actively protected:

> *"national and inextricably-linked global food system requires integrated whole-of-system solutions that address competing nutrition, economic, and sustainability challenges. Part of this challenge in a food-producing nation is to assess and protect the land available for the domestic production of food and specifically land-based vegetable production".*

Curran-Cournane & Rush (ibid.) explored whether New Zealand produces enough servings and diversity of vegetables to dietary recommendations of 5 diverse servings of fruit and vegetables a day, which form the basis of public health dietary policy (see Section 2.4.4). They divided vegetable production into five categories: white roots-and-tubers, vitamin-A vegetables, other vegetables, dark-green-leafy vegetables, and legumes (see Figure 2.1 below).

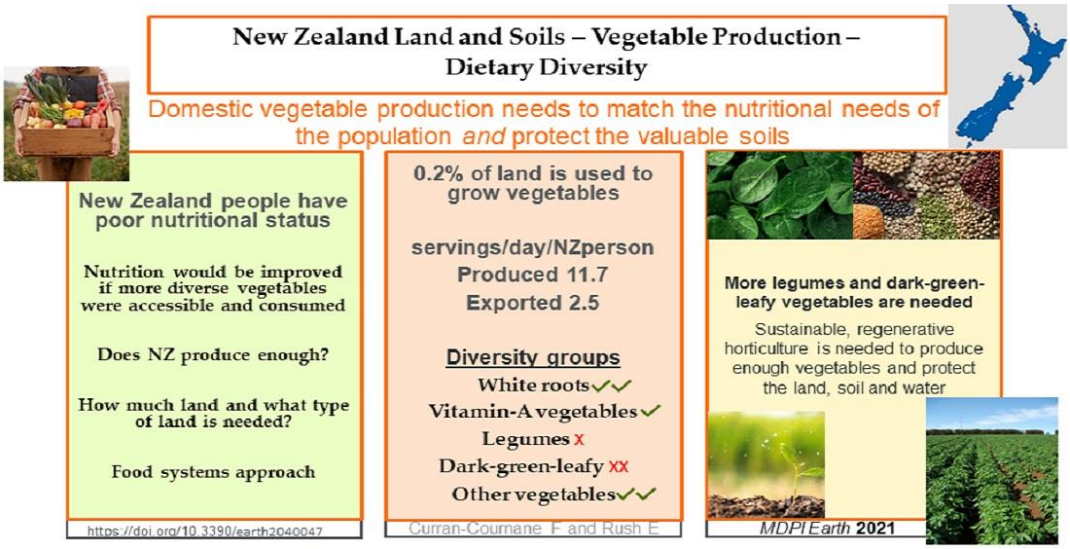


Figure 2.1 New Zealand Land and Soils Vegetable Production and Dietary Diversity
Source: Curran-Cournane & Rush (2021)

Curran-Cournane and Rush (2021, p.301) found that, overall:

> *"the equivalent of 11.7 servings of vegetables/day/NZperson was produced. Potatoes, onions, carrots, and squash were produced in the largest quantities (total 7.7 servings/day/NZperson) but most onions, squash, and some potatoes were exported (2.5 servings/day/NZperson). There was inadequate production of legumes, 0.6 servings/day/NZ person (peas and beans) and dark-green-leafy vegetables, 0.03 servings/day/NZ person (silverbeet and spinach). Only 0.2% of the total land area of NZ is used for growing vegetables."*

Their main finding was that domestic production, within each of the five vegetable diversity groups, is not adequate for two groups—namely legumes and dark-green-leafy vegetables. Potatoes and onions were produced in ample quantities after accounting for exports (ibid.).

Similarly, in terms of changes in vegetable production in New Zealand, Herrero et al. (2017)[11] found that from 2012 to 2017 the hectares devoted to growing onions increased by 5% but potatoes, buttercup/squash, peas and sweetcorn reduced by 18, 15, 40, and 17%. The number of dairy cattle increased 1%.

According to Rush and Obolonkin (2020[12]) New Zealand is a net exporter of goods that are high in protein and fat, and imports carbohydrate foods such as rice and sugar. In an analysis of food exported and imported between 2017 and 2019, it was calculated that for vegetables 3.2 servings/day/NZperson were exported and 0.3 servings/day/NZperson were imported (ibid.). Exports were mainly unprocessed onions and potatoes and imports were potatoes in the form of chips and tomatoes mainly canned and in the form of tomato sauce and ketchup (Curran-Cournane and Rush, 2021).

Data on total domestic production of foods are limited however for fruit and vegetable production and land use. Horticulture™ New Zealand (HortNZ) represent the interests of NZ's 6000 commercial fruit and vegetable growers, publishes with Plant and Food™ Research annual reports of production, called "Fresh Facts" (e.g., HortNZ 2020[13]), which include information about the land area planted, crop volume, and domestic and export sales value of fresh and processed vegetables (Curran-Cournane and Rush, 2021).

Urban sprawl into spaces that were once used for horticulture, and spaces that are classified as "highly productive land", is increasing. According to Curran-Cournane et al. (2021[14]) it is widely recognised that highly productive land (Land Use Capability (LUC) classes 1–3), characterised as versatile for growing a range of crops, is a scarce and finite resource in New Zealand. From 2002 to 2016, New Zealand's land area used for vegetables decreased 29%, from about 100,000 ha to about 70,000 ha (Ministry for Primary Industries & Ministry for Environment, 2019[15]). An example is the Pukekohe area which is a renowned outdoor vegetable growing area situated about 50 km from the downtown area of New Zealand's largest city, Auckland which is home to 1.6 million, 32%, of the country's population. Pukekohe's unique soils and climate provide more than 25% of the nation's vegetables (Richardson, 2021[16]).

In regions such as Pukekoke and the Hawkes Bay, land has been converted to housing, and higher export value fruit and vegetables are replacing crops of lower monetary 'value'. If these trends continue, there is a risk that NZ will be producing less variety of food, with growers focussing only on growing the highest profit fruit/vegetables. The implications of this are that New Zealanders won't have access to the variety of food we need for a healthy and nutritious diet. If everything is about profit, and the quality and diversity of people's diets aren't factored into decisions about what is grown and what land is kept for food provision, then this will negatively impact on our quality of life.

HortNZ (2023, p.9[17]) state that:

> *"Importing fresh produce to New Zealand at scale is not viable because of our geographic isolation, so enabling local food production is the best way to improve access at the start of the supply chain. Vegetable growers, who grow over 80% of their product for domestic consumption, rely on access to highly productive land… Should access to highly productive land for food production decrease, fruit and vegetable supply will fall with it.*

They also point out that:

> *"There is a genuine risk that fresh vegetables could become less accessible in the coming years. In the past decade, the area of vegetable growing declined due to competition for land[18] and price volatility increased.[19] Seventy six percent of vegetable growing area is managed by 115 businesses.[20] In the face of continuing pressures, the exit of only a few large players in the industry would have a significant detrimental impact on food supply."*

In Australia a similar pattern is occurring, as noted by Curran-Cournane et al. (2021) who state that urban sprawl onto productive food-growing land in Melbourne is expected to reduce local vegetable production from 82% of Greater Melbourne's needs to 21% by 2050, when the population is projected to reach 7 million (Sheridan, et al., 2015[21]). Other research that explored whether enough fruit and vegetables were being produced to meet global health needs reported that the global supply of these food categories falls, on average, 22% short of population needs according to dietary recommendations (supply:need ratio: 0.78) (Siegel et al. 2014[22]).

The decline in available highly productive land to enable the consistent supply of quality food for our own people is concerning, but increasingly so for Māori. As Curran-Cournane and Rush (2021) point out, food security, food sovereignty, and locally grown vegetables in this context are closely associated. Māori food sovereignty is the self determination of producing food and about having the choice of what is being eaten and how it is being grown. Soil sovereignty prioritises local food production and collective gardens. Soil is considered taonga (sacred treasure) by Māori. Soil sovereignty is critical in a Māori food sovereignty context who approach its use for food from a regenerative perspective (Hutchings and Smith, 2020[23]).

Curran-Cournane and Rush (2021) argue that production of vegetables should meet both domestic (Gussow, 2006[24]) and global (Kc et al., 2018[25]) demand, and that expansion of the area used for vegetables should be considered in the context of sustainable production and irreversible pressures confronting the unique land and soils the land use requires, as well as current environmental impacts of intensive conventional outdoor vegetable production. An environmentally sustainable and diverse supply of vegetables for domestic use needs to be strategically and actively protected.

Relying on inter-regional and overseas supplies of basic food staples can create vulnerabilities in a societies' food system. This is particularly apparent where there are increasing uncertainties surrounding the state of natural resources such as the availability of highly productive land, water scarcity and extreme weather events that can affect regional, national and global food production (Curran-Cournane et al., 2021).

The inequal distribution of healthy foods between rural and urban areas is discussed by Sushil et al. (2017[26]):

> *"While rural planning decisions have an impact on the supply and cost of production of healthy food, urban planning decisions influence food accessibility, with many areas in New Zealand developing food swamps – where people have high exposure to low-nutrition food – and food deserts – where there is limited access to healthy food."*

Policy makers at all levels of government must address such issues to ensure that the food security of New Zealanders is strengthened, and not jeopardised by planning and zoning decisions and potential adverse impacts on local food producers due to climate change.

2.2.2 Food Distribution

Access to food is a critical component of food resilience. Players in the food distribution supply chain therefore have a critical role in food resilience. New Zealand, as with many industrialised countries around the world, has a diverse food distribution network made up of the following main groups:

-Supermarkets are the primary retail food outlet in New Zealand; however, this food distribution sector is predominantly operated by a duopoly of two main supermarket chains owned by Foodstuff and Woolworths groups.[v]

-Food wholesalers and distributors act as an intermediary between food producers and food retailers/food service providers, often specialising in specific products or niche markets.

-Food service providers such as restaurants, cafés, fast food outlets, caterers and institutional food providers procure food from wholesalers and/or directly from producers and supply them at a higher price directly to consumers, either as raw ingredients or ready-to-eat meals.

-The network of 'Four Squares' and 'corner dairies' are typically located in local neighbourhoods throughout the country. Although sometimes more costly, they provide access to a more limited range of grocery/food items for people who cannot easily access supermarkets and other food distributors.

-Farmers' markets and suchlike enable producers/growers sell seasonal produce, culturally diverse ethnic and artisanal meals and food products directly to consumers (including other food service providers).

[v] "Foodstuffs has 53 per cent of the grocery market and Countdown has 32.4 per cent" – https://www.stuff.co.nz/business/industries/122947384/nz-supermarkets--the-illusion-of-choice-when-there-are-just-two-big-players

-Online platforms that sell food are increasingly prevalent, including big supermarket chains, farmers/growers and the wider hospitality sector, with click-and-collect or deliver-to-your-door options for consumer convenience. Furthermore, the entrance of UberMeals and the like have increased the accessibility of grocery and food items for consumers. Indeed, there are accounts of schools having to ban Uber Eats take-out deliveries after increasing numbers of children having McDonalds, KFC meals and other such meals delivered to school at lunch time through Uber-Eats[vi].

-Food banks and/or charities play a crucial role in providing food to people who may be experiencing hardship and/or food poverty. They typically re-distribute surplus food from other food providers and can be resourced by both government resourcing and/or the volunteer sector.

2.2.3 Security, Resilience and Environmental Impact of New Zealand's Agri-Food Systems

**Agri-food Resilience and Sustainability*

Increasing food security and building resilience into New Zealand's food system is a priority of the New Zealand government. A summary of the joint National Science Challenge rolling symposium (Hazel, 2021[27]) noted that:

> *"Long-term planning to adapt food and fibre production to a changing climate must involve the whole primary sector, but may best be led by informed and proactive people in industry bodies and regional councils, who can help farmers and growers navigate towards resilient and flexible land uses and practices. Planning needs to start now, so that Aotearoa is prepared and resilient in the face of future climate extremes. Honest, direct conversations within communities, and scenario planning for possible climate futures, can ensure that people who farm remain in the driver's seat."*

A report by the New Zealand Ministry for Primary Industries (2023[28]) on the future of Aotearoa New Zealand's food sector states that food is the foundation of our export economy – totalling $42.5 billion to the year end June 2022 (MPI 2022[29]), representing 67.1% billion total export goods.[30] Workshop participants who contributed to the MPI report (ibid., p.46) acknowledge that:

> *"as worldwide demand for food increases and climate change impacts on the world food system, our export markets will pay more for our produce. This means that costs to our domestic consumers may also increase, resulting in accelerating demand to "feed New Zealanders first" and for government to ensure that food remains affordable… it is likely that future New Zealand consumers will expect governments to address domestic equity issues relating to food access… "the primary sector's social license to grow and farm may be at risk if providing healthy food for the domestic market is overlooked"… addressing domestic food security is a complex issue and not one that the primary sector alone can resolve. A sustained cross-government and industry effort work be needed"*.

In developing the report, feedback also included the call for an "integrated long term national food strategy" that identifies direction and future actions" by taking a holistic cross-sectoral approach to addresses domestic food needs, resilience to climate change and improved relationships with whenua (land). There were also calls for changes to remove silos between agencies and leadership, for example, through a "Ministry of Food". Other innovative government-industry models could include:

> *"partnership models, cross-government secretariats, mission-based or design thinking, cross government/sector teams, "sandboxes" or test beds and sense-making. Use of artificial intelligence to help make connections is also becoming a real possibility"* (p.47).

[vi] For example, see:
-https://www.nzherald.co.nz/hawkes-bay-today/news/were-growing-kids-hastings-college-students-banned-from-ordering-mcdonalds-kfc/LYGM2K35TNKRVN3JRAUNLJMXBY/
-https://www.stuff.co.nz/business/129589650/auckland-school-bans-uber-eats-over-environmental-concerns
-https://rosehillcollege.school.nz/no-more-uber-eats-or-takeaway-deliveries/

The Ministry for the Environment's (2023) report addressed the need to think about climate retreat and to support food producers and their communities to relocate, or ensuring existing infrastructure can withstand increasing impacts, as well as systematic planning with regards to suitability of locations for crop and animal farming and moving to new more resilient crops and farming methods. Increasing the resilience of the food production systems will also increase our domestic food security resilience. The science leaders intend to bring key findings from their research together to support a future science-informed National Food Strategy. This strategy should be co-designed by community, industry and government, and supported by science and mātauranga Māori, agreed the directors.

Research from the Healthier Lives National Science Challenge has shown that by adopting a healthier diet, we can save lives and reduce greenhouse gas emissions; and Our Land and Water NSC research has also shown that it's possible to change our land use to produce the food needed for this healthier diet. Thus, six National Science Challenges Directors have also called on the government to develop a National Food Strategy for Aotearoa New Zealand.[31] Professor Sir Jim Mann, director of the Healthier Lives challenge stated:

> *"Food is essential to our health and wellbeing but it can be a major cause of ill-health and disease… The food we produce also has profound effects on the environment and on climate change, and is vitally important to our economy. A healthy and environmentally sustainable food supply is essential for human and planetary health".*

Furthermore, Dr Jenny Webster-Brown, director of the Our Land and Water Challenge, noted:

> *"A strategic, science-informed plan is needed to both reduce food production's contribution to climate change, and adapt to future challenges. Land-use change in Aotearoa is unavoidable under a changing climate and in response to policy for freshwater protection. It makes sense to take a strategic, planned approach to redesign future food production in New Zealand in a way that has significant co-benefits for our people and our environment. We need to prioritise the wellbeing of our people, including our farmers, and our whenua and wai, above international markets" (ibid.).*

Government initiatives that are addressing such issues include the Ministry for the Environment's (2022[32]) first national adaptation plan for New Zealand; and the Ministry for Primary Industries' (2022[33]) "Fit for a Better World" strategy, which sets the course for accelerating New Zealand's food and fibre economic potential by consolidating and enhancing our reputation for producing safe, high-quality, sustainable food and fibre, involving farmers, growers, fishers, foresters, producers, businesses, industry bodies, and government.

A Kellogg Rural Leadership Programme-Commissioned report by Vinnell (2021[34]) explored potential redesigns of New Zealand's food system in the post-Covid era, in response to the "Fit for a Better World" roadmap. Taking the world's planetary boundaries into consideration, it presents four potential future worlds identified by the World Economic Forum (2017[35]) (see Figure 2.2 below).

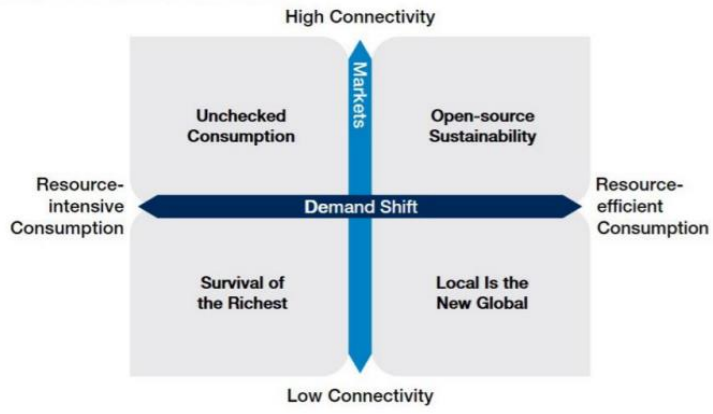


Figure 2.2 The Four Potential Scenarios of Future Global Systems (WEF, 2017, in Vinnell, 2021, p. 9).

Vinnell (2021, p. 20) concluded that, if:

> "*New Zealand is to equitably recover from Covid-19 and position our future food system to be sustainable, inclusive, efficient, healthy and nutritious we must address the quality, availability and cost of food for New Zealanders, some of whom have limited disposable income. The question regards how we promote equitable nutrition, health, environmental and food sovereignty values in our food system [is] critical to realising wellbeing of our future generations and country's economic goals*".

Various studies have examined the resilience of New Zealand's food supply chains, including the impact of environmental factors on food accessibility, resilience and sovereignty. Cammock et al. (2021[36]) explored the role of sustainable food systems in improving healthy diet, encompassing the economic, environmental and social dimensions of sustainable food systems. They also comment on the loss of productive agricultural land to rezoning for urban subdivisions, and the water scarcity issues that can be exacerbated in urban environments, and the impact on at risk population groups. They recommend that the government create food environments that are conducive to affordable, accessible and marketed healthy; that versatile land should be carefully protected in all future urbanisation; and that innovative solutions involving all sectors of society, civil, business and government are required to create awareness and shared responsibility for reducing the environmental impact of agriculture – for example, community pantries that source local foods through urban agriculture, and social entrepreneurship empowered to create solutions for sustainable food production systems particularly amongst groups that are disproportionately affected.

Horticulture New Zealand's (2023) submission on the Natural and Built Environment and Spatial Planning Bills notes that there are approximately 80,000 hectares of land in New Zealand producing fruit and vegetables for domestic consumers and supplying our global trading partners with high quality food. Their group grows around 100 different fruits and vegetables and provides over 40,000 jobs. They state that:

> *"the horticulture sector plays an important role in food security for New Zealanders. Over 80% of vegetables grown are for the domestic market and many varieties of fruits are grown to serve the domestic market. HortNZ's purpose is to create an enduring environment where growers prosper. This is done through enabling, promoting and advocating for growers in New Zealand."*

In reference to their view of New Zealand's future food system, they go on to say (ibid., p.7, 8):

> *"Food production still happens on a large enough scale to feed the team of 5 million first, as well as the tens of millions more who buy our exports because they were sustainably produced and of the highest quality. There is also hyper-local food production across the urban-rural divide using innovative systems like vertical farming and hydroponics which make efficient use of available space because of flexible planning requirements. This idyllic future of low-emissions food production, food security, and connection to the food system is only possible if regulations specifically enable horticulture…*
>
> *The resilience of our food supply could be strengthened, despite increasingly unpredictable weather, with produce production spread across multiple regions.*

There have been claims (e.g., by Fox 2023[37]) that it could take the horticulture industry 50 to 100 years to fully recover, during which time we know there will be more extreme weather events. The recovery will be very costly with just one Hawke's Bay farmer estimating it will take three years to replant an 11-hectare apple orchard, at a cost of $180,000 to $250,000 per hectare (Bidwell, 2023[38]). Thus, Wreford (2023[39]) raises the point that this is a "window" for those food producers to change the type of crop or system on their land. Horticulture NZ's (2023[40]) Action Plan has been developed by industry, Māori, research providers and government, and will be supported by an annual implementation and investment plan. It recognises the need to develop new techniques and consider new growing regions, underpinned by scientific evidence. Wreford (ibid.) states that we will need to:

"tackle adaption to climate change at all levels to ensure horticulture can continue to thrive in Hawke's Bay. Growers may reconsider the types of crops planted, where they are grown or the way they are grown. Some growers are already developing covered systems to provide protection from some elements (but which may not withstand events such as Gabrielle).

We must also consider the role of stop banks. They allow the development of land in potentially flood-prone areas, which may lead to a false sense of security and greater damage if they are inadequate for projected water volumes.

There is increasing interest in returning riparian areas to their natural state to buffer against flooding, while also generating ecological benefits. But when the land protected by stop banks is as valuable as it is in Hawke's Bay, this will be a challenging conversation."

Seymour & Connelly (2023[41]) explored relational approaches such as a more-than-human ethic of care to analyse agri-food system transformation, which emphasise social structures and relationships as the basis of environmental change. Lloyd et al. (2023[42])conducted a comparative analyses of national-level food system resilience efforts including on New Zealand and found that countries are using multi-pronged policy actions to address food system resilience issues and are focused on both retrospective reviews and prospective models of disruptive events to inform their decisions. Some work has been done towards preparing for climate change and other natural disasters, but not as much for other shocks or stressors.

Various research has been conducted into the environmental footprints and climate impacts of New Zealand's food production, distribution systems and supply chains (e.g., Saunders et al., 2009[43]; Ledgard et al., 2020;[44] Mazzetto et al., 2023[45]), and opportunities to reduce greenhouse gas emissions and support sustainable agricultural practices (e.g., Prokopy et al., 2015;[46] Chandrakumar, 2018[47]; Barnsley et al., 2022[48]). The Aoteaoa Circle (n.d.[49]) has produced an Agri-Adaptation Roadmap that includes climate change scenarios.

Wreford (2022[50]), referring to the latest IPCC (2022[51]) report and research by Ivanovich et al. (2023[52]), notes that food consumption alone could contribute an additional degree of warming above preindustrial temperatures by 2100, which demonstrates the importance of food choices in addressing climate change.

The vulnerability of New Zealand's food supply chains to natural disasters or climate changes such as changing weather patterns and water availability, as well as various adaptation strategies to enhance resilience, have been extensively studied (e.g., Manning et al., 2014[53]; Kalaugher, 2015[54]; Eastwood et al., 2017[55]; Fountain et al., 2021[56]).

Keller et al. (2021[57]) assessed potential climate impacts on pasture resilience in New Zealand. Mourot et al. (2022[58]) describe a methodology to assess climate change-induced effects on the groundwater resources of New Zealand, and revealed a potential increased failure of bores that draw water near the water table and increasing inundation issues where water tables are high – findings that have concerning implications for food production in New Zealand which requires consistent water supply.

Tipene-Leach and McKelvie-Sebileau (2021[59]) investigated disruptions to food supply systems from disasters such as the covid-19 pandemic and climate change related weather events such as that caused by the recent Cyclone Gabrielle in New Zealand. Snow et al. (2021[60]) explored the impact of Covid-19 on agri-food systems including for New Zealand and found that there is a high level of resilience in the agri-food systems and the people who run them, with resilience achieved through sub-systems being able to compensate for more vulnerable sub-systems. Dombroski et al. (2020[61]) conducted interviews with food rescue groups, urban farms, community organisations, supermarket management and local and central government staff to highlight the diverse, rapid, community-based responses to the COVID-19 pandemic and drew on those findings to re-imagine where and

how responsibility might be taken up differently to enhance resilience and care in diverse food systems in New Zealand.

*Enhancing Productivity in Aotearoa New Zealand's Agri-food Sector

The New Zealand Agricultural Greenhouse Gas Research Centre[vii] highlights the importance of enhancing agricultural productivity, improving resource efficiency, diversifying production, and adopting climate-resilient practices to strengthen resilience of our food systems to shocks such as climate change and natural disasters. International research into the importance of diversified and enhanced food production systems is noteworthy, with Lichtenberg et al. (2017[62]) finding that organic farming and plant diversification promote diverse arthropod metacommunities that may provide temporal and spatial stability of ecosystem service provisioning. Conserving diverse plant and arthropod communities in farming systems therefore requires sustainable practices that operate both within fields and across landscapes.

Rush et al. (2019)[63] conclude that the:

> *"proliferation of community, school and home vegetable gardens and vegetable cooperatives may improve access. On a macro level, upstream policies such as a "living wage," affordable housing, and land-use planning are required. International dietary solutions include an agricultural shift to intensified horticulture with a focus on vegetables. The consumption of more plant-based foods including vegetables would reduce green-house gases, reduce land clearing, and help prevent diet-related disease if consumed daily across the lifecourse."*

Key strategies identified in the literature to build resilience into New Zealand's food provision systems are summarised below. The case study discussions in the following chapters also explore many of these issues.

*Community-Supported Agriculture and Local Food Production systems

Such food production systems – such as farmers' markets and urban agriculture/community gardens – can enhance food security through greater access to fresh, locally produced food and reduced dependence on long supply chains. They also strengthen social connections and resilience and support sustainable agriculture. Roskruge (2023[64]) describes an urban garden community driven initiative in Taumaranui that is aligned to māra kai or food production and nursery work, which showcases a contemporary Māori entity drawing from tradition to achieve some strategic goals. They contribute fresh produce to the local community, for a koha/donation; and grow several crops for seed, which are shared or sold on a first-come-first-served basis, and sell juvenile native plants from their self-established nursery area. From the perspective of the whānau, they are retaining their practices and contributing to the retention of traditional crops supported by local knowledge.

*Diversification of Food Production

Curran-Cournane and Rush (2021) found that the production of vegetables appears to be adequate to feed the NZ population 5+ servings a day. Yet, reports that New Zealanders do not consume enough vegetables, and current findings that we do not produce enough legumes and dark-green-leafy vegetables to meet diversity guidelines, adds to the evidence that the domestic food system should focus on needs for healthy diets.

Curran-Cournane and Rush (2021) conclude that:

> *"Expansion of the area used for vegetables should be considered in the context of sustainable production and irreversible pressures confronting the unique land and soils the land use requires, as*

[vii] https://www.nzagrc.org.nz/about/

well as current environmental impacts of intensive conventional outdoor vegetable production. An environmentally sustainable and diverse supply of vegetables for domestic use needs to be strategically and actively protected" (p.798).

"While consumption of vegetables is lacking in NZ, it should not be considered as a justification that demand for vegetables should be consumer led. There is a responsibility within all sections of the food system to ensure equitable access to the foods that have been shown to be beneficial to public health and also the health of the planet" (p.805).

Diverse secure food supply is enhanced by encouraging cultivation of a wide variety of crops and promoting sustainable livestock farming, as this reduces vulnerability to external shocks and instability in imports. Morrison (2021[65]) notes the increase in horticultural food production in New Zealand, driven by higher export prices for things like avocados and new apple varieties, for example, which is bringing jobs to regions that traditional agriculture has overlooked. There is still a lot of under-utilised land in the East Coast region that could be used for orchards. One potential limiting factor is the need for more people to harvest stock as production increases. Some food producers are moving production from areas such as Auckland, which is experiencing significant population growth, to less populated regions such as Invercargill (ibid.). Carpenter (2019[66]) also discusses the factors affecting farm diversification in New Zealand, in light of climate change.

*Enhancing Agricultural Productivity

Increasing agricultural productivity by resourcing and supporting farmers to adopt innovative sustainable farming techniques and practices to increase production will also improve food security and reduce reliance on imports. The Ministry for Primary Industries (2022[67]) is increasingly funding research into such innovative new practices, including regenerative farming. An example of this is the innovations being trialled by live2give (see case study in Section 5.3).

*Research, Policy and Technological Advancements

Government can support sustainable food production through R&D, policies and subsidies/grants to promote diversified climate-resilient and sustainable agricultural systems such as drought-tolerant crops and farming methods, land use adaptations, water management practices and technology improvements in harvesting, storage and processing to reduce food waste. Efforts to improve collaboration and partnerships across the government, research and science, food industry and community sectors to enhance food security initiatives help maximise potential gains from RS&T advances through sharing knowledge and best practices, engaging in dialogue and leveraging resources and expertise. HortNZ (ibid., p.11) discuss the legislative changes required to support innovations that will build resilience into New Zealand's domestic food production, not that while most food is grown outside in the soil:

"Other growing systems, such as glasshouses, covered cropping or vertical farms that may become more popular in future due to more extreme weather and constrained space. Currently, these growing systems are more often used to ensure year-round supply of higher value crops such as salad greens and tomatoes.

At present, natural resource allocation decisions to support our food system are about the availability of land and water, but planning frameworks also need to provide the flexibility for growers to uptake new growing systems like glasshouses or intensive indoor production as technology becomes more economically viable."

Curran-Cournane and Rush (2021) conclude that:

Future research could focus on scenario and feasibility analysis of either expanding the area of land used for outdoor vegetable production or alternative means of production. Not only could this be

explored for the shortfall of legume and dark-green-leafy production, but also other vegetable types, whereby detrimental intensive conventional practices have been a long-standing issue to the environment. Such scenario and feasibility analysis should focus specifically on sustainable land management practices to ensure positive environmental outcomes. These could include regenerative agriculture practices and principles to help build the scientific evidence base which could encourage its uptake. This is important as land and soils are becoming increasingly stressed[68] via intensification and, particularly relevant, as the population continues to grow that will require provision of foods for a nutritionally diverse diet to ensure national food security and equitable and sustainable access to healthy diets" (p.805).

2.3 Food Security

2.3.1 What is Food Security?

"Food security" is a flexible concept that has been varyingly defined in policy and research usage. It is generally agreed, however, that having sufficient time, money and resources to access and prepare "healthy" food is a substantial and complex problem. The definition adopted at the 1996 World Food Summit is, "Food security, at the individual, household, national, regional and global levels [is achieved] when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996[69]).

Thus, food security is determined by food availability, access, utilisation and stability of supply, and linked to livelihood security, and includes assessments of food availability and access, and nutritional status. Food insecurity exists when people do not have adequate physical, social or economic access to food as defined above (Pee, 2013[70]). A related term that is covered in the literature is "sustainable diets" (Whittall, 2023[71]), defined by the U.N. Food and Agriculture Organisation (FAO, 2010, p.9[72]) as:

> *"diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations".*

Rizvi et al. (2018[73]) promote the consumption of vegetables and other plant-based foods compared to animal-based products, such as beef, due to the more favourable impact of plant rather than animal agriculture on the planet.

Winson (2010[74]) also provides a thoughtful analysis of the complex struggles over food, agriculture and healthy eating, including the role of industry, lobby groups. Their research showed that the agendas of transnational food corporations are seen to be directly contradicting efforts to ensure healthy diets; he calls for priority to be given to healthy-eating struggles, and considers a number of areas where academic practitioners can aid activists' efforts to resist the further degradation of diets and establish healthier food environments.

There are increasing concerns regarding the sustainability and impact of food production on the environment, with some estimates being that 19 to 31% of global GHG emissions are related to food production (Garnett, 2008[75]).

2.3.2 Food (In)Security in New Zealand

Numerous studies have examined food security in New Zealand (e.g., Carter et al., 2018; Reynolds et al., 2020[76]). As explored above, despite New Zealand being an agriculturally rich country and a world leader in the production of diverse nutrients and foods, much of what is produced is for the export market. Furthermore, there are groups who are unable to consistently access adequate healthy foods that meet their dietary needs, resulting in food insecurity and inadequate consumption of nutritious foods that meet people's dietary needs and food preferences. As part of a larger study into food and poverty, Graham et al. (2018[77]) brought to light aspects of marginalised peoples' lived experiences of food scarcity that are often hidden, such as passing and food rationing in order to

navigate the feelings of inadequacy and personal shame and moral accusations associated with poverty.

> *"People living with poverty learn to hide their everyday realities from public scrutiny and engage in social practices in an effort to reduce experiences of stigma, oppression, and social rejection"* (ibid., p. 384).

**The Poor New Zealand Diet* – In New Zealand, a poor diet is a leading cause of early death, accounting for nearly 20% of illness and premature death in 2017, with key inadequacies being low consumption of fruit, vegetables, whole grains, legumes, nuts and seeds combined with excess intake of foods high in sodium and added sugar (GBD, 2017[78]). Healthy Auckland Together (2017[79]) found that New Zealanders are consuming more fast foods and sweet drinks and eating more frequently outside of the home than ever before.

In discussing the links between diet and health for Māori and Pacific Island peoples, Cammock et al. (2021[80]) state that people from the Pacific who are living in New Zealand are considered the most at-risk population group to the adverse health effects of poor diets (Ryan, 2019[81]; NZ Statistics, 2011[82]). They go on to say that the shifting dynamics within the food system and its effects on the environment, and human health need to be considered in relation to all efforts to combat diet related NCDs, obesity, and climate change. Understanding social entrepreneurship and its effectiveness within this space could improve engagement and health outcomes, particularly for Pacific peoples in New Zealand who are largely negatively affected by the current food system. The existing economic framework requires a new meaning of prosperity to include and prioritise social, health, and environment outcomes (Conn et al., 2019[83]).

Glover et al. (2019[84]) explored Māori parents' and caregivers' views of the relative importance of weight to health, and the facilitators and barriers to a healthy weight in children aged 6 months to 5 years. They found that:

> *"insufficient money was an overriding food provisioning factor, but cost interacted with the lack of time, the number of people to feed, their appetites, and allergies. Other factors included ideologies about healthy food, cultural values relating to food selection, serving, and eating, nutrition literacy, availability of food, cooking skills, and lack of help. Childhood obesity was not a priority concern for participants, though they supported interventions providing education on how to grow vegetables, how to plan and cook cheaper meals. Holistic interventions to reduce the negative effects of the economic and social determinants on child health more broadly were recommended".*

They referred to a Kete (basket) of interdependent factors that influence food provisioning aimed towards having happy children (see Figure 2.3 below).

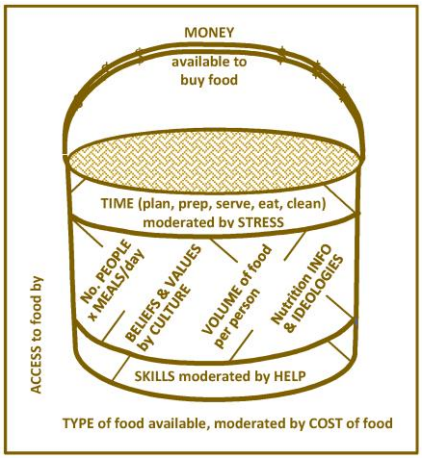


Figure 2.3. Kete of Factors Influencing Food Provisioning Aimed Towards Having Happy Children
Source: Glover, M. et al. (2019).

They explain how the various parts of the kete impact on food provision decisions:

> *"The handle of the kete symbolizes the overarching restriction of how much money is available to buy food.*
> *The walls of the kete imply the interaction of several factors, such as how much time is available for food planning, preparation, cooking, serving, dining, and cleaning up.*
> *Time is moderated by how much stress the parents or caregivers are experiencing.*
> *How many people need to be fed must be factored in, as will their appetites, allergies, and taste preferences, which, in turn, influence what food will be acceptable. Different people consume different amounts of food, so the volume needed at each meal and for snacks needs to be calculated and provided for.*
> *Choice of foods is also influenced by people's beliefs and values, which are moderated by culture. Different nutrition guidelines, conflicting information, and ideologies sway food choices. Furthermore, individuals and families vary in their nutrition literacy and skills at effectively organizing, budgeting, and cooking.*
> *Skill is moderated by the help available to complete food-provisioning tasks.*
> *The intended food choices represented by the whole content of the kete depend on the interactions among the above factors, which, in turn, are dependent on factors external to the family, that is, the type and cost of food items available in the community."*

Cammock et al. (2021, p.238) conclude that New Zealand needs to adopt and implement a sustainable food systems approach both for the immediate purpose of tackling the obesity and NCD epidemic, as well as the wider reaching benefits of improving environmental impacts, and recommend that:

- food environments be created that are conducive to affordable, accessible, and marketed healthy foods that align with the healthy reference diet. The New Zealand government should consider laws that ban or limit general junk food advertisements, and consider tax or subsidy interventions;
- greater emphasis on health outcomes while considering economic growth is needed. Agricultural intensification is currently the engine of New Zealand's economic prosperity. Versatile land use should be carefully protected in all future urbanisation;
- shared responsibility amongst the community be encouraged to improve our environmental impact, for example through community pantries that source local foods through urban farming;
- the responsibility to address factors that contribute to obesity within the food industry should extend beyond industry to include all sections of society;
- social entrepreneurship should be further researched and supported to empower community development in finding solutions to address the NCD epidemic and promote sustainable food systems, particularly among population groups disproportionately effected.

A report by Mackay et al. (2019, p.4)[85] into the state of food supply aimed to support government, business and community efforts to help New Zealander's eat better diets. They stated that:

> *"widespread manufacture, marketing and consumption of unhealthy processed and pre-prepared foods and beverages is the primary reason why New Zealanders consume excess quantities of energy, saturated fat, sugar and salt. The Government and food manufacturers have an important role to play in creating healthier food environments and contributing to efforts to improve population diets"*.

They stated that unhealthy diets and obesity are two of the biggest modifiable health risks in New Zealand and call for mandatory Health Star Ratings (HSR) on food.

However, research in New Zealand by Bablani et al. (2022[86]) stated that, while the introduction of HSR food labelling was associated with lower sodium, lower protein and higher fibre purchases, these changes likely arose from reformulation of products by the manufacturers/producers to

achieve a better HSR label as opposed to consumer behaviour changes, and that "robust evidence of HSR labelling changing consumer purchasing behaviour was not observed" (p.227).

Wilson et al. (2013[87]) conducted research to identify optimal foods and dietary patterns that would lower the risk of non-communicable diseases at low cost and with low greenhouse gas emission profiles. Referring to research by Wilson et al. (2007[88]) of low-cost protein sources in New Zealand, they identified daily dietary patterns that met key nutrient requirements for as little as a median of NZ$ 3.17 per day, but noted that diets that included "more familiar meals" for New Zealanders, increased the cost. Furthermore, all of the optimised low-cost and low-GHG dietary patterns identified in their study had likely health advantages over the current NZ dietary pattern, i.e., lower cardiovascular disease and cancer risk. They state that identifying dietary patterns that are healthy, low-cost, and associated with low GHG emissions, should therefore be of relatively high research and policy interest, and that their findings could help guide central and local government decisions around which foods are most suitable for: food taxes (additions and exemptions); healthy food vouchers and subsidies; and for increased use by public institutions involved in food preparation (ibid).

**Food waste* is an important consideration when discussing food security, and it is an important consideration in school food programmes (see Section 4.4.3). In New Zealand, 122,500 tonnes of food is sent to landfills annually (KPMG, 2016[89]; NZ Parliament, 2018[90]), of which an estimated 60% is still edible fresh food that eventually produces methane gas (Reynolds et al., 2016[91]).

According to Curran-Cournane and Rush (2021),

> "*in 2018 in NZ, by weight 25% of food wasted by households was fresh vegetables with one-third of that amount in a condition where it could have been eaten (Sunshine Yates Consulting, 2018[92]).The top 20 foods wasted in a form that could have been eaten included the vegetables potatoes, broccoli, carrots, lettuces, onions, and sweetcorn. Such waste has implications for landfills where vegetables contribute to the release of methane. Vegetable waste also means that the farmed land and soils are unnecessarily pressurized, that water withdrawal used to produce the food was avoidable, and that the energy in the form of fossil fuel to produce food was unnecessary—collectively avoidable issues that all need to be better acknowledged via increasing existing efforts that educate consumers on food waste*".

2.3.3 Income Inequality and High Living Costs Reducing Access to Nutritious Food

Inability to consistently access nutritious food is a major factor contributor to food insecurity, particularly for vulnerable populations. Households with low incomes often struggle to afford optimal quantity and quality of food. This is exacerbated by increasing costs of quality food, housing/rental and other living costs and unreliable transport networks to food suppliers.

Income inequality and under/unemployment can also lead to unequal distribution of resources and opportunities. High housing costs result in families having to allocation more income toward mortgages/rent, leaving less for food and other basic necessities and can also lead to overcrowding and homelessness. Systemic inequities, including racism and discrimination, compound such food insecurity issues. Initiatives to address such issues include educational and employment programmes to support people into higher paid stable jobs, income support/grants, community and school food programmes and local/community gardens.

In New Zealand, 2 in 5 households experience food insecurity (Uni. Otago and Ministry of Health, 2011[93]). Furthermore, Rush et al. (2019) state that poverty and other environmental barriers mean only one in two children eats three-or-more servings of vegetables a day, with price and availability being two limiting factors. They cite a study by Mackay et al. (2018[94]) that measured the relative change in price of healthier and less healthy foods over 10 years in New Zealand, reporting that the price of wholesome healthy foods and minimally processed foods were cheaper in summer

compared to less healthy foods and processed foods. At the same time the vegetable price index rose from 700 to 900 between 2006 and 2018- an increase of 35%; fruit rose 60% in the same time (Statistics NZ, 2018[95]). In the same period, bread and cereals rose 19% and overall the food price index rose 33%.

According to an ASB economist, New Zealand households are likely to have to spend an extra $150 a week over 2023 to keep up with rising costs; while inflation was running at just over 7%, household costs rose 8.2% over 2022 because of a 45% increase in household interest payments (Edmunds, 2023a[96]). Furthermore, Canstar's 2023 Consumer Pulse survey of over 20,000 people showed that two-thirds of households with mortgages are having to cut back on both essential and non-essential spending as higher home loan interest rates and rampant inflation crush their spending power (Stock, 2023[97]). For example, monthly repayments on a $500,000 mortgage have risen from $2276 to $3439, an extra $1163 extra per month, and repayments on a $750,000 mortgage will have increased from $3414 to $5158, a rise of $1744 per month. The survey also indicated that the cost of putting food on the table is a key concern for many, with one in four people calling it their "biggest worry", with 52% of respondents saying they were now living from payday to payday (ibid.).

On top of housing price increases, annual food price increases in New Zealand are running at 30-year highs, with produce prices increasing 22% from June 2022 to June 2023, and grocery food prices by 12.8%; e.g., the price of kumara increased over the period by 172%, tomatoes by 93.60%, eggs by 67.25%, and pumpkin by 50.14% (Mcilraith, 2013[98]), largely due to shortages from impacts of weather-related events including Cyclone Gabrielle, increased fertilizer and energy prices (Uys, 2022[99]), and bans on battery farming (Uys, 2022[100]). Inevitably, due to the increased cost of living, 62% of surveyed shoppers were cutting back on non-essential food items due to the rising cost of staples (Canstar, n.d.[101]).

Tertiary students are also a group that are greatly impacted during times of increasing costs of living. Victoria University of Wellington's 2023 Managing your Money report states that students are likely to have a total shortfall for weekly living costs plus all other expenses of more than $10,000 a year, which corresponds with the Green Party's 'People's Inquiry into Student Wellbeing' report that showed thousands of students were living in poverty (Stock, 2023[102]).

Removal of GST from healthy foods has become a political hot potato. Te Pāti Māori campaigned to remove GST from all food at a cost of more than $3 billion a year. Mike Smith, a representative on the Iwi Chairs Forum from Ngāti Kahu and Ngāpuhi, also called for removal of GST on fruit and vegetables (McConnell, 2023[103]). Despite the previous Labour Government's Finance Minister Grant Robertson previously saying it would be too difficult to exempt food from GST as it is "a very, very challenging thing to administer," and that he thought supermarkets would likely benefit more than consumers, the Labour Party "announced its plan to remove GST from fresh and frozen fruit and vegetables from next April, if it forms the next Government, which will save households about $20/month, at a predicted cost of $2 billion in lost GST revenue (Edmunds, 2023b[104]).

News site, Stuff, tracks supermarket prices using some of the most frequently bought items, including tomatoes, bananas, onions, potatoes, broccoli and carrots. A shopper buying six of the most-purchased fruit and vegetables in Countdown this week would save about $3 if there were no GST on those items. The biggest saving would have been on the most expensive item, tomatoes, which would have dropped in price for a kilogram from $9.29 to $8.08 (Edmunds, 2023c[105]).

There are questions about fairness of such tax changes, as people at lower income levels spend more of their income, so would benefit more in percentage terms, whereas richer households spent more overall, so would benefit the most in dollar terms. The Tax Working Group estimates that the savings

for a rich family compared to a poorer family would be over three times and stated that if the government wanted to make things more affordable for the poor, it would be better to reduce tax rates at the bottom, increase benefits, or both (ibid.).

2.3.4 Impact of Child Poverty and Food Insecurity in New Zealand

Child poverty statistics are collected by a variety of international (e.g., UNICEF, 2020[viii]; OECD, n.d.[106]) and national (e.g., Ministry of Health, 2021a[107]) entities. Gerritsen et al. (2021[108]) state that until their study, food hardship (i.e., any type of food deprivation) and its relationship with nutrition of children under five had not been broadly investigated in Aotearoa New Zealand. They analysed data from the Growing Up in New Zealand longitudinal study to explore food hardship as experienced by under five-year olds, considering three types of food hardship: being forced to buy cheaper food to pay for other things; having to use special food grants or food bank, and going without fresh fruit and vegetables to pay for other things. They found that food hardships were prevalent among families of infants and pre-schoolers, with all three food hardships being more common in the first year of life.

> *"One in four Māori infants and almost one in three Pacific infants lived in households that reported use of a special food grant or food bank in the previous year compared to one in fifteen Pakeha infants. While only two percent of Pakeha infants experienced all three food hardships at age nine months, one in six Pacific infants (15.5 percent) and one in eleven Māori (9.1 percent) experienced these".*

Gerritsen et al. concluded that, while recent government initiatives to reduce food hardships (Kickstart breakfast (such as the KOKA programme explored in Chapter 3), recent benefit system changes for families and a $32 million investment boosting community food security, more targeted assistance for families with young children may be required.

The New Zealand Ministry of Health (2021a[109]) similarly reports that one in seven children experience food insecurity, with large inequities between communities; children living in the least advantaged areas are more likely to have obesity and experience food insecurity with inconsistent access to nutritious food compared to children living in most advantaged areas. Marginalised communities, including Māori and Pacific Island communities, are often disproportionately affected by child hunger. Swinburn et al. (2011[110]) argued that children being a vulnerable group warrant urgent government intervention.

Rush et al. (2018)[111] note that, over the last 16 years, only just over half of New Zealand children are consuming 3+ serves of vegetables each day (Table 2.5.1); more than half are consuming sugary drinks and fast foods at least once a week (Min. Health, 2018[112]); and some groups, such as Pacific Island children, are eating less vegetables than the general population of children.

Increased consumption of nutrient poor foods that are higher in sugar and fats also leads to health issues such as obesity and related non-communicable diseases. The New Zealand Ministry of Health (2015)[113] has recognised obesity in as a major public health concern, with greater incidence for Māori and Pacific children; in 2014-15, 15% of Māori and 30% of Pacific children aged 2–14 years were obese compared to the national average of 11%.

Recent research into women and child poverty and related food insecurity in New Zealand by Macaulay et al. (2022[114]) found that mothers reduce the quantity and quality of food consumed when faced with inadequate household income, with resultant food insecurity causing significant stress, neglect of personal needs and missing meals in favour of children, and reduced provision of nutritious food and constrained social and recreational opportunities for their children. Their results

[viii] UNICEF's Innocenti Report Card series provides comparative analysis of child well-being across countries, including child poverty rates. Their "Child Well-being in Rich Countries" (2020) report includes data on child poverty rates in different countries, which can be used to assess New Zealand's position.

showed persistent high prevalence of household food insecurity with inequity by ethnicity and disability status, highlighting food insecurity as an ongoing public health issue for which urgent action is required to reduce its damaging impacts on families and children.

Agnes Magele, a volunteer for Auckland Against Poverty, said people were still having to choose between food and paying for other essentials:

> *"Kids are missing out on school because parents can't afford to buy them lunches or provide them proper clothes so they can go to school – school lunches, stationery – a lot of kids are not able to go to school at the moment because their parents can't afford it."*[115]

Research by the Health Coalition Aotearoa (2013[116]) found that the top cost of living concerns in New Zealand were: affordable healthy food (83%), renting (58%) and petrol prices (43%), with house prices, electricity prices and insurance costs of lesser concern. Māori and Pasifika were more likely to rate the cost of renting as their very top concern than other groups.

Regional studies on food security of children in New Zealand have been undertaken including that by McKelvie-Sebileau et al. (2022c, p.357[117]) in Hawkes Bay with data from 2087 students (aged 9 or 13) from 41 primary and secondary schools, including schools participating in the KOKA programme. Despite Hawkes Bay being known for its fruit and vegetable production (Horticulture New Zealand, Plant and Food Research, 2020[118]), McKelvie-Sebileau et al. found that:

- 16.8% of students experienced household food insufficiency
- 31.3% of 13-year-olds did not eat breakfast
- 12.9% of students met national vegetable intake guidelines
- 39.6% of students met fruit intake guidelines
- students in high advantage schools (decile 8–10) were twice as likely to meet vegetable intake guidelines
- 47.1% of 13-year old girls were at risk of reduced wellbeing
- 54.6% of students had a healthy weight
- 44.5% of students experienced overweight or obesity
- in low advantage (decile 1–3) schools 64.4% experienced overweight or obesity
- almost one quarter (23%) and over half (58%) of Hawke's Bay children do not meet current recommendations for fruit (2 + servings per day) and vegetable (2–3 servings per day, depending on age) intake, respectively.

They concluded that:

> *"our current food system is failing to deliver on equitable health outcomes, wellbeing and food security and the Hawke's Bay region of New Zealand has high inequities and one the highest levels of childhood obesity nationally".*

Similarly, Rush et al. (2019) state that at the time of their study, 27% of New Zealand children were living in income poverty and 12% of children were living in material hardship, which means among other factors reduced access to vegetables and fruit and/or going to school hungry. Rush et al. go on to suggest that, on a macro level, upstream policies such as a "living wage," affordable housing, and land-use planning are required. International dietary solutions include an agricultural shift to intensified horticulture with a focus on vegetables. The consumption of more plant-based foods including vegetables would reduce green-house gases, reduce land clearing, and help prevent diet-related disease if consumed daily across the life course.

2.3.5 Food Cultures and Social Norms

Dietary preferences and practices are influenced by cultural norms around food, which can also influence food choices and availability. Food is a medium for the expression of culture (Fielding-Singh, 2017[119]). Inability to access preferred foods can increase food insecurity. Furthermore, social factors, such as stigma or barriers to accessing support services, may prevent families from seeking assistance when facing food insecurity.

There is a plethora of published literature exploring "healthy food and diet" including how our understanding and lived experiences of food and diet are influenced by cultural identity, socio-economic factors, places of education and/or employment.

It is important to understand the differences between theoretical/biophysical frameworks of what constitutes a "healthy diet" (see public health frameworks in section 2.4), compared to the cultural and practical realities that influence people's food/meal purchasing, preparation and consumption practices. Diversity of food cultures and preferences impact on menu planning and food selection as food is an integral part of cultural identity.

Reductionist approaches are at odds with more holistic frameworks for health and wellbeing within many cultural communities (Cammock et al., 2021[120]) including Māori and Pasifika (Mihrshahi et al., 2017[121]) and throughout Asia. As in other indigenous cultures (Huambachano, 2018[122]), food security has a more integrative meaning in Māori value systems and culture; yet, lack of food security is one of the major nutrition issues facing Māori, due to factors such as loss of traditional kai (food) gathering places and practices following colonisation and urbanisation (McKerchar et al., 2014[123]; Beavis et al., 2019[124]). Likewise, the importance of culturally appropriate frameworks for consideration of dietary preferences and food culture, health and wellbeing for Pacific peoples is also common theme in various research exploring the dietary preferences and food security for Pacific peoples (Rush et al., 2016[125]; Rush, 2009[126]; Rush et al., 2007[127]; Lilo et al., 2020[128]).

Discouraging the eating and celebration of culturally significant foods or dishes, or trying to change the dishes themselves, risks perpetuating a power–culture dynamic that sees Pākehā cultural systems transmitted through public health policy and programming (Williams, 2017[129]). Research by Glover et al. (2019[130]) suggests that it is everyday meals that should be the focus of healthier food interventions, not events and festivals that celebrate and preserve culture. Interventions should support Māori tribal and community self-management to counteract the dependency created by colonization and the associated 'cultural imperialism', which have prevented Māori capacity to establish culturally relevant tikanga (codes) for living that protect against modern threats to health (Durie, 2003[131]).

Research by Latham (2021[132]) exploring post-Covid narratives around food for New Zealanders emphasised our evolving food culture, central to which is the taste of place, the splendour of the ingredients and the diverse places food is produced in abundance. Their research revealed how essential it is to consider values of respect and generosity, connection and care in any discussion about food in Aotearoa, concluding that it is time to shout out what we value in our New Zealand food culture, beyond its value as a commodity export.

2.3.6 Geography and Community Connectedness

Interconnectedness within communities can foster improved food security in a variety of ways, especially for people with restricted access to dominant food suppliers such as supermarkets (e.g., by not having access to transportation to get to such stores). Rural or remote communities can also face difficulties in accessing affordable or diverse food options. Likewise, insufficient access to culturally preferred foods through supermarkets can be alleviated through initiatives such as community gardens that grow a variety of grains, fruits, vegetables and proteins; and community collaboratives that source a variety of culturally preferred products from different producers/suppliers and then redistribute it within the collective. Community kitchens provide the resources enabling people to

prepare foods that they may not be able to otherwise, including for people whose housing is unstable or they do not have access to adequate kitchen facilities. Cammock et al. (2021, p.229) conclude that:

> *"innovative solutions needed to create awareness and shared responsibility amongst community. Social entrepreneurship can empower community development for sustainable food systems".*

2.3.7 Food Education and Literacy

Public health, school- and community-based educational programmes can help people better understand food science and the nutritional content of food for optimal health, as well as enhancing household and community food resilience and sovereignty through increased capability in growing, cooking and preserving food. Furthermore, increased literacy about nutrition, health eating and wellbeing can empower people to make informed choices about their diets and sustainable food practices.

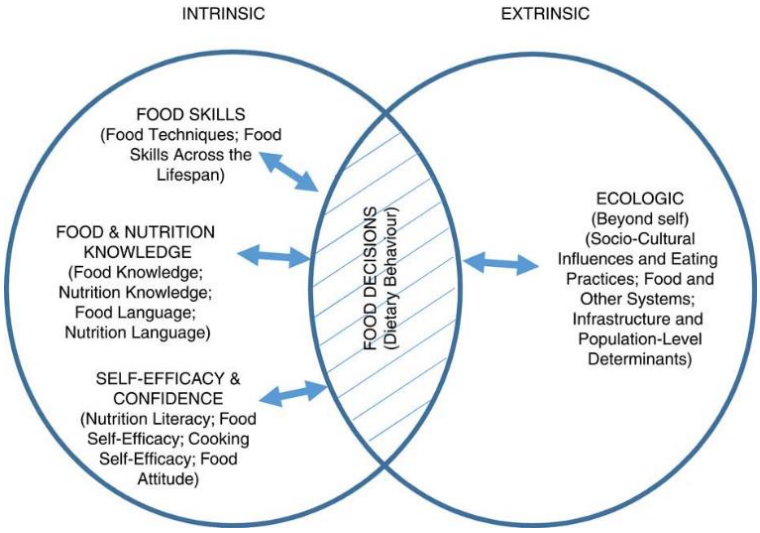


Figure 2.4 Food Literacy Conceptual Model
Source: Perry et al. (2018)

Various studies have explored the food literacy and diverse dietary preferences of New Zealanders. For example, Perry et al. (2018)[133] conducted a scoping review of research carried out in Canada, the USA, the UK, Australia and New Zealand to characterise the attributes of food literacy as conceptualised by existing peer-reviewed and grey literature and found that food literacy is a complex phenomenon made up of multiple attributes, including those that are both intrinsic and extrinsic – see Figure 2.4.

Research in China by Wang et al. (2002[134]) suggests that mothers' nutritional knowledge, health consciousness and exposure to the media may influence their children's diet beyond the determining role of family resources and access to foods available to the community in developing countries undergoing a rapid social and economic transition. Future research is needed in New Zealand to ascertain whether this finding remains true in a local context would be beneficial.

To summarise, food security can be improved through measures that reduce inequality, increase employment opportunities in living or high wage jobs, reduce housing insecurity, enhance access to affordable and nutritious food, and promote policies that prioritise the well-being of vulnerable populations. Healthy eating frameworks are outlined in the next section; and initiatives to promote healthy eating and improve access to food are explored in the next chapter.

2.4 International Health Healthy Eating Frameworks and Programmes

Good nutrition plays a key role in promoting physical and mental health and immune function throughout the lifespan, enhances brain function and supports the rapid growth that occurs during the childhood years (Velardo et al., 2020[135]). There are numerous programmes around the world aimed at raising awareness, providing guidance, and encouraging individuals to adopt healthier dietary habits, such as the international examples listed below. Health-promoting dietary guidelines typically promote reduced consumption of processed foods, sugar, salt and trans fats, and increased intake of fresh fruit, vegetables, whole grains and lean proteins. Some examples of international attempts to formulate health and strategies are outlined below.

2.4.1 The United Nations Food and Agricultural Organisation –The FAO's (2018)[136] food-based dietary guidelines (FBDGs, rather than nutrient-based) encourage the consumption of a variety of vegetables and fruit as part of a dietary pattern that provides the required nutrients to the general public.

Despite the importance of a nutrient rich diet, research by Miller et al. (2016[137]), with data from 18 countries and 143,305 participants, found that in low-income countries three servings of vegetables and two servings of fruit each day for each household member would cost 52% of the household income while in upper-middle income countries the cost was 2%. Vegetables and fruits were more expensive for rural households and consumption decreased as cost increased.

Table 2.1 Food-based dietary guidelines relating to vegetables and fruit from selected countries

Country	Message
Sweden	More vegetables and fruit - Eat lots of fruit, vegetables and berries! Ideally, choose high fiber vegs such as root vegetables, cabbage, cauliflower, broccoli, beans and onions.
South Africa	Eat plenty of vegetables and fruit every day.
Mexico	Include vegetables and fresh fruits in each meal. Choose them with peel and in season.
United States	A variety of vegetables from all of the subgroups-dark green, red and orange, legumes (beans and peas), starchy, and others
New Zealand	Eat plenty of vegetables and fruits.
Australia	Plenty of vegetables, including different types and colors, and legumes/beans
Iran	Eat raw and cooked vegetables every day at main meals and snacks
India	Eat plenty of vegetables and fruits
China	Consume plenty of vegetables, milk, and soybeans

Food-based dietary guidelines reported by the FAO (6)

Source: Rush et al. (2019)

According to Rush et al. (2019[138]), the FBDGs emphasise food groups rather than nutrients and encourage consumption of a variety of foods within each food group, with foods grouped by their nutrient profile. They state that the food group with arguably the biggest variety, vegetables and fruit, receives much attention in guidelines and messaging (see Table 2.1).

Rush et al. (ibid.) explain that vegetables are good sources of vitamins and minerals, fibre, and many bioactive compounds that promote health and provide energy. They also help reduce hidden hunger (micronutrient deficiencies) and support the healthy growth and development of children. They note that the term used currently is 'vegetables and fruit' rather than 'fruit and vegetables' to indicate the

importance of vegetables. Furthermore, they provide comprehensive analysis of the synergistic impact on health derived from consumption of a variety of whole or minimally processed vegetables, because diverse synergistic health benefits are derived from the combination of vitamins, minerals, flavonoids, phenolics, pigments, peptides polysaccharides, and fibre. The dietary diversity score devised by the Food and Agricultural Organisation of the United Nations and European Union (2013[139]) is one proxy measure of nutrient adequacy and identifies 16 groups of foods. There is also recognition that the most nutrient-dense part of a vegetable or fruit is next to the skin (Rickman et al., 2007[140]).

Other foods grouped for their protein content are fish, lean meat, soy products, eggs, nuts, seeds, and legumes. Another group of mainly carbohydrate foods such as rice, wheat, maize and potatoes make up a large portion of the global energy supply. For some populations, foods that contain calcium such as dairy and bones in fish are a focus (Rush et al., 2019).

2.4.2 The World Health Organization (WHO) promotes a comprehensive strategy to address diet-related health issues, 'healthy diet' and regular physical activity. The WHO Global Strategy on Diet, Physical Activity and Health (2004) aimed to address the severe increase in non-communicable diseases (NCDs) all over the world (Norum, 2005[141]). A global strategy, first discussed by the WHO in 2000, was released in 2003 and presented at the WHO World Health Assembly in 2004. The recommendation for intake of basic nutrients was the same as that recommended by the WHO in 1990.[142] However, issues of trade, price policy and lobbying from parts of the food industry from the sugar industry and its associations, the salt industry and palm oil producers, plagued this global strategy (ibid.) Norum (2005) concluded that evoked a lot of serious political issues, which were strongly connected with international industry and trade.

2.4.3 The U.S. Department of Agriculture has a campaign called MyPlate (World Health Organization/Food and Agriculture Organization, 2003[143]) with practical guidance on portion control, balanced diets and making healthy food choices. The USDA Center for Nutrition Policy and Promotion (CNPP) was established in 1994 to improve the nutrition and well-being of Americans. The Dietary Guidelines for Americans, 2020-2025 is available on the MyPlate website, along with various resources to educate about the "food pyramid" and balanced eating from the five good groups (see Figure 2.5 below), and more. Haven et al. (2014[144]) provide a comprehensive overview of the initiative.

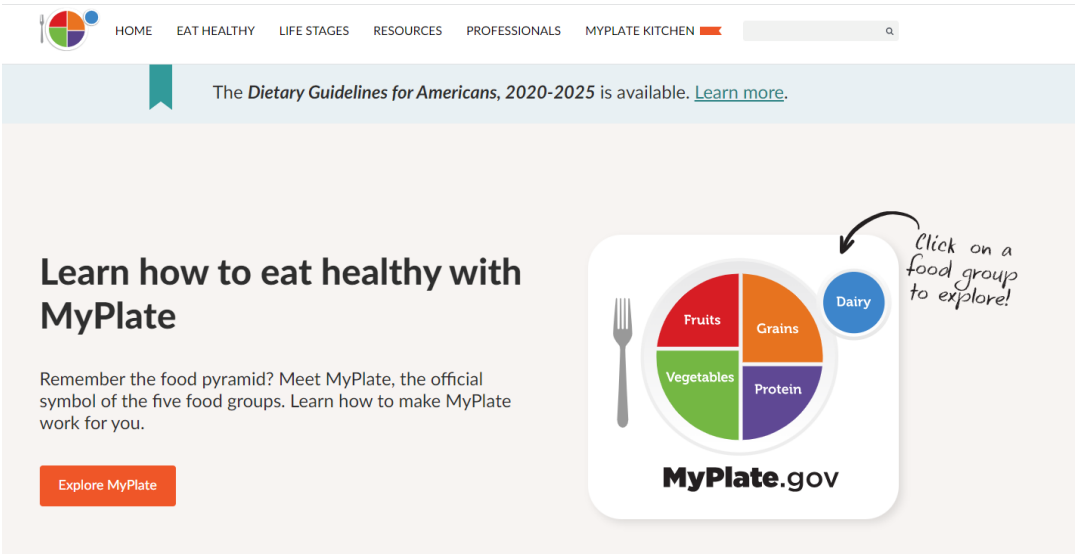


Figure 2.5 MyPlate (Source: USDA)

Underpinning the MyPlate[145] philosophy is the recommendation that that a variety of coloured vegetables make up more than one quarter of all food consumed each day.

2.4.4 The British Nutrition Foundation 'Healthy Eating Week' is an annual event, designed to bring the UK together for a dedicated Week, focussing on key health messages and promoting healthy habits through educational initiatives and events targeting different age groups and settings.

Table 2.2. Examples of Active Learning Resources that used Disney Characters to Support the Five Health Challenges

Daily challenge	Active learning resource
Have breakfast	Children learnt about breakfast through a memory game, based on Ratatouille
Have 5 A Day	Children made a fortune teller to learn about fruit and vegetables, based on the film The Incredibles
Drink plenty	Children played a water-based game to learn about the importance of drinking, based on the film Finding Dory
Get active	Children got active with Buzz's Space Race, based on the film Toy Story
Try something new	Children focused on trying something new with a Memory Montage, based on the film Inside Out

Source: Ballam (2017)

It gives a focal point during the school calendar to promote health and encourage children and young people to make healthier choices. In 2017, for example, a total of 10,162 organisations registered to participate – 9681 were nurseries, schools and local authorities; 148 universities and colleges; and 333 workplaces (see youtube video cited in Ballam, 2017[146]). Various challenges were set, supported by a series of behaviour change messages (see Table 2.2). In the 2017 review, nearly all schools (97%) reported that the Week helped to raise the profile of food and health within the school, 95% said it helped to promote healthy eating, 85% indicated that they believed the activities would help to support pupils' behaviour change, and 97% said they would take part in BNF Healthy Eating Week in the future. Nearly all workplaces (97%) strongly agreed or agreed that the Week helped to promote healthy eating and drinking, and physical activity, as well as a healthy lifestyle, and 80% strongly agreed or agreed that BNF Healthy Eating Week demonstrated that healthy living is important to their organisation (ibid.).

2.4.5 Health Canada launched 'Healthy Eating Strategy' in 2016. The Government of Canada (2016)[147] initiative is composed of a suite of 7 initiatives aimed at improving the Canadian food environment including: the introduction of front-of-pack nutrition labelling, updates to the Nutrition Facts tables, the elimination of industry-produced partially hydrogenated oils, updated sodium reduction targets, restrictions on the marketing of unhealthy food and beverages to children, revisions to Canada's Food Guide, and strategies to improve access to nutritious foods in northern communities ('Nutrition North').

Of note is research by Gaucher-Holm et al. (ibid.) regarding the role of lobbyist on health policy initiatives. They found that, between 1 September 2016 and 31 January 2021, 170 registrants registered to lobby on the topic of the Healthy Eating Strategy and/or at least one of the initiatives included in this study. Their results suggest a strategic advantage of industry stakeholders in

influencing Canadian policymakers. While some safeguards have been put in place, increased transparency would allow for a better understanding of industry discourse and help protect public health interests during the policy development process. They state that political activities of industry stakeholders must be understood to safeguard the development and implementation of effective public health policies such as this.

2.4.6 Australian initiatives – a there many Australian programmes to promote healthy eating, with preschools and other early childhood education and care (ECEC) services identified as a key setting for promoting healthy eating and physical activity to children (Campbell and Heskath, 2007[148]).

One community-based initiative is the 'Good Start Program',[149] which aims to improve knowledge, attitudes and practices related to healthy eating and physical activity amongst Māori and Pacific Islander communities living in Queensland. The main objectives for the programme's school-based activities were promotion of vegetables, decreasing consumption of sugar-sweetened drinks, decreasing unhealthy snacks and reducing portion size and increasing physical activity (Mihrshahi et al., 2017[150]). This programme is supported by the Ethnic Communities Council of Queensland, Australia, who aim to support social and economic participation for all Queenslanders through strengthening community associations, delivering leadership training, creating employment pathways and raising awareness of the benefits of cultural diversity. One area they focus on is "Improve your health" (Hardy, 2010[151]), as they "believe that all people should have access to health information and services that are culturally appropriate, and relevant to their needs."

2.4.7 The United Kingdom National Health Service – the UK dietary guidelines on fruit and vegetable consumption focus on including at least five portions of a variety of fruits and vegetables into meals and snacks per day – the '*5 a Day'* campaign. This is based on the World Health Organization's (2003)[152] recommendation of a minimum of 400g daily to reduce the risk of coronary heart disease, stroke, and some types of cancer. An evaluation of this initiative revealed that respondents could recount the "5 a day" messaging, but knowledge of the details of the message was low, particularly in relation to portion size and the need for variety, and this lower knowledge was associated with lower fruit and vegetable consumption (Appleton et al., 2017[153]).

A review of the programme exploring public perspectives on fruit and vegetable intake and related government dietary guidelines revealed a lack of clarity around government dietary health guidelines along with emergent personal factors that may hinder better fruit and vegetable consumption. They concluded that further work is required to examine this issue and rejection of the overall messaging and the possibility of public fatigue related to dietary health information and news. Similarly, future work should also explore targeted interventions with a specific emphasis on health literacy (Hornsby and Ensaff, 2021).[154]

Although not specific to any one country, Rasmussan et al. (2006)[155] reviewed the literature to identify determinants of fruit and vegetable consumption among children and adolescents. Rasmussan et al. concluded that there is a need for internationally comparative, longitudinal, theory-based and multi-level studies taking both personal and environmental factors into account when identifying determinants of fruit and vegetable consumption in children and adolescents.

2.5 New Zealand Public Health Approaches to Healthy Food and Diet

New Zealand has implemented various public health diet-related strategies to promote health and well-being of people and their communities. These strategies aim to address nutrition-related challenges and reduce health disparities (as discussed in Section 2.3.4) and to encourage healthy

lifestyle and eating habits. Some of the better known known public health, professional or charity-based "healthy eating" programmes implemented in New Zealand are outlined below. School-based programmes are covered in Section 2.6.

2.5.1 The Healthy Eating-Healthy Action: Oranga Kai- Oranga Pumau (HEHA) Strategy

– This Underpinning much of the public health policy we have today was the New Zealand Ministry of Health's (2003[156]) Healthy Eating-Healthy Action (HEHA) strategy, which was developed to address the increasing rates of preventable health conditions related to poor nutrition and sedentary lifestyles, and the rising obesity epidemic in New Zealand. The HEHA Strategy drew on the health promotion model set out in the World Health Organisation's (1986[157]) Ottawa Charter for health promotion and New Zealand's Māori Health (see section 2.5.4) and Pacific Health and Disability Action Plans (King, 2002[158]).

The emphasis on Māori and Pacific models of health means the Strategy must recognise multiple cultural models; it expects Māori to play an important role in designing and delivering HEHA initiatives, but it also locates responsibility for improving Māori nutrition and physical activity levels and support services with mainstream providers. The Strategy's effects are intended to be experienced at all levels, including organisations, agencies, communities, families/whānau and individuals. Furthermore, (McLean et al., 2009[159]).

The HEHA Strategy (Ministry of Health, 2003[160]) noted that getting people to change their lifestyles is not an easy task, and that both individual behavioural and major changes to our social and physical environment were required to make it easier for us all to eat well, be physically active and attain and maintain a healthy weight. It set out a strategic framework (Ministry of Health, 2003b[161]) and implementation plan (MOH, 2003c[162]) for making these changes happen, and called for a more integrated and multi-sectoral approach to addressing nutrition, physical activity and obesity (see Figure 2.6). An evaluation of this strategy is included in Section 2.6.

2.5.2 Healthy Eating Guidelines

are promoted by Manatū Hauora, the New Zealand Ministry of Health (2020[163,164]). They were first developed in 2015 in support of the goal of Pae Ora – Healthy Futures for all New Zealanders – and are written for health practitioners and others who provide advice on nutrition and physical activity to the public and include advice for pregnant and breastfeeding women.

Based on such Ministry of Health guidelines, the New Zealand Nutrition Foundation (2022[165]) provides information about healthy eating by life stages from infants to older adults. They have various programmes such as JUST COOK Tika Tunu, a ~4-week programme developed by the New Zealand Nutrition Foundation (2023[166]) that focuses on making healthy, affordable food choices, improving skills, motivation and confidence in family cooking. The first Tika Tunu programme was held in 2016 in a Women's Prison and is now throughout New Zealand. It is a 3-hour session beginning with 1 hour of education and activities, followed by 2 hours of cooking, clean up and sharing of a meal. They also have a JUST COOK Healthy Aging programme.

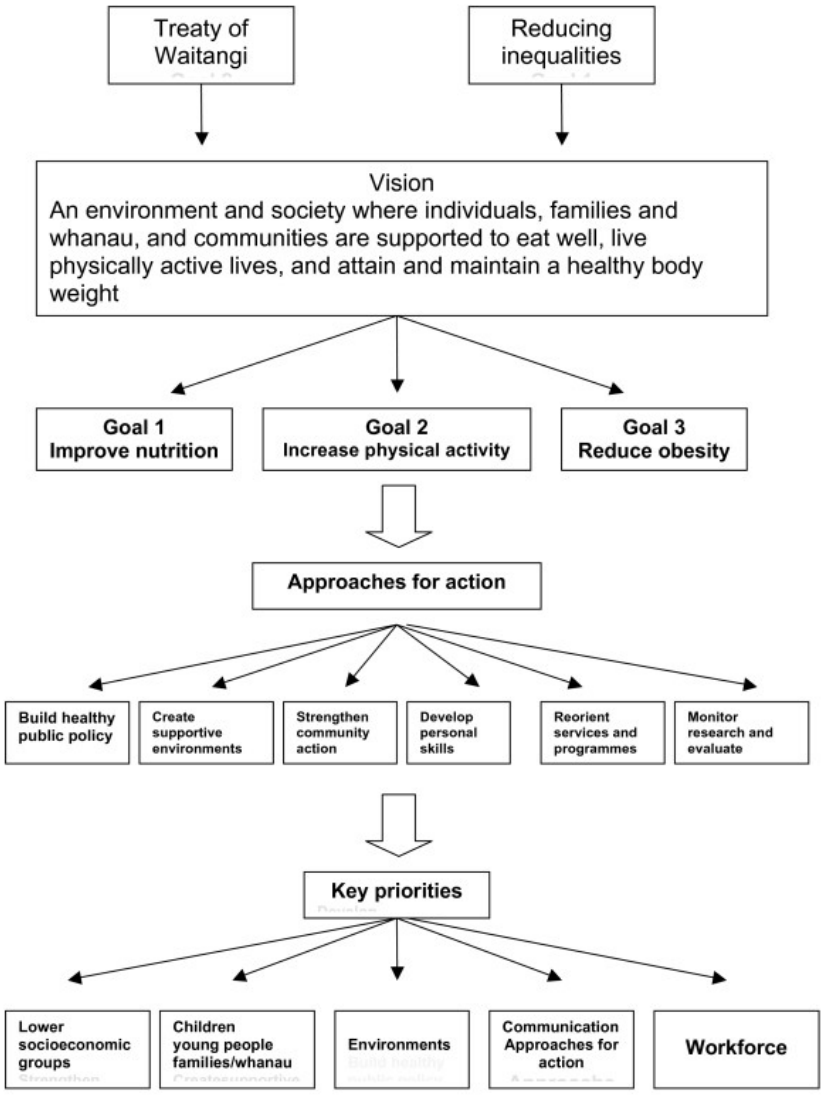


Figure 2.6 The HEHA Framework, cited in McLean et al. (2009[167])

2.5.3 The Childhood Obesity Programme – This Ministry of Health (2017a)[168] programme promotes healthy eating and physical activity for reducing childhood obesity (see section 2.3.2). It includes a set of 15 performance indicators that were used to monitor the New Zealand Childhood Obesity Programme over the next five years. The first baseline report was published for 2016/17 (Ministry of Health, 2017[169]).

2.5.4 He Korowai Oranga is the Ministry of Health's (2014)[170] Māori Health Strategy, which sets the overarching framework that guides the Government and the health and disability to achieve the best health outcomes for Māori, with the overarching aim of pae ora – healthy futures for Māori. Pae ora is a tool to help health practitioners think beyond narrow definitions of health, to consider the individual, the family or collective and the environment. As such, it is a useful model to draw on when considering the wider determinants of health and wellbeing. Pae ora is a holistic concept that includes three interconnected elements:

*mauri ora (healthy individuals) focuses on the need to provide the individual with what they need to live with good health and tends to be the primary focus of the health and disability system;

*whānau ora (healthy families) brings the family into the frame and acknowledges that for many Māori, the whānau is the principal source of strength, support, security and identity; and

*wai ora (healthy environments) recognises the importance of the environment where people live and its impact on the health and wellbeing of individuals, whānau and communities (ibid.).

2.5.5 Whakamaua: Māori Health Action Plan 2020-2025 – The above He Korowai Oranga strategy has now been enhanced through the Pae Tu: Hauora Māori Strategy, which was developed as part of the health system transformation to help guide our health system to achieve pae ora, healthy futures, produced by Manatū Hauora and Te Aka Whai Ora (Ministry of Health, 2023[171]). Pae Tū: Hauora Māori Strategy guides health entities to uphold Te Tiriti and achieve Māori health equity, while the New Zealand Health Strategy takes a whole population focus and addresses broader systemic issues. Pae Tū: Hauora Māori Strategy is an interim step ahead of a new and more comprehensive strategy to be released in 2025. By then, the foundations of the new system will be in place and Whakamaua: Māori Health Action Plan 2020–2025 will be fully implemented (ibid.).

Whakamaua has been developed alongside an Expert Advisory Group, its membership including Māori academics and researchers, health professionals, and iwi, disability and rangatahi leaders. Whakamaua means 'to secure, to grasp, to take hold of, to wear'. Whakamaua will bring completion and form to He Korowai Oranga so that all whānau Māori can experience health and vitality under its covering. Whakamaua is underpinned by the Ministry of Health's new Te Tiriti o Waitangi framework (MOH 2023[172]) which provides a tool for the health and disability system to fulfil its stewardship obligations and special relationship between Māori and the Crown. Te Tiriti o Waitangi not only describes Crown obligations and Māori rights, but is also a key improvement tool for achieving health equity and wellbeing for Māori.

Whakamaua (Ministry of Health, 2020[173]) focuses on four high-level outcomes to realise the vision of pae ora:

- Iwi, hapū, whānau and Māori communities can exercise their authority to improve their health and wellbeing.
- The health and disability system is fair and sustainable and delivers more equitable outcomes for Māori.
- The health and disability system addresses racism and discrimination in all its forms.
- The inclusion and protection of mātauranga Māori throughout the health and disability system.

Whakamaua (2020[174]) was shaped from feedback received during an extensive engagement process by iwi, hapū, whānau and Māori communities, as well as key stakeholders across the health and disability sector and government.

2.5.6 "5+ a Day" – this Charitable Trust[ix] was formed in 2007 for the benefit of the general public and specifically the children of New Zealand. It is committed to increasing the consumption of fresh fruit and vegetables for better health in all New Zealander and focuses its work on the education setting – referred to as "Fruit and Vegetables in Schools" (FIS).

[ix] https://5adayeducation.org.nz/about#:~:text=For%20optimal%20health%3A,two%20of%20fruit%20every%20day.

The 5+ a Day Trust says that, for optimal health: adults should all eat at least five servings of fresh vegetables and two of fruit every day; school children (aged 5-12 years) should eat at least three servings of vegetables and two of fruit every day; preschoolers (aged 2-5) should eat two servings of vegetables and two of fruit every day.

Table 2.3 Percentage of Children Meeting Vegetable Consumption Guidelines

Year	Age, y	% meeting vegetable guideline	References
NATIONAL SURVEYS			
2002	5-14	57%	(23)
2011-2014	0 to 14	57%	(24)
2014-2017	0 to 14	53%	(24)
METFORMIN IN GESTATIONAL DIABETES FOLLOW UP STUDY			
2008	2	76 % ($n = 147$)	(25)
2014	7 to 9	37% ($n = 99$)	Unpublished data
PACIFIC ISLANDS FAMILIES STUDY			
2004	4	35% ($n = 739$)	(26)
2006	6	35% ($n = 646$)	(27)
2009	9.4	49% ($n = 976$)*	(28)
2014	14	32% ($n = 931$)	Unpublished data

NB, Adequate vegetable intake is defined for children aged 2–4 years as eating at least two servings of vegetables each day and for children aged 5–14 years as eating at least three servings of vegetables each day (29)—all surveys were food frequency questionnaires except for 2009 which was a dietary habits questionnaire. CNS Children's Nutrition Survey; MIGTOFU Metformin in gestational diabetes: the follow-up study; PIF Pacific Islands Families study.*

Source: Rush et al. (2018)

Despite the time and effort put into this initiative, the vegetable intake of New Zealanders remains poor (Ministry of Health, 2020[175]) with 46% of adults reporting that they eat 2 or less servings a day (Curran-Cournane & Rush, 2021). This compares to approximately 25% of the daily dietary fiber intake (median 19g/day) in 2003 being derived from vegetables (Ministry of Health, 2003[176]) – the most commonly consumed being potato, potato fries, kumara, carrots, broccoli, peas, lettuce, cauliflower, cabbage, tomatoes, and corn.

Table 2.3 shows findings by Rush et al. (2018) which reveal that the percentage of children meeting vegetable consumption guidelines is dropping, and is particularly low for Pacific Island families.

2.5.7 Fighting Sugar in Soft Drinks

(FIZZ, n.d.[177]) is made up of a group of researchers and public health doctors who have come together to advocate for ending the sale of sugary drinks with poor health, including obesity, type-2 diabetes, rotten teeth, gout and other risk factors for cardiovascular disease and premature death. FIZZ is working with schools, communities, food retailers, and the government to advocate for action to reduce intake of sugary drinks.

2.5.8 The Royal Society of New Zealand Te Aparangi[x]

sets out to remove confusion surrounding what they state are the mixed messages about sugar and health. They provide animations, fact

[x] https://www.royalsociety.org.nz/what-we-do/our-expert-advice/all-expert-advice-papers/sugar-and-health/

sheets (including for Māori), and topical information about optimal sugar intake, food labelling, and related issues.

2.5.9 The Heart Foundation is New Zealand's heart charity, leading the fight against our country's single biggest killer – heart disease. They have various healthy eating programmes to support heart health, with recommendations about food portions and quantities of various food groups that should be eaten for optimal heart health (The Heart Foundation, n.d.[178]) – see Figure 2.7 below.

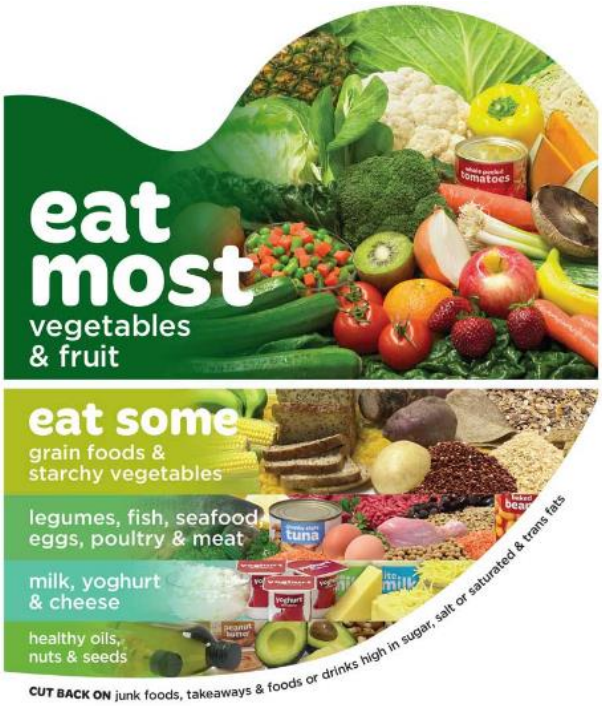


Figure 2.7 Guide to Eating for a Healthy Heart
Source: The Heart Foundation (ibid).

The Health Foundation state that the key is to base your diet around foods that are as close to how they are found in nature as possible. This means eating plenty of vegetables and fruit, some whole grains in place of refined grains, legumes, nuts, seeds, and other sources of healthy fats such as oily fish. You may also choose to include non-processed lean meats, poultry and/or dairy. By following a heart-healthy way of eating, you will be ensuring that you get all the nutrients you need to support your health (ibid). The Heart Foundation (2024a[179]) also provide "nutrition facts" of the most talked about foods/food groups and compared the conflicting headlines with the scientific facts, to help people uncover the truth amidst claims being made about whether or not certain foods or nutrients are 'healthy'. They put out various position statements and resources that are available on their website.

The Heart Foundation (2024b[180]) also have a salt and sugar reduction programme in which they are working with food companies to set voluntary targets (The Heart Foundation, 2023[181]) to reduce the amount of sodium, and more recently sugar, in key food categories[xi]. The objective of the Heart Foundation food reformulation programme is to have at least 80% of the market share (by sales

[xi] These include bread, cereals, processed meats, savoury pies, soups, cheese, potato, corn and extruded snacks, cooking sauces, powdered mealbases, edible oil spreads, savoury crackers, tomato sauce baked beans and canned spaghetti, cereal and nut/seed bars, dairy yoghurt and dairy foods and flavoured dairy milk

volume) to meet the targets. This ensures high-volume foods in each category are prioritised. As a result, over 300 tonnes of salt per annum have been removed from key categories.

Eyles et al (2020[182]) outlined methods for the development of programme targets to reduce total sugar content by 20% of packaged foods and beverages commonly consumed by New Zealand children. They used New Zealand (NZ) as a case study because, despite having the third highest prevalence of childhood obesity in the Organisation for Economic Co-operation and Development (OECD, 2017[183]), high prevalence of early childhood caries (Healthy Promotion Agency, 2015[184]) and striking inequalities in obesity and health outcomes between children of different ethnic and income groups (Ministry of Health, 2017[185]), at that time the Ministry of Health's (2008[186]) Childhood Obesity Plan only included one policy on nutrition labelling (Ministry for Primary Industries, 2018[187]) specifically aimed at changing the NZ food environment.

Examples of companies that have responded to this call include Fonterra (2018[188]) with its Primo range of flavoured milks that has 40% less added sugar, the lowest amount of sugar of its type on the market. Additionally, Coca-Cola New Zealand (Lim, 2020[189]) have announced a goal to reduce the amount of sugar in its beverages by 20% by 2025, including Sprite, Fanta, Powerade, Kiwi Blue water, Pump, Keri Juice as well as its Coca-Cola range.

2.6 Determining the Effectiveness of Public Health Approaches to Healthy Food and Diets

2.6.1 A Framework to Evaluate the HEHA Strategy

– This strategy, described in section 2.5.1, explicitly recognised the importance of evaluation and the need to create an evidence base to support future initiatives. Until then, evidence relating to such national strategies that intervened at a population level to reduce obesity were lacking.[190,191] Thus, the Ministry of Health commissioned a consortium of researchers to evaluate the HEHA Strategy as a whole – McLean et al. (ibid.) reports on the development of a framework for this evaluation.

Evaluation of HEHA required a Māori lens to examine how Māori-specific and mainstream initiatives involved Māori and improved Māori health outcomes. Numerous Māori models of health have been developed over the years (for example, see Kingi et al., 2014)[192], of which McLean et al. (ibid.) included the Te Pae Mahutonga (Durie, 1999[193]), Hua Oranga (Kingi and Durie, 2005[194]) and He Taura Tieke (Ministry of Health, 1995;[195] also see Waldon and Tait[196]) Māori health models (see Figures 2.8 - 2.10 below) to develop evaluation principles that acknowledge Māori development, particularly healthy lifestyles for Māori and greater social participation, and Māori autonomy, especially as this relates to priority setting and self-determination. The principles also emphasise Māori delivery of services, leadership in evaluation, and the need for integration with aligned sectors (McLean et al., ibid.).

Te Pae Māhutonga – the name for the constellation of stars popularly referred to as the Southern Cross – is used as a symbolic model by Professor Sir Mason Durie for bringing together the significant components of health promotion, as they apply to Māori health as well as to other New Zealanders.

Hua Oranga is a Māori health outcome measure that ensures services are focusing on areas of wellbeing that are important to Māori. Hua (to bear fruit or be abundant) and Oranga (wellbeing) reflects the focus on developing, working towards, and measuring wellbeing when working with whaiora. The model includes the four cornerstones of Māori health: Taha tinana (physical health); Taha wairua (spiritual health); Taha whānau (family health); and Taha hinengaro (mental health).

Should one of the four dimensions be missing or in some way damaged, a person, or a collective may become 'unbalanced' and subsequently unwell.

He Taura Tieke ("a measuring rope") is structured around three key components – technical and clinical competence, structural and systematic responsiveness and consumer satisfaction – within which a service's effectiveness from a Māori perspective is exemplified and then measured using a range of questions that take a Māori standpoint on health (Abel et al.[197]).

Figure 2.8 Te Pae Māhutonga: A Model for Māori Health Promotion by Sir Mason Durie
Source: Health Promotion Forum of New Zealand. Māori Health Promotion, Māori Health Models (https://hpfnz.org.nz/maori-health-promotion/maori-health-models/)

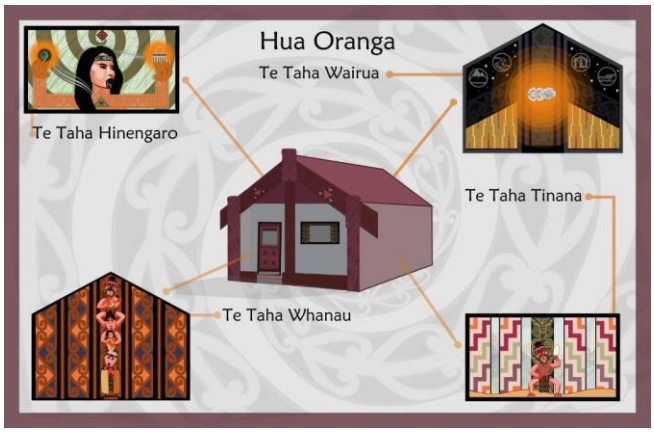


Figure 2.9 Hua Oranga by Te Kani King and Sir Mason Durie
Source: https://www.oradatabase.co.nz/

The McLean et al. (2009[198]) HEHA evaluation framework also utilised the Pacific "Fono Fale" model of health (Pulotu-Endemann, 2009)[199,200] in recognition of the importance principles of dignity and sacredness in the delivery of health; active participation of Pacific peoples in all levels of health and disability; Pacific leadership and communities with successful Pacific services; and Pacific people's entitlement to excellent health (MOH 2003a,[201] 2003b[202]). Developed by Fuimaono Karl Pulotu-Endemann in 1984, the Fonofale model of health (see section 2.6.2) is a dynamic model that promotes a holistic view of overall health and wellbeing, symbolising the wholeness of a Pasifika person. Each element is essential for building and maintaining good health and wellbeing, which is at

its strongest when they are in balance. It is represented by a fale (house), and is made up of the following aspects which have an interactive relationship with each other:
* falealuga (roof) – represents culture, values and beliefs, which are considered the shelter for life, and recognises the evolving and adapting nature of culture;
*pou (posts) – the four posts supporting fale structure are the a'aleagaga (spiritual), fa'aletino (physical), mafaufau (mental) and isimea (other) aspects of wellbeing;
*fa'avae (foundation, floor) – values of aiga (family), which is the foundation for all Pacific Island culture, social structures and orientation; and
*cocoon – represents your environment, time and context, all of which affect and shape who you are.

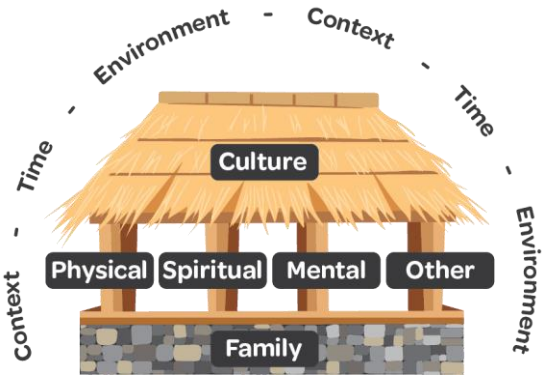


Figure 2.10 The Fonofale Model of Health
Source: Mana Services (https://manaservices.nz/blog/the-fonofale-model-of-health)

These holistic models clearly illustrate how ill-fitted one-dimensional approaches to health improvement programmes are for Māori and Pasifika peoples, if not everyone.

2.6.2 New ways to Foster "Healthier Eating"

Despite the numerous interventions to spell out what the composition of a nutritious, balanced healthy eating plan looks like, as described above, New Zealand is still grappling with food insecurity and related issues of preventable illnesses and non-communicable diseases for which diet often plays a role. An important consideration in determining the effectiveness of healthy eating programmes lies in better understanding what a "healthy diet" actually is, and how it is influenced by food cultures and dietary preferences. According to the New Zealand Ministry of Health/ Manatū Hauora (2022b, p. 8 [203]) "optimal nutrition during childhood is essential to maintain growth and good health". But what constitutes "optimal nutrition"? Who gets to make that decision, and upon what bases? Henry and Morris' (2023) phase one of this research programme provides an overview of dominant frameworks for how the relationship between food, eating and health is conceptualised in New Zealand. They suggest that such dominant frameworks tacitly guide the direction of dietary policy, often with a prevalence for quantifiable factors such as the biophysical and calorific content of food – for example, see Ministry of Health / Manatū Hauora (2020, 2022a, b[204]).

Nutritional interventions have generally been only moderately successful in improving a lasting consumption of adequate amounts of fruits and vegetables (Pomerleau et al., 2004[205]). Given the low levels of vegetable and fruit uptake amongst New Zealanders, and the ongoing battle with food insecurity and poverty increasingly facing our children, it is clear that much more work is required to consistently increase the quantity and diversity of nutritious foods being consumed by New Zealanders, particularly children. Affordability and accessibility of healthy foods are a big part of the problem for many whānau, as discussed in Section 2.3.

Interestingly, a Heart Foundation flyer with the diagram depicted in Figure 2.7 and additional information about food portions was given out with food parcels from Just Zilch during the writing of this report. Ironically, the food parcel did not contain any fruit or vegetables, but did contain white bread, buns and other packet food. This in no way negates the importance of not-for-profit charities such as Just Zilch sourcing and redistributing surplus foods, as they are only able to provide food in their parcels that are donated to them. However, it does illustrate the point that education alone does not help people who are experiencing food poverty to "eat more healthfully" if they cannot access healthier foods; in fact, they will eat whatever foods they ARE able to access, and this is often the very foods that entities such as the Heart Foundation are suggesting should be limited, if not eliminated.

Wilson et al.'s (2013[206]) research of foods and dietary patterns that are healthy, low-cost, and environmentally sustainable in New Zealand, stated ideally that dietary optimisation work would begin with common dietary patterns and explore incremental steps towards patterns that are lower in cost and better for nutrition; however, they state that the current New Zealand dietary pattern is a poor point-of-departure for such analysis because it is relatively expensive and unhealthy, particularly in terms of cardiovascular risk, i.e., largely the high saturated fat intake (Univ. Otago & Min. Health, 2011[207]) but also the high sodium intake (McLean et al., 2011[208]).

McKerchar et al. (2014) state that lack of food security is one of the major nutrition issues facing Māori today. Building on Viriaere and Miller (2018[209]), they explored ways of improving Māori food security by increasing the availability of traditional kai to Māori households (such as through replenishing fish stocks, and gardening projects) and increasing the financial means available to Māori households to purchase food (by economic development of traditional kai industries and employment creation). Enabling factors and barriers cited by McKerchar et al. in relation to improving Māori food security included:

> "*Gardening initiatives have also grown considerably in Māori communities. Enabling factors included: the return of traditional kai resources by the Crown, and successful pursuit by Māori of the legal rights to develop them; development of Māori models of governance; government policy around Māori economic development and healthy eating; and Māori leadership on the issue. Barriers to revitalising traditional kai that remain to be addressed include: tensions between Government and Māori goals and models of resource management; economic pressures resulting in severely depleted fishing stocks; and pollution of marine and freshwater fish*."

Various Māori conceptual frameworks have been developed for evaluating complex health policy that also provide insightful guidance for improving the effectiveness of health promoting strategies in New Zealand. For example, an evaluation of a Māori primary health organisation's Project REPLACE (Mercer et al., 2013[210]) and the Te Tuhono Oranga Evaluation Framework (Boulton and Kani, 2011[211]), which were used to evaluate the New Zealand government's Healthy Eating, Healthy Action Strategy.

In adopting a systems science and mātauranga Māori approach to identify and target underlying drivers of rising childhood obesity and engage the community to improve the food environment, McKelvie-Sebileau (2022a[212]) concluded that, when designing a public health initiative with a community with a high indigenous population, indigenous knowledge should be promoted to focus on holistic health, working with the community and creating opportunities for cohesion.

In another study, McKelvie-Sebileau (2022b[213]) utilised community-based system dynamics methods of group model building and a mātauranga Māori worldview to develop a novel Indigenous systems approach to build community capacity, develop new knowledge and increase commitments to child health improvement at the community level. They presented ten prioritised community-proposed interventions such as increasing cultural connections in schools, with the two top prioritized interventions are currently being carried out by the Nourishing HB initiative working with

community. Their work highlights cultural and family issues and the ongoing impact of historical colonisation in our communities. They also found that the recently introduced Ka Ora, Ka Ako healthy school lunch program for low decile (low advantage) schools was seen as an important opportunity to break traditional patterns that have led to poor nutrition in the past.

Littlewood et al. (2020[214]) state that "future research requires greater consideration of cultural values and beliefs, community engagement, exclusive targeting of Māori and Pacific Islander children and families, and sub-group analyses for mixed-population studies. Incorporating co-design principles during study design and implementation can maximise the cultural specificity of interventions and may contribute to improved health and weight-related outcomes for this at-risk, priority population".

We concur with the conclusion of Henry and Morris (ibid.) that an alternative framework about the relationship between food, eating and wellbeing is needed that goes beyond a deficit model where foods are considered "good" or "bad", and instead acknowledges the contemporary lifestyle and practical realities impacting on peoples' food purchasing and dietary consumption choices.

The research reported in the following chapters contributes to such an alternative framework about how healthy food can be considered, particularly in grassroots community and school-based food provision programmes.

2.7 School-Based Food Programmes

2.7.1 Importance of Childhood Healthy Eating Programmes

It is critical that during the early years, children are given as many opportunities to learn about and consume a range of healthy foods as possible, because food preferences and dietary practices established during the early years of life are more likely to be maintained into adulthood (Birch, 1999[215]; Mikkilä et al., 2004[216]). Across childhood, the consumption of a healthy diet decreases with age, alongside increases in the consumption of processed food, sugar-sweetened beverages (SSBs) and high-calorie fast foods, which impacts on the physical and psychological state of children and adolescents (Kansra et al., 2021[217]). Furthermore, given that proper nutrition plays a crucial role in a child's physical and cognitive development, as well as their ability to concentrate and learn effectively, food education and delivery programmes for children and adolescents are often provided through schools and their communities. It is intended that school food programmes will help address child and adolescent health problems including obesity and mental health, as well as absenteeism and underperformance at school (e.g., see Taras, 2009[218]; Dudley et al., 2015[219]; Duong et al., 2015[220]; Velardo et al., 2020[221]).

Adequate nutrition can positively impact students' attentiveness and engagement in learning. Critch (2020[222]) noted that observed impacts of school nutrition policies on academic performance were mixed. However, Ihbour et al. (2021[223]) found that the number of meals/snacks eaten per day and the regularity of main meals was significantly and positively associated with the underlying reading skills. High consumption of fruits, vegetables, bread/starches, olive oil, vegetables, poultry, and water with low consumption of meats are behaviours consistently associated with better reading performance and academic achievement. They concluded that educating children to practice healthy eating habits can help them minimize academic difficulties and improve their learning abilities. Chan et al. (2017[224]) linked unhealthy diets to poorer in-class behaviour and learning outcomes. The quality of food consumed by the students receiving the school meals does appear to play a significant part in the how impactful such programmes are on learning outcomes.

An intended benefit of food provision is improved school attendance, as students are incentivised to attend school to access nutritious breakfast and/or lunch, instead of missing school on days when

they have no food to take for lunch. Food provision in schools can also contribute to a supportive school environment and foster a sense of belonging and attachment, especially when the staff involved in such initiatives have the interpersonal skills and knowledge to deliver such programmes well, which also contributes to reduced truancy and enhanced educational outcomes.

The role of teachers in school food provision was studied by Olarte (2021[225]). She states that despite teachers being uniquely poised to advocate for, and support food and nutrition, school lunch and student health, teachers are largely uninvolved in school lunches, which are typically viewed as separate from the rest of the school day and not seen as an educational opportunity. She found that teachers could play a greater role in school lunch by regularly discussing school lunch, eating with students, gardening and cooking with students, and/or providing positive messaging about lunch. Barriers identified in less successful food in school programmes included lack of administrative support, poor food quality, poor cafeteria culture and a lack of adequate professional development; and that opportunities for professional development related to school lunch would provide greater self-efficacy, knowledge, and skills to overcome the barriers to playing a greater role in school lunch. She concluded that teachers can play a large role in school lunch and have the greatest power to act as agents of cultural change in schools but need the support of their respective schools' administrations. School lunch-based professional development would assist teachers in accomplishing this momentous task.

A study by Thompson et al. (2022[226]) found that teachers were most engaged in school lunch programmes when staff presented information about the "big picture" of school meals: connecting school meals with student achievement and student health.

2.7.2 Food in School Programmes around the World

Many countries around the world have school-based food programmes; below are some examples.

** U.S. National School Lunch Program* (USDA, 2022[227]) – in the 2019 fiscal year, prior to COVID-19, 4.9 billion lunches were provided to children in nearly 100,000 public and non-profit private schools or residential childcare institutions at a cost of $US 14.2 billion. Any student in a participating school can get an NSLP lunch. Participation in USDA's child nutrition programs, including NSLP, has been found to reduce food insecurity (Ralston et al., 2017[228]). Meals served through NSLP must meet Federal nutrition standards.

* U.S. Farm-to-School Network – these programmes[xii] are designed to connect schools with local farmers and often integrate food-related education into the regular, standards-based curriculum. School meals use locally sourced foods, thereby increasing children's exposure to healthy foods and supporting local agriculture (Joshi et al., 2008[229]; Prescott et al., 2020[230]),

*E.U. School Fruit and Vegetable Scheme – this European Union initiative provides free fruit and vegetables to primary school children to increase their consumption of fresh produce and promote healthy eating habits from a young age. Research reviewing the scheme suggests socialisation during children's consumption of fruit and vegetables is critical to it becoming a dietary habit (Zolfaghari et al., 2022)[231] and that the increased availability, exposure and awareness of fruit and vegetables from participation in the programme had more to do with increased fruit and vegetable consumption than actual preference changes (Staudigel et al., 2018[232]).

**Finland* – their school food programmes emphasise a balanced diet and supply a variety of freshly prepared, locally sourced and predominantly organic meals, including vegan and vegetarian options,

[xii] For example, see: https://www.farmtoschool.org/; https://kidshealth.org/en/parents/farm-to-school.html;

which include traditional foods, and promotes healthy eating and social interaction among students. The Finnish National Board of Education considers that school meals are pedagogical tools to teach good nutrition and eating habits as well as to increase consumption of vegetables, fruits and berries, wholemeal bread and skimmed or low fat milk. The Finnish government began subsidising school meals in 1913 mainly just for disadvantaged children; this was extended in 1943 requiring municipalities to provide a free lunch for all pupils at elementary schools by 1948, and over time to all primary and secondary schools, with even university students having subsidised meals since 1979. National guidelines on school meals emphasise the nutritional quality of school food but also the need for meals to taste good, the importance of learning eating habits together and the objectives of health and nutrition education (Sarlio-Lähteenkorva and Manninen, 2010[233]).

*Sweden – featuring organic and locally sourced ingredients, Sweden's school food programme aims to teach students about sustainable food production, environmental awareness and responsible healthy eating. School meals have been provided for as long as schooling has existed in Sweden, although until the 1930s only children who revealed an obvious need received them (Gulberg, 2015[234]). The programme aims to meet nutritional requirements, be environmentally friendly and, most importantly, achieve high acceptance among school children. However, research has found that the 260 million publicly funded school meals served annually in Sweden generate 21,000 tons of food waste, concluding that school-catering units should stop serving unpopular meals and shift their focus to serving popular nutritious meals, including popular plant-based options, as part of efforts to make school meal schemes more sustainable (Sundin et al., 2023[235]).

*Japan – "Shokuiku", is a universal national school food programme with meals usually prepared on-site using fresh ingredients from a variety of food groups including rice, fish, vegetables and soup. Students are also involved in the preparation and serving of meals, promoting a sense of responsibility, appreciation for food and healthy eating habits.

Studies have found that the programme has closed the socioeconomic gap in fruit and vegetable intake among school children in Japan (Yamaguchi, 2018[236]). In those schools with Diet and Nutrition Teachers with improved awareness and interest in diet among teachers and guardians, less children skipping breakfast and improvements in quality of life, evidencing how essential the Japanese school lunch system is essential for fostering healthy mind and bodies for the next generation (Tanaka and Miyoshi, 2012[237]).

*France – a wide range of high-quality ingredients including vegetables, fruits and whole grains are provided in balanced meals that include a starter, main dish, cheese and dessert. Culinary traditions, gastronomic education and regional ingredients are encouraged, to instil healthy eating habits and promote the enjoyment of food. French school lunch programmes are part of the nation-building process because they are designed to teach students how to eat, which is especially important in France where the art of gastronomy is a key source of identity and pride (Maxwell, 2019[238]).

*Brazil – supporting local farmers and small-scale food producers by focusing on locally sourced ingredients, the school food programme aims to improve nutrition, reduce hunger and promote social inclusion. One of the largest school food programmes globally, school meals were introduced in the 1940s by Brazil's nutrition scientists, by 1955 the first official school food programme – Campanha de Merenda Escolar – was stablished, and within 60 years it stood as a decentralised public policy providing students enrolled in public schools across the country with healthy and culturally appropriate free meals (Sidaner, 2013[239]). Their research has shown that local food production, school meals and nutrition education can be linked through integrated programmes and

policies, improving access to healthier foods; and that government leadership, strong legislation, civil society participation and intersectoral decision making are determinant (ibid.).

**South Korea* – encourages balanced nutrition and a wide range of flavours and ingredients, offering different meals that reflect the country's traditional cuisine including rice, soup, and several side dishes such as vegetables, tofu and fermented foods. However, the programme has not been without controversy. Almost 100% of schools served school lunches in South Korea in 2003, but after serial outbreaks of food-borne illness among students having eaten school lunches, in 2006 the School Meals Act was significantly revised with the safety and nutritional quality of school meals remaining as the biggest issue until the middle of 2000s when eco-friendly and universal free school lunches became the main issues related to school meal service (Yoon et al., 2012). Research has shown that the free school lunch policy may provide simple and inexpensive means to improve the health and welfare of students as students' body mass index and mental health declined when the free school lunch policy was abolished, but this decline was reversed when the programme was re-introduced (Bethmann and Cho, 2022[240]). Also, workload, inconsistent curriculum, teachers'/administrators' low perception of nutrition education, and lack of continued nutrition teacher education and poor working conditions are barriers to implementation of nutrition education in South Korean schools (Lee and Hong, 2015[241]).

**India* – the National Programme for Nutrition Support for Primary Education was initiated in India in 1995 with two major objectives: universalisation of primary education and improvement in nutritional status of primary school children (Ramachandran, 2019[242]). In 2001, the Supreme Court of India ruled that the Mid-day meal (MDM) is a legal entitlement for all school children and that the government should provide a hot cooked mid-day meal for 200d to all primary school children; in the decade to 2019, universal primary education and MDM were achieved with hot cooked meals provided every day to about 100 million children, containing adequate cereal content but inadequate pulse and vegetable content (ibid.).

India's Mid-day Meal (MDM) program was largest school feeding program in the world (World Food Programme, 2013[243]), catering to about 144 million children, with approximately 80% coverage across primary school students (Chowdhury, 2019[244]).

Although the programme aims to meet minimum calorie and protein requirements, nearly half of all Indian children are undernourished, both in terms of weight-for-age as well as height-for-age, with girls disproportionately affected (IIPS and ICF, 2017[245]). Even with regional disparities in outreach and food quality, MDMs have been found to significantly improve enrolment, attendance, retention, learning outcomes, gender and social equity and most importantly nutrition (e.g., see Afridi, 2011[246]; Sarma et al., 1995[247]; Singh et al., 2014[248]; Aurino et al., 2019[249]).

However, according to UNESCO, approximately 0.32 billion students in India have been affected by school closures due to the Covid-19 pandemic which is likely to exacerbate food insecurity, particularly for those who are already under-nourished, especially girls, who like older women, eat last and eat less at home, compared to boys and men (Alvi and Gupta, 2020[250]). One solution that has been proposed is to re-direct locally produced horticultural crops to households under the MDM and ICDS umbrella to help improve nutrient content and diet diversity for children and provide temporary relief to farmers through local procurement, an idea that has proven to be successful in other contexts (Singh and Fernandes, 2018[251]).

UK Food and Nutrition Education in Schools aims to improve children's understanding of food, nutrition and cooking. It provides practical cooking lessons, educates students about balanced diets, and encourages the consumption of fruits, vegetables, and whole grains.

UK Food for Life Programme – this programme was developed by the Soil Association in 2003, a leading charity organisation promoting sustainable food and farming. It is about making good food the easy choice for everyone – making healthy, tasty and sustainable meals the norm for all to enjoy, reconnecting people with where their food comes from, teaching them how it's grown and cooked, and championing the importance of well-sourced ingredients (Soil Association, n.d.[252]). It aims to transform food culture and improve the quality of food in schools, hospitals and other community settings.

Over 1.7 million meals that meet 'Food for Life Served Here' standards are served each day, including over 280,000 at Gold. The scheme provides caterers with an incentive to source more sustainably sourced, ethical and local produce. Impact evaluations of the Food for Life Programme (n.d.[253]) revealed that pupils in Food for Life schools are twice as likely to eat five a day and a third less likely to eat no fruit or vegetables than pupils in comparison schools, and eat around a third more fruit and vegetables than pupils in comparison schools, and significantly more fruit and vegetables at home (Jones et al., 2015[254]); and that 45% of parents reported eating more vegetables as a result of Food for Life (Orme et al, 2011[255]).

Furthermore, research by the New Economics Foundation demonstrated that £3 in social return for every £1 invested in Food for Life Served Here menus, with most of the benefit experienced by local businesses and local employees (Kersley et al, 2011[256]). Research focusing on Food for Life multi-setting programmes and considering value created for health, education and environment in addition to economy, demonstrates a social return of £4.41 for every £1 (Jones et al., ibid.).

2.7.3 New Zealand Healthy Eating / Food in School Programmes

In addition to the public health initiatives described previously, there are several school-based healthy eating and food provision initiatives that are implemented directly through schools in New Zealand. These are outlined below.

Fruit and Vegetables in Schools (FIS)[xiii] is an initiative that aims to promote awareness, understanding and knowledge of the importance of eating 5+ A Day (note the fact sheet for 2023[xiv]). It is linked to the New Zealand Curriculum[xv] and produces resources[xvi] that are freely distributed to educators to implement in schools. The Fruit and Vegetables in Schools initiative provides fresh produce to over 120,000 tamariki and school staff each year, continues to be the most popular healthy kai programme in Aotearoa.

An independent evaluation was conducted by Quigley and Watts on behalf of the 5+ A Day Charitable Trust (2023[257]) which supports the Te Whatu Ora funded initiative. The evaluation found that FIS rated as the most effective initiative at supporting a healthy kura/school environment. Principals interviewed for the evaluation highlighted that FIS helped them assist whānau with the high cost of living. Not only was some of the stress of providing fresh produce for tamariki removed

[xiii] https://5adayeducation.org.nz/news.
Also see: https://www.tewhatuora.govt.nz/for-the-health-sector/specific-life-stage-health-information/child-health/fruit-in-schools-programme
[xiv] https://5adayeducation.org.nz/assets/img/site/Fruit-in-Schools-Fact-Sheet-2023.pdf
[xv] https://5adayeducation.org.nz/learning
[xvi] https://5adayeducation.org.nz/fruit-and-vegetables-in-schools

but kura were also able to assist struggling whānau by sending home excess fruit from time to time. Findings showed that:

-93% of principals said FIS is a great support for feeding hungry children with healthy food.
-92% of principals said FIS supported their school/kura greatly to promote a healthy food environment.
-91 percent of principals agreed the overall health of tamariki would decline if FIS ended.
-9 out of 10 principals said FIS is a great support to promoting healthy eating.
-95% of principals said the quality of the food from FIS was good or great.
-97% of principals rated FIS as good/great.
-95% of principals said both FIS and Ka Ora, Ka Ako are necessary.
-84% used 5+ A Day resources provided to support FIS.

The review found the 5+ A Day resources were the most commonly used in comparison with the Te Kete Ipurangi New Zealand Curriculum (TKI) resources produced by the Ministry of Education. The majority of key interviewees agreed that FIS was successful because:

-it is meeting a genuine need and making a real difference;
-it is very well managed, and easy for schools/kura to participate;
-the fruit and vegetables provided are varied and of high quality;
-it has been consistent and reliable over many years.

Project Manager, Carmel Ireland, is concerned at the desperate need that still exists in the community. She states, "Kura appreciate the option to use fruit in a way which suits their community. Whether it's sharing morning tea, supplementing lunches, available all day or handed out as a snack to eat on the way home – FIS is easily adapted to fit any environment… Principals reiterated that FIS not only feeds their ākonga/students, but also provides a safe environment based on healthy choices and cultural concepts such as manaakitanga, rangatiratanga, kaitiakitanga and connection with the wider community. Tamariki get the nutrition they need without feeling whakamā/embarrassed" (Five Plus a Day, 2023[258]).

Some principals noted the consumption of highly processed snacks has either greatly reduced or stopped altogether since the start of the initiative. The goal of FIS also to encourage a life-long appreciation of the value of nutritious food and by providing a real variety of tasty fresh produce, some of which tamariki haven't had a chance to try before. The survey showed that 72% of principals agreed or strongly agreed that 'if Fruit in Schools ended, academic outcomes would suffer' explaining that the main way fruit provision contributed to academic outcomes was by providing 'brain food' that enabled children to concentrate and stay on task (ibid.).

**Healthy Food and Drink Guidance for Schools* – The government is leading work to improve the food environment in schools, kura, English and Māori medium Early Learning Services through Ministry of Health (2020[259]) guidance to help schools and kura develop a policy to improve access to healthy food and drinks. The guidance supports boards, principals, canteen managers and food service providers to adopt and implement a policy for their school and guidance on creating supportive environments for children.

** Healthy Active Learning* (HAL) is a new $47.6 million initiative as part of the New Zealand Government's (2019[260]) Wellbeing Budget. Delivered through Te Whata Ora / Health New Zealand and the Te Tāhuhu o te Mātauranga | Ministry of Education[261], 'Healthy Active Learning' is a voluntary initiative, at no cost to schools, kura and early learning services, that delivers education

and health outcomes for children and youth across Aotearoa New Zealand. To support implementation of this guidance, toolkits have been developed in te reo Māori and English that are available to all schools, kura, and English and Māori medium early learning services. A health promotion workforce based in public health units throughout the country will provide practical support to assist education settings to create healthier food environments.

The HAL initiative contributes to one of the Government's key priorities – improving the wellbeing of children and young people – and is part of the Government's Child and Youth Wellbeing Strategy (Department of the Prime Minister and Cabinet, 2019[262]).

The Child and Youth Wellbeing Strategy sets out a shared understanding of what children and young people under 25 years of age need and want in order to be well, what government is and should be doing to support them, and how we must work together. The purpose of the Strategy is as outlined below:

- Set out a framework to improve child and youth wellbeing that can be used by anyone.
- Drive government policy in a unified and holistic way
- Outline the policies the Government intends to implement
- Harness public support and community action
- Increase political and public sector accountability for improving wellbeing
- Improve wellbeing outcomes for Māori children and young people

The Children's Act 2014, s7(2)(c) requires the responsible Minister to prepare an annual report on achievement of the Strategy's outcomes, including specific analysis of outcomes for Māori children. Child health and wellbeing indicators (The Department of the Prime Minister and Cabinet, 2023[263]) are used to assess the impact of the strategy, and reporting on each indicator must include an analysis by household income or socio-economic status, and analysis of the disparity of outcomes by ethnicity and other demographic variables of significance, when such data is available.

Similarly, the Child Poverty Reduction Act 2018 requires the government of the day to set long-term (10-year) and intermediate (three-year) targets on a set of child poverty measures against which they must report annually (Office of Prime Minister and Cabinet, 2019[264]). The Minister for Child Poverty Reduction has identified the following subset of the Child and Youth Wellbeing Indicators that will be used as the first set of Child Poverty Related Indicators – of particular note for the purposes of this research is "food insecurity":

- Housing affordability. As measured by the percentage of children and young people living in households spending more than 30 percent of their disposable income on housing. Source: Household Economic Survey
- Housing quality. As measured by the percentage of children and young people living in households with a major problem with dampness or mould. Source: Household Economic Survey
- Food insecurity. As measured by the percentage of children and young people living in households where food runs out often or sometimes. Source: New Zealand Health Survey 2019/20 onwards
- Preventable admissions to hospital. As measured by the rate of preventable admissions to hospital for children and young people. Source: Administrative data from Ministry of Health
- Regular school attendance. As measured by the percentage of children and young people who are regularly attending school. Source: School Attendance Survey.

Love Kai is a new programme developed by Te Whata Ora / Health New Zealand's Community and Public Health (2023[265]) to implement the nationwide Healthy Active Learning initiative with Canterbury education settings. The Love Kai (food) vision is for schools to be a fertile ground to grow healthy relationships with kai. Love Kai is driven by the values of participating school and provides guidance and support to enhance school food and drink environment. It promotes eating of at least 4-5 servings of vegetables a day – acknowledging that children often take time to like vegetables and are more likely to enjoy them when their family also eats and enjoys a variety of vegetables, they promote the early establishment of healthy eating habits, for life[xvii].

Love Kai takes a holistic approach based on the Te Whare Tapa Whā model of health, as kai is about more than nutrition. Love Kai schools' policies and practices support hauora by:

- Taha Tinana – fuelling bodies and brains for growth and development;
- Taha Wairua – affirming identity, culture and values;
- Taha Whānau – strengthening community connections;
- Taha Hinengaro – equipping students to navigate the food and drink environment; and
- Whenua – connecting with and caring for our environment.

Food for Thought – Foodstuffs (2024[266]) developed this free Nutrition Education Programme alongside medical professionals, teachers and nutritionists including the Food for Thought Education Trust and Heart Foundation. Food for Thought aims help to grow healthier, more informed communities and takes a positive approach to food and healthy eating and to reduce rising rates of obesity in New Zealand. Since it started in 2007, Food for Thought has reached more than 200,000 New Zealand young people in over 7,300 classes around country. Their research suggests family shops show a reduction in soft drinks and confectionery consumption after a student completes the Food for Thought programme.

The programme is delivered to Year 5 and 6 students in schools in two parts:

- Food for Thought nutritionists run two classroom sessions covering: general healthy eating, food group information, how to read food labels, and understanding sugar levels in drinks;
- Students visit a local PAK'nSAVE, New World or Four Square to learn and understand more about food label reading, product placement, product comparisons and allergy awareness; and to better understand why the choices they are making could impact their health (see Figure 2.11 below).

[xvii] https://www.vegetables.co.nz/assets/Vegetables-co-nz/resources/Vegetables-for-children.pdf

Figure 2.11 Food for Thought students doing a supermarket learning trip
Source: https://www.foodstuffs.co.nz/here-for-nz/healthy-and-affordable-food/food-for-thought

** Health Promoting Schools / Ngā Kura Tairanga Hauora* was a Te Whata Ora / Health New Zealand supported initiative[xviii], in which staff at Community and Public Health can assist school communities who have identified nutrition and healthy eating as priorities to work on, by supporting them to create and sustain environments that improve and maintain their hauora (health and wellbeing). The Ministry of Health's Health Promoting Schools strategy ended in 2020. However, Health Promoters are still able to assist with food and drink policy development and implementation through the nutrition component of the Healthy Active Learning initiative (see above).

It encourages school to create environments that supports students' physical, mental and social wellbeing through nutrition education, promotion of health eating, provision of nutritious options in canteens such as water instead of sugary drinks, and increased fruit and vegetable consumption.

**Garden to Table* is a registered charity[xix] supporting primary and intermediate schools and kura across the country to give children the knowledge and skills to grow, harvest, prepare and share fresh seasonal food, thereby giving them essential food skills and promoting healthy eating habits that can have a transformative and lifelong impact on their hauora (wellbeing) and on the world around them. More than 26,000 kids across Aotearoa participated in the programme last year, spending more than 45,000 hours in the garden and kitchen, and over 4,400 hours of training and mentoring provided to educators. Kids at 255 schools ate more than 1 million vegetable-based meals (ibid.).

According to Thrive magazine editor and ambassador for Garden to Table, Niki Bezzant, the school-based programme helps tamariki pick up gardening skills, learn to cook, and develop a taste for all kinds of nutritious fruit and veges they've grown themselves[xx]. Garden to Table connects kids with where their food comes from, and along the way there's lots of learning. In Garden to Table classes, half the kids work in the garden – planting, weeding, composting and harvesting vegetables and fruit. The other half are in the kitchen cooking the bounty. At the end, they come together to share their experiences, then sit down to eat the meal they've collectively created. It's a simple formula with a lot of learning going on including maths, science, problem solving, teamwork and sharing. Questions asked during classes include 'Why and how do we dilute that worm fertiliser? Why does steam happen when we add liquid to a pan? There's language. What do you call someone who's an expert

[xviii] https://www.cph.co.nz/your-health/health-promoting-schools/
[xix] https://gardentotable.org.nz/
[xx] https://womanmagazine.co.nz/garden-to-table/

in mushrooms? What's another name for coriander?'. The children are also learning subtle lessons about where food comes from, how it gets from the garden to the plate. Niki Bezzant says:

> "*I've visited lots of Garden to Table classes as an ambassador for the organisation. I've watched kids harvest silverbeet, herbs and salad from the garden, and make silverbeet potsticker dumplings and a "salad of the imagination". I have never seen kids eat silverbeet and salad so fast or with such gusto. It goes to show that when they're involved with their food, kids are much more likely to eat it. in the kitchen is directly impacted by what's happening in the garden. Keeping an open dialogue about what's coming out of the garden and what we can do with it in the kitchen is key*."

The learning radiates far beyond the school gates, with a ripple effect felt through whānau and community, with one teacher stating that she encourages:

> *"tamariki to share their learning at home – to have kōrero with their whānau about what they're doing at Garden to Table… The child that comes to us in Year 3 [when Dominion Road students start the programme] may be reluctant to try things. They leave at the end of Year 6 confident. They'll try new things, identify kai, share learning at home, cook at home and they come back and tell me about that." (ibid.).*

Because these lessons stick with children throughout the education system and into adulthood, tamariki are equipped for life, "You only need to see the Garden to Table programme in action to see how valuable it is for our tamariki. We will change generations." (ibid.).

Many participating schools have information on their websites explaining how they integrate the programme into the syllabus. For example, Dominion Road School (2017[267]) have online resources and a video of their programme. Some of the skills they say they are developing through the Garden to Table programme are:

- Hands on and cooperative learning
- Knowledge of seasonal produce and where food comes from
- An appreciation of new tastes
- Hygiene and safety
- Knowledge to use standard garden and kitchen equipment
- Life-long cooking and gardening skills.

**Ministry of Education's Food and Nutrition Syllabus* – Food and Nutrition is a subject within the Health and Physical Education Learning Area of the New Zealand Curriculum. The other subjects included in the Learning Area are: Health Studies, Physical Education, Outdoor Education, Whaiora, and Health. All subjects in the Learning Area share the same four underlying concepts. They are: hauora, socio-ecological perspective, health promotion, attitudes and values (Ministry of Education, 2024[268]). It is through the four underlying concepts that all subjects within the Health and Physical Education Learning Area are connected.

Food and Nutrition uses subject-specific contexts to explore each of the four underlying concepts. Food supports and directly impacts health and wellbeing. The intake of nutritious food supports an active lifestyle and can enhance physical participation that enriches mental and emotional wellbeing. Food and Nutrition also has connections to subjects outside the Health and Physical Education Learning Area due to its multi-disciplinary nature. These connections are within the following Learning Areas and Subjects: social sciences (including environment and societies, agribusiness and social studies); technology (including process and systems technologies and food technology), hospitality and science (ibid.).

The Ministry of Education (n.d.[269]) has produced a list of Useful Resources to support the Ministry of Education's Food and Nutrition for Healthy, Confident Kids: Guidelines to Support Healthy Eating Environments in New Zealand Early Childhood Education Services and Schools. These include resources to support teachers, principals, management, BOT members, students and parents/whānau. Contact providers directly to order your copies of these resources.

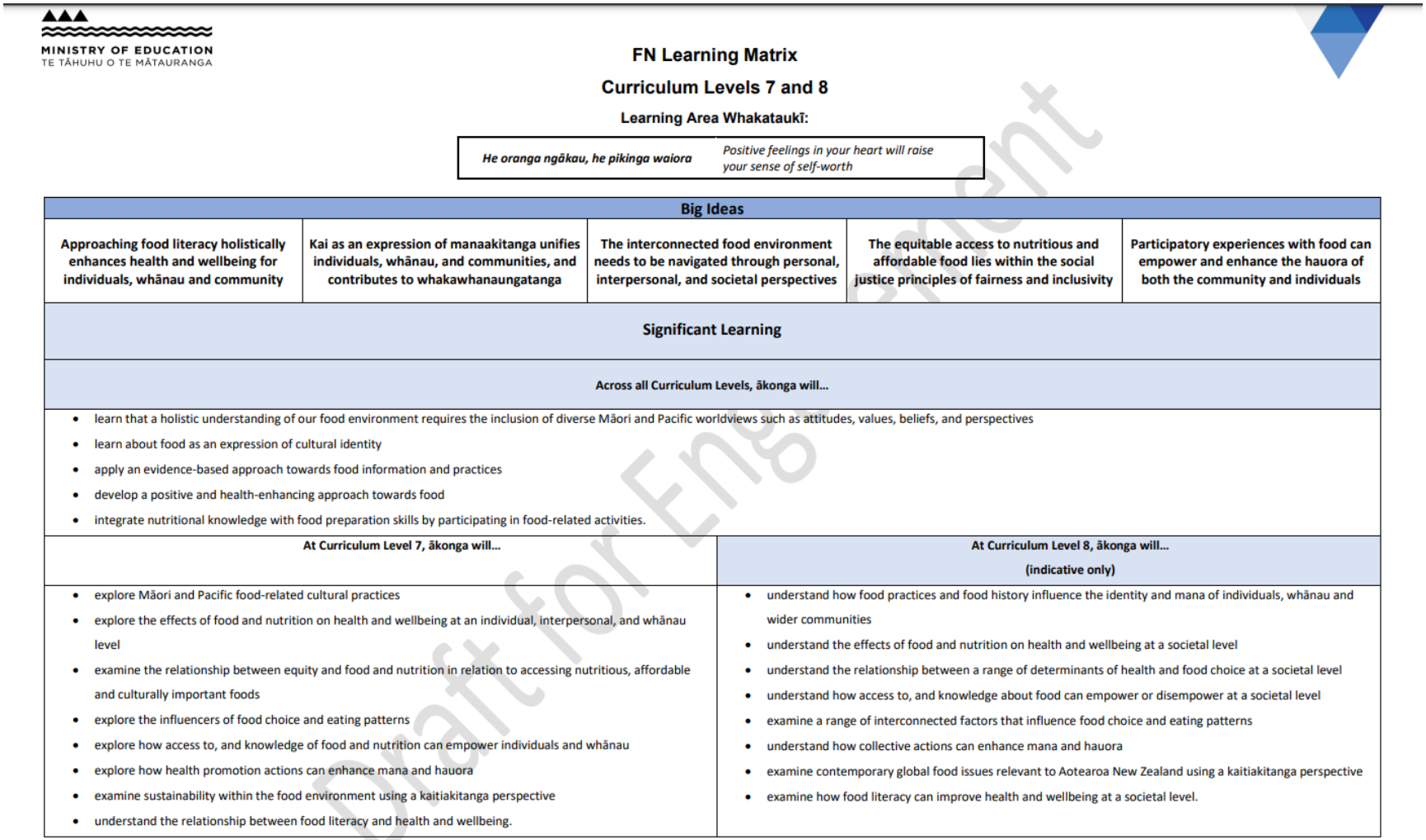
The Ministry of Education's (2024[270]) NCEA curriculum for Health and Physical Education, Food and Nutrition includes a number of "big ideas":

- Approaching food literacy holistically enhances health and wellbeing for individuals, whānau, and community;
- Kai as an expression of manaakitanga unifies individuals, whānau, and communities, and contributes to whakawhānaungatanga;
- The interconnected food environment needs to be navigated through personal, interpersonal, and societal perspectives;
- The equitable access to nutritious and affordable food lies within the social justice principles of fairness and inclusivity;
- Participatory experiences with food can empower and enhance the hauora of both the community and individuals.

The have a Food and Nutrition Learning Matrix for Curriculum Levels 7 and 8 Learning Area Whakatauki (Ministry of Health, n.d.[271]), that relates to food literacy and related principles – see Figure 2.12.

The aim of food and nutrition education is for ākonga to make informed decisions about food that will contribute to their own wellbeing and that of other people (Ministry of Health, 2023[272]). It is expected that all ākonga will have had practical cooking experiences by the end of year 8. Through learning opportunities in food and nutrition education, ākonga will develop knowledge and understanding of:

- the nutrition people across all age groups require for growth and development;
- how nutrition, exercise, and wellbeing are related;
- the cultural significance of food and of rituals associated with food and nutrition;
- selecting and preparing food and eating patterns that reflect health-enhancing attitudes towards nutrition;
- the costs associated with buying and preparing food and the skills necessary to meet nutritional needs on a limited budget; and
- the skills needed to prepare food successfully and safely at a personal level and as a shared responsibility (ibid.).



MINISTRY OF EDUCATION
TE TĀHUHU O TE MĀTAURANGA

FN Learning Matrix

Curriculum Levels 7 and 8

Learning Area Whakataukī:

He oranga ngākau, he pikinga waiora	*Positive feelings in your heart will raise your sense of self-worth*

Big Ideas				
Approaching food literacy holistically enhances health and wellbeing for individuals, whānau and community	**Kai as an expression of manaakitanga unifies individuals, whānau, and communities, and contributes to whakawhanaungatanga**	**The interconnected food environment needs to be navigated through personal, interpersonal, and societal perspectives**	**The equitable access to nutritious and affordable food lies within the social justice principles of fairness and inclusivity**	**Participatory experiences with food can empower and enhance the hauora of both the community and individuals**

Significant Learning

Across all Curriculum Levels, ākonga will…

- learn that a holistic understanding of our food environment requires the inclusion of diverse Māori and Pacific worldviews such as attitudes, values, beliefs, and perspectives
- learn about food as an expression of cultural identity
- apply an evidence-based approach towards food information and practices
- develop a positive and health-enhancing approach towards food
- integrate nutritional knowledge with food preparation skills by participating in food-related activities.

At Curriculum Level 7, ākonga will…	**At Curriculum Level 8, ākonga will… (indicative only)**
• explore Māori and Pacific food-related cultural practices • explore the effects of food and nutrition on health and wellbeing at an individual, interpersonal, and whānau level • examine the relationship between equity and food and nutrition in relation to accessing nutritious, affordable and culturally important foods • explore the influencers of food choice and eating patterns • explore how access to, and knowledge of food and nutrition can empower individuals and whānau • explore how health promotion actions can enhance mana and hauora • examine sustainability within the food environment using a kaitiakitanga perspective • understand the relationship between food literacy and health and wellbeing.	• understand how food practices and food history influence the identity and mana of individuals, whānau and wider communities • understand the effects of food and nutrition on health and wellbeing at a societal level • understand the relationship between a range of determinants of health and food choice at a societal level • understand how access to, and knowledge about food can empower or disempower at a societal level • examine a range of interconnected factors that influence food choice and eating patterns • understand how collective actions can enhance mana and hauora • examine contemporary global food issues relevant to Aotearoa New Zealand using a kaitiakitanga perspective • examine how food literacy can improve health and wellbeing at a societal level.

Figure 2.12 Food and Nutrition Learning Matrix
Source Ministry of Education (ibid.).

The curriculum states that in this key area of learning, ākonga have opportunities to examine the influence of food and nutrition in relation to the physical, social, mental and emotional, and spiritual dimensions of hauora; teachers will recognise and take into account the diverse cultural, social, and economic backgrounds of ākonga in New Zealand schools; that ākonga will examine the influences of culture, technology, and society on food choices, food preparation, and eating patterns; and that effective food and nutrition education is reinforced by a school environment that encourages healthy eating, promotes safe food-handling practices, and makes use of community support (ibid.).

For example, "You Are What You Eat" is one 12-lesson unit[xxi] where students work together to promote a healthy food message to the school community. The class explores how food choices can affect people's health and wellbeing, identify the benefits of eating healthy foods, describe a balanced diet and design appealing and nutritional meals. They then share their knowledge of food nutrition by campaigning for healthier eating habits in the school community through various potential methods such as operating a healthy canteen for the day, hosting a shared lunch for junior students, creating a movie/pamphlet/book/web-page that markets healthy food, or hosting a food fair expo for parents. Students develop and implement a plan of action for the health promotion, and then reflect on its success using audience responses as one way of determining their achievements.

The Heart Foundation (2019[273]) has also produced a free inquiry-based unit plan for curriculum level 1 students based around an edible gardens theme.

**EnviroSchools*[xxii] is a national environmental action-based programme where young people are empowered to design and lead sustainability projects in their schools, neighbourhoods and country. Early childhood centres and schools commit to a long-term sustainability journey, where tamariki/students connect with and explore the environment, then plan, design and take action in their local places in collaboration with their communities. The process encourages collective exploration and co-creation, whereby caring for our place and the whole planet becomes a living curriculum where skills and competencies are gained through experience and mahi within meaningful communities,

> *"connecting with nature, exploring indigenous wisdoms, forming relationships with tangata whenua, collaborating with people in their diverse communities, and finding out about their own qualities and passions. Learning and action in Enviroschools does not just have environmental outcomes but social, cultural and economic benefits too"* (ibid).

Over 1060 schools (43% of all in NZ) and 480 ECEs (14%) participate in the programme. Toimata Foundation in partnership with Te Mauri Tau holds overall programme development spearheading innovation and direction for Enviroschools nationwide and providing Enviroschools resources, facilitator training, mentoring and professional development. It is supported by a large network of regional and national partners include the Ministry for the Environment, Te Uru Rākau – New Zealand Forestry Service, Mother Earth and Earthwise. Each participating region[xxiii] has a coordinator who works with Enviroschools facilitators and other partners and collaborating organisations.

Examples of Enviroschools initiatives that relate to food security and healthy eating include orchard development, composing systems, wise water, community garden, irrigation, community food web, worm farm and bee projects.[xxiv] Enviroschools national team members also recently developed an

[xxi] https://nzcurriculum.tki.org.nz/content/download/157536/1166921/file/Health%20And%20Physical%20Education%20level%202-3%20You%20Are%20What%20You%20Eat.pdf
[xxii] https://enviroschools.org.nz/
[xxiii] https://enviroschools.org.nz/your-region./
[xxiv] https://enviroschools.org.nz/news-and-events/articles/earthwise-action-fund/

online suite of resources for the Ministry of Education – Education for Climate Changing Future – to support effective integration of environmental education across the curriculum in the Early Childhood sector (Ministry of Education, 2023[274]). It provides strategies, activities, curriculum links and stories of practice to inspire learning journeys towards Climate Change Action as well as links to reference resources and organisations.

Waikato Regional Council, along with the district and city councils, actively support their region's Enviroschools programme, which aims to integrate environmental education into the whole of school life. Students are able to take part in planning, designing and changing the school's environment to make it a healthy, stimulating and sustainable place. Students are empowered to become active environmental citizens for life.[xxv] Enviroschools work within the curriculum framework and Guidelines for Environmental Education to make learning a practical and fun experience. The first unit students study in the Enviroschools process is called 'Me in My Environment'. Students explore the total environment and contribute to a 'Whole School Vision'. Environmental education can be integrated with the school's physical surroundings, operational practices and organisational principles through the following five theme areas: Living Landscapes; Ecological Buildings; Healthy Water; Precious Energy; Zero Waste. The Council invites schools to apply for funding to assist with their Enviroschools projects.[xxvi]

Results of on online survey by Wypych and Field (2021[275]) of Enviroschools stakeholders had largely positive responses about the value of Enviroschool; for example, there was a positive difference seen in understanding the link between health of people and the health of te taiao/the environment (26% strongly positive, 51% somewhat positive); and for community connection and resilience (69% strongly positive, 26% somewhat positive).

Of potential relevance to other initiatives where government support and resourcing is sought:

> *"Members of council were asked to select what options would encourage their council to increase its annual investment in Enviroschools. Nearly half of respondents reported that they would match funding if it increased from central government (49%), a similar percentage would be encouraged by the level of community interest (47%). Some councils would be encouraged by other co-funding arrangements (40%), or other councils in their region increasing their investment (18%), and some were not sure (20%). Those that mentioned 'other' (17%) mentioned showing benefits of Enviroschools, waste levy increases, commitment from schools and community/business investment"* (ibid., p.9).

** School Breakfast and Lunch Programmes* – several community-based programmes are underway in throughout the country that focus on providing nutritious meals to children in schools to ensure that students have access to a healthy breakfast or lunch. Some programmes operate in partnership with community organisations, local businesses and volunteers. Various studies have examined such programmes, including Carter and Swinburn (2004[276]), who state that children access a significant portion of their food at school and thus investigated the nutritional policies of 819 schools, including an assessment of canteen menus. Additionally, McKelvie-Sebileau et al. (ibid.) state that the reasons for suboptimal dietary habits among Hawke's Bay children are not fully known, but qualitative studies have shown that financial hardship (McKelvie-Sebileau et al., 2021[277]; Tipene-Leach and McKelvie-Sebileau, 2021[278]) and the school food environment (DeSouza et al., 2022[279]) are of note. A few key examples of prominent school food programmes are below.

[xxv] https://waikatoregion.govt.nz/services/education/enviroschools/
[xxvi] https://waikatoregion.govt.nz/community/funding-and-scholarships/enviroschools-grant-fund/

** Kids Can*[xxvii] is a Charitable Trust that was founded in 2005 in a garage in Greenhithe by Julie Chapman. It provides food every day for 55,000 children in 898 schools (more than a third of all schools in NZ) and early 206 learning centres nationwide. They have also given away 525,000 jackets and 275,000 pairs of shoes since 2005. They also have a feminine hygiene programme. Their television promotional campaign shares the message that, as food prices soar, this is becoming a "cost of learning" crisis, with many kids arriving in class too hungry to learn or not turning up at all. They state that as their own costs are rising and regular donations are down, they can barely keep up, let alone reach thousands of kids on their waitlist: 28 schools have applied for KidsCan support this year alone, as food inflation hits a 36-year high. An increasing number of applications are coming from schools previously classified as decile five and six, who are seeing more need as working families struggle to make ends meet. A social worker said the lack of food was having a real impact in the classroom: "I don't think we realise how hunger affects our kids. Not just their behaviour, but their want to be here, their want and need to learn" (Kidscan, n.d.[280]). Similar stories have been reported in the media (for example, see: Almeida, 2023[281]; Alafeshat,2022[282]).

KidsCan CEO Julie Chapman says:

> "*Teachers are warning of a gruelling winter ahead for children in poverty, as the cost-of-living crisis takes a major toll on struggling families. They say it is affecting learning, with more children arriving hungry, others barefoot in freezing weather, and sickness spreading in overcrowded, unheated homes. KidsCan has seen its waitlist double and has launched an urgent appeal to reach thousands of children who need support.*
>
> *Winter is always a miserable time of year for children in poverty, but this year is especially tough. With families' budgets more stretched than ever, they are rationing food, hot water, power and petrol. We're helping to feed and clothe more children than ever before, but we can't keep up with demand, and that's devastating. A child can't learn if they're cold or hungry – their brains are just in survival mode. So, this cost-of-living crisis has become a cost-of-learning crisis. From primary school children staying home due to petrol costs, to secondary students working huge hours to support their families, we should all be hugely worried about this. It's denying children the chance of a better future through education*." (ibid).

Peters et al. (2020, p.4[283]) conducted an evaluation of the KidsCan early childhood pilot programme (see Figure 2.13). They found that that:

> *"the KidsCan programme had a number of benefits for children, such as good nutrition and keeping them warm and dry. These positive impacts were particularly noticed if the children did not otherwise have access to the items provided. The benefits were also associated with reduced absences, engagement in learning, increased energy and attention span, and fewer small health issues, which all improved the quality of children's participation in ECE"*.

The programme also allowed Centres to put money they had been using for resources now provided by KidsCan into other things that enhanced the learning environment; and resulted in an enhanced sense of belonging in the ECE community and improved social relationships by teachers and whānau. Parents stated that it relieved some of their stress and financial pressure, and the provision of the programme to all meant there was no stigma attached to receiving the support.

[xxvii] https://www.kidscan.org.nz/

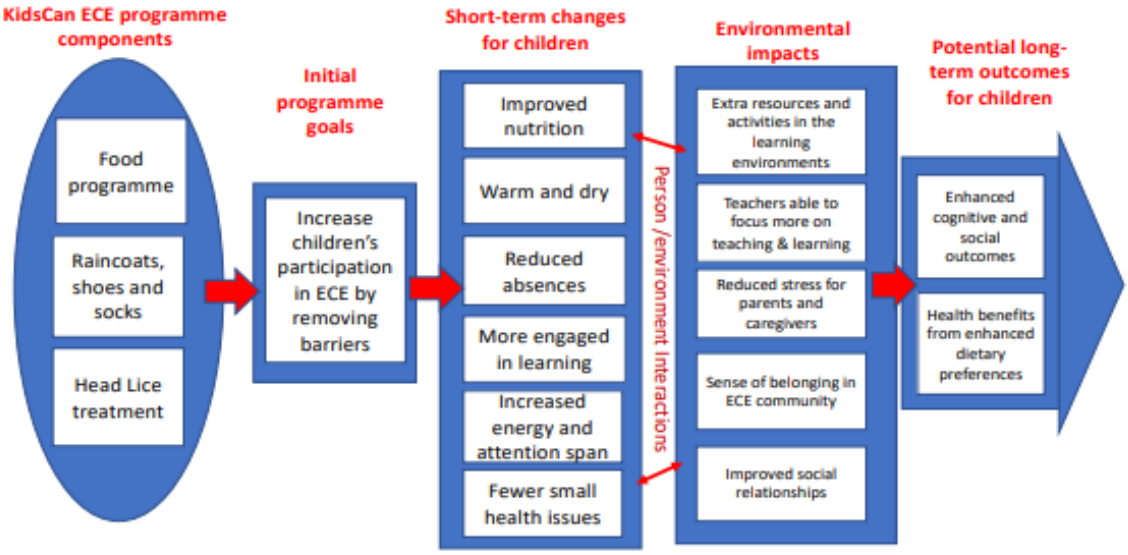


Figure 2.13 Summary of Key Findings from the KidsCan ECE Pilot Evaluation
Source: Peters et al. (2020)

An Impact Lab (2020[284]) GoodMeasure assessment of the social value of KidsCan estimates that every year, KidsCan delivers $20,869,163 of measurable good to New Zealand's society in 2019, with the real world value likely to be much greater as some outcomes have flow on effects to the family and community that cannot be quantified with available data. This represents a social return on investment of $1:2.80 (see Figure 2.14). Various businesses support KidsCan including Mitsubishi's local arm, Pirtek Marlborough, Fox Office Chartered Accountants, Staff 4 You, and Ten Feet Tall[xxviii].

** Kickstart Breakfast*[xxix] programme by Fonterra (n.d.[285]), Sanitarium (2024[286]) and the Ministry of Social Development has served more than 55 million breakfasts to more than 42,000 tamariki and rangatahi in almost 1400 schools, nationwide, with the support of over 2000 volunteers[xxx]. It is a collective effort from whānau, friends, church groups, clubs and societies, local businesses, youth workers and friends of schools. It is designed to provide kai and guidance to help schools to run a successful, sustainable breakfast club to meet their needs, helping student to:

> *"experience the power of a nutritious breakfast along with the social interaction with peers, volunteers, teachers and the wider community".*

[xxviii] https://autotalk.co.nz/mitsubishi-nz-throws-support-behind-kidscan/
[xxix] https://www.kickstartbreakfast.co.nz/
[xxx] https://www.kickstartbreakfast.co.nz/our-news/volunteers-are-the-bees-knees-2

Figure 2.14 GoodMeasure Summary Results of KidsCan Social Value
Source: Impact Lab GoodMeasure Report (ibid.)

** Ka Ora, Ka Ako (KOKA)* – The largest government-funded school food provision programme is KOKA, which aims to address food insecurity and supports children's access to nutritious meals through the provision of free, healthy meals to children in schools. This initiative is an area of focus of this report and is therefore explored in more detail in Chapter 4, along with results of our research into this initiative.

2.7.4 Factors that Contribute to the Success of School Food Programmes

There are many factors that influence how well a school food programme can be implemented including resourcing and budgetary constraints, logistical considerations, the capability and capacity within schools and their communities to delivery such programmes, and how well it caters to food cultures within the school population.

**Food cultures* can be promoted in school food programmes by, for example, incorporating ingredients/meals that meet the cultural preferences and culinary practices, utilising traditional cooking methods to retain the authenticity and flavours of specific cultural cuisines, prioritising local and seasonal foods, incorporating food education that promotes understanding of diverse food traditions and cultures and the nutritional value of various ingredients, aligning menus to cultural festivals and celebrations, and involving whānau and the wider community to share their knowledge and expertise in the development and delivery of food programmes. Such activities can help foster inclusivity, respect for one's own and others' cultural values, a love for culinary traditions, and a greater understanding of food diversity and healthy eating.

**Adequate Resourcing* – Schools must be sufficiently resourced to provide healthy lunches that appeal to students. This requires infrastructure, resources and staff with the skills to prepare and distribute such meals, which may not necessarily be available in each school, in which case they may need to collaborate with external providers and/or volunteers to provide additional resources and support.

**Education* – associated initiatives alongside school food provision programmes that promote awareness and understanding of diverse food cultures and dietary preferences can help students and staff develop empathy and respect for different dietary choices and foster an inclusive environment.

Examples of food education providers include Food for Thought,[xxxi] Healthy Families South Auckland,[xxxii] Homeland.[xxxiii]

2.7.5 Barriers to Effective Sustainable School Food Programmes:

Various factors can hinder the success of school food provision programmes, including the following:

**Lack of sustainability* – while a school food programme may demonstrate positive effects during the implementation phase, such positive benefits may not be sustained over the longer term. This can be due to insufficient resourcing and insufficient planning for the continuation of the programme beyond the initial stages, including for longer-term funding.

**Inadequate Integration into the school curriculum* leads to sub-optimal outcomes. Healthy eating initiatives need sufficient time to become embedded into a school, and to become part of the learning within courses such as food and nutrition, health, hospitality, history and social sciences.

[xxxi] https://www.foodforthought.co.nz/
[xxxii] https://healthyfamiliessouthauckland.nz/our-stories/
[xxxiii] https://homelandnz.com/about/

**Failure to Cater for Local Food Needs and Cultures* – cultural, socio-economic and regional factors must be considered to ensure the specific needs, preferences and challenges of the target population are catered for.

**Lack of Whānau and Community Involvement and Feedback* – limited support and cooperation of the wider community can result in poor uptake of healthy food initiatives beyond the school itself, with little meaningful change in dietary patterns at home. Furthermore, the most effective programmes go beyond provision of food and information, by also addressing behavioural barriers and provide practical tools/supports required to help embed healthy eating practices by students and whānau. Additionally, when school food coordinators do not receive feedback from students and parents about the effectiveness of the programme, they miss out on crucial information about areas for improvement.

2.7.6 Evaluating the Effectiveness of School Food Programmes

There are various factors that can be considered when evaluating the effectiveness of food in school programmes, with commonly included variables outlined below.

* Nutritional Intake and Impact

Official guidelines are typically produced by government health authorities, that detail the recommended intake of various nutrients for children which are met through inclusion of specified levels of macronutrients (carbohydrates, proteins, and fats) and essential vitamins and minerals. Foods that have high nutritional density, i.e. they have high amounts of essential nutrients relative to their calories, are encouraged. Incorporation of a wide spectrum of nutrients in foods from each of these categories in optimal portion sizes is said to ensure a 'balanced healthy' diet. Programme evaluations can assess adherence to dietary guidelines, the provision of balanced meals, and the impact on children's dietary intake and health outcomes.

* Quality of Ingredients

Fresh produce and lean proteins with higher nutritional content is usually preferred, which is optimally gained through locally sourced fruits, vegetables and meats.

* Sustainability and Environmental Impact

Contribution to local economic development, waste minimisation and local food resilience/sovereignty are increasingly considered in school food delivery programmes. Engaging local suppliers and caterers to provide ingredients/meals or employing local people to deliver the food in school programme supports the local economy, contributes to strengthened community relationships and local food resilience and sovereignty, and reduces the carbon footprint of the programme. However, withdrawal of funding for such initiatives has a detrimental impact on the school, students, whānau and the wider community, and thus sustainability of funding for such initiatives is an important consideration.

* Social and Cultural Relevance

Uptake of meals provided through school food programmes is an important consideration. Food that is not actually consumed by students has no nutritional value to those students and can end up being wasted. The acceptability of food includes consideration for students' cultural or religious food requirements and preferences, as well as suitability for people with special dietary needs such as food intolerances.

To promote food traditions, foster cultural diversity and appreciation among students, and meet diverse dietary needs of students, schools can customise their menus/meals; for example, removing allergens such as nuts or gluten; alternative protein sources for vegetarians/vegans; foods that meet

religious requirements such as halal or kosher options; adding a diverse range of food options to provide choices that appeal to a broad range of students. Striking a balance between meeting nutritional guidelines and catering to individual needs/preferences can be challenging, especially given resourcing constraints.

It is also important that students do not feel stigmatised or embarrassed when receiving free meals, to increase their participation and uptake of such schemes. Evaluations can also assess the social benefits of shared meals, such as improved social interactions and community building.

* School Attendance and Performance

Evaluations can assess the degree to which school attendance, concentration and behaviour in classes, overall academic performance and student wellbeing are improved due to school food provision. This can be due to improved nutritional intake of the meals themselves and the desire of the children to attend school to be able to access the meals, but also older children having less pressure to miss school in order to take up paid employment to contribute to the living costs of their whānau during times of financial difficulty.

* Education and Long-term Dietary Changes

School food programmes have the potential to instil lifelong healthy eating habits amongst children and whānau, through promotion of nutritional awareness of food types and healthy eating choices. The degree to which school food programmes do actually change the food culture and dietary choices of students and whānau in practice can be a factor used to determine the effectiveness of such programmes. Practical knowledge and skills related to nutrition, food preparation and making informed food choices can be implemented in schools through the curriculum itself, as well as through interactive activities such as workshops and cooking demonstrations; however, this requires intentional planning and coordination by staff.

2.8 Community-based Food Provision in NZ

2.8.1 Role of Social Enterprise and Community Collectives in Food Resilience and Sovereignty

People and their communities in New Zealand are increasingly building on their social and cultural networks to build food resilience and sovereignty. Many examples of community efforts to alleviate food poverty have been documented, for example, by Chu-Ling (2022[287]) for Te Puna Whakaaronui – New Zealand's first fully independent, government funded, primary sector think tank tasked to provide insights and thought leadership to support the transformation of the Food and Fibre Sector. Recognising food as being a catalyst for change, they refer to The Papatoetoe Food Hub regenerative approach to wellbeing, which incorporates learning, community, environmental/kaitiaki and food/kai components of wellbeing (see Figure 2.15 below).

Figure 2.15 A Regenerative Approach to Wellbeing: The Papatoetoe Food Hub Approach
Source: Chu-Ling (2022, p.7)

They also refer to Individual Models of food distribution used by food hubs in comparison to a Collective Model used by the Kai Collective Project, and increasingly being taken up by community groups around the country – see Figure 2.16.

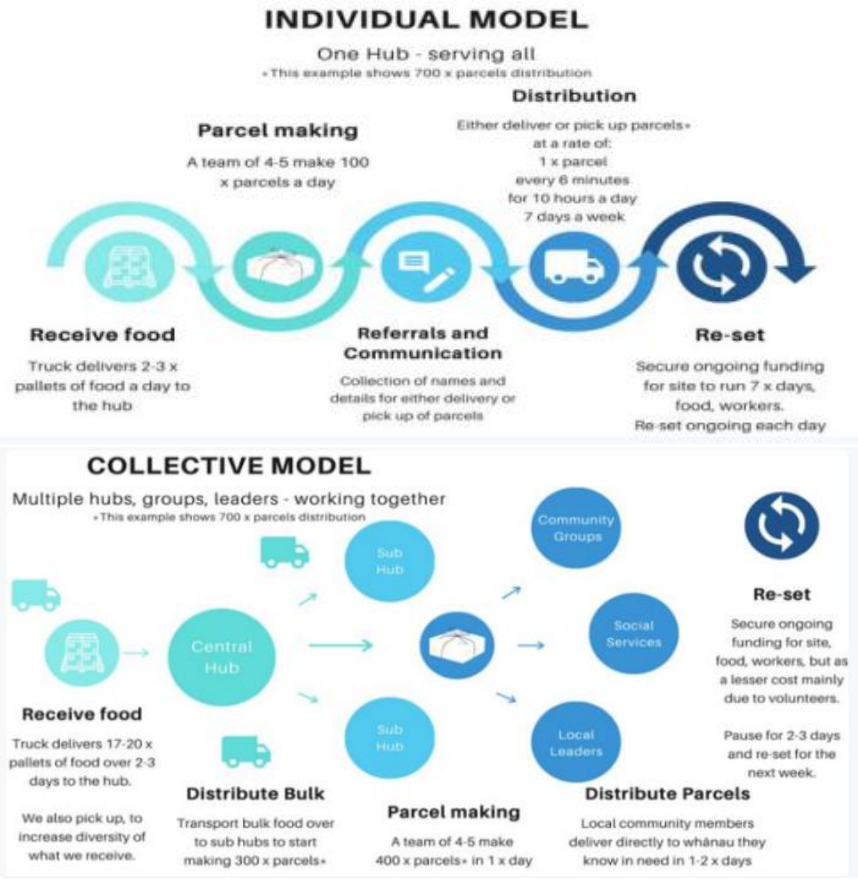


Figure 2.16 Individual vs Collective Models to Address Food Insecurity
Source: Chu-Ling (2022)

Noll and Murdock (2020, p.1[288]) state that food security generally focuses on "ensuring that people have economic and physical access to safe and nutritious food, while food sovereignty (or food justice) movements prioritize the right of people and communities to determine their agricultural policies and food cultures."

Research has shown that community collectives and other forms of cooperation between people and groups in a region improve food security in numerous ways. They support community engagement through collective action, knowledge sharing and social cohesion, which foster a sense of ownership and empowerment in creating a more food-secure future, and foster sustainability in local and rural food production systems (McDaniel et al., 2021[289]; Sitaker et al., 2014[290]; Skog et al., 2018[291]; Wald & Hill, 2016[292]; McCauley, 2020[293]).

They also support indigenous food revitalisation and sovereignty (Noll and Murdock, 2020; McKerchar et al., 2021[294]) facilitate availability, equitable access and consumption of a diversity of nutritious food and increase household food security during times of food shortages, for example, through collective buying and bulk purchasing of food, leading to cost savings and improved access to affordable, nutritious options, and the sharing or redistribution of surplus food within communities, especially in times of crisis or disaster (e.g., Horst et al., 2017[295]; Slater and Birchall, 2020[296]). Forms of urban agriculture, community gardens in particular, can be understood as "silent infrastructure systems" that run in the background and get activated when disaster strikes (Wesener, 2020[297]).

Community networks can also mobilise communities and advocate for policies that support food security and can thus have a collective voice in shaping food-related policies, influencing decisions on issues such as land use, access to resources, and support for sustainable agriculture, as is the case with the Manawatū Food Action Network (see Chapter 5).

2.8.2 Community-Based Food Providers

Examples of community-based food providers found throughout New Zealand include the following.

**Food Rescue Programmes, Food Banks and Pantries* collect surplus or donated food items from individuals, businesses and community groups and distribute them to those in need. Food banks often operate in collaboration with social service agencies and community organisations to identify and support individuals and families experiencing food insecurity. There are numerous such groups operating throughout New Zealand, with a few examples summarized below.

**Social Supermarkets* aim to create a dignified experience for whānau experiencing food security challenges, by offering food and grocery products at a low or no cost, using a points system, in a standard supermarket environment.[xxxiv] They are a contemporary take on the traditional food bank approach, providing food support with greater levels of choice and dignity, allowing people experiencing food insecurity to choose what they need for themselves in a supermarket-style environment, rather than being given a pre-filled food parcel that might not meet the specific dietary and cultural needs or the personal preferences of the family.

Foodstuffs North Island, as part of its 'Here for New Zealand' initiative, has promised to ensure all New Zealanders have access to healthy and affordable food, with each New World and PAK'nSAVE partnering with a local community partner to achieve this.[xxxv] Following the introduction of a social supermarket in collaboration with Wellington City Mission two years ago, Foodstuffs has continued

[xxxiv] https://www.foodstuffs.co.nz/our-brands/social-supermarkets
[xxxv] https://supermarketnews.co.nz/news/first-of-its-kind-social-supermarket-opens/

to expand its social supermarket footprint. It has social supermarkets in Whangārei, Kaitaia, Tokoroa, Otūmoetai and West Auckland, Palmerston North and Wellington, in partnership with other community organisations. (The recent opening in Palmerston North is explored more in Section 5.1.3).

**The Foodbank Project*[xxxvi] is a service that was developed in 2015 when the Salvation Army, Countdown Supermarket and Lucid[xxxvii] teamed up to design New Zealand's first online direct-donation e-commerce platform, enabling people to donate much needed food and grocery items to the Salvation Army's foodbanks. The Foodbank Project has expanded to 40+ Salvation Army foodbanks around New Zealand being able to access regular food donations.

The Foodbank Project provides food parcels to people experiencing food poverty. They recognize that people who are going through difficult times will reach out to them for food parcels to feed their children, and this initial contact then enables them to form relationships with people and families to help in other areas where social supports may be required. Thus, kai is a fundamental connector, as has been described throughout this research.

Recently, they noted that they do not have sufficient supplies to meet demand (see screenshots from their Facebook page, see Figures 2.17a-f below – all sourced from the FoodBank Project Facebook page).

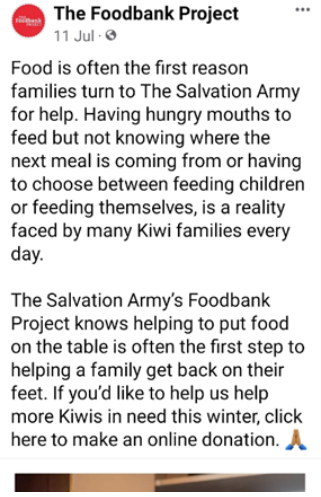


Figure 2.17a-b The Foodbank Project

They also provide healthy budget meals ideas (see Figures 2.17c-d), in recognition of how difficult many people are finding it to access healthy foods during the current cost of living crisis.

[xxxvi] https://www.foodbank.org.nz/
[xxxvii] https://www.foodbank.org.nz/blogs/news/the-foodbank-project-five-years-on

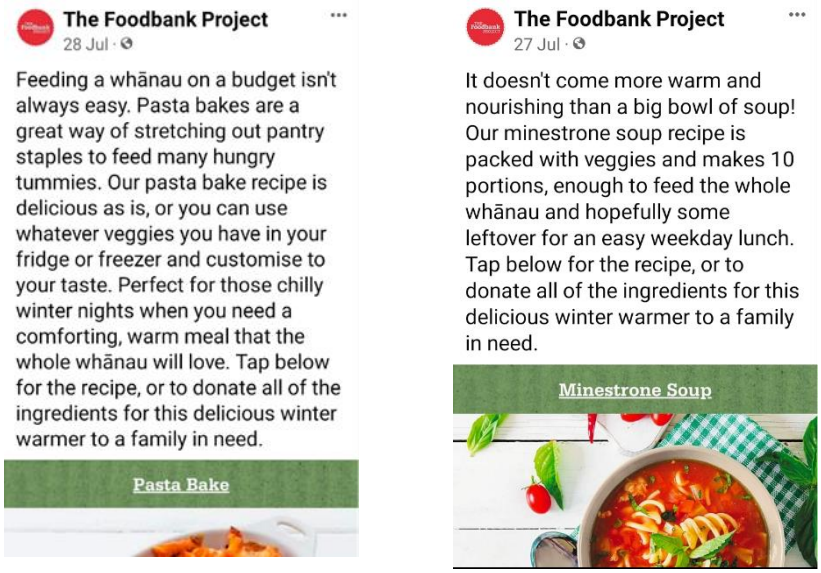


Figure 2.17c-d The Foodbank Project

A new service they offer is a "social supermarket" (see Figures 2.17e-f).

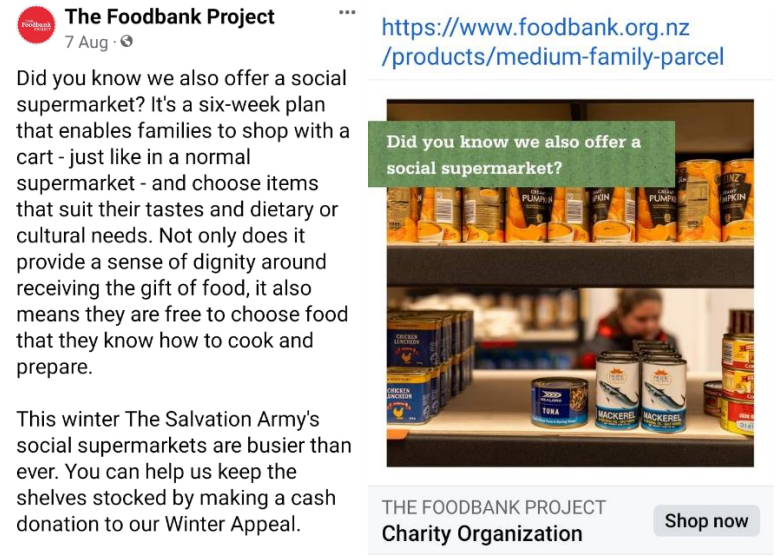


Figure 2.17e-f The Foodbank Project

**Kore Hiakai Zero Hunger*[xxxviii] is a collective of people and organisations – iwi, hapū, community, farmers, fishers, growers, manufacturers, distributors, philanthropy and government – who have joined together to address the root causes of food related poverty and strive towards a food secure Aotearoa.

**Community Gardens / Urban Agriculture* are community-driven initiatives where individuals and groups come together to grow fresh produce that then harvested for consumption of participants and/or contributed to community pantries and suchlike. They also serve as spaces for development and sharing pf important food-related skills and community engagement, including for the preservation of cultural practices.

[xxxviii] https://www.zerohunger.org.nz/

Community Kitchens enable people to come together to prepare and share meals, often also supporting local food producers, aiding access to affordable ingredients and culturally diverse nutrition and healthy eating. They are often the places for workshops, cooking demonstrations and other awareness and knowledge building initiatives. Thus, food literacy is fostered, along with social connection and community resilience.

Charitable Trusts and Organisations raise funds, coordinate volunteers and collaborate with local communities to address food insecurity through meal provision, food distribution, advocacy and education.

Good Neighbour Aotearoa Trust that runs community gardens, food pantries, and community meals to support individuals and families in need. They focus on fostering connections, empowerment, and community resilience.

Social Media and Online Groups are playing an increasingly influential role in food security initiatives, by reaching more people with "healthy eating" messages, and also by connecting people and groups with each other in ways that facilitate collective purchasing and sharing of food, recruitment of volunteers and boosting fund-raising. There is potential for community groups to increase their impact and reach through the support of social media "influencers". This is explored more in the Kura Kai case study (see Chapter 3).

2.8.3 Factors that Contribute to the Success of Community-Based Social Enterprises

Various studies have explored successful community-based enterprises and social collectives more generally (Straton, 2017[298]; Hertel et al., 2019[299]; Raimi et al., 2022[300]) and in New Zealand (Grant, 2017[301]; Jackson et al., 2018[302]; Steiner et al., 2019[303]; Moana Research, 2020[304]). Further research is required to enhance understanding and support the effectiveness of social and community-based groups in New Zealand.

Key success factors that have been identified include:

Clear Community-Focussed Mission with SMART Goals – the mission must align with the needs and aspirations of the target community with goals that are specific, measurable, achievable, relevant and time-bound (SMART) to ensure sustained impactful outcomes. Regular monitoring and evaluation of progress against mission helps you on track and provides a basis for communication of social impact to stakeholders and funders.

Sustainable Business Model – financial viability is critical to long-term effectiveness; accordingly, costs must be well managed and sustainable revenue streams secured, ideally through a diversified income base that may include a mix of earned income, grants, investments and donations.

Values and Ethical Practices – community-based organisations must maintain high standards of governance, financial accountability and ethical conduct in all aspects of the enterprise's operations. Integrity and transparency of operations and practices is vital to the credibility and trust of the group within the community and by existing and potential future volunteers and funders/supporters. This includes careful consideration for how workers and/or volunteers are supported, resourced and equitably renumerated.

Capacity and Capability Development – When key people become less available or leave, there is a risk that the enterprise will decline. Succession planning is important for key entrepreneurial, management and technical roles and can be facilitated through education, training, mentorship and building collaborations within the entity and the wider sector. To minimise avoidable turnover, it is critical to ensuring voluntary staff are appropriate supported and not overburdened. Furthermore,

enterprises that have a adaptable and innovative culture, listens to stakeholders, learn from mistakes and respond to societal and environmental changes are more likely to succeed.

**Collaboration and Engagement* – involving key stakeholders in decision-making and collaborating with other organisations with related interests can amplify the reach and impact of community-based enterprises and enable groups to leverage collective efforts. This is especially important when funds are scarce and there is a risk of groups competing with each other for limit funds. Wider collaborations can provide greater opportunities for advocacy to address system issues and create a more enabling environment for transformative change.

2.9 Key Insights about from the Literature about the Aotearoa New Zealand Food System, Food Security and "Healthy Eating" Initiatives

This chapter provided a compilation of key data and research about Aotearoa New Zealand's food production and distribution systems. With reference to the academic and popular literature, it also provided a commentary on the degree to which our food production system cater for the diverse needs of our multi-cultural communities, as well as issues of accessibility, affordability and availability of culturally preferred foods that different individuals, whānau and communities prefer, and actually consume. This links into considerations of "good food" and how this is conceptualised, for example, in "healthy eating" frameworks and programmes both here in Aotearoa New Zealand and around the world. The effectiveness of such public health approaches to food and diets were then explored, including school- and community-based initiatives. Lastly, factors that have been found to enable or hinder such initiatives in local and international studies were presented, as a basis for then exploring the case study examples that are the focus on the next chapters.

It is clear that New Zealand produces more food than is required to feed our population at a macro level, with exceptions in some specific areas. However, issues arise when considering the difficulties faced by increasing numbers of people in accessing food at prices that they can afford, particularly fresh produce, and the availability of food that meets their culturally informed dietary preferences. Local food production including local smaller-scale farmers and community-based food producers, go some way towards addressing such issues, thereby improving accessibility, availability and affordability of foods that meet people's dietary preferences, particularly to people who experience food insecurity. This is explored further in the next chapters in case studies with school- and community-based food provision programmes and local food networks and farmers.

This chapter has also outlined the plethora of national and international healthy eating frameworks and initiatives, including school- and community-based food provision initiatives, and identified the public health and wellbeing frameworks that underpin them. Most such programmes focus on the biophysical components of meals; some also consider the potential socio-cultural and economic contributions that food initiatives can make towards food security and sovereignty, identify, health and wellbeing, community connectedness, and strengthening of local economies.

The resilience of our food systems are also impacted by conditions including climatic changes including increased storm, flood and drought events, as well as pandemics with subsequent disruptions to global trade and limited availability of many food items. The science and technology sector has invested resources into addressing these threats to food security, and small scale farmers such as live2give (see section 5.3) are exploring innovative ways to sustainably produce fresh foods in ways that are environmentally friendly and less susceptible to extreme weather events. We hope such research will continue when funding from the National Science Challenges ends in mid-2024.

3. The Kura Kai Case Study

3.1 An Introduction to Kura Kai

The aim of the research was to gain a better understanding of the experiences of people involved in school food provision at grass-roots levels and factors that hinder or promote their effectiveness in addressing food security issues within their community, including accessibility, availability and affordability of "good food".

We originally intended to focus much of our research on the government-funded lunch in schools programme, Ka Ora, Ka Ako. However, given the pressures on schools and their staff due to Covid-related sickness, ongoing lockdowns or school closures, and online teaching requirements during the period, the research team did not want to place additional burden on schools to engage in a research programme by approaching multiple schools throughout the country and seeking their input. So, the decision was made to instead focus on other forms of school and community-based food provision.

A review of entities involved in school food programmes revealed Kura Kai[xxxix] who connect with schools throughout New Zealand to provide meals for whānau and households in need. Kura Kai – literally translated as School Food – live by the value of manaakitanga (generosity and care for others) with a simple kaupapa of "Whānau cooking for Whānau". They intentionally chose to support secondary schools because of how important a completed secondary education is to the future of our rangatahi; and to encourage the practice of manaakitanga in rangatahi, teaching them the value of "Caring for their Community" by looking out for tāngata, whānau, kaumātua that need support within their community and then using Kura Kai as an offering to those they see in need (ibid.).

Kura Kai was founded during the Covid period by Makaia Carr[xl], who subsequently brought Marie Paterson as General Manager, to take over more of the administration and coordination; more recently they have also added a Social Media and Engagement Manager, and also partner with an IT consultant and a chartered accountant who is also one of their Trustees.[xli] Various industry partners[xlii] support their programmes, as well as the ever increasing number of voluntary coordinator/s who run the communication and operations of Kura Kai in that region. [xliii]

Kura Kai raise funds to supply chest freezers to participating schools to store meals that are then distributed wherever needed to support rangatahi, their whānau and/or the wider community. They currently have Kura Kai freezers in 37 schools[xliv] throughout the country. Each school/region operates slightly differently, as outlined in the "Business Operating Model" section below. Lotteries are their biggest funder, which covers much of their operating expenses. They had not been successful getting government funding as the Ministry for Social Development classified them as a "food bank", which they disagree with: "we are not a food bank". They noted that they had received funding from that agency the year before, which shows the inconsistency in funder requirements. They also have a KK car that was sponsored by a local car yard.

The underlying premise of KK is that designated volunteers and/or coordinators linked to participating schools fill up freezers with nutritious family meals. These meals are sourced in a

[xxxix] https://kurakai.co.nz/
[xl] https://kurakai.co.nz/our-founder/
[xli] https://kurakai.co.nz/our-team/
[xlii] https://kurakai.co.nz/our-partners/
[xliii] https://kurakai.co.nz/coordinator-directory-2/
[xliv] https://kurakai.co.nz/schools/

variety of ways including from various people/groups throughout the school's local community donating meals, community cook-ups organised by the local Kura Kai coordinator and/or through the Kura Kai rangatahi programme whereby food technology/hospitality classes in schools utilise the cooking done in those classes to make food for the Kura Kai freezers – see Figure 3.1.

Figure 3.1 Meals going into a Kura Kai freezer in a school
Source: https://kurakai.co.nz/

Their recently updated website includes FAQs,[xlv] guidelines and requirements[xlvi] for volunteers regarding packaging and labelling, recommended meals to cook, information about meal delivery and drop off, food hygiene standards and the Food Act 2014. There are also Facebook pages[xlvii] for many of the regions where Kura Kai operates.

They also clearly identify ways that people or groups can support their kaupapa (see Figure 3.2) and provide examples of how Kura Kai impacts on the lives of rangatahi and communities (see Figure 3.3).

Figure 3.2 Ways to Support Kura Kai
Source: https://kurakai.co.nz/feed-our-cause/

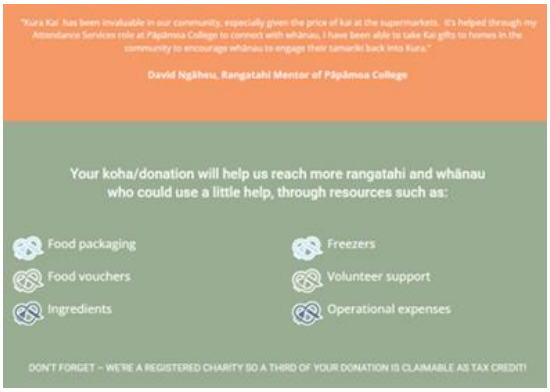


Figure 3.3 Impact of Kura Kai

[xlv] https://kurakai.co.nz/faqs/
[xlvi] https://kurakai.co.nz/volunteer-guidelines-requirements/
[xlvii] https://kurakai.co.nz/facebook-groups/

3.2 Kura Kai Case Study Participants

We approached Kura Kai about this research and asked if they would be willing to talk with us about their aspirations and goals, their experiences in the food security space, and observed impacts, barriers and frustrations to successful implementation.

After an initial interview with Marie, who then discussed the project with Makaia, they agreed to participate. In addition to interviews with themselves, the managers of Kura Kai, Makaia and Marie identified coordinators/volunteers at nine school who they invited to participate in the Kura Kai case study interviews. Selection criteria included ensuring a range of schools throughout different regions of New Zealand including from the North and South Island, a mix of rural and urban schools and a range of approaches or circumstances facing the various schools. Marie sent emails to those Kura Kai coordinators/volunteers, informing them about the research and inviting them to participate. Those who wished to participate were asked to contact the research team directly to organise a suitable time to be interviewed. People from eight different schools responded and said they wished to be involved, of which one ended up being unavailable due to time pressures; however, one participant spoke about her involvement at two different schools). Thus, interviews were subsequently conducted with coordinators/volunteers currently involved with eight schools, and also with one other organisation supporting Kura Kai – AsureQuality.

Funds were provided to Kura Kai management to support their contribution to the research design to ensure it met the needs of the research funder and was also beneficial to Kura Kai's mission and operations, and for their coordination of participant recruitment and liaison with the research team. The Kura Kai managers directed some of the funds to participating Kura Kai schools to support their operations and food delivery.

At the end of each interview, the participants were asked if they were willing for their school and their names to be noted in this report. Although many participating schools/interviewees were happy to be identified, we have chosen not to specify the names of schools or people who participated in interviews due to the sensitive nature of some topics covered in the report. However, exceptions have been made in sections when it was important to identify the region to meaningfully portray something important that was shared in an interview that would lose impact without the accompanying locational context being provided; this is only for interviewees or schools who gave permission for those details to be included in this report.

Kura Kai's managers, Marie and Makaia, agreed to be identified as it was apparent that it would not be possible to explore the operations of Kura Kai without identifying them; they are based in the Bay of Plenty.

A total of 10 Kura Kai-related interviews were conducted with 14 participants, as below:

-Two initial interviews were conducted with Kura Kai managers (2).

-These were followed by an additional 7 interviews with 12 Kura Kai coordinators or volunteers who were or had been involved in 8 different schools from a variety of deciles in both rural (1) and urban (7) locations within the North (7) and South Islands (1) of New Zealand. They represented schools from Auckland, Bay of Plenty, the central North Island and Canterbury regions.

-One other interview was also conducted with an industry participant from AsureQuality who was based in Hawkes Bay.

Kura Kai school-based interviewees were either teachers involved directly in the school's food provision programme, students leading the Kura Kai programme at their school, a school nurse in a school, a Head of Counselling Department within a school, someone affiliated with the Māori

Warden network who is also involved in Kura Kai food provision, and/or Kura Kai coordinators who were not employed by a particular school but volunteered to lead the Kura Kai activities in a certain school/region.

Note that in the upcoming "Business Operating Model" section, some details about the KK programme in each participating school/region is provided, for context.

3.3 Research Findings

Interviews resulted in a substantial and rich collection of narratives into community-supported food provision and the numerous benefits that such programmes contribute to rangatahi and whānau, schools and the wider community. Insights were shared regarding the levels of food insecurity experienced in local communities and how Kura Kai plans, organises and operates to help meet that need. Factors that help or hinder them from reaching their aspirational goals are also explored.

The next section provides a summary of the six key themes that emerged from the Kura Kai interviews: purpose and intent; leadership; business operating model; impact; regional differences in delivery and uptake; government policy and support.

3.3.1 Purpose and Intent

The Kura Kai Managers, Makaia and Marie, are motivated Māori wahine with a shared vision for and belief in what Kura Kai can accomplish in local communities. They are intentional in their decision-making to ensure operations deliver benefits to communities. The main purposes of Kura Kai spoken about by the Kura Kui Managers are outlined below.

**Keep Rangatahi in School –* Kura Kai's founder, Makaia, made the decision that Kura Kai would only operate in secondary schools when, during the Covid period, she observed increasing numbers of rangatahi (youth) dropping out of school for various reasons including to support whānau who were experiencing job losses and/or having trouble reconnecting at school after lengthy lockdowns.

Explaining how this led her to launch Kura Kai, Makaia stated that she:

> *"reviewed social influencing. And obviously with the news that was happening through lockdown of struggle, there were a few things that hit me. And one of the biggest ones were hearing about how many teenagers, you know, 15, 16-years-old were leaving school. Having to leave school to go get jobs to help pay their family bills and leaving their education. And obviously a lot of them were Pacific Islanders and Māori. And it kind of, it did really upset me because I knew that for a lot of those kids that was going to be their last opportunity, their last time to be educated. Last opportunity to be in a structured educational kind of programme or whatever... And once they're out it's really hard to get them back in. And I had a call actually from one of my followers who lived here in Tauranga at the time, who she kind of reached out to me. And she said 'oh Mak, we've got this thing we call a compassion freezer in one of the primary schools here and it's, all the meals have been emptied. Do you think you could do a little call out on your Instagram to the Tauranga followers to say, 'hey does anyone want to cook meals to fill this freezer back up?' And I was like 'yeah sure'.*
>
> *And so I did it and literally in a couple of days they got 80 meals dropped off at this school. And I was just like, god that was easy for me, you know? Really easy for me. I didn't have to do stuff, or, but the impact on that school, that freezer, those whānau in that community was huge. And that's where the idea sparked. And I was like okay I've got this. Okay, why are kids having to leave? 'Cause they're having to help pay the bills and feed the whānau. I've just shown that just like that I can get kai into a freezer in an area that I don't even live in, you know? And I just started putting this kind of thing together.*

And even though I know kai is not going to be the solution to it directly, but at that time it felt like a really, it was a sticking plaster. But, it felt like a really good way to actually just to help and to kind of relieve some pressure on these whānau who were saying 'you've got to leave school, you've got to get a job and you've got to help us'. But, if that kid could go home with a casserole there's, that conversation might not happen, you know? If they rock up with something that is going to help their family that night, and they're stressed, then hopefully they can go back to school the next day. Because they think 'oh they might get more food they can bring back'. Or it's just, you know, they just remove that struggle and so they can keep going back to school.

And that was the kind of whole kaupapa behind it. Was not just to feed hungry families, but to try and keep our rangatahi in high school. So yeah, so just kind of kept working on that plan and reached out to people…. I spoke about it on my social media. I had lots of women that were kind of, followed me for a long time, become quite good friends. All around put their hands up and said 'I want to help you, I want to help you.' And so we launched quite quickly…

[we know] *how important a completed Secondary Education is to the future of our rangatahi and if Kura Kai can be one more reason they choose to stay in school with a focused mind then that makes us very happy. … It is a crucial 'fork in the road' period when rangatahi often come under pressure to make some big decisions, ones that can impact the course of their future. Too many of our rangatahi are having to leave their education to gain employment at an early age to help financially support their whānau, sadly ending their education far too early".*

**Manaakitanga: Educate and Provide Mana-Enhancing Opportunities for Rangatahi to Contribute to their Communities* – teaching rangatahi the value of caring for their community and encouraging them to practice manaakitanga (the process of showing respect, generosity and care for people); and educating future generations to help others by facilitating a holistic education that helps rangatahi have a social conscience within their school and the wider community. It is mana-enhancing for rangatahi to contribute to the process of cooking food and/or being the one to source ready-cooked meals and provide them to whānau or others experiencing food insecurity or hardship, instead of receiving a "handout". Such community participation also helps improve the public image of rangatahi as being responsible contributors to their whānau/community in ways that don't detract from their education. For example, *"Asking them to look for whānau, kaumatua and tāngata that need help within their community and to use Kura Kai as an offering to help those they see in need."*

This is exemplified through the example of the school in the Bay of Plenty whose KK programme was initiated by the Year 13 Cultural Prefects on the School's Cultural Committee, for which one of their initiatives as cultural prefects was to partner with KK and lead the programme at their school, from initial concept design right through to fundraising, planning and running the school cook ups, and distribution of meals.

The KK managers spoke about the mana-enhancing opportunities that the KK offers rangatahi:

"I love now this Rangatahi Programme connecting the community and helping us change the kind of, improve the stigma around our high schools and around our teenagers. You know, that they're not all just trouble makers. They're not all just like at school being brats or whatever. Causing trouble or hanging around. They are involved in this initiative. They are looking out for people in their community that could use this kai. And being looked at as kind of a really good community support."

**Teach Life Skills to Build Resilience in Rangatahi* – helping rangatahi to acquire critical life skills such as nutrition, cooking and budget meal planning strengthens their resilience and future food security. Likewise, learning to recognise signs of when you or others are in need and being able to connect with people/groups who can provide that necessary support, builds resilience and fosters wellbeing.

** Schools as Connectors/Hubs in their Communities* – seeing schools as a crucial component of their local community, a support hub with the potential to make significant contributions to the health and wellbeing of students and their whānau as well as the wider community, including with respect to food security. Schools with commercial kitchens have the infrastructure to cook "for the village", or "like at the marae", as some participants put it. Other phrases used by participants to describe this theme included "bringing people together", "putting community back into the effort" and "kai is a connector".

**Community Awareness of Food Insecurity* – wanting to facilitate greater public awareness of issues relating to poverty and food insecurity, which helps facilitate ongoing involvement of volunteers, contributions to fundraising and systemic changes that help alleviate the underlying issues.

**Public Perception of Kura Kai* – ensuring Kura Kai is perceived in the right light, i.e., that food provision programmes such as Kura Kai are not just for "poor schools", because there are rangatahi and whānau experiencing hardship in all schools, even if it is not obvious. Furthermore, all students will benefit from participating in a food provision programme, even if they don't personally need it. This point was reinforced by a number of school coordinators/volunteers who reflected that decile rating is not a determining factor for the level of "food need" in a school community. For example, despite the principal at one lower north island school not wanting to have KK partner with their school because he didn't want it to be perceived as having a need for kai for whānau:

> *"actually, they're one the schools that really did need it. Although they were higher decile and they wanted to have this image, when we're taking those meals into that particular kura, the social workers who obviously are working with whānau just were so appreciative of that."*

Additionally, KK take pride in the meals they provide and expect the meals to be appealing and of good quality. One participant spoke about how someone cooked a meal for KK, but "it was terrible" and so they didn't distribute it. She spoke about how occasionally she comes across an attitude from people who wish to donate meals that meal recipients "should be thankful for what they get". She stated that, "just because people are poor, they shouldn't have terrible food" and that people should not cook differently for charity than how they would cook for their own whānau.

**Community/Personal Ownership and Shared Vision to Address Food Security* – One thing that all KK managers, coordinators and volunteers have in common is that they all have a heart for helping the community and lessening the hardship that people find themselves in. (Also see Section 3.3.3 on the Impact of KK). The KK managers shared that *"we both believe in the kaupapa so much and relate to it so much that we do push hard."*

All KK participants spoke of their concern about the cost-of-living crisis that was having such a huge impact on communities, and their personal belief that people who had the resources to help had a responsibility to do so. They spoke about using their time and resources to ensure local children do not go hungry, with many noting that this passion drives them to go the extra mile, to the point that for some it takes up nearly all their "free" time. For example, participant comments included:

> "*I'm quite passionate about children being hungry. So yeah, so I contacted [KK] and volunteered*."

> "*We own a business, and we try to do a charitable thing every year so* [when I heard about KK on social media, I thought] *'this is something I care about'… I know that hungry people do desperate things. If you want to avoid crime happening, the best thing you can do is feed your people*".

> "*Recognising that when you are fortunate, that you can either be a holder-onto-a, or you can be a disperser. You can be someone who wants… whatever you've got to be available to other people as well*".

"*We try and keep [the KK freezers] constantly stocked because we can't afford to run out because that means kids don't have food to take home*."

"*At the end of the term, [KK school coordinator] basically does a school holiday kind of run if you like. And then she comes in during the school holidays and delivers to families… it's her life now*."

School coordinators and volunteers remain motivated and committed to Kura Kai because they believe in the initiative. For example, one KK volunteer described herself as a lifelong volunteer: *"I'm with Kura Kai until the end, and hopefully there is no end*."

The Kura Kai (KK) programme in one rural area has spread well beyond the school community to include everyone in need of food. For example:

"*I've worked in not-for-profits for most of my career* [in the voluntary and poverty space]*… But, I also had a year prior to us, prior to me getting involved where I had to support my mum through dying of cancer. I recognised that in this area we had no access to Meals on Wheels… it was a huge gap in the community, not just for schools, but for elderly… and there was no access for food for people when they were in dire straights… So, we weren't limiting it to just families and school kids. It was if anyone in the community has a need*".

"*I have connections in the community with our local medical centre and the district nurses that I've worked with… if the medical centre has someone discharged from hospital who can't get out of bed and look after themselves, they call us. If we have, you know, it's all sorts of individuals. Yeah, so we weren't limiting it to just families and school kids. It was if anyone in the community has a need. So we had, you know, a while back a solo dad who, he'd lost his job and he just couldn't afford the cost of food for a couple of weeks. So it's all sorts of people*"."

The Cultural Prefects at the urban school in the Bay of Plenty got involved, not because there was a felt need within the school itself, but because they recognised the role their school could play in addressing food poverty in the wider community:

"*We looked* [KK] *up on social media and we saw what* [KK] *were doing and we thought it would be really cool to get our school involved*. … We made partnerships with the community… deliver meals to [migrant communities and rehabilitation centres] almost every cook up".

However, some participants who directly engaged with and delivered meals to vulnerable people developed over time a sense of responsibility and accountability to those people, to the point that some volunteers felt something akin to a sense of obligation to meet such people's needs, saying things like: *"if I don't, then who will"* look after them. This resulted in some participants putting in a huge number of hours (over and above their paid jobs as teachers, nurses etc) to source/prepare and then deliver meals throughout the community (or for rural communities, travel throughout the wider region to meet the critical food poverty needs in more remote areas). (This is explored more in section 3.3.3 "boundaries").

**Holistic Hauora / Wellbeing* – One Auckland school coordinator, who is also a counsellor, also noted the important role that Kura Kai plays in fostering the holistic hauora /wellbeing focus of their school, by way of curriculum and in counselling with rangatahi and whānau where they emphasise "good rest, good exercise, good food, good play, good work":

"*we're really keen for parents to get the message too because that can often be the stumbling block. So, it's often those five things that are stressed through different teams in the school. When we meet with parents we do talk about sleep and diet … So our biggest thing is sleep and then it would be food and exercise*".

Likewise, another school volunteer who has been involved with KK schools in multiple regions throughout the country noted how the KK meals helped rangatahi and whānau during some most difficult times in their lives:

> *"in one particular school, quite a few of the parents had actually…committed suicide. So children were having to deal with that , but then it also then moved their whānau into a situation of having to be in emergency housing… say they have a family of six or seven, it's kind of the older children would often end up couch surfing. So they would go and stay with friends and just kind of move around that way because they weren't able to stay at the accommodation…. It was quite nice for those students that were doing the moving around from house to house to be ale to go and just pick up a meal…when they're going to stay at a friend's house they can go, 'kia ora, I don't have much, but here's a meal'.*

Another participant noted:

> *"I'm so lucky to work and do what I do and you know doing the Kura Kai, I just love doing it. I love working with my schools … it's such a cool concept and I think it does so much good for our rangatahi and their families. So yeah, I'm a huge champion of it."*

3.3.2 Leadership

Committed leaders at the management and school levels of Kura Kai are critical to the success of the initiative. Various leadership characteristics were evident, as outlined below.

**Social Media Influencer* – Prior to founding Kura Kai, Makaia had worked in retail, working her way up to regional sales manager. She also built a social media presence, becoming an "influencer" amongst people interested in health and wellbeing, and promoting certain brands and companies – this was at a scale sufficient to provide her with a regular income. However, during Covid, Makaia had a "read the room" moment whereby she realised that her social media presence was a platform that could be utilised to "do good" and make a real difference during times when many people were experiencing real hardship.

> *"through that time of lockdown that's when I was, you know, reviewing. Like, 'how can I use social media for good', because I was seeing all the other influencers who were in my circles still pumping sales, pumping makeup, clothes, all these products. And trying to promote, and I was just getting real worked up. Like 'why are you advertising this shit when everyone's in lockdown. Everyone's got no money. Everyone's struggling'. I just went through this whole "read the room" kind of moment".*

Many of the Kura Kai school coordinators or volunteers had pre-existing connections to Makaia's social media platform and upon hearing about Kura Kai, wanted to be part of the initiative. This is evidence of how social media connects people with similar interests and passions and goes someway to helping people who are interested in the same things to find each other and merge forces in a community collaborative initiative. It emphasises the advantage that people with "reach" into diverse communities have when starting up a new venture that relies of strong community awareness and support. Social media is an effective mechanism to rapidly connect a large group of people to a new initiative, especially when the goals of the new initiative are shared by those within a pre-existing social media network. Makaia noted that *"there's definitely something in our kaupapa, the way we deliver our branding, if you want to say branding. Or our past, how good it is, you know past success helps, and it just helps move it forward."*

**Personal Networks* – Further to the use of social media networks to maximise reach, the success of Kura Kai has also been enhanced through the personal networks that the KK managers, coordinators and volunteers have. These leaders formulate a vision for KK in their community and then utilise their skillsets and networks to maximise the impact of the KK programme. This social capital includes the connections they have within other social agencies whom they can contact for assistance,

whether that be for donations of money, vouchers, time, or food. It can also include having access to people/organisations with commercial kitchens or other spaces for large cook ups.

Additionally, it can be having people within their network who have reach into communities who are experiencing food poverty, which greatly enhances the ability to provide KK meals to the people who actually need them. For example, one KK volunteer in a North Island urban city, who is also a Māori warden, utilises his many connections and networks across the city to maximise the impact of his mahi and the reach of KK. Like other KK volunteers/coordinators, he had been involved in the food distribution and related spaces prior to becoming a KK volunteer and had previously thought of a similar idea to KK but upon hearing about KK decided to work in with their existing programme rather than re-inventing the wheel and starting something new. This is a good example of how a person who is well-connected to others in related areas can maximise the use of KK resources to feed people who would otherwise go hungry.

**Personal Attributes of the Founder/Team* – The presence of personal attributes in the Kura Kai leaders are foundational to its success. Although Covid provided an organic motivator for the start-up of an initiative such as Kura Kai, Makaia had the personal drive and determination to take it from an idea to an enduring successful national programme. The Kura Kai leaders are strong authentic women leaders with the "x-factor" that fosters connection.

The KK founders also have a cultural competency that makes them relatable to the students, volunteers, coordinators, funders and other supporters within the community. Likewise, successful in-school KK programmes have coordinators/volunteers who can relate to students and get people on board the programme.

Furthermore, one participant stated that Makaia *"has a heart of gold. Because if you didn't, you wouldn't set up and have a passion for this particular charity or community. I don't even like calling it a charity. You know for this particular community work that you're doing".*

**Values and Work Alignment* – The Kura Kai leadership as well as the school coordinators/volunteers care about the difficulties being faced by many people in the wider community and chose to take a lead in doing something about it. As outlined in the previous section, many of the KK participants were previously involved in some kind of caring or community-based work. Kura Kai provided an opportunity for people to get involved in something that aligns with their value system and their desire to make a difference in the community. Some participants referred to themselves as a "community person at heart". Although many people who care about a social issue only make minimal contributions of time or resources to help, these KK volunteers have taken meaningful consistent action to initiate and continue a significant programme in their community. They have the requisite leadership skills and drive to grow an idea into a thriving programme with real impact in the community, in part because the work aligns with their skillsets, networks and passions/life interests. As one participant stated that she has "a passion for food… my bookcase is actually full of cook books". She was able to merge her love of food with her care and commitment to ensuring rangatahi are fed well.

For example, a KK teacher in one North Island school, who also previously know Makaia through her social media platform, saw something about KK online and offered to do a pilot of the KK rangatahi programme in her school. She is also looking into developing course programmes so students can gain NCEA credits through the various ways that KK can operate within the school syllabus.

The wider community and businesses in one area where KK is operating have recognised the leadership role and contribution that the KK teachers are making in a central North Island school, giving them a Harcourts 'good sort' award.

Some participants noted that their extended families often became involved in their KK work: *"Families become connected to their mahi. They live, breathe, eat it… families inevitably become involved."*

3.3.3 Business Operating Model

Overarching factors that have contributed to Kura Kai's successful business operating model are explored below, followed by examples of tailored factors that are being used to ensure each school's KK programme is tailored to its specific demographic and community needs.

**Sustainability, Boundaries and Best Practice* – Being flexible enough to 'evolve' over time as best practices are identified is fundamental to the success and sustainability of Kura Kai. The KK managers deliberately set out to identify and implement better ways of doing things, including adjustments to activities and processes that build longevity and resilience into their operations.

One such factor is providing financial compensation for the KK managers to enable their ongoing involvement, without which they would need to reduce their time working in Kura Kai to take up paid work elsewhere to support their whānau and pay their bills: *"I don't want to do this in something that we've started out of the goodness of our heart and don't want it to drive us into the ground you know?"*

Such compensation enables them to continue in their role, which has contributed to the growth and impact of Kura Kai (see Section 3.3.4). A case could also be made for financial support for volunteers who make substantial contributions towards the KK programme in each region/school. However, tensions can arise with people who donate time and resources around who receives compensation (and who does not) and how much they receive; transparency and care in communication is required to address such potential tensions that may arise.

The importance of boundaries to ensure a healthy work-life balance is another consideration that is particularly important to prevent burnout in leaders, volunteers and coordinators who are helping vulnerable people, especially when the community need appears "endless". (Note that this scale of need in schools and the wider community as observed by KK is explored in many sections throughout this chapter). Kura Kai recognise that there is only so much any one person can do, and realise that putting strategies in place to manage the workload and safeguard personal and whānau wellbeing is key to a sustainable business model. Likewise, transition planning for when key personnel 'retire' or move away is critical, and Kura Kai are working on ways to ensure this is built into their network, both at the national management level, and within each school community network.

**Managing Growth* – The "fit" between Kura Kai's vision and community need has been readily apparent, resulting in Kura Kai experiencing significant growth in the number of schools joining up to participate over a relatively short period of time. Managing that growth has required strategic consideration and clarity around which schools to partner with and how to resource each school. Kura Kai managers are clear that they "can't help everybody" and attempting to do so would run them ragged and lead to failure. The KK managers shared that they are:

> *"very protective of our life and wellbeing balance. Yeah, and we both learnt to say no. We both love our lifestyles and love our family and children… and understand how important that is for us to operate. So we could be stressed off our feet and we could be in a hundred schools and probably have a much bigger team. But we both internally don't need that".*

Makaia acknowledges their capacity limitations and points out that scale and growth can detract from their intention to be grassroots. For example, when asked about getting a refrigeration company to sponsor the freezers for all schools, Kura Kai pointed out that that could detract from the connection that schools have with their own local community, and that scale impacts on purpose. When seeking sponsorship, they ask: *"what's going to get the most impact for our communities? Or the most impact for our brand and our task? [what sponsorship] helps the community relationship and … our actual goal."* They have since launched a new initiative called "Feed our Cause, Feed our Kaupapa" to help source funds and resources.

Requests for new schools to join the Kura Kai network regularly come in, which require Kura Kai to be strategic in selecting which new schools to partner with. Decision-making about which schools to prioritise for new partnerships is based on the motto, "work with willing, the rest will follow"; i.e., each school-based programme is community/school-driven and owned; participating staff (including the principal) need to be passionate about the Kura Kai vision. This enables the Kura Kai management team to spread their support across all participating schools in the Kura Kai network instead of too much time needing to be committed to implementing the food provision and distribution in one particular school/region. This is an important distinction because success requires that the limited staff and resourcing available to Kura Kai management is directed to those schools where the parties are equally committed to the success of the initiative, for it to reach its full potential. As one participant said, *"that's where we've been so lucky because [KK coordinator/teacher in the school] is so deeply onboard that she's dragged the school into being on board. And we run them out of the flash classroom."*

Support from the school can be through inclusion of KK cook ups in classes and NCEA credits being achieved for KK mahi (see below), and strengthening of relationships between teachers, staff and the wider community. This also helps to ensure that the KK programme is not reliant on any one person within the school, and would be jeopardised if that person left or was unable to continue.

The KK managers are intentional in managing the growth of KK to ensure that it remains sustainable and enjoyable, recognising the importance of work-life balance:

> *"we don't have massive plans for growth and want to be in a hundred schools or fundraise a million dollars or anything like that. Like when we start talking about targets like that it just starts stressing me out. And I start thinking about corporate, you know, when you had a corporate job and you had sales targets and all these sorts of things. And that real stressful work environment which we no longer are in and I don't want to be back in. You know, I want to feel like I'm doing beautiful mahi in a beautiful way and it's all just feeling really that you know?"*

**School Rangatahi Model* – An example of "best practice" mentioned above is the rangatahi model. Kura Kai was initially set up as a "volunteer-based" model, whereby volunteers within the school/community were recruited to cook meals that were then put in the school freezers for distribution. In some cases, it was the school's teacher/coordinator who personally did the majority of the cooking, perhaps with the assistance of some volunteers in the wider community, and/or by organising "community cook-ups" whereby a group of volunteers came together to do bulk cooks, sometimes producing multi-hundreds of meals at a single cook up. While this is a successful model that produced many thousands of meals for school freezers throughout the country, it is labour intensive and can be costly for those few people involved. Cost-of-living increases impacted on the capacity of volunteers to provide meals for KK:

> *"our volunteer base has dropped considerably… the beginning of this year when the cost of living went through the roof. And you know, they [didn't] have enough to pay for their own groceries and power and petrol, let alone buy meat and vegetables for our meals. So we're getting less meals. We were*

getting less meat meals, and getting a lot more kind of vegetarian and lentil-based meals, which is all good, because they go really well. But, the drop-off was huge so we had to start looking within our schools and looking at companies. So, restaurants and cafes who could, wanted to help and could help that way."

Over time as Kura Kai management and participating schools considered how to work smarter not harder, a few school coordinators came up with what has become known as the "School Rangatahi" model for Kura Kai, whereby the students themselves cook the meals during their food-related courses (e.g., home economics, food technology, etc): *"we kind of realised it's like schools have got the kitchens, they've got the students and they've got the freezer. So it's kind of like a no brainer. You've got to have a teacher that is passionate and a driver in the school."*

Kura Kai utilise the commercial kitchen facilities within the school, the cooking and nutrition knowledge and skills of the food technology teachers, and the "group bulk cook" potential of a class full of students to cook meals at scale. They use ingredients that are provided via the food tech budget, or surplus food from other food-related programmes that may be operating within the school such as Kids Can breakfast programmes, which significantly minimises the resourcing cost for Kura Kai. Some schools have mara kai (vegetables gardens) and produce from that can also be utilised by the cooking classes for Kura Kai. This new model has numerous benefits, as outlined in section 3.3.4 Impact.

**Involving, Mentoring and Supporting the Right People to Work to their Strengths* – having the people with the right skillsets, capabilities, connections and socio-cultural skills involved in a community-based programme is crucial to success. Kura Kai recognise the need for management, accounting/finance and grant writing skills, in addition to specific cooking skills, for the national programme coordination. Makaia could not do all these tasks herself, so recruited Marie for the administrative and reporting tasks and setting up Kura Kai as a Charitable Trust, which allows Makaia to focus on her networking and fundraising areas of strength. Another volunteer also joined the Charitable Trust to do the finance and accounting tasks; and they have recently brought on board a 'Social Media and Engagement' Manager.

For Kura Kai, the support of the principal of participating schools is critical, as is having a committed and active school coordinator, preferably the food tech teacher. Additionally, the programme works very well in those schools that have involved the school/area truancy officer, mental health practitioner, social/youth workers and/or school nurse, as they have pre-existing connections to students who may be experiencing hardship and other vulnerable groups within the community. Distribution of meals by school-connected staff in such community-focussed outward facing roles who already connect with vulnerable groups, instead of the schoolteachers or community volunteers being responsible for sourcing/cooking meals as well as distributing them, reduces the risk of overwhelm of any one person involved in the programme at a given school.

Mentorship is another important factor that Kura Kai promote. Makaia has a mentor who provides her with feedback and support. Kura Kai are also working towards a mentoring system whereby one of the teachers who instigated the transition to the rangatahi-led Kura Kai programme (mentioned above) in their school, can support other schools within the Kura Kai network to do likewise, as well as helping new schools that join Kura Kai learn how to launch straight into the Rangatahi programme. Kura Kai recognise the importance of a trained teacher within the school system being the one to take on a mentorship role for other schools in the Kura Kai network as they know how schools operate, how healthy food programmes can be incorporated into the syllabus so that students can gain credits, and so forth.

**Networking, Collaboration and Use of Existing Infrastructure* – Kura Kai intentionally identify and reach out to people/groups they know who have the experience, knowledge, skills/capabilities, funds/resources or networks of their own, to support their cause. This could be through provision of ingredients, freezers, connections to people or groups experiencing food poverty, and so forth. Kura Kai has purposefully created collaborations with groups such as Rotary, Supermarket Managers (e.g., one gave $10,000 of supermarket vouchers), AsureQuality (see section 3.3.7 for more detail about Food Health and Safety knowledge and processes, website monitoring and reporting, bulk meal provision and so forth).

Synergies are created when people and groups collaborate to achieve shared goals. Sharing of resources is also enabled when groups within a common purpose work together. Kura Kai encourage their partner schools and volunteers/coordinators to think about "who you know" within your network could assist you, or reach out on your behalf to others who could support you, and to then deliberately forge relationships with such people/groups within their community in terms of fundraising, volunteer recruitment, and widening their networks and in so doing, the type/amount of support and resourcing opportunities can greatly expand.

One participant stated that they had come up with a similar idea of partnering with schools for food distribution, but upon hearing about what Kura Kai were doing via their social media, they reached out to Makaia to connect with her instead of reinventing the wheel. Likewise, another participant wanted to help address food poverty in her town and reached out to KK to find out how to collaborate with them, which resulted in KK being established in their town.

Implementation of a school- or community-based food programme is greatly enhanced if you can make use of pre-existing infrastructure and resources within schools or the wider community. For Kura Kai, this is achieved more effectively through the Rangatahi programme which provides commercial kitchen facilities, teachers, students and ingredients (see above section about the Rangatahi programme). As explored in the "Networking" section, connecting with other community or business groups to utilise their infrastructure can also greatly enhance a food programme's operations, instead of starting everything from scratch or buying in all the equipment or infrastructure that is required.

One participant with an extensive network in the Auckland region suggested that groups working in food distribution programmes, or related social support groups, should do a stocktake of what resources they have access to, as well as the networks of your friends and other contacts – this includes people who have time, skills, expertise and links to agencies/organisations that you don't have; physical infrastructure such as vehicles, storage facilities, commercial kitchens; access to food supplies from across the food distribution network; linkages to people and groups who are in need of food and can help get KK supplies to people who most need them; and connections to policy makers who can influence funding and social support structures. For example, they suggested calling on your Food Technology teacher friends to see if they can come on board your KK mahi, liaising with NGOs in your area instead of fighting with them for the same $1 and replicating services, which wastes resources, and contacting people in the community who may not have time to actually cook meals but who might have access to a commercial kitchen, for example.

Furthermore, they suggested that, when liaising with schools or other groups in the food distribution space, examine them from an aerial view and see what facilities they have, then approach them accordingly, seeking to utilise their specific resources and strengths of a certain school, whether that be their commercial kitchen, social workers and truancy officers for the area, or access to community gardens, and so forth. Thinking creatively about how to access require resources

includes thinking about times when things you need are not being used, for example during school holidays or in evenings.

**Professionalism in Branding, Communications and Online Presence* – Professionalism in how they present themselves is prioritised, to provide the public with confidence in Kura Kai as programme that is authentic, trustworthy and operates to a high standard. Kura Kai place high importance on the quality of their branding and communications, including in their social media presence, which is foundational to their operations. In addition to the role that Makaia's social media platform had in attracting the initial schools and volunteers to join Kura Kai, they have created a new online space via their website and on social media to promote their vision, communicate key national or school-focussed events, and highlight the schools that are involved. They see a having a digital and social presence as being critical, either through having your own or linking into someone else's to harness their "reach" and facilitate sharing of resources. Makaia recognises the need to have really good branding, graphics, and web presence, and to spend money on these things, but still keep the personal touch:

> *"There's a nice balance of being professional, and systems and processes, and operational, but very personable and approachable and inclusive. And warm and friendly and yeah we love you, please just help us any way you can".*

**Keep it Simple, Enjoyable and Fit for Purpose* – especially for programmes that involve volunteers, KK's stance is that you must "keep it simple" so that the programme is easy to implement and people who want to be involved can easily do so, i.e., make it easy and enjoyable for people to contribute their time, skills and/or resources. This includes supporting participating schools and volunteers to tailor their KK programme's processes and procedures to best utilise the resources and networks they have to hand, to ensure they best meet the individual and localised needs of their community. The KK managers stated:

> *"You just want to keep it really simple like that because I think that's the beauty of it and it kind of seeps out to everyone that is part of us, that… it is very simple to help us… We're not this big corporation, it's not scary, it's not hard. There's no restrictions… one of our kaupapa is to encourage more volunteering in communities. But, I think it's, there's, people forget sometimes that you can volunteer in all sorts of ways and they forget the impact that it has on, not only the communities, but on their own wellbeing. Like it is such a good thing for mental health to help other people, right? So, that's another thing we like to push."*

The motto, "do the best you can with what you have" is apt. Kura Kai participants proved to be very resourceful and innovative in creating the best meals they could with the ingredients available to them. Schools that have multiple food-related initiatives operating in their school can use surplus ingredients from one scheme to fill gaps in another, thereby ensuring maximum usage of all available resources.

As costs increase, more expensive ingredients are swapped out for cheaper options. For example, one participant noted that the cost of protein is becoming very expensive and people are having to look for ways to swap out meat protein for things like chickpeas, or find other ways to reduce the cost of meals. The cost of fruit and vegetables is also increasing.

One participant stated that the KK menu requirements were quite prescriptive initially, with a list of foods to make, which initially put them off, so they made the decision that: *"if it can freeze and reheat well and still be tasty and good then that's what I'm making with whatever I happen to have available".*

Kura Kai provide guidance about meal selection, preparation, storage and food safety on their website[xlviii] but they purposefully minimise unnecessary "instructions" to schools and their coordinators/ volunteers. Currently, their only requirements for meal donations relate to packaging to eliminate spills, cross contamination and ease of transport for both KK coordinators and meal recipients, and labelling requirements to ensure specific information is on the lids of each meal such as a full ingredient list, date meal cooked and frozen, volunteer identifier and any special reheating instructions. Their website also includes information about the 3 Cs of food hygiene standards – Clean, Cook, Chill; and relevant aspects of the Food Act 2014, including the Good Samaritan clause which protects people who donate food that is safe at the time of donation, and meets any food composition, labelling, and other suitability requirements that may apply to the food.

Another way that KK has made it easy for people to contribute meals is by providing meal ideas on their website with ingredient lists and costings for "bulk cook ups"[xlix] as these details were noted by some volunteer cooks as things they needed help with if they were to go from producing a few meals, to larger quantities of meals. See Section 3.3.7 for more information about the valuable role that AsureQuality has played in developing menu lists and health and safety processes.

Participants noted the following factors influence their decisions about what meals to cook: availability and cost of ingredients; cooking meals based on food that has been donated or is in stock; meals that can be cooked within a short time frame – e.g., within a school class period; meals that kids like and will actually eat; meals that can be easily defrosted and reheated and still taste and look nice. For situations where students took meals from their school home to their whānau, smaller sized meals were required that could more easily fit in their backpacks without drawing undue attention to the fact that they had meals in the bags.

One participant stated that knowing what to cook is important because people in dire need, for example in emergency housing, may not even have ovens to heat food. If you don't know your audience, you don't know what they're able to do with that [frozen meal]. Additionally, it was important to have an awareness of how persistent and consistent the need for food was by the people/whānau receiving the meals . As one participated noted: "'*Food goes out to a family… but is that family getting food every week/month?'. They don't know."*

This shows that it would be beneficial for KK to catalogue more information about the food poverty in their community, and whether situations are a one-off or longer-term support is required.

Reflecting the views of all interviewees, one participant stated that the KK concept is brilliant because it is simple, teaches kids fundamental skills of cooking but also giving back to their community, and it "feels good" anybody who is involved.

The KK managers compared their programme with some other government initiatives where there is considerably more "red tape":

> *"because the students can get unit standards for this work which is amazing. So, we were thinking, 'oh we really need to talk with the Ministry of Ed', you know, maybe roll this out. But, it's interesting because a couple of conversations we've had, they're like 'don't do that because of all the red tape'. Suddenly you'll have to do this, this and this and the work becomes overwhelming. So, we think we probably won't. We'll just try and roll this out and the schools can do it how they, how it sees fit into their school. And that's why it will work."*

[xlviii] https://kurakai.co.nz/volunteer-guidelines-requirements/
[xlix] https://storymaps.arcgis.com/stories/07ed56b6262e46f8b89c1422da33907e (via link on the KK website)

Minimising Food Waste / Targeting Meals to the Target Group – related to the above point, an important aspect of the successful KK model is the thinking that goes into minimising waste within their entire system. One critical aspect is ensuring meals meet the cultural needs and dietary preferences of their local community / meal recipients and replacing items that prove unpopular with ones that rangatahi like and will actually eat. Participants noted that a meal that met all the "dietary nutrition" criteria but was disliked by the students/whānau and ended up being thrown in the bin was a waste of time, money and effort, and did nothing to address food insecurity. On the other hand, meals that went some way to increase the nutritional intake of rangatahi and whānau, and was actually eaten, did actually make a practical difference to their health and wellbeing. Furthermore, "satisfactory" food was better than "no food" in times when high quality and more costly ingredients were scarce or costly. (This point was also made with respect to the KOKA programme, which is explored in Chapter 4).

Commonly cited popular meals include macaroni and cheese (with the tip given to blend suitable vegetables into the cheese sauce), spaghetti/pasta bolognese or lasagne, pasta/potato bakes, pies, mild chilli con carne on rice, fried rice, butter chicken or other curries on rice, or variations on these types of meals depending on availability of ingredients.

Some participants noted that they had to make modifications to the meals they prepared as the standard whānau size frozen meal didn't cater for the needs of certain people or groups such as people experiencing homelessness or in emergency housing situations who didn't have access to equipment to store frozen meals or to reheat them before eating, or for whom a whānau-size meal was too big. In such cases, single or half size meals were prepared, and were delivered unfrozen or ready to eat if that was a relevant issue. Rangatahi having to travel a distance to get home didn't like having a frozen meal in their backpack as it made them feel really cold. Sometimes unfrozen meals were provided to people in such situations.

Donations/Fundraising – The KK managers noted that people like to "see where their money is going", so they make a point of providing feedback to people who donate funds and other resources about the impact their donated meals are having. They appreciate that people like having a direct link to the place their donation is going and seeing immediacy of impact from their donations. With KK, people are able to see very quickly how their support and donations were used through, for example, social media posts sharing information and photos of fundraising events, big cook ups, innovative activities within the Kura Kai network, or direct feedback from the KK team to supporters through emails, phone calls or direct face to face conversations.

Take Steps to Reduce the Risk of Burnout – There is always a risk of volunteer burnout in time- and energy-intensive spaces such as "food insecurity" and related spaces, and this was identified as a potential issue in a few schools. The risk of volunteer burnout is mitigated somewhat when volunteers are well supported and burdensome tasks are outsourced or lessened, enabling volunteers to work to their strengths and focus on core activities that they feel comfortable doing and gain enjoyment from.

Examples given by some school coordinators/volunteers of things they didn't feel skilled in, and would therefore appreciate assistance from Makaia and Marie for, include:

> -fundraising (knowing where to source funding, how to write grant applications and conducting community fundraising events),
> -marketing and communications including creating a strong social media presence,
> -connecting with related groups and agencies to develop community-wide strategies for how

the collective can work together for the common good and avoid duplication of effort, and -vouchers or compensation for out-of-pocket expenses such as fuel costs and ingredients for cook ups.

**Freezer Location / Meal Distribution* – the KK programme is centred around the sourcing, cooking and storage of meals in school-located freezers, for distribution to people who need meals. However, the actual distribution of the meals to people who need them varies from school to school (as is summarised in the school-specific business operating models below). How well the KK programme operates in each area may depend on how effectively and efficiently they can get those meals to people who need them, which is impacted by how well connected they are with other social networks in the food security space. As one participant stated: *"you can make the food, but you need the links to reach people in need. Knowing the families in your community and being linked to them* [is really important]."

Schools who were connected to truancy officers, nurses or social workers were able to utilise their networks to distribute meals to people and groups known to be experiencing food poverty, and at the same time the kai helped to build connections and encouraged people to talk about their situations with the social worker, truancy officer or teachers. For example, one participant shared:

> *"I only say this from a Māori point of view because that's who I am. When you bring kai to somebody, that's how you break that ice. And you sit down and you have, you share kai. And then people are blah blah blah blah. You know, they'll really tell you what's wrong or what's going on."*

The KK managers spoke about their experience when they accompanied one truancy officer who took KK meals with him when visiting rangatahi in their homes:

> "[the truancy officer is] *going out to do that really awkward, uncomfortable conversation, you know, door knocking conversation. Usually, it is with a bloody clipboard and a hard word, you know?... He's literally welcome in their home to sit down and they have a conversation. And the door has not been slammed or they're not ignoring him or anything like that. And also, some of the other schools are saying whānau who would never really come into school to talk about their child, or be interested in what their child, are now coming in because they know they can kind of pick up a meal while they're there. Or grab, you know, be sent home with something. So, it's opening up those important conversations with people that really need them."*

For some schools, the meals were used to feed lunches to their own students, who would otherwise go without:

> *"lots of schools who weren't on lunch programmes were still pulling meals out, defrosting them and doing big cook ups for all the students to come and have lunch, even though we're not a lunch programme. But, they were doing that. Some were having children who were brave enough to come and actually ask, 'can I take some kai home to my mum?' Because that wasn't often, because that whole shame thing is still there, especially for teenagers… Alot of it was guidance counsellors, youth workers … who literally knew probably 20 families in their school that on a certain day of the month, or week, they knew were going to have no money and they would just rock up with three meals or whatever. And they had a kind of set whānau list that they would take meals to."*

Furthermore, the scale of food poverty in the community was so great in some communities that some KK coordinators were committing very long hours, over and above their paid jobs, to ensure people weren't going hungry, sometimes travelling quite long distances in rural areas to do so.

The logistics of where the KK freezer is located is important as this impacts on meal distribution. If the freezer is within a school, then only a school employee can gain access to the freezer, which prohibits whānau or volunteers from accessing/distributing meals after hours or during holidays. For

example, one participant explained why their school freezer is located in a shed at the back of their property:

> *"[the school coordinator said] 'the whānau that are coming to get food packages and kai aren't feeling whakama, you know? Embarrassed to be doing this. We have it out here so that they can just drive up to the garage, get their kai and drive out again'. And I was like 'oh what a great idea'. Like actually that made sense to me. And as a, being Māori myself, and knowing how proud Māori people are, I then understood why they did that. Because you don't want to be going into the school and asking for a handout".*

Another participant said that she spends time thinking about what more could be done to spread the impact of KK and came up with the idea of how she would love to have a refrigerated vehicle to deliver kai to rural locations and other locations around the region. Another participant stated that they would like there to be one freezer in their local school and another one in a non-school location so that people not attached to the school could access meals outside of school hours without having to contact the School Coordinator and interrupt her free time.

The time, cost and emotional commitment it takes to undertake such a role in one's community is enormous and increases the risk of potential burnout. This is an issue that will require careful consideration by KK managers, as well as local coordinators and volunteers, as the need in communities grows, as KK cannot possibly meet everyone's needs. This role of government agencies to address food insecurity and better support community-based and voluntary organisations who are doing such large roles in this space, is also addressed in Section 3.3.6.

**KK is a Successful Model that Others can Pick Up* – Many participants commented on the fact that KK is now a proven model that other groups can pick up and run with. One participant had been looking at starting a programme to provide kai to whānau at home, but their iwi liaison officer (in the police) told them about Kura Kai. They "didn't want to reinvent the wheel" so contacted KK and decided to partner with KK so they didn't need to start one from scratch.

**One Size Does Not Fit All: Customising Operating Models for Local Circumstances* – While the factors identified above that were applicable to KKs successful business operating model, working to one's strengths and tailoring operations, accordingly, is also a huge part of their success. These additional factors that were specific to the operations within participating schools, are summarised for each school – see Appendix A. This exemplifies how the overarching Kura Kai business operating model is to support participating school coordinators/volunteers to innovate and tailor their programmes to fit their own circumstances, wherever possible. For example, some schools had professionals with specific skillsets which enabled them to operate in unique ways that worked well for their school/region, but may not work or even be possible, elsewhere.

Likewise, schools/regions where a teacher was the coordinator enabled the KK initiative to be incorporated into NCEA credits or other class work, including in the cooking of meals; other schools had extensive community and industry supports which enabled these volunteers to contribute huge numbers of meals to schools without any input from students. Cooking meals with whatever ingredients are available to your school is another example of how even menu selection needs to be based on local availability, which will differ from region to region and school to school. Just because something works really well in one school, does not mean it should automatically be implemented in all schools. The KK coordinators in each region should identify and then work to their own strengths, and those of the people and groups within your networks.

3.3.4 Impact of Kura Kai's School Food Programme

The impacts from Kura Kai's school food programme are significant and far-reaching, as summarised below.

**Holistic Education* – The new KK School Rangatahi model facilitates a more holistic education for students whereby they can learn about societal issues such as inequality, poverty, food insecurity, meal planning and preparation, cooking, preserving/freezing food, in some cases sourcing/growing food if the school has a mara kai, and so forth. These learning opportunities are also being incorporated into the school curriculum in many cases, enabling students to gain NCEA credits.

Some schools who are running the Rangatahi programme intentionally teach their students about factors that can lead to poverty and resultant food insecurity within households and wider communities, as well as related areas of budgeting and the cost of living before they move to the cook up phase of Kura Kai.

Many schools (irrespective of whether they operate KK or not) have extra-curricular activities such as participation in sport, the arts, business, and so forth. However, some KK participants noted that participation in KK contributes to the social and cultural learning of their students, giving them a broader and more holistic education and greater community citizenship. This more rounded education was noted as being a potential strength on scholarship applications and entrance to capped tertiary courses.

**Community Citizenship* – KK is a way that community can support schools, and vice versa. The KK programme fosters community citizenship within school communities, themselves, as well as collaborations between schools and other external groups. This gives students, staff and community volunteers mana-enhancing opportunities to make a practical contribution to their school, whānau and the wider community, thus fostering greater community citizenship and awareness of how to have a positive impact.

**Pride and mana* – by contributing to something positive that fills a key need in their whānau or the wider community, rangatahi feel a sense of pride and mana. This is particularly important when so much of the media narrative around youth is negative and focused on those few people who are involved in anti-social or criminal activities. The Kura Kai initiative highlights the enormous potential of youth to contribute to the betterment of society, and to lead initiatives such as Kura Kai.

These benefits of volunteering for social causes are also applicable to the adults who participate in programmes such as KK. For example, the KK managers stated:

> *"you see the ladies rock up, and from day dot when people bring meals to my house, or women bring, they come with such a smile on their face. You know they've cooked with love. You know, it's just such a beautiful feeling. And to be able to give kai directly like that, especially that they've just poured their time into it. For them it's beautiful. For us it's beautiful. When you know that it's being received that way as well. It's like such beautiful mahi. We've picked up thousands of kai and never had one…complaint about an off meal or anyone sick."*

**Greater Awareness of Whānau and Community Need* – Prior to involvement in KK, many volunteers/coordinators stated that they, and other staff and students in their schools, were not aware of the scale of poverty, food insecurity and hardship in their communities. Some participants stated:

> "[Many other staff in the school] *don't even have a clue about how many kids turn up to us every day to get food from here… Hundreds and hundreds and hundreds come. It's never ending. All through the day… Theoretically it would be nice if they weren't leaving class to go and get food. But… heaps of*

teachers are the ones who have identified that if those kids are sitting there and can't concentrate because they haven't eaten, that they would rather that they went and got something and then came back and could concentrate for the rest of the lesson. And I was like, 'it doesn't bother us'. They literally come [anytime throughout the day] *and grab something and go again. It's not like it's a big deal. And it's no questions asked".*

"We've got way better awareness of the state that so many families are living in [even if the KK teacher doesn't know who the families are that receive the KK meals, or where they live, as the meals are distributed via another person]. *I guess it's seeing the face of a friendly child, not knowing what's deeper. And it's actually nice that we can have a yarn to them as a human being, rather than judging".*

"I mean I knew we had issues in [region], but you don't realise how enormous they are until you tap the [need], yeah. You only have to go delivering the meals to people and you realise that the people, one, are isolated, vulnerable, scared. And some of the conditions that people are living in. Like I've got a family out at [neighbouring town] that I deliver to that are living in a garden shed, with one mattress and they share sleeping. And apparently New Zealand is doing great, you know? So it's certainly opened up my eyes to. There's a lot of waste in the middle."

"And you know, I have always been, when my kids were at primary school I used to say to them do not eat Breakfast Club, we are not poor. If I catch you eating Breakfast Club grrr right? I was one of these people. But, it's not until you're actually working in the coal face that, you know, it's not that people can't look after their children, it's they're fighting for survival to look after their kids. These poor little children have, mum. And, you know, a lot of the families, even the people that live in the shed they work".

Furthermore, there is an increased awareness of the persistent and consistent need for food, and how one-off delivery of meals is insufficient to meet the need. As one participant noted, "food goes out to a family… but is that family getting food every week/month?" They don't know, but acknowledge the need for better processes around cataloguing the kind of need there is amongst different segments of their community, so they can adapt their programme, appropriately.

The scale of the need was significant in many communities, for example, one coordinator stated that they caters to 200-300 families a week with inputs from various sources.

Please also see the "Business Model" section for how the Rangatahi Model was introduced in some schools and the impact that this had on rangatahi coming to have a much greater understanding of poverty, food insecurity, and how people can so easily fall into such difficulties.

**Improved Learning and Educational Outcomes* – when students are fed well they are better able to concentrate in class. For some students, the Kura Kai meal may be the only hot meal they get that day[l], so this encourages regular school attendance.

As noted previously, in some schools the students are able to leave class to come to the KK Coordinator's Tech room to get food if they are hungry, and then return to class, no questions asked. This school allows this practice because they know that it helps students to settle and learn. Furthermore, being able to provide students with lunches encourages them to be able to participate in school trips and outings where they have to take their own lunch, when not being able to do so can mean they don't turn up to school those days.

One participant stated:

[l] For schools that don't have the Government KOKO programme, which is addressed in Chapter 4.

"People are super super grateful when I do drop offs. Kids help carry the food. It 100% makes an impact. Can't learn if you don't have food to make your brain work".

One participant noted that the food recipients are:

"certainly are super, super grateful and I know like when I've done drop-offs to the school with the meals and I've had a few young people help carry in the food, they're like oh thanks so much miss. You know, this is so awesome. It 100 percent makes an impact, you know? You can't learn if you can't, don't have food in you to make your brain work eh?"

Furthermore, although this study did not include interviews with rangatahi, anecdotal evidence does show that being able to contribute to food for their whānau can lighten the responsibility on some rangatahi to earn money for household and grocery bills, which takes away from their time for study or school-based activities.

**Improved Relationships between Whānau/Students and Kura Kai Teachers and School* – Kai (food) plays a powerful role in connecting students/whānau to their school. As noted in the "Business Model" section for various schools, the KK programme has resulted in stronger connections between participating teachers and students, as well as greater awareness for teachers about what life is truly like for the students. The connections forged over food, including preparing, cooking and distribution, foster authenticity in relationships where rangatahi are more likely to open up and be honest about their situation and where they might be struggling and need help.

For example, KK school coordinators said:

"*To be an effective teacher, the most important thing is relationships… I used to have to lock up the classroom in the old school and there was like a back door that constantly got broken into and stuff getting stolen and thrown around school. Half the time these are just left unlocked now, and nothing ever gets stolen from here. Because it's just like now they respect it*. [It's an important space], *they respect it and they respect us*."

"*When it was real cold in winter and heaps of people would stay in* [KK kitchen/food tech area] *to eat their soup at lunch time. And there would be a room full of both staff and students, just sitting having lunch together*". [Before KK], it was like the staff were always in the staffroom. The kids were like wherever, and no interaction or, you know, generally during break times, it was like 'bugger off and leave us alone'".

"*Some kids just come* [to the KK kitchen/food tech area] *for the coffee machine… heaps of Year 13 students who wanted to learn how to use the coffee machine… but we couldn't* [offer them enough hours for course credits]… *so* [KK teacher] *did that after school, in his own time, made them a [school name] certificate so they've got something to show on their CV. And so then heaps of those kids then come and hang out here in break times… they sit here and have chats with the teachers they're making coffee for*."

** "Caregiver in the School Kitchen" Provides a "Safe Space" for Rangatahi* – Related to the above point, in some participating schools, the KK teacher/counsellor/nurse has come to play an integral role in the life of the rangatahi who connect with the KK programme, and this has become a critical aspect of their ongoing involvement in KK.

Comments to this effect include the following from a KK school coordinator:

"*There was a boy who was saying…he had an outdoor trip and he said to his teacher he couldn't go on the trip* [because, he said] 'I *have to be at school to get lunch'.*
And he calls me 'mum'. And he was like,
'I have to go and see mum at school and she gives me lunch every day'.
And I didn't actually realise that it was that much of a need. I thought he just liked coming and

hanging out here [in the school kitchen space where the kai is cooked and distributed*]. So I made him a packed lunch so he could go. And I was like: 'how many other kids are missing on trips and stuff, and don't speak up about it?' And then: 'how many are actually going to be on that trip and they're probably not going to have enough food?'"*

Students *know that* the kitchen/food space in the school, which also has the office for the cooking teacher who is also the KK coordinator]

"*is where they can come to for whatever they need, if something else happens they come here as their first point of call. There was this girl who got beaten up the other day and the first place that one of the students came to, to find someone, was here*."

One participant specifically spoke about how their kitchen projects enable/facilitate connection with their students, which promotes pro-social behaviour. In their school they do projects in their commercial kitchen:

"we make it hands on. So they'd have to go away and write recipes and do budgets and all that sort of thing. So we've had different groups of kids with different projects cooking up meals throughout the year as well".

They might decide to "teach cooking skills… Another one might be hospitality so they'll prepare some meals and then feed them out at lunch time to people, and that's still under the guise of Kura Kai.

Another one might be, last terms we did a programme for a group of our most troubled boys, like street kids pretty much that somehow come to school, which is amazing. But they were fighting so we got them all together and we did a big cook up. So, by the end of that they were laughing and joining in and communicating. It didn't last long, but it was fun all the same.

We probably need to do one a week. But, things like that, any sort of initiative that we need some connection with the kids. [The kitchen is] *the hub, you know, food is where the heart is*…[even with the most troubled kids, a cook up is the go to strategy]. *What was fantastic was one of our most aggro kids, when we had him in there, he loves chopping onions… normally he's out there looking for fights, so it was like, we managed to , at least for a day, get him into a bit of onion chopping sort of vulnerable mode, because he was a bit teary from the onion juice and we did a bit of work either side of that, you know".*

**Enhanced Trauma-Informed Teaching* – Also related to the above points, there is greater awareness amongst both staff and students in participating schools about the trauma being experienced by some rangatahi, and the impact that this has on their learning and school attendance, which is worsened when the student has also not eaten adequate food.

One KK school coordinator said:

"*I ran a student wellbeing survey last term… 80 odd students who don't have someone safe to talk to outside of school… And it was like: 'do we know who these kids are and what else can we do to help them?"…* [In health class another teacher told us about how] *they looked at a snippet of Once Were Warriors.*
And some of the kids were like: 'oh that's just a movie'.
And some of the kids were like: 'that's what my life has been like'.
And it's just this white privilege thing, like they live in their little white privileged world and have zero idea about what other people are going through"…

There's all this other stuff going on that you've got no idea and that's going to have such a massive impact on what's it's going to be like when they're in your class. And of course, they haven't eaten, of course, they're not going to be able to concentrate. Or they're too busy sitting there thinking about the fact that mum got beaten up last night and: 'is she going to be okay', right.

> *And so there is this massive push nationwide about trauma-informed practice and stuff…*
> We need to have some way of *getting a bit of a message across to staff, because there are so many staff who are oblivious…"*

**(Re)-Building Social Connectedness, Cultural Identity and Wellbeing* – Food is at the heart of social interactions in many cultures, and KK is facilitating this important activity. Participating in group cook ups strengthens social connectedness as people form social connections that they may not otherwise have the opportunity to develop.

> *"Rangatahi that attend schools, the influence that it has on them is that they're actually participating in their community and they're participating with their friends' families"…* [in the participant's day, kids regularly ate meals with their friends' families…] *"that's what community's about. That's how the community got to know the community. And those relationships, those partnerships are non-existent in a lot of communities".*

Further, cultural identity is strengthened when volunteers from various ethnic communities participate in KK cook ups and prepare culturally diverse meals. This also increases understanding amongst all participants about food culture and identity and helps to preserve important food knowledge and traditions. Furthermore, KK is enhancing wellbeing in a number of different ways, including for the KK coordinators, volunteers, rangatahi and community members who are contributing, for the people/whānau who receive kai, and for the wider community who benefit from having less food poverty in their town/city, and the roll on benefits associated with that.

**Reconnecting Rangatahi with Knowledge about Food* – Many participants spoke about the concerning lack of food knowledge amongst some students (and in some cases, their wider whānau). For example, an increasing number cannot identify basic fruits, vegetables and grains and did not know how to grow or cook them. Rangatahi and whānau who participate in KK cook ups are getting opportunities to reconnect with food (gathering, preparing, cooking). Furthermore, when cook ups include meals that have cultural relevance to the people involved, this strengthens their food culture and identify, and gives them pride in being able to continue traditions of manaakitanga.

**Greater Awareness of Inequality and Gaps within Schools and Communities* – Some participants spoke of the large gaps and need within communities, and within the schools themselves, irrespective of the decile level of the school or suburb within a city/town. This highlights the point that there are varying kinds of "needs" and they can be visible or hidden and thus harder to identify.

These gaps are many and significant and can include:

> -financial poverty and hardship where there was not enough money to pay bills and purchase food;
> -time poor people who work multiple jobs to make ends meet, but have little time left to cook regular meals;
> -knowledge about growing, harvesting, cooking, preserving/freezing food; and
> -people whose lives are so stressful due to family violence, ill health and suchlike, who do not have the capacity or energy to consistently provide healthy meals for themselves, let alone their household.

**Fill the Gap (& Keep it Filled)* – Participants noted that many other food programmes, including other school food programmes, food banks and city missions, often have a Monday to Friday delivery model. However, hungry/homeless people don't stop being in need on the weekends, holidays etc.

Other food programmes offered in schools include KidsCan and KickStart breakfasts, the Ministry of Education KOKA scheme does lunches. However, participants noted:

> *"But what is going home? Is the home is still suffering? KK fills this gap"…*
> *"In regards to Kura Kai in schools, if a kid goes to school hungry they're going to be worrying about food and going to be starving until they eat. And sometimes it can be more than 12 hours. So the idea is to fill that gap and make sure the gap is always filled. So putting the food in the freezers at school… you can either eat it at school or take some home for your family."*

** KK Fostering Revolutions in Food Resilience* – Kura Kai is contributing to revolutions in the way whānau and communities are coming together to improve food resilience. Transformative changes are occurring where schools are tailoring their KK programme to meet the needs within their community, collaborating with other groups to achieve more, and innovatively incorporating KK activities into school curriculum. Other social agencies are also partnering with KK to enable greater impact is delivered through their collective efforts.

**Impact of Involving Rangatahi* – There was widespread acknowledgement by participants of how mana-enhancing it was for rangatahi to be involved in the KK and related programmes:

> *"You've got six foot plus 18 year olds that are really proud to be* [involved with support agencies]. *And they're so respectful in all ways. You don't sorta realise that you have young kids like that, young boys like that anymore. Young men."*

> *"They're very proud of what they do and they love just giving that little bit, you know, just making that little change for somebody. I always give them the pep talk, you know, you mightn't change everybody but you've helped someone in a little way. You don't know but they'll take it home and remember you forever. Even just dropping off that box of food".*

Finding ways for young people to be involved in a positive way… use their youth and energy to help older volunteers. One participant noted that the KK Rangatahi Model, whereby youth are the ones taking an active role in service delivery, is being replicated in other community organisations he is involved in: *"This is important, bringing rangatahi in and training them from day dot".*

Participants were supportive of involving rangatahi in food security programmes, point out that such rangatahi involvement made the programme much more than just being about food provision: *"it teaches them that your life might be crap but people, there are actual people out there that have a worse off life than you".*

A participant also noted, however, that rangatahi leading social services can be threatening to some older volunteers who feel like their space is being taken over.

**Leadership Opportunities for Rangatahi* – As outlined in the "Business Model" section, in one Bay of Plenty school, the KK programme was initiated and implemented by two Year 13 students, who sought approval from the School Principal and Board to start it up in their school, sourced resources from a local supermarket and organised group cook-ups including meal selection and sourcing of ingredients. This higher decile school did not have a great need for meals within the school community itself, so the students in charge of Kura Kai reached out to local community groups or charities to arrange delivery of meals to people in need within those groups.

By leading their school's KK programme, the participants gained new skills in project management, organisation, budget management, community liaison, organisation and managing volunteers. They also thought that it was likely that KK participation had positively impacted on their tertiary scholarship applications:

"I've got an academic excellence scholarship, but it's also all-round excellence. So definitely being able to, like my community service definitely contributed to that I think".

"I loved [the experience of KK]. *Very exciting. I like the opportunities and the new experiences and all that. It was something different. Never done it, well never done this kind of thing within school, so it was a new change, a good one".*

Such leadership opportunities for high school students are excellent mechanisms to empower and enable them to make a real difference and develop transferable skills that can be utilised in numerous other situations. Not only can rangatahi participate in collaborative programmes, they can lead them!

**Participants' Family Become Involved* – Many KK volunteers talked about how their own kids became involved in their KK programme, and this provided numerous positive impacts on their own families. This including building better relationships and opportunities to talk to their children/grandchildren, and helping their children gain a social conscience and awareness of poverty and hardship:

"With my kids … in the school holidays we did a drop off to a lady in [neighbouring town] *that's in a rental property that's only quite new. It's a spec home, not a brick home, but like a J2 home or something like that. Right, so it looks quite flash. And… because I've delivered to her before. This lady is on the bones of her bum. Before I delivered to, coming around the corner, I said to my two children who are 15 and 13, I said 'look I don't want you to judge the house okay?' And they were like 'oh it's pretty flash'. And I'm like 'please don't judge the house, I've just said that to you. And I'll explain it all when we hop back in the car'. So anyway, we dropped the food off to this lady and, who has three children, she's a solo mum, who born in* [another neighbouring town]. *Went to Australia with her husband who is the father of the three kids and then he kidnapped the passports and she couldn't get back. So she was in an abusive relationship right? Finally, she was able to get out and come home after about eight years. Lived with her mum and dad in* [town] *for awhile and until she could find a rental. So, it took about three years to get a rental. Finally got onto this place. She was paying $750/week.*

So, I said to my kids 'let's put this in perspective. So, my mortgage a week that your dad and I share is $185/week, right? She's paying 750 and she's on a benefit, because she can't work. She's got… social anxiety too so she's very cautious about who she talks too. Yeah, so I said to the kids, 'so you think about it. She's paying 750 which will be topped up by the government, I know that. Power, phone, because she needs a phone. There's not a lot left over for food is there?'

And they're like, 'well how come you and dad only pay so much?'. And I'm like 'because we were lucky and blessed and we were able to afford a home and get into the housing market, you know? But, not everyone can, you know?' So, we put it into perspective, and the kids get it. So, they're great helpers, you know? So teaching that with my [students at school] has been really important. Putting everything into perspective."

**Relationships between Participants* – an important benefit for volunteers was the pride they felt from making a difference, and the supportive relationships that had been built up over time. One participant stated that the KK Facebook community set up for the coordinators and volunteers made a big difference in creating a collegial and support culture amongst the team:

"[other coordinator has] the same heart and I think that's what I love about her. And I know that we have a New Zealand wide Kura Kai coordinators Facebook messenger. And when stuff happens, I love that we're all just standing there clapping for each other."

3.3.5 Regional Differences in Delivery and Uptake

There were observed differences in the Kura Kai programme throughout the country, which shows the importance of programmes being tailored to meet the needs of local communities. This is evidenced in the examples included in the previous sections, but is summarised below.

**Larger cities such as Auckland* – In larger cities there is sometimes a city-wide Kura Kai coordinator who delivers meals to multiple schools across the city area; or community volunteers who cook meals and deliver them to the coordinator or directly to schools. The large distances involved to deliver meals to schools or whānau across the city can be costly and time consuming.

However, the rangatahi programme in which the meals are cooked in class, helps to alleviate this problem, as the bulk of the meals are cooked at the schools and thus don't need to be collected and gathered from across the city and delivered to the school. This works well when the meals are then distributed to rangatahi or whānau connected to the school community and external transportation methods aren't required to get the meals to their intended recipients who might be located in diverse places spready all over the city. Furthermore, there may be other social services in larger cities that the KK coordinator can collaborate with to enable greater combined impact, shared resources and transportation, and greater combined "reach" to people in need. For example, food banks, city missions, Māori networks, funding pools that can be drawn on.

Participants in larger cities also commented on the cultural diversity in their schools, and noted that *"cultural diversity brings food and diet diversity."*

A participant at one decile 7 Auckland school noted that Māori and Pacifica demographic typically receive the food:

> *"typically sad to say, the kids that we give most of our food to are Pacifica and Māori. They are really struggling in this area and most of our food stuffs go out to those particular cultural groups. We do have different ethnicities, we have some kids that can only eat halal meats. We have some who are vegetarian… KK has been here now for two and a half terms and we've given out about 500 meals I think."*

In other Auckland school, one participant has worked out, there was more [food] demand:

> *"We had a lot more kinds who presented as home being really needy and just not enough food and arriving at school with fairly shabby uniforms and no lunch box."*

**Northland* – KK wanted to establish a KK network in the Northland region and did have a coordinator operating in one school but when that person left, they couldn't find someone to replace them. People who would likely have volunteered in a KK school food programme were often already involved in other pre-existing food-related programmes, or simply did not have enough resources to commit to KK cook ups:

> *"when we started in some areas like Northland who needed the help, it was really hard for us to help them. Because everybody needed help. There were no volunteers. So, what I really struggled with in Northland is that there was actually nobody in the community to help us, to cook, 'cause they all needed the meals. You know, the whole community was struggling. You could see the real massive like difference between somewhere that had a balance of, community of can help, need help. And then you go somewhere up in Northland where. Or there's just so much resource you can just take."*

Comments from KK participants about trying to get a successful programme going in Northland include:

"They were looking for somebody for Kura Kai for [place in Northland]. And my family is from up north and so I approached them and they are business owners and policemen and social workers and stuff like that. So, they're community minded people. And I didn't get a single response from anyone putting their hand up. And then my cousin rang me, and I said 'what's the story'? And she said, '…honestly, we don't need another group up here doing meals. We've actually got this'.
And then I did some research on the Northland schools and they [prior to KOKA being implemented]*, most of them are not doing contracted food. They've actually gone to their community and said 'right we're going to pay some locals to make this happen, and we're going to do it properly'. And they're getting all their food locally. And they've got like really, really big uptake on the food.*

But, as well as that, well probably because of the COVID situation, Northland was quite isolated for a long time. And they just had to look after each other. And there seems to have been quite a bit of stuff actively done by the community to look after their own. So yeah, they just sort of said that, from their perspective, [place in Northland]*, they didn't need Kura Kai because they were already all feeding their kids as well as they can. And doing quite a good job of it, apparently so."*

However, it is clear that there are still areas where food poverty is a huge problem, and more effort is required to find ways to meet those needs. It may come down to finding the "right person" with the personal connections to link into schools, volunteer networks, and groups who are in need of food.

**Central/Eastern North Island* – Kura Kai has responded to the diversity of experiences and needs within the cities and towns across this region by establishing KK quite differently within the schools where the food programme is operating. In one high decile school in the region, no great need for food was identified within the school population itself, but the social conscience culture within the school prompted students to lead a KK programme within their school, sourcing donations from supermarkets, leading cook ups, and distributing those meals to local places of need such as mental health care providers and rehabilitation facilities.

Alternatively, in another rural school where KK is operating in the area, there was very little community-wide infrastructure for the coordinator to draw upon, initially, with only one supermarket in town, and huge need. However, since KK has been operating and community awareness of social needs has increased, additional social agencies have arisen who are collaborating with KK around the idea of rescue food so they: *"went from having to supply everything ourselves, and luckily I got through the last COVID lockdown, we got a quick funding from* [a nearby NGO Trust] *of $1000, because we'd just, we'd run out of food."*

So, in addition to KK other groups who work alongside KK in food provision include the marae which runs an "at risk kids pilot programme", a new collective which coordinates surplus food pick up and delivery, a local resource centres that provides lunches/toasties etc for certain children in need, a Pacifica group, a food bank, and the School's Learning Centre. As more social agencies are established in communities, their reliance on KK lessens.

Having a truancy officer for the area based at one of the KK schools in this region, greatly helps with food distribution. The Truancy Officer visits families, and turns up with food, saying "hey here's some food, how can we help". Travel costs are covered in their primary role, so the relationship building happened quicker with the incorporation of food. Where schools do not have a truancy officer or a social worker whose paid role is to visit families or travel around the city/region, distribution can be much harder to facilitate.

Rural communities:

In addition to those mentioned above, unique challenges for KK programmes in rural areas can include transportation issues related to the pick-up and distribution of food, less numbers of food

suppliers/supermarkets to donate surplus food to groups such as KK, and less social supports such as Meals on Wheels or food banks. Even where such supports exist, they can be difficult for people experiencing food poverty or financial hardship to access.

For example, in one KK town, supermarket delivery was unreliable and the only supermarket in the town was a monopoly so prices were expensive (in 2022):

> *"Our supermarket, because they've got a captive audience, we have no choices here right? If you can't shop there you've got to drive a hundred kilometres to do an alternative shop. And so they can charge 25 bucks for a block of fricking cheese and they do."*

The huge need for meals in surrounding rural areas was noted by a rural KK coordinator, who recounted an experience when she took meals through to a free food stand in a neighbouring town:

> *"I've just got to tell you a story about that… It's not a bad story. It's an eye opener. So I went there in the holidays… And I got the lady that runs it… to come and sit in the car with me because it was cold outside. And we just sat back and we sat there for about an hour and a half talking. And oh my god, was it an eye opener.* [The person who runs it had never watched to see who takes the meals] *before… And we were blown away. We were, I left there crying, I think. It was really sad. And it's like, how can we get more to these people? Because they're desperate. These people are desperate. …*
>
> *Well,* [we saw] *people driving past over and over again because they're too ashamed to stop and take. And then, you know, kids being the ones jumping out of the car. And this stuff is like yeah free and available. Yeah, just the body language, too, of parents. Kids were coming up in cars, no seatbelts, no car seats. Desperate, you could tell they were desperate for food. And obviously cars unregistered, unwarranted because they can't afford to do that. And these poor little kids, their little heads over the side, just unkempt.*
>
> *These people are desperate and yeah* [person running the free food stalls] *was like absolutely blown away. She said 'I really should do this exercise more often'. No one was taking anything more than they needed. Like we didn't see any greed or anything like that. We just saw people being quite respectful. But, a lot. Like if they were to put a road counter on that street, I'm sure on certain days it would be busier than the state highway going through, eh? It was, it was, and previous to me getting there, I had unloaded a lot of stuff. And by the hour and a half it had gone.*
>
> *And things like we've, [another place in town] they grow greens for restaurants, micro greens and stuff like that. And I honestly, he gave us 20 kilos of spinach* [half of which was put in the free stalls], *like that looks like four bags as big as this table, right? That's what it looks like. And that was gone like that. ….* [Earlier someone else turned up] *with masses of silver beet and it had already gone by the time I got there with the spinach"*.

So, despite a town in the area having 3 free food stalls that are:

> *"putting out meals and whatever food they can, and Sunday breakfast at the churches, a food bank, and KK. We've got food bank. We've got Kura Kai. We've got, the community centre also has people phoning them asking for food… Plus the community food stall. So that's an awful lot of different agencies already in just this one tiny town and* [anther one] *as well and they're at capacity. Well, they just don't have enough. No, can never have enough. I mean we keep the freezers, have a look at them before you go. One of them is almost full and one of them is about a quarter full. We try and keep them constantly stocked because we can't afford to run out because that means kids don't have food to take home. But, at the end of the term* [KK coordinator] *basically does a school holiday kind of run if you like. And then she comes in during the school holidays and delivers to families… it's her life now."*

<u>Lower North Island:</u>

It was noted by a participant in this area that each school is uniquely different, and the specific need within a community is particular to them. One of the KK coordinators in this region was a school

nurse, who provided unique insights about the KK programme in that area. The region utilises their strong network of coordinators and volunteers who work well together to share ideas and meals.

The Rangatahi programme was not operating in this area at the time of the interviews, but the participant noted that that the:

> *"concept is brilliant. And you're also, you're teaching those kids … just some fundamental skills of cooking. But, also giving back. Because … no matter what level of socio-economic [background you are from], … giving back feels good for anybody."*

The volunteers in the area cook most of the KK meals, independently.

> *"So someone will do their own cooking at home and say 'hey I've got some meals I'll drop them off.' We did do one sort of one cook up day with us coordinators and a few helpers, but … it was quite challenging with, you know, finding the venue, then you know, half the utensils not being [there], you know? It was just quite challenging. It is, I can see why, the beauty if you get the right place would be amazing, and there wasn't a huge response from the wider community to come and help".*

Having to rely on themselves and the few other KK volunteers in the region to provide all the meals was sometimes difficult for this participant who stated:

> *"I mean for me, time is a problem. I'd love to try and get into more schools. It's challenging sometimes getting volunteers to cook. And so then you kind of feel a sense of responsibility to have to find food or make food for these families. And it can get quite stressful if, you know, you're time poor. And for me it's not so much the financial, it's the time. Because I obviously work and I have, you know, I've got four kids and a busy family. And, yeah, I'd love it to be in more schools, but sometimes I think the buy-in from the schools, yeah I mean I've only got a small perspective from a couple of schools…*
>
> *I think we really need good champions in the schools. I think that's key to the success of the programme. I really love the way that they're heading with the rangatahi doing some of the cooking. Like I think that that is, that has so many bonuses on so many levels, not just for the young people, but for the whole community"*

When asked about how the Rangatahi Programme could be introduced into KK schools in their region (or throughout NZ), this participant stated:

> *"Each school is so uniquely different and your need and want is specific to them. And you can't have a one size fits all for each school. So, I think that would be potentially a really good way in to try and introduce* [it when a new school joins KK]*. But, you've also got to remember you've got some teachers that have been in there, potentially stuck in their ways, not looking at change, you know? So, you get the wall up. I know I asked about a freezer ages ago for an alternative education, and they're just too busy. They, I spoke to the principal, whom I know, because of my working relationship and he's just like yeah I'll get back to you. And that was over a year ago, and that's sort of not happened. So it is tricky when they, they're busy people, and yes they know there's need in schools, but they've got food in schools so maybe it's not [a priority]."*

The level of food poverty in this region was significant in some schools. The participant noted: *"I have instances where I've seen people that will go 'we don't have any like dinner or lunch for the next four or five days until someone gets paid'."*

This participant referred to one school in their area where the KK programme was working really well because they had professional staff in the schools who were motivated to help and could deliver meals to homes where they were most needed via their professional role at the school:

> *"Well they've got one person who is a counsellor, she's extremely motivated by it. Like there's quite a lot of need in that community and she, if people, people know that she sort of oversees the freezer. And they'll come to her if they hear of any kind of stories or situations. Maybe there's some financial*

hardship or maybe there's something happened a little traumatic in that whānau. And then they would do some deliveries. I know in lockdown there was a lot of difficulty and so we arranged, I took over all the meals that I had, and then they were delivering some of those meals out to their whānau. And so, there was someone in emergency housing so I delivered theirs because it was over this way on my way back. So yeah, they were really proactive because there was lots going on with that lockdown and stuff last, was it, it might have been the beginning of this year."

South Island:

The KK Coordinator who participated in this research only recently moved to the South Island, and her networks are much less established, which has made it more difficult to get lots of volunteers on board. There is also little uptake of the Rangatahi model, which means there is still heavy reliance on meals to be provided from volunteers outside the schools. A positive has been the recent partnership with AsureQuality volunteers who have done cook-ups for local KK schools.

3.3.6 Government Policy and Support

**Bridging Gaps* – initiatives such as KK can bridge fundamental gaps in food distribution programmes such as KOKA Lunch-in-Schools. For example, by providing meals during holidays or if rangatahi are away from school due to bereavements or sickness. In schools that have KOKA, many whānau have become reliant on schools providing lunches and so don't include lunch costs in their budget. This raises the question of how such families will cope if the government stops funding the KOKA scheme and schools stop providing these lunches. For families that have become reliant on it, this could place them in even greater hardship during times when the cost of living is making times very tough for people with lower incomes and less money available for food.

Furthermore, KK provides meals for students attending school who need them, as well as their whānau and others in the community. This goes some way to addressing the issue of rangatahi having to take time off school to take up part time (or in some cases, full time) employment to provide an income for their whānau/household, when the rangatahi are able to provide meals for their whole whānau.

**Food Knowledge and Skill Development* – While the government KOKA Lunch-in-Schools programme provides school children with a healthy meal each school day, KK participants observed that this is a band aid over a much larger societal problem: kids aren't learning to cook proper meals that feed a family, which is such an important life skill. However, Kura Kai point out that the potential is there for programmes such as KOKA to be more impactful if children in had opportunities to participate in the cooking of the lunch meals and it was included as part of the syllabus. This point was also raised by the KOKA coordinator in the Manawatū school case study (see Chapter 4).

One participant noted how an increasing number of rangatahi are becoming less aware of the existence of many kinds of fruit and vegetables, let alone how to cook them, recalling how some checkout operators who are high school students cannot identify certain fruits and vegetables being put through. When asked why they thought this might be, this participant stated: *"I think it's become too easy to get pre-made or yeah like it is expensive to buy fresh ingredients now. Cheese, vegetables, fruit are so expensive."*

**Government Support, Policies and Procedures* – The benefits from school food programmes could be greatly enhanced if there was alignment of government programmes, policies and procedures around food security, and school food programmes in particular, with other groups who are contributing in this space, such as Kura Kai. Related to the above point, if government agencies such as the Ministries of Education and Health worked with community- and school-based food providers to help develop curriculum teaching plans and NCEA standards around the various food provision

programmes, this would take the burden of having to do so off individual entities such as Kura Kai or KOKA schools.

**Determining "At Risk" or "In n=Need" Groups* – Many participants spoke about how the decile system was not an accurate determiner of whether an suburb or region had people "in need" of social supports such as food provision. One KK school in this study was not la ow enough decile to qualify for the KOKA Lunch in Schools programme but they have Kickstart and Kids Can, and a highly utilised KK programme. It they were also to have KOKA, they would be able to do so much more to address food insecurity in their student population and their whānau.

**Addressing "Whakama"* – the shame / whakama experienced by rangatahi and whānau, can significantly impact on their willingness (or lack thereof) to seek help or even accept help that is offered to them without them having to seek it out. The government-funded KOKA programme is offered to all students in participating schools for this very reason, and this research has shown how important the 'free to all' philosophy is. KK intentionally design their systems to ensure it is delivered "in a way where they don't feel shame". Trust is built between the rangatahi and the KK team and the rangatahi become increasingly involved, which the KK managers refer to as an indicator that their programme is working well: *"The more they're involved, the more they understand the whole cycle of it all. And that's helping their koru down the road. Or helping this whānau…"*

Various participants spoke about this issue, and raised the question of what government agencies or charities can do to help students and whānau access food without feeling shame.

One participant stated that:

> *"there's that added thing of shame. The shame of saying 'I need help, I can't provide food'. There's some, unfortunately, embarrassment. Like and so I know that sometimes they do it really quietly because nobody wants to know 'oh Jimmy can't afford that. Oh he's getting a meal from Kura Kai, oh what's going on?' You know, so they don't want to. And even developmentally for young people this is the age they just want to fit in, they don't want to stand out, so even more embarrassment or shame. That they've got someone seeing them get some food that then they gossip to other friends and then it becomes this kind of like, oh well I'm not going to do that now. And families they feel shame and embarrassment about asking for help for food and stuff. And it shouldn't be that way. So, it's kind of like breaking down those barriers to kind of say 'actually, it's okay because we all needed help at some times in our lives and this is just your time'. And no judgement zone, you know?".*

**Addressing Diverse Dietary Needs and Cultural Preferences* – There was much acknowledgement by participants about the need for community and school food programmes to match the dietary need and preferences of the recipients of the food. There are things that government policy can do to facilitate this. One system that works is for schools to have an in-house cafeteria where they get an actual meal made on site with a few options means that it is not a one size fits all and can be diet appropriate. People with different food experiences or from different cultures and communities have different food preferences. If the food that is provided to people does not meet their needs, it often results in food being discarded. Food waste is hugely problematic and creates society backlash about wasted resources, especially when taxpayer dollars go into the provision of such food. Having the "right person" planning the meals is important, to ensure they have insight into the dietary traditions and cultural preferences of the demographic group they are cooking for and can be creative in how they tailor meals to be appealing to the relevant age/cultural group.

**Commercial Spaces to do Bulk Cooks* – Some participants spoke of their difficulties in finding venues big enough for big cook ups. This was particularly the case for schools that are not operating the KK Rangatahi programme, or do not have a KOKA-funded commercial kitchen. This is explored more in the next chapter.

**Mara Kai School/Community Gardens* – when schools have their own garden from which they can pick fresh ingredients to use in KK cook ups, this makes a big difference to the amount and range of fresh ingredients they can include in their meals. Additionally, if the KK programme has access to community gardens, this can also bolster their supplies and increase the nutrient content of meals they are able to produce.

One participant noted that they had thought about someone getting a community garden, but noted their concern in the future about water supply to keep it going: *"we're going to be short on water".-* Another participant noted: *"I think all schools, how amazing would it be to have gardens with veges and stuff that their food and nutrition students can go and pick fresh. That would be ideal wouldn't it?"*

**Determining "Health" of Meals* – One participant noted that having a "health wrap around service" in a school (or other group) provides a point of entry for looking at nutrition and diet with rangatahi and community groups. This approach goes beyond a reductionist BMI perspective, but also provides general dietary advice. It was also suggested that "what's needed is creating a *budget-friendly diet*, first". The menu guidelines have to be affordable, not just 'ideal' (from a biophysical perspective).

**Government Resourcing for Groups with Requisite Networks and Relationships* – Participants noted that government funding should be directed to groups in the community who can do the distribution well, because well-connected communities can get the food to where it needs to be. The view was shared that, often, funding is given to people who submit good looking proposals and say they can deliver great food (or other social support) programmes but in reality they don't have the connections and can't access communities in need: *"Don't get in the game if you can't provide the service".* One participant spoke about the effective "pathway to services" model they use for helping address other issues that their clients might be experiencing, such as homelessness, medical and health needs, and clothing requirements.

**Avoid Duplication, Work Smarter not Harder* – When there are limited resources to go around, it is important not to duplicate services. Participants noted the importance of giving resources to those organisations already operating successfully on the ground, who have access to people in need, are already trusted, and can distribute. For example, one participant stated:

> *"We got $1000* [Covid response because] *they realised that, from being clearly told, well what are we going to do, right? We're going to have all these old people locked up in their homes and they're proud, they won't ask for help. And we're going to have to feed them. So they gave, there was COVID response money given to* [various] *groups. But, they didn't have the people on the ground to actually do anything about it. So money is useless unless you can turn it into food…*

So, another group that received Covid response funds gave KK some of those funds because KK had fed some of their people previously, and they knew KK would get meals to where they were needed:

> *"They went, 'you're feeding our people, we need to help you'. Yeah, so they went and put a thousand dollars at the butcher."*

**Ensure People doing the Mahi know how to Access the Funds* – Related to the above point, many community groups who are doing highly successful social support or food provision programmes on the ground do not have skills in writing funding applications or knowing where to even go to seek financial assistance. For example, one said:

> *"we need to know how to access money, eh? Yeah, we had no idea how to access it. I mean even the thousand we got from* [a local] *Trust as a quick response was because* [another local group] *kind of helped me work through that. I mean I've worked for SPCA, but I wasn't the fundraiser. Because apparently there's plenty of money… We're still not accessing it really."*

Furthermore, the point was made that it would be good if groups such as KK or other food security groups were able to use school facilities when schools are on holidays, for example. Sharing of government-funded infrastructure would enable a lot more to be done with existing resources, instead of having to build new kitchens and other costly things, when there is enough capacity in existence, sitting dormant for certain periods of time. Alternatively, the private sector could be incentivised to provide access to their facilities for initiatives such as free food programmes, when they are not used by the business. Government assistance with insurances and other policies or legal advice to set up such collaborations would also be helpful.

**Changing Perspective of Government Agencies* – One participant spoke about the difference between the philosophy and attitude of people associated with KK, the Māori Warden network and other such voluntary based groups they are associated with, and that of government agencies. They gave the example of a suburb that had been looking at a 'cops in schools' programme, prior to Covid. The participant said this programme should be in preschools, not schools, because:

> *"that generation is the up and coming generation, that's the generation that you need to target now so when they get to secondary school they already know who you are, they already know what you do… they don't have this false connotation of 'you're coming to their parent's house to take one of their parents', because that's all they know"...*
>
> *"Because of the work I've done with Oranga Tamariki and Child Youth and Family, and you see the trauma that they cause, not good. Not good on any family. And it's not just Māori whānau, it's whānau right across the board. Mum and dad have done something dumb… [but it doesn't have to ruin the rest of their whole life], but it often does".*

The KK approach was vastly different, and therefore transformative, because it is working from a strengths-based perspective. Giving rangatahi opportunities to help and contribute was noted as being vitally important. The participant stated that OT just do the drop, for example uplift kids and drop them to their nanny, and then run but take no other responsibility for that child or supporting them after the drop off. In comparison, this participant involves kids that were picked up for being in trouble, and involves them in food provision (and other supplies) before giving them kai to take home to their family.

> *"He was the proudest kid ever because he was looking after his family and he could help them… He was working for it. He was contributing to his community and he was contributing to his whānau at the same time".*

**First Things First* – The point was made by one participant that at risk people need basics covered first, such as safe housing and food, before thought and money is put into anything else:

> *"And the outcomes. So, like* [an agency is] *putting food in this pilot programme in town. So, they've got a freezer, so we've been taking meals in because I think first step, if these are at risk youths, that they're trying to remove the obstacles of them getting a job. So, it's been worked in conjunction with the school as well. So, there were some of the kids that were here maybe last year as students and now are not. So,* [the agency running the pilot programme] *have got all this funding, but surely step one is make sure that these people have got like a safe place to live and they've got food. But, that hasn't been accounted for and what they're budgeting over there. They've got, like they've got a counsellor and they've got a person to help them get a driver's licence and they've got all these great people to. But,* [not] *the fundamentals of, like, safe to sleep and something to eat".*

**Mis-allocated Funding* – some participants spoke about better ways that current social funding could be utilised to help people who actually need it:

> *"Like people are taking money without like actually doing anything. Well [another agency], of course, is a prime example of that… So a lot of the money is sitting right at the top with the big executives and it's actually not, not enough is filtering down to these kids that need it".*

**Food Poverty is Linked to Wider Issues, Fix the Whole System* – Many participants spoke about how the cost-of-living crisis and high rental costs are linked to food poverty, and these interconnected issues need to be addressed together if improvements are to be made in the food security space. For example, one KK community volunteer stated:

> *"You've only got to like do the math, right? The math is like, okay, so if you work 40 hours a week at minimum wage, you were earning a thousand dollars a week. So, after tax your take home pay is probably in the vicinity of 810 bucks. And then you've got two kids so you're living in a two-bedroom house in* [town]. *You're going to be paying 550 bucks a week in rent. So, you've got families trying to survive. They're paying everything. Like no wonder they've not got working cars or registered cars or can't even sit a driver's licence. Like a block of cheese is 25 dollars ….*
>
> *And we've got elderly captive people here that have got no other choices. And … then the supermarket. So, we've had a great time for the last three months* with [some smaller food supplies donating food] *and all the rest of it. And then I rung* [KK coordinator in their school] *last week and said, 'irony is when you've done such a good job, like they turn it into a food rescue place and we're taking the food'. And now the supermarkets realise, because* [new group in town who redistributes surplus food] *weighs it all. And* [local supermarket] *realised how much food they're wasting* [from donating surplus stock to the free food hub], *so they've gone back to their staff and told them all that you've got to stop ordering less. So now the people that we're feeding, who are the working poor that work at the fucking supermarket, we haven't got the food for, so that the supermarket can make more profits. What the heck? It's very broken".*

When considering the complexity of "the problem", participants noted how food security relates to health, security, housing, social connectedness and other issues, noting the experience of the "working poor":

> *"I think job security isn't tied as closely because there are an awful lot of working poor. Yeah, like honestly, we've got a girl that works more than 40 hours a week. She is always either at work in the bottle shop and at the Four Square and she couldn't afford to feed her family. Like she's working at least 40 hours a week… We have, actually quite a few that I, not deliver, I don't deliver to them on a regular basis, but they do reach out every now and again, and that is solo parents… they stretch, they stretch, they stretch and they break.*
>
> *Their ex-partner is doing them over financially. We have quite a few of those. And then all of a sudden, he or she or whoever might end up with a little bit of money in their account. So you don't hear from them again for about six weeks. And then they'll reach out again and say oh the prick's doing it again or, you know, and I've got no food, the kids are hungry. I've got quite a few of those. So, you know, even though they're on my books as a regular person… they sort of come and go throughout the year.*
>
> *And then we think we've got a big huge gap that we're not finding and that is elderly people that are living alone that have not got enough money. And there's got to be heaps of them because there is a frickin trailer park in* [nearby area] *where these old people live. So, and there, to live there they've got to pay 180 bucks a week. And they only get 300 and something dollars a week. You know, that's what they have, that's all their money. And these people that own businesses… And I haven't delivered to them yet because, oh god they take so much time… they're lonely."*

Participants spoke about how "the system is broken" and that government decision makers: *"need people with experience of poverty making the decisions… but it's like all parts of the system. It's being run by and decisions being made by people that have no experience in that".*

They also suggested that decision makers can't recognise flaws in the system or how great the impact of poverty is if they haven't lived/seen it:

> *"sadly like my generation, like I grew up in Glenfield in the 1970's, like we haven't recognised that because our parents were working class, like they were lower middle income, but nobody ever went hungry in our community. Because the mum, like all the parents, like, coordinated all the meals and you ate to a roster. But nobody went hungry because if somebody in your community was hungry, people would know. But, also there wasn't this massive gap.*

Participants noted that the situation is worsening:

> *"I think it has gotten worse because that gulf between the haves and the have nots just keeps on widening… I don't even think it's just COVID. It's also the, imports and exports and the labour market and all that stuff. And we have a lot of migrant workers here. But, we've got people begging in town. We've got people lining up in public toilets. And we've never had, yep we've never had people had begging before."*

**Recognise your Privilege* – Some participants spoke about how they had come to realise they were "part of the problem":

> *"No, but my friends, we've all done quite well because we benefited from that 1970's, 80's , which was actually quite a good one. And we've all gone on. Like, nobody that I went to school with is not really doing well. But, we still think we're all still lower middle income when we're not recognising the fact that we're probably sitting in top five percent of the world's population for wealth. And we can't even look downwards because we think we're those people. And we don't even know any people who are, you know, three incomes, 50,000, you know? Sorry, three kids, 50,000-dollar incomes. I mean I don't know anyone that sits in that ballpark or very few. Not in my social circle. So, we're part of the problem, I think, because we can't see that it's not, not us. [We say] 'of course, we're not part of the problem'."*

As people became more aware of the complexity of these issues, through greater connection with people's lived experiences of poverty and food insecurity, their perspectives changed and their willingness to contribute with unjudgmental attitudes, was transformational. Government policies need to be cognizant of the benefits of programmes that facilitate this kind of transformational societal change.

**Food Security Initiatives* – Participants suggested various ideas of ways that food resilience and sovereignty could be built into communities. For example:

> "When I lived in Christchurch we put a community garden, we were working on the Aranui Library which is like really in the middle of gang haven in Christchurch. And they put a community garden in at the library and then they used the money that they would have used for anti-g on the building. And it was like surrounded by state houses this library. And like the local street front gangs, everyone, they just basically said anyone tags this building, and that garden is for everybody. It was quite incredible."

Others spoke about the community gardens they know about, fruit trees in neighbourhoods and public spaces, vegetable gardens in main streets accessible to anyone, instead of only having flower gardens which serve a purpose but don't feed the people.

**Nurses in All Schools* – one participant noted that, from the insight they had gained from many years working as a school nurse and also now as a KK coordinator, that from a health perspective, nurses should be in all schools:

> *"particularly in* [secondary schools], *that nurses should be in all schools. There is need in all schools. It doesn't matter whether you're considered a rich school or not, mental health is out of control in schools. Like I was new into a school this year and I'd say 85 percent of what I saw was relating to*

young people's mental health. And they don't have clinical mental health issues. It is really just reactive to environmental stuff, so friends' stuff, some family stuff, all those kinds of things. And young people are often really emotionally disregulated. So, they don't know how to regulate their emotions.

I also think young people having access to health in their schools, even at a superficial level like a, hi I'm the nurse. It gives them the ability as a young person to interact with an adult without a parent, generally. It gives them the ability to go oh they're just normal people, they're not scary and I could come back if I actually was worried. And there's a lot of, just some fundamental basic things that you learn from just seeing a nurse and going okay, I don't need her now, but in five years time maybe when I am sexually active or something. Or I'm a bit worried I've got some weird symptom, I can go and get checked out and they're not too afraid. So we're giving them good health literacy, setting them up for, you know, accessing that in the future.

Oh yeah because even like I've said we have to do narratives for the Ministry and stuff. And I say like even if I just see a year nine to say 'hey I'm [name] and I'm in your school. And if you need me this is the process'. Just that in itself is key. So, I might not ever see them, and sometimes I'll see them in Year 9, and I also do work in the community clinics. We've got some community clinics. I then might see them seven years later in my community clinic and go 'oh I saw you when you were a young year nine at [name of high school]*', or you know? And it's, there's already oh yeah you did too, you know? It's hard being a young person, so hard...*

Research into [these types of things] is important to be able to make good positive change".

3.3.7 Asure Quality and Kura Kai

In 2022, Asure Quality partnered with Kura Kai. This is the first major industry partner that KK has collaborated with. Below is an overview of how this came about, and what has been developed thus far, as revealed during an interview with one participant from Asure Quality.

**Background to AsureQuality's Partnership with Kura Kai* – AsureQuality give their staff one day per year to volunteer in the community, but there had not been as great an uptake of this as hoped. So AsureQuality decided to coordinate their organisation's volunteer days by partnering with a few community groups. They asked their employees to suggest community groups for the volunteer days. About 50 groups were suggested from which the company selected two: Kura Kai and Conservation Volunteers New Zealand. Both chosen community organisations align with AsureQuality's areas of focus and values.

This participant is a GIS Analyst at AsureQuality. He volunteered to coordinate AsureQuality's Community Partnership programme with KK, and his boss was supportive of him incorporating this new task into his workload. He has set up a site on AsureQuality's intranet for their Community Partnerships. The KK page has information for their staff about how they can contribute to KK. There are pages for how teams can get together for cook ups, recipes, maps of Kura Kai locations throughout NZ, links to Kite and other social media or news stories about the work that Kura Kai are doing in the community, and so forth.

This participant is able to monitor the engagement of staff with the various KK pages via analytics and can see what information is most useful, and when staff are accessing the pages. He can also track which staff and teams are doing volunteering within AsureQuality. (see Figure 3.4-3.5;
Note that all figures in this section are sourced from an AsureQuality zoom presentation during the interview with this participant).

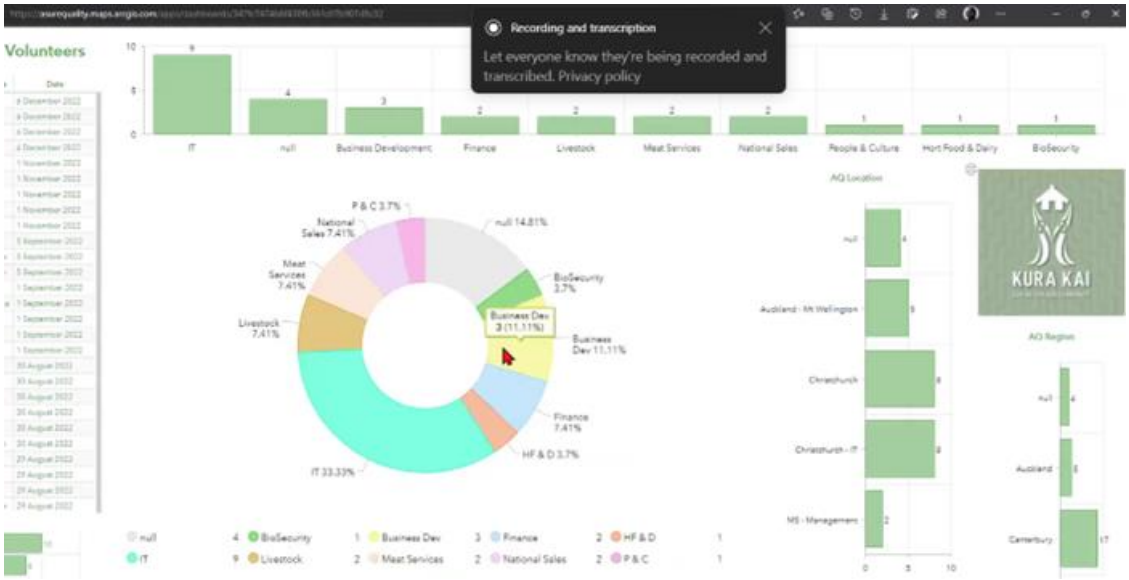


Figure 3.4 AsureQuality Analytics of KK

**The AsureQuality KK Pilot Programme* – Their pilot programme with KK began on 22 Aug 2022 with the first group of employees getting together to do a "cook up" in the staff kitchen.

More recently (Nov and December 2022), they have done cook ups in response to call outs from Marie at Kura Kai for help to replenish meals in freezers that were getting empty.

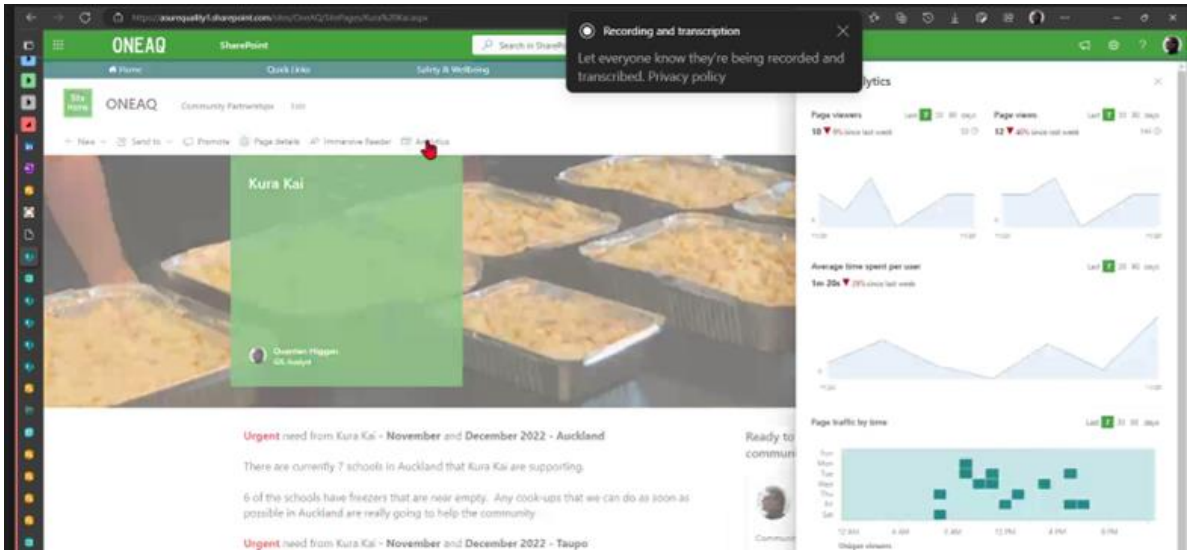


Figure 3.5 AsureQuality Analytics of KK

AsureQuality provide all the ingredients for the meals that are cooked by their staff. Someone coordinates the cook up and decides on the menu and organises the time it is going to happen and buys the food (list of ingredients and approx. cost are on the menu page), either using their company credit card or being reimbursed. So far, they have used their staff kitchen to do the cook ups.

AsureQuality also "donate" all staff time for free (every staff member gets 8 hours a year to donate to one of the community partnerships – if a particular cook up takes 3 hours, then the staff member still has another 5 hours to donate throughout the year, so are able to contribute to multiple cook

ups a year). This adds up to a significant in-kind contribution to Kura Kai in terms of the cook ups, but also the planning and processes that AsureQuality staff and increasing putting into the Kura Kai initiative. AsureQuality staff are finding additional ways to contribute to KK, over and above the provision of meals.

One staff member has experience with City Mission and similar community groups and is aware of the types of meals that are welcomed. She built on that knowledge to develop various menus for staff to use (see Figure 3.6). These include menus for Bacon and Egg pie, Chilli con carne, Creamy chicken, Pork ragu, Fried rice, Fish pie, Lasagne, Macaroni cheese, Mild chicken curry and rice, Shepherd's pie, Spaghetti bolognaise, and sausage casserole. Under each menu, there are details about:

*the cost of the meal (including breakdown for cost of individual ingredients) and how many family meals will come from the cook;
*utensils required;
*recipe, including cooking time
*health and safety details including cooling times, handling recommendations, etc.

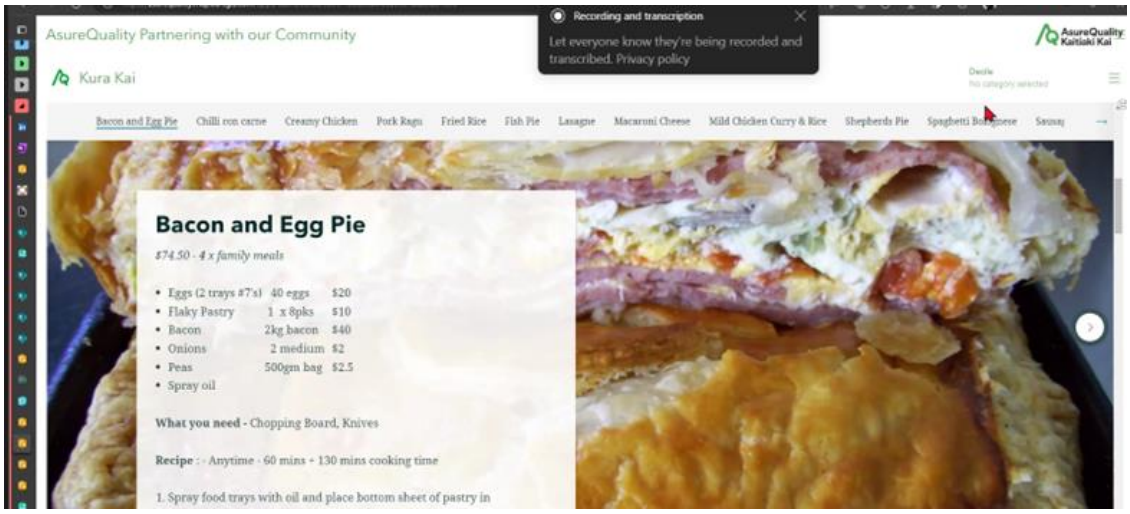


Figure 3.6 AsureQuality's KK Menu Plans

Another staff member had an open day in her garden and raised $1000 for Kura Kai (see Figure 3.7).

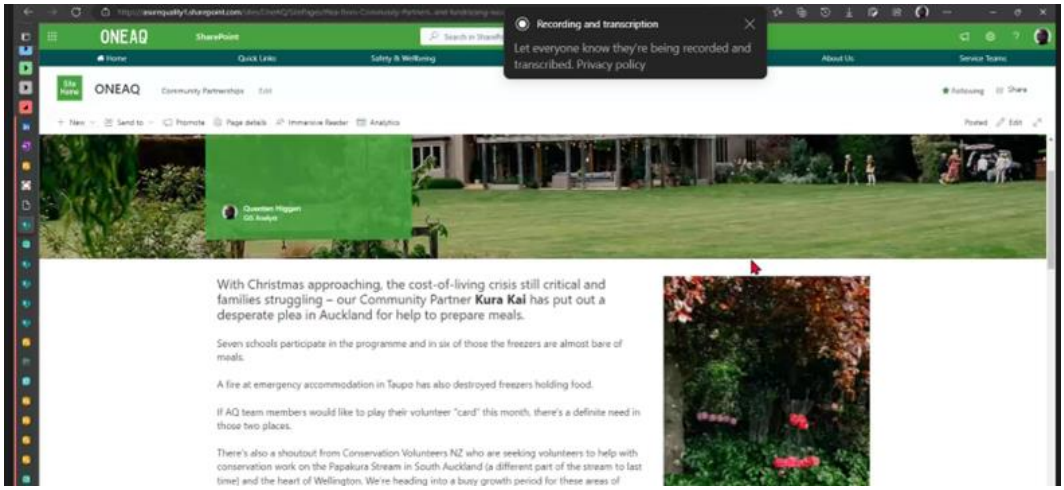


Figure 3.7 AsureQuality's Fundraiser for KK

This participant discussed how we feel certain ways after eating meals, e.g., a really nutritious meal makes you feel better compared to mac'n'cheese. He commented on how the rangatahi/whānau might feel after eating the meals they provide. Thus far, AsureQuality menus are not collecting information on the nutritional content of the meals they prepare, but this is something that could be done in the future, and providing nutritional quality meals is important. It is also useful information, knowing what the nutritional content of a meal actually is.

**Food Safety Standards* – AsureQuality provide food assurance services in New Zealand including training (e.g., halal slaughter, animal welfare, honey food safety, food defence ad TACCP); inspection (e.g., meat inspectors); certification/assurance marks; laboratory testing (e.g., food safety); information systems (e.g., AgriBase spatial maps for almost every farm in NZ); biosecurity and environmental sustainability (e.g., pest management and ecological restoration, biosecurity surveillance); and compliance assessment of food manufacturing premises and equipment (e.g., heat treatment validation, premises evaluation). Many of these areas are useful for their partnership with Kura Kai. Because AsureQuality works closely with MPI on developing and monitoring food standards and health and safety requirements, it was critical that they ensured their own food preparation for Kura Kai met such standards. There is provision within the Food Standards for voluntary groups to provide food to the community as is the case with KK. AsureQuality's in-depth knowledge of the food safety standards has helped them to develop the guidelines for each recipe on their intranet page for KK to ensure all cook ups are conducted within the food safety standards. MPI is aware of their Kura Kai partnership and the processes they are implementing with regards to food safety and handling. AsureQuality are working KK to build such safety standards into the wider Kura Kai initiative in all schools/regions – this can be seen on the KK website.

**Utilising Information Technology* – This participant has also utilised his spatial mapping skills to develop other resources for KK including maps of where KK is operating throughout the country, as well as demographic and contact details for the various schools who are participating (see Figures 3.8-9).

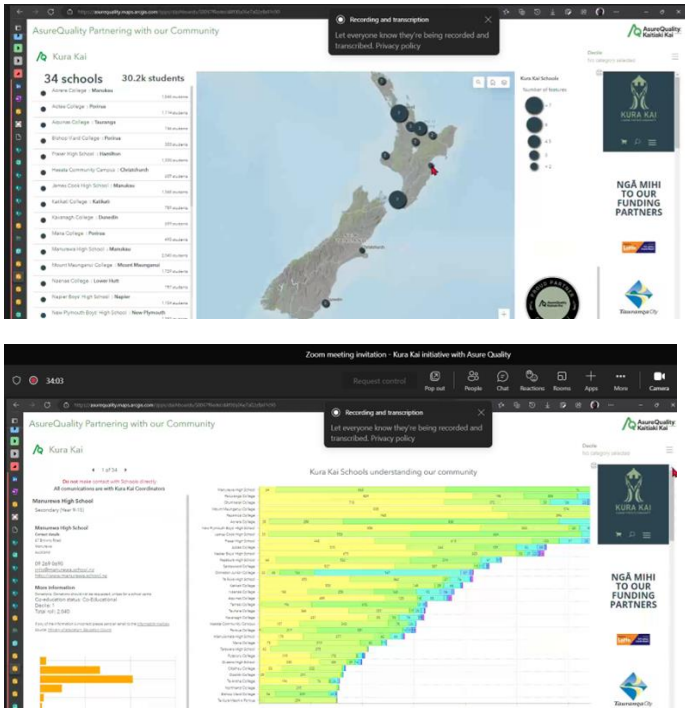


Figure 3.8-9 AsureQuality's Maps of where KK is Operating

He has also developed a page to monitor how full the freezers are at each participating KK school. This would allow AsureQuality (and KK itself) to more easily target resourcing to areas where it is required. AsureQuality have directed their staff that they should not make direct contact with schools, but liaise with the Kura Kai coordinators in the schools, or with the KK managers.

**Utilising Specialist Skills Within Industry Partnerships* – The above examples highlight how larger organisations who have people with specialist skills; e.g., GIS as in this participant's case, can provide services that really help small community groups in ways beyond their main purpose. For example, AsureQuality's partnership with Kura Kai is mainly about provision of meals; however, the breadth of skills and experience within their 1700-odd workforce has meant that they are finding numerous other ways that they can be of assistance in terms of website development and enhancement, data analytics and reporting, food safety standards and systems, packaging, linkages within the food systems sector and so forth. They have access to people across the whole food sector from farmers and horticulturalists to freezing works and manufacturers, and are considering how linkages and connections could be created to link these other groups into the KK network, e.g., supply of ingredients at wholesale instead of retail cost, surplus stock, those other organisations coordinating cook-ups etc.

**Value of Volunteer Days and the Kura Kai Partnership for AsureQuality* – AsureQuality as an organisation wants to make a difference in the community and thinks this is very important for the organisation but also for the wellbeing of staff members. They believe it is important to have connections between people, and staff getting involved in the community builds such connections.

However, the KK initiative has also helped them to build connections between their own staff. People who may work in different departments or even different buildings are coming together to do cook ups, so staff are meeting other staff who they may never have actually had the opportunity to talk to in person before. While doing the cook ups, inevitably conversations happen about work, and connections are forged that are strengthening their relationships as a workforce, and people are more likely to now contact staff they've met at these cook ups about a business matter because they have already "met" them and forged that connection. It acts almost like a team building exercise, in that respect.

Also, the AsureQuality leadership do presentations when meeting various organisations/groups as part of their day-to-day operations, and they include information about their Community Partnerships in these presentations. So there is increasing awareness about the partnership with Kura Kai and the difference it is making. This builds staff pride in AsureQuality.

Over time, they hope that the other organisations they work closely with (e.g., their meat inspectors are located in freezing works, and not in AsureQuality buildings) might find ways to engage their staff in initiatives like Kura Kai that build even more connections between people.

At this time of this interview, AsureQuality had only been actively working with KK for a few months, and were still finding ways to build awareness of it within their staff, some of whom don't have AsureQuality computers or phones (e.g., the meat inspectors), so there is still a way to go before all their staff are directly involved. They are thinking about how they can communicate and motivate other staff, e.g., brochures on lunchroom tables.

This participant encourages other larger organisations thinking about undertaking a partnership with a community organisation like this to do it as there are huge benefits for the community and the organisation. You need to be organised, communicate clearly, find a community organisation that

aligns with your values, and then connect with that community group and see what their needs are and how they think you could best help them.

**Communication and Feedback with Kura Kai Coordinators* – AsureQuality do not go into the schools or distribute the food. They liaise with the KK managers about where food is needed and how it can be delivered to the Kura Kai freezers, or in some regions they connect with the KK coordinator. For example, a South Island KK Coordinator came and spoke with AsureQuality staff in the local branch, and told them stories about what Kura Kai is doing in the community and the impact it is making for children and families who are really struggling. This "pulled at the heart strings" of staff, and really motivated them to want to get involved. Many staff had not been aware of how bad things are in the community for many people, and it was a real eye opener. There was an uptake of staff engagement in the volunteer day for Kura Kai cook ups after this.

Feedback from KK about the difference that the AsureQuality meals are making in the community is very important. When KK Manager, Marie, gets texts from schools or coordinators to say how well a food delivery went or how grateful people are etc, she forwards those messages on to Asure Quality, and the staff really appreciate knowing this and it motivates them to want to stay involved, or other staff who have not yet done so to get involved. There has been a real buzz about how much staff have enjoyed the cook ups, how much it means to them to know they are making a difference in the community, and in hearing the stories about who they are helping. This feedback loop is very important.

This participant reflected that what Kura Kai is doing is wonderful. When KK managers discuss ideas with him about things AsureQuality could do, they are supportive and open to ideas. It is good that the skillsets within AsureQuality are able to help Kura Kai, e.g., website, health and safety, packaging, as well as the actual food.

3.3.8 Future Research with Kura Kai

**Monitoring and Measurement of Impact* – KK management noted the value of follow up research with KK schools to survey them about how they think KK is going in their school, whether they feel supported, and to get feedback from whānau regarding what they think about the KK meals, whether it meets their food and dietary requirements and preferences and to find out more about if and how they are able to access their preferred food for optimal health.

**Mara Kai* – KK management also noted that they do not know how many schools have a mara kai (vegetable garden). If so, it would be good to know how many use it in their KK cook ups, and if they have a mara kai but it is not used for the school's food provision programmes, then to gain feedback on why not and what would help the school to be able to make better use of its garden. Furthermore, it would be useful to find out more about what is hindering schools that do not have a mara kai from setting one up, and what would help them to do so.

** "How to" Guidebook for Kura Kai Schools and Supporting Businesses/Groups* – KK management noted how beneficial it would be if a "how to" guidebook could be developed for schools who are engaged in Kura Kai that shares best practices that have been identified within participating schools to get the most out of the KK. This would also be helpful for new schools who might be considering joining the programme.

Likewise, a "how to" guidebook for businesses/agencies thinking about supporting or partnering with Kura Kai would also be very helpful. This could take learnings from the experience of AsureQuality and other groups who are currently involved in and making real enhancements to KK's programme.

**Food Security vs Food Diversity* – There is a fundamental difference between food security and food diversity that must be acknowledged when planning and evaluating school food programmes. Kura Kai note that rangatahi and whānau who do not have enough food to eat (i.e., are experiencing food poverty, food insecurity) are more concerned with simply accessing food to feed themselves and their whānau, than with ensuring that what they eat meets the Ministry of Health goals such as 5+ a day and including items from all food groups in recommended quantities.

3.4 Insights from the Kura Kai programme

The Kura Kai case study is an exemplar on how communities can collaborate with the education sector to address food poverty within their community in ways that build community cohesion and contribute to enhanced educational outcomes for rangatahi, while also improving local food security. The Kura Kai programme increases the "accessibility" of food for rangatahi, whānau and the wider communities of the schools in which it operates, through the provision of meals to those who need it. Particularly for the schools operating the rangatahi model, this is done in an empowering way by involving the beneficiaries of the meals in the creation of those meals, through in-class preparation of the meals themselves, or by giving people in the wider community the opportunity to contribute to "cook ups".

Some of the Kura Kai schools also address the "availability of food" issue by encouraging mara kai in schools, and networking with other food providers in the rohe/region. Successful operational models are developed for each school that are cognisant of their unique circumstances, in ways that build upon their strengths, resources and networks.

The "affordability of food" is something that impacts on Kura Kai's operations in that they are also subject to the impacts of food price increases, which is evidenced, for example, by having to "swap out" more expensive ingredients for cheaper options.

Kura Kai do take into consideration the issue of how "good" the food they are preparing is, by encouraging fresh produce and quality ingredients. Furthermore, the Kura Kai schools that are operating the rangatahi model and are including the Kura Kai cooking in the NCEA unit standards as an educational component of the school curriculum are also able to incorporate learnings about nutrition into their programme.

The findings of the Kura Kai case study are explored further in Section 6.1 and 6.2.

4. Ka Ora, Ka Ako | Healthy School Lunches

4.1 An overview of the "Ka Ora, Ka Ako | Healthy School Lunches" Programme

The purpose of this case study was to explore how the government-funded Ka Ora, Ka Ako (KOKA) facilitates improves food security through greater accessibility and availability of "good food"; and it explores the issue of "food affordability" by considering the cost of KOKA meals.

"Ka Ora, Ka Ako" is about being healthy and well in order to be in a good place to learn. 'Ka Ora' means to be satisfied with food, be well, healthy and safe; 'Ka Ako' means to learn[li]. The name was developed in consultation with the Ministry's Te Ao Māori group. The programme is targeted at the 25 percent of students in schools and kura facing the greatest socio-economic barriers nationally, and where students face the greatest barriers that can affect access to education, wellbeing and achievement (see Table 4.1 below).

For the first phases of the initiative, a mix of schools and kura in urban, rural and isolated locations, with different roll sizes and with a variety of relationships to existing food programmes were invited to ensure the Ministry of education could learn as much as possible about providing lunches in different school types, locations and facilities. A range of overseas models were considered by the Ministry in developing KOKA, with the model chosen to reflect how New Zealand children prefer to eat lunch, and how our school system works. Different approaches were tested adapted and refined as the initial trial progressed. The programme responded to various calls for a government-funded school lunch programme. The Ministry's online education conversation, Kōrero Mātauranga, identified that people saw child poverty and child hunger as a key barrier to educational success.

The main tool used to determine which schools should be eligible is the Equity Index, developed by the Ministry to replace the school decile system. The Equity Index estimates the extent to which each child grows up in socioeconomically disadvantaged circumstances that we know to be associated with their likelihood of achieving in education. The index looks at a full basket of factors in a child's life, not any one factor, to understand the socioeconomic barriers present in a school's community.

The Ministry of Education (ibid.) implemented the Ka Ora, Ka Ako (KOKA) programme to reduce food insecurity by providing daily nutritious school lunches to New Zealand children, for whom ~20% live in households that struggle to put enough good-quality food on the table; 40% of parents in communities facing greater socio-economic barriers run out of food sometimes or often. All children at participating schools are provided with a lunch to ensure everyone who needs one gets one without any stigma that can be associated with free meal provision (ibid.).

The initiative was initially rolled out to Year 1-8 students in approximately 120 schools in the Bay of Plenty/Waiariki, Hawke's Bay/Tairāwhiti and Otago/Southland regions, but was expanded in 2020 in response to the COVID-19 pandemic to ~214,000 students including some secondary schools. By August 2022, over 63 million lunches had been delivered in 950 schools and kura to over 220,000 learners, equating to approximately one million lunches per day (ibid.). By May 2023, this had grown to 222,000 students at 989 schools, about a quarter of all students, at a cost of $130million Brettkelly, 2023[305]).

[li] https://kaorakaako.education.govt.nz/

Table 4.1 List of Schools and Kura Participating in Ka Ora, Ka Ako

Region	Number of schools and kura	Total school roll (July Average 2022)
Te Tai Tokerau	112	18,050
Auckland	177	69,162
Waikato	123	25,354
Bay of Plenty, Waiariki	111	23,818
Hawke's Bay, Tairawhiti	99	19,141
Taranaki, Whanganui, Manawatū	120	22,600
Wellington	103	20,751
Nelson/Marlborough/West Coast	29	4,228
Canterbury/Chatham Islands	49	13,170
Otago, Southland	51	8,150
Total	**974**	**224,424**

Source: Ministry of Education (2023)[306]

At September 2023, it is still unknown whether KOKA, currently funded by the government through to December 2024, will be continued beyond that date, and will be determined by the incoming government. This evidences the disruptions to food security initiatives that can come about due to political cycles. A cross-party commitment to a long-term strategy for food provision through schools is required to give certainty to those people and groups involved in the systems that grow and produce the foods that are then incorporated into the menus of school and community-based meal distribution programmes for people experiencing food poverty.

There is an online portal[lii] for schools, kura and suppliers participating in KOKA to access information, resources and guidance on different areas of the programme. These include Tohutaka a recipe library and Mahi Tahi, a 'one stop shop' for resources, information and guidance to support the success of the programme. It also has information about the "nutrition standards"[liii] for the programme, including the "traffic light system" of green (75%, i.e., foods that should make up majority of the

[lii] https://kaorakaako.education.govt.nz/
[liii] https://kaorakaako.education.govt.nz/nutrition-standards
Also see: https://kaorakaako.education.govt.nz/file-download/Nutrition%20Standards%202022.pdf

meal), amber (25%, with a maximum weight allowance of certain items per meal) and red (0%, i.e., foods that cannot be included), to help KOKA suppliers:

> *"design a nutritious and balanced menu for ākonga. Offer a variety of healthy foods from the four food groups. Food should contain minimal saturated fat, salt (sodium) and added sugar, and be mostly whole or less processed. Offer only water and unflavoured milk as drink options."*

Eligible schools receive funding to provide lunches to students free of charge (Ministry of Education, 2023[307]). There is no set lunch menu for the programme, although menu ideas are provided. Schools and suppliers decide what works best for them, what is provided and how, in keeping with Ministry of Education guidelines on health and nutrition, dietary and religious requirements, which need to be met by all suppliers and schools making their own lunches. The menu includes a variety of food options from the four main food groups – vegetables and fruit, breads and cereals, milk and milk products, and lean meat, chicken, seafood, eggs, legumes, nuts and seeds. Meals typically include sandwiches or wraps, salads, fruits and vegetables, yoghurt, and milk. The content of the lunches will also be influenced by factors such as the chosen supplier, what catering facilities the school has, the number of students, and a school's distance from their supplier. The meals are designed to be balanced and healthy to ensure children receive essential nutrients. A single school or kura might:

- choose to make all their own lunches
- outsource to an external supplier that prepares lunches at the school or prepares lunches offsite and delivers to the school
- make their own lunches on set days of the week and use a supplier on other days – in this case schools will follow both processes for providing their own lunches and selecting a supplier.
- outsource to different suppliers for set days of the week.

Alternatively, a group of schools and kura might come together and outsource to a single larger supplier under one contract managed by the Ministry (ibid.). Schools who choose to provide their own KOKA lunches in-house have operational responsibilities for the lunch process, including health and nutrition, dietary and religious requirements, food safety and waste management. They will need access to a kitchen which has been approved by the Ministry of Primary Industries, has enough capacity to make lunches for all students, and has appropriate preparation and storage facilities. School boards will determine the training needs of school staff depending on the way they decide to provide school lunches. The Ministry will broker appropriate support if required (ibid.).

Schools and kura select from a panel of approved suppliers that meet minimum standards, which simplifies the procurement process for schools. Schools and kura still have the operational day-to-day relationship with their supplier so they can make decisions that are right for their students, e.g. adapt menus, update student numbers, and agree delivery times and requirements (ibid.).

Per child per day funding provided for KOKA meals from Term 3, 2023 for external supplier-led providers is: $5.56 for learners in Years 0-3; $6.50 for learners in Years 4-8; and $8.28 for learners in Years 9+. For internal school-led lunch provision, the per child per day funding is: $5.14 for learners in Years 0-3; $6.02 for learners in Years 4-8; and $7.65 for learners in Years 9+. There are different operational agreements in place for schools and suppliers. Funding covers food, preparation and delivery, and paying staff working on school lunches. Funding covers food, preparation and delivery, and paying staff working on school lunches. From September 2023 staff working on school lunches must be paid at least $26.00 per hour (ibid.).

4.2 KOKA External School Lunch Providers

Schools and kura can choose to provide their own lunches in-house, such as the KOKA programme implemented by the school in the Manawatū that is presented as a case study later in this report. Or they can have the lunches supplied from a panel of 231 approved suppliers,[liv] selected through a Government Electronic Tender Service (GETS), that have met minimum standards of food hygiene, waste management and food preparation. Some of the larger external school lunch providers are summarised below. An additional Iwi-Hapū partnership delivery model with schools can also be used.

*Libelle Group[lv] are New Zealand's leading school food service provider. Operating since 2004, they are a family-owned New Zealand business that delivers KOKA and other school food services such as tuckshops, school boarding houses and an online ordering and delivery service. They offer an 'Eat Smart' menu, an example of which can be seen in Figure 4.1 below.

Figure 4.1 Example Libelle School Lunch Menu
Source: https://www.lunchbylibelle.co.nz/current-menu.html

*Get Fed[lvi] has been supplying KOKA lunches to nine schools since 2021, with hot and cold options available. They also provide ready to heat and eat meals for the general populace. They have a production partner – Gate – with an extensive facility, who can cater to halal, vegan, vegetarian and kosher customers.

*DeeJays Catering[lvii] has been providing canteen, catering and food solutions since 1992. Based in East Tamaki, they claim to have "built strong relationships and understand the unique needs of our schools and their communities".

[liv] https://assets.education.govt.nz/public/2023.01.20-List-of-Suppliers.xlsx
[lv] https://www.lunchbylibelle.co.nz/about-us.html
[lvi] https://www.getfed.co.nz/pages/schools
[lvii] https://deejays.co.nz/food-in-schools-programme/

*EZLunch[lviii] is available in hundreds of New Zealand schools nationwide. Operating since 2010, they work with local caterers, so each school has its own menu.

*Compass Group[lix] provides KOKA lunches to 50 schools. They tailor meals to meet the dietary requirements, taste preferences and portion sizes of 12,000 students they serve daily, based on feedback we have received direct form the students, parents and teachers.

They have created a team of specialists including dieticians, chefs and logistical managers, and opened three production kitchens to support the KOKA programme, nationwide. They have also implemented a sustainable waste management system and state that they have an engaging education program to teach the students about healthy eating along the way, which is led by their Executive Chef Brett McGregor, who was NZ's first MasterChef winner!

4.3 Roll out of KOKA in New Zealand

There have been numerous stories in the media about the rollout of KOKA in schools throughout New Zealand. A few examples are presented below, as they are indicative of the range of experiences. Information on some school's webpages in relation to their KOKA meals is also referred to, including example menu plans.

Various schools in the Manawatū have appeared in media stories about KOKA and some examples are outlined below.

*Terrace End School in PN gets its lunches from Pita Pit and Ocean Beach Eatery in nearby Foxton Beach (Heagney, 2021[308]). At Ocean Beach Eatery, they have a rigorous process to ensure they meet the Ministry's menu requirements; and they have changed the menu based on feedback about what children want.

The School's deputy principal, Kris Funnell, stated that the key to success was getting teachers to support the programme. At their school, children have to sit and eat and use table manners. There is no wastage as leftover lunches are offered to pupils who want seconds and the rest are given to children to take home: *"Children have more concentration to learn and any leftover food is being sent home for families in need at Manawatū schools involved in the lunches in schools programme".*

*Central Normal School in Palmerston North – the principal at this school, Regan Orr, is also the Manawatū Principals' Association president. Mr Orr said the programme, whose meals are supplied by Libelle Group, allowed children to be focused for the day, and had been well received:

> *"Participating schools value and appreciate that their tamariki are able to access a healthy and nutritious free meal. The provision of lunches from the* [Ministry] *has alleviated the demand where many schools were previously providing lunches from their operational grant" (ibid.)*

*Te Kura o Wairau, Palmerston North – a KOKA lunches at this school are also supplies by Libelle. The school principal, Teena Johnson, said the programme had been amazing: *"The food we have been offered, our children have lapped it up. They have loved everything. Now and again they might not warm to something, but it's very infrequent. Libelle has been very good catering for children with allergies and religious beliefs like halal"* (Heagney, ibid).

[lviii] https://ezlunch.co.nz/

[lix] https://compass-group.co.nz/supporting-the-ministry-of-education-healthy-schools-lunch-program/

She stated that staff sit with the children while they eat to teach them about manners, that there was little wastage, that families now knew their children were getting a healthy lunch, and it also helped their budget: *"We believe the healthy benefits of the food is making a difference for the children's capabilities to learn" (ibid.).*

*Longburn School, just outside Palmerston North has KOKA meals provided by Compass[lx], which provides meal plans for the 10 weeks of the team. An example for one week is in Figure 4.2.

	Monday	Tuesday	Wednesday	Thursday	Friday
STANDARD MEALS	HOT!! Roast Sliced Pork w Potato Mash & Gravy Roast Carrots, Broccoli & Apple	Roast Beef & Edam Cheese Wheatmeal Sandwich Carrot Sticks & Bean Dip Seasonal Fruit	HOT!! Beef Mince Cottage Pie served w Mixed Veges & Mashed Potatoes	Ham & Cheese Soft Round Bun w Spinach & Mayo Strawberry Blondie Slice Seasonal Fruit	HOT!! Beef Lasagne w Roast Potatoes, Tomato Sauce & Cheese
VEGETARIAN SUITABLE	HOT!! Mushroom & Grain Kofta w Potato Mash & Gravy Roast Carrots, Broccoli & Apple	Hummus, Sweet Peppers & Edamame Filled Sandwich Carrot Sticks & Bean Dip Seasonal Fruit	HOT!! Curried Bean Medley served w Mixed Veges & Mashed Potatoes	Pea & Feta Wrap w Smashed Runner Beans & Feta Strawberry Blondie Slice Seasonal Fruit	HOT!! Vegetarian Lasagne w Roast Potatoes, Tomato Sauce & Cheese
HALAL SUITABLE	HOT!! Chicken Pieces w Potato Mash & Gravy Roast Carrots, Broccoli & Apple	Chicken, Mayo and Coleslaw Sandwich Carrot Sticks & Bean Dip Seasonal Fruit	HOT!! Curried Bean Medley served w Mixed Veges & Mashed Potatoes	Chicken & Cheese Soft Bun w Spinach & Mayo Strawberry Blondie Slice Seasonal Fruit	HOT!! Baked Lasagne w layers of Pasta Sheets, Tomato Sauce & Veg w Roast Potatoes

Figure 4.2 Example of a KOKA Weekly Menu Provided by Compass at Longburn School
Source: Longburn School website

**Ross Intermediate School* provides KOKA meals. Principal, Wayne Jenkins, said the programme was a positive step towards reducing barriers children faced when learning (Heagney, 2021[309]): *"We know that a healthy, well-fed child learns better. This programme is also introducing students to a range of healthy and nutritious foods."*

Jenkins felt the school could best serve its pupils and community by setting up a kitchen and making the food itself, which they've done with the school's lunch programme manager who said they catered for all dietary needs and ensured there was something all children enjoyed eating. She wanted children to come to school looking forward to lunch, and on the day the journalist visited the school: *"the supply of chicken buns and bananas were snapped up quickly, with children coming back to finish off the leftovers".*

*Freyberg High School in PN has information about their KOKA programme on their website.[lxi] It includes photos of menus from a week in October 2021 – some photos are in Figure 4.3 below.

Figure 4.3 Freyberg High School KOKA Meals. Source: Freyberg School website

[lx] https://longburnprimary.weebly.com/uploads/2/1/4/2/21425602/term_2_2023_week_1_-_10__1_.pdf
[lxi] https://www.freyberg.ac.nz/newsarticle/109231?newsfeedId=1389431

*Queen Elizabeth College in PN already had a school-run breakfast club, which was not used by as many student, according to the principal, who said that having a lunch option for everyone was better (Heagney, 2021[310]). He also stated if children had a good meal they could concentrate in class, and that having free lunches would: *"be huge. Some of* [the students] *now are fine. What I think it will do, it will even out the playing field for them. If they come to school and we give them a good lunch every day* [then] *they want to come" (ibid.)*

**Various Palmerston North Schools* – Palmerston North MP, Tangi Utikere, was invited in 2022 to visit three Palmerston North schools who were running KOKA lunches, to see what effect the programme had on children and other issues the education sector was dealing with (Heagney, 2022[311]). It revealed positive experiences from the programme with one principal saying that:

> *"the programme had made the biggest difference for children in his more than 25 years in education… Kids are having lunch, kids are eating good, healthy food. We're also supporting families with the leftovers. We have minimal wastage. There's better engagement in the afternoon because kids are eating."*

Previously the children who needed a healthy meal the most weren't bringing lunch at all. Now they were getting a nutritious lunch every day. MP Utikere said feedback received from the schools was that: *"the lunches were making a positive difference in the children's lives, but also their families and the schools*" (ibid.). The children showed gratitude for the people who were making the food. Utikere said that it was good to see the difference being made in schools who weren't part of the initial KOKA roll out.

Another purpose of the visit was for Utikere to see the issues schools were facing. The school principal acknowledged that: *"there were challenges for schools like staffing and having enough release staff to be able to cover for sickness and absences* (ibid.). Outside the Manawatū there have also been extensive reporting on the KOKA roll out around the country, with some examples below.

*Te Taitokerau Schools – There are 107 Te Taitokerau schools currently receiving KOKA lunches, with 11 suppliers providing school lunches to 69 schools or kura each day. However, feedback has been mixed, with a news report (NZHerald, 2022[312]) stating that in one Far North School, pre-prepared meals from a local supplier "was not something even [the child's mum] would eat:

> *"We tried the school lunches, but nine times out of 10 [the child] didn't like it, so we just gave up… We had to start sending his packed lunch again which I know a lot of other parents are doing now too. Some of it just really isn't nice and I've often looked at it myself and thought, yuck!"*

The news article reported that this situation was not uncommon and was resulting in "large amounts of food waste being thrown away across the region" and that no-one at the school "ensured children were eating lunch and discouraged them from bringing lunch from home". The child's mother said they were "generally not eating lunch at all now and would come home ravenous"; whereas at the other child's school, "lunch eating was supervised, but if not eaten within a certain timeframe, would come home uneaten", resulting in the child becoming "noticeably less healthy and I assume it is the number of empty carbohydrates in the school lunches… While the school lunches will be an improvement for some children, there are dietary shortfalls coming from mass-produced food which is made to fit budget criteria" (ibid.).

The parent was also concerned about "the amount of single-use packaging" at a time when people were being encouraged to be conscious of their carbon footprint.

Another Intermediate school student from Northland had been receiving school lunches for around a year and a half and claimed the lunches were hit and miss, with students often complaining about lunches being 'gross, stale, soggy, dry and tasting yuck': *"Most of my friends bring lunch to school now and have started doing this after the first term of having lunches in school… At first there wasn't enough lunch for everyone ... that stopped pretty quickly once everyone figured out they were gross most of the time."*

The article goes on to explain that in Te Taitokerau, 35 schools make their own lunches, with one school a mixed model (some days made onsite, other days outsourced). Another 'internal' school provided lunches for its and another school's students and one school used shelf-stable food.

Alternatively, "*Peria School is one of the Far North schools that cooks all meals on site. Its 63 students receive everything from bento bowls to quiche, sandwiches, sushi, wraps and soup"* (ibid.).

Peria School has been part of the KOKA programme since 2021, with funding covering the cost of chefs, kai (food) and other additional expenses. The principal explained that:

> *"when the school first started, it had no commercial kitchen, so had used the school's 5YA money to build one in an unused building. 'We now have a fully operational commercial kitchen on site and three chefs, who are parents of students at our school… They all work on different days to make the lunches, with one supervisor chef who creates the menus each week. Each term we ask the students what they like and if we notice an increase in food waste we know to amend our menu'."*

Although there was initial scepticism by parents about the children eating school lunches, the principal notes 100 per cent uptake after the first term, with teachers noticing an improvement in the childrens' ability to focus and learn. Things that had helped minimise food waste included changing meal times and using stainless steel bento boxes.

> *"Our students are more mindful of waste because they see the effort our chefs put into making the food," she said. "Any food waste goes to the local pigs and chickens, or into the school's composting and worm farms. I would recommend having a kitchen on site because it's meant our carbon footprint has lessened as we don't get our food brought in."*

A volunteer-based 'pleasure garden' in the schools' town of Peria, Ārāma Gardens & Nursery, promotes sustainability of the local environment through the creation and education of sustainable land practices. This nursery had worked with 20 schools in the Far North to collect and process single use plastic bags received from lunch providers and they were in the process of setting up a community composting hub when approached by a local provider to get involved. The founder said:

> *"it seemed like a good way to collect the carbon element required for composting and to divert waste from going into a landfill. Around 10 tonnes of waste was received, but was far more time-consuming than Fahey anticipated"* (ibid.).

However, they stopped collecting them because of contamination issues, and didn't want to be:

> "essentially propping up a system that was not, in our opinion, the best solution… [and that the] sustainability of the whole life cycle needed to be considered and suggested to providers the idea of using reusable metal dishes" (ibid.).

The article goes on to say that Te Taitokerau Principals Association chair, Pat Newman, had heard mainly positive feedback from schools regarding the programme and that it was important to ensure kids were getting fed and hoped the standard of some suppliers was not ruining it for all:

> *"A lot of our kids like it and need it, although I can't really comment on the food being supplied by external providers… We've fought for years to be able to feed our kids and this programme saves parents at least $20-$30 per week per child for lunches. I think there was a bit of difficulty when this*

> *first started which made it hard for schools to do it themselves. I think that has been eased considerably and I'd hate for the overall concept to be seen as a negative because there is one supplier that's not quite up to scratch."*

*Kaitaia Primary and Kaitaia College in Northland – local iwi, Te Rarawa, run Bell Produce Ltd, which provides 1500 lunches to four schools in the Far North each day, including Kaitaia Primary and Kaitaia College (Holland, 2021[313]). The principal of one school stated that there had been concern about how students would react to trying new foods when the KOKA system was first introduced, but many of the student's plates were returned empty and many were coming back for seconds. In response to some negative feedback received, they said on a Facebook post: *"Some of the complaints were about portion sizes and the type of food. While we are working to the Ka Ora Ka Oka guidelines we promise to review the menus and see what we can add or change"* (ibid.).

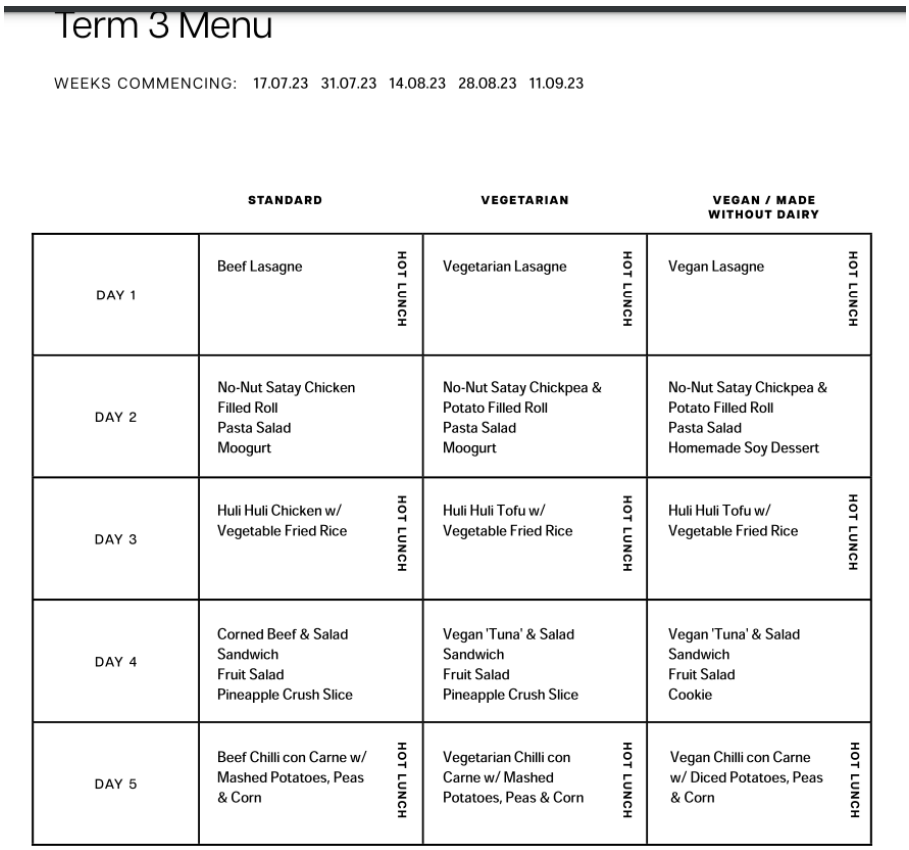
* Western Heights Primary School in Rotorua – feedback from this school included that the free school lunch programme (which costs $5 for a primary school lunch and $7 for a high school lunch). One principal noted that the introduction of the free lunches was a "game-changing", since children are now eating the food they want, although they noted that though there are concerns about the programme becoming too politically correct (Sadler, 2021[314]):

> *"Lunches have been a problem for our children. Not the fact that they're not getting lunch, but certainly that the lunch was not nutritious in any way. Children had a big part to play in the construction of the menu and they are getting food that they've requested, and it's delivered in a healthy way… The kids today don't like sandwiches. It's those really good, warm hearty meals that our children absolutely love and they destroy it and it's great to see. One of the favourites is mashed potatoes, gravy, and peas"* (ibid.).

Schools keep an eye on the state of lunches being brought in. Gladwrap isn't allowed and certain biscuits breach sugar levels.

*Kelson Primary – KOKA meals at this school[lxii] are provided by Lunchy[lxiii] (formerly Eat My Lunch[lxiv]) following a 2-week menu cycle. An example menu is in Figure 4.4.

[lxii] https://www.kelstonprimary.school.nz/index.php/parent-info/free-lunch-programme
[lxiii] https://www.lunchy.co.nz/
[lxiv] https://eatmylunch.nz/



Term 3 Menu

WEEKS COMMENCING: 17.07.23 31.07.23 14.08.23 28.08.23 11.09.23

	STANDARD	VEGETARIAN	VEGAN / MADE WITHOUT DAIRY
DAY 1	Beef Lasagne HOT LUNCH	Vegetarian Lasagne HOT LUNCH	Vegan Lasagne HOT LUNCH
DAY 2	No-Nut Satay Chicken Filled Roll Pasta Salad Moogurt	No-Nut Satay Chickpea & Potato Filled Roll Pasta Salad Moogurt	No-Nut Satay Chickpea & Potato Filled Roll Pasta Salad Homemade Soy Dessert
DAY 3	Huli Huli Chicken w/ Vegetable Fried Rice HOT LUNCH	Huli Huli Tofu w/ Vegetable Fried Rice HOT LUNCH	Huli Huli Tofu w/ Vegetable Fried Rice HOT LUNCH
DAY 4	Corned Beef & Salad Sandwich Fruit Salad Pineapple Crush Slice	Vegan 'Tuna' & Salad Sandwich Fruit Salad Pineapple Crush Slice	Vegan 'Tuna' & Salad Sandwich Fruit Salad Cookie
DAY 5	Beef Chilli con Carne w/ Mashed Potatoes, Peas & Corn HOT LUNCH	Vegetarian Chilli con Carne w/ Mashed Potatoes, Peas & Corn HOT LUNCH	Vegan Chilli con Carne w/ Diced Potatoes, Peas & Corn HOT LUNCH

Figure 4.4 Example Weekly Menu for Lunchy
Source: Lunchy website

4.4 Evaluating the Effectiveness of Ka Ora, Ka Ako | Healthy School Lunches

4.4.1 Research into KOKA

The Ministry of Education's (2021[315]) stated intended outcome for ākonga and whānau from the KOKA programme is as follows. Ka Ora, Ka Ako aims to reduce food insecurity amongst New Zealand children by providing access to a nutritious lunch every day because reducing food insecurity:

- improves wellbeing
- supports child development and learning
- improves learners' levels of concentration, behaviour and school achievement
- reduces financial hardship amongst families
- addresses barriers to children's participation in education and promotes attendance at school
- boosts learners' overall health.

They want to see improved engagement, learning and behaviour, fewer children having little or nothing to eat for lunch, and reduced financial hardship amongst the families of participating students.

There are various ways to evaluate success of school food programmes, as outlined previously in Section 2.7.6. Various research has been conducted in Aotearoa New Zealand to review the KOKA Healthy School Lunch programme, with key findings summarised below.

The Ministry of Education commissioned an interim evaluation of KOKA by Vermillion et al. (2021[316]) to help them assess the early impact of the first 2-3 months of the pilot programme based on the priority outcomes of food availability, consumption, hunger reduction, wellbeing, and attendance. The report findings were based on data from 38 schools and over 2,700 students in two regions, during the Covid-19 pandemic. They found that the pilot programme 'often achieved more than what was expected in the initial two to three months,' and that benefits were 'greater' for the most disadvantaged learners – see Figure 4.5 below. Overall, the study found 'very good progress towards addressing hunger', as well as 'progress towards improving wellbeing'. Main findings were that the pilot showed:

- 'large benefits' for all primary and intermediate learners in respect of the types of food available and consumed
- 'large gains' in fullness for learners who previously had insufficient food, with these learners, on average, feeling an 20% fuller after lunch than before the programme
- 'large gains' in mental wellbeing by the most disadvantaged learners
- a statistically significant reduction in the proportion of learners with low health quality of life
- 'small but significant' improvements for learners, on average, in terms of their overall heath quality of life, as well as in their physical and emotional functioning.

A second series of evaluations of the expanded KOKA programme was commissioned by the Ministry of Education (2023[317]) to track the progress of larger numbers of the most disadvantaged learners, and the wider benefits of the programme, including to local economies – these were completed by Vermillion et al. (2022). Main findings by Vermillion et al. (2022[318]) are outlined in Figure 4.5, and included that KOKA resulted in significantly happier and healthier ākonga and an overall better quality of life.

Furthermore, a nutrition evaluation of KOKA was conducted over the summer of 2021-2022 to assess whether the lunches provided are 'nutritious' by national and international standards, with findings published by de Seymour et al. (2022[319]) that:

> *"A total of 77.5% of nutrients analysed exceeded 30% of the recommended daily intakes. Protein, vitamin A and folate met the NRV targets and a majority of the international standards (55/57). Energy, calcium, and iron were low compared to NRVs and international standards (meeting 2/76 standards). Carbohydrates were low compared to international standards. The findings have been used to inform the development of revised nutrition standards for the program, which [were] released in 2022."*

The Ministry commissioned a Kaupapa Māori evaluation of KOKA by Aikman & Yates-Pahulu (2023[320]) to evaluate the impact of the Iwi and Hapū Partnership model of KOKA delivery specifically for ākonga, whānau, hapū and iwi and the impact of KOKA more broadly on ākonga and whānau Māori. Key findings are that KOKA effectively contributes to the hauora and wellbeing of ākonga Māori and that the iwi and hapū model gives substantial effect to a Te Tiriti o Waitangi based way of working. The report recommends "keeping the momentum going" through continued investment in KOKA, and centralised coordination of kai-based school initiatives from public and charitable sectors.

Research by Garton et al. (2023[321]) found that KOKA significantly reduces hunger at school, provides highly nutritious food, improves children's physical and mental health and educational outcomes, eases financial stress on families and creates community jobs at the living wage. They concluded that it has future potential to deliver additional benefits including to: enrich school environments, boost local economies, increase food system resilience through enhanced availability and affordability of healthy foods and encourage innovations such as sustainable packaging. Areas identified for

improvement include ensuring high quality of food is consistently delivered, increasing engagement with children and parents, addressing perceived challenges to integrate KOKA more effectively with mātauranga Māori, and improving waste management.

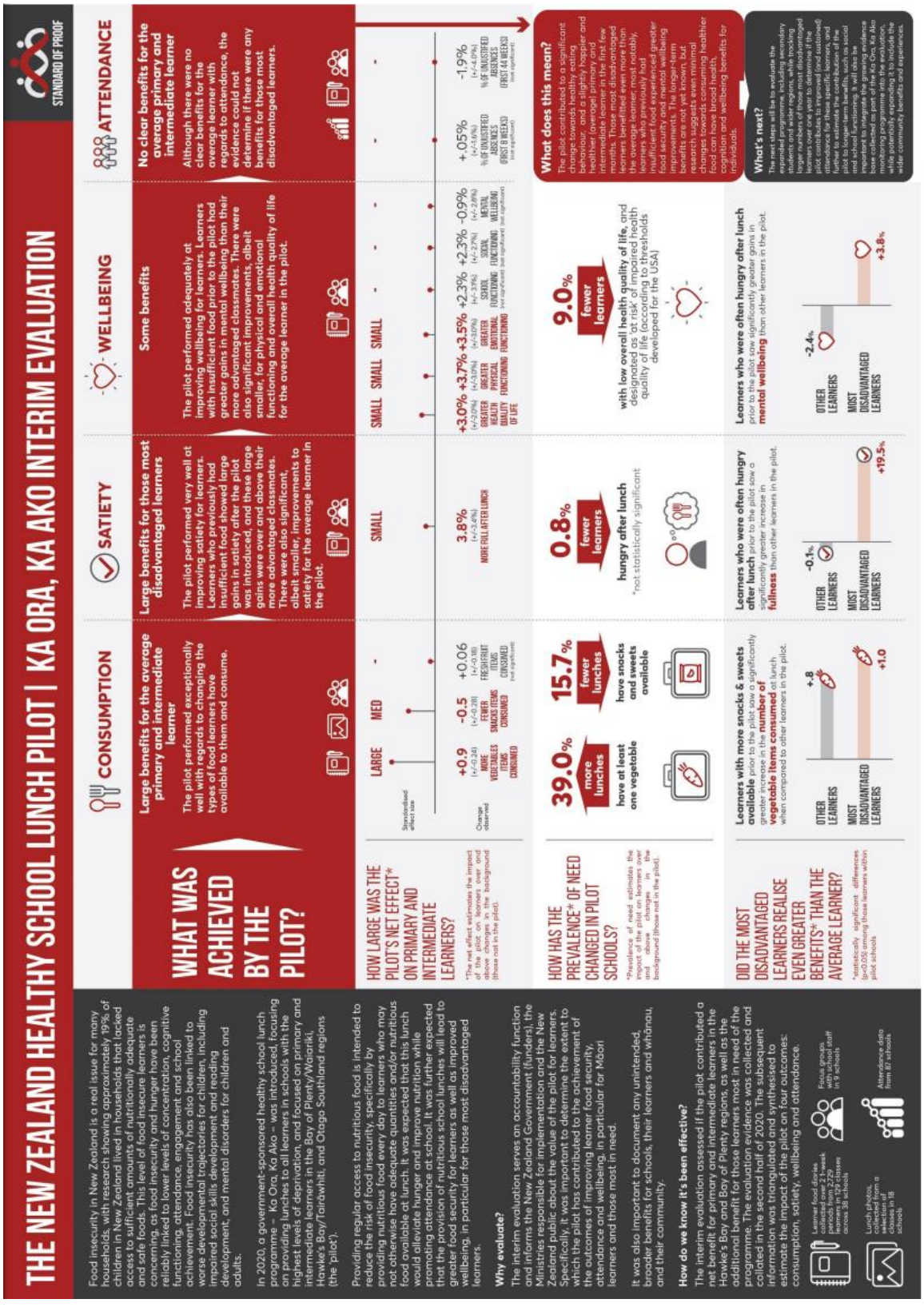


Figure 4.5 The New Zealand Healthy School Lunch Pilot Ka Ora Ka Ako Interim Evaluation
Source: Vermillion et al. (2021, p.1)

Figure 4.6 Ka Ora, Ka Ako New Zealand Healthy School Lunches Programme Impact Evaluation
Source: Vermillion et al. (2022, p.1)

4.4.2 Successes of KOKA

In addition to the benefits of KOKA found in the published literature (see the previous section), in New Zealand, there are numerous stories in the media about KOKA, including its successes (for example, Brettkelly, 2023[322]) and things that did not go so well (see next section).

The government (Beehive, 2022[323]) reported on the success of the programme in August 2022 by stating that:

- Savings for a family with two children at school of up to $62 a week, over $2000 a year
- Lunches now reaching 220,000 kids at 950 schools every school day
- A million lunches delivered a week, over 63 million in total to date
- 2,361 jobs created or retained
- "Free lunches has supported the Government's efforts to tackle child poverty, roughly 66,500 children have been lifted from poverty and there have been reductions in all nine measures, including material deprivation." Rt Hon Jacinda Ardern
- "All the facts show; healthy lunches in schools are making a meaningful difference to the lives of these kids and their whānau", Hon Jan Tinetti (ibid.).

According to the Health Coalition Aotearoa (2023[324]), 63 percent of people (71 percent of Māori respondents) support doubling of KOKA to cover half of all schools, which will "lift up whānau who're doing it tough at the moment, including those from middle-income brackets who may never have experienced food insecurity before… Parents know healthy kai means tamariki are more focused and better able to learn and that's supported by health evidence".

Derek Good, from "Feed the Need", states that the government's school lunch programme have met a particular need, but he notes that they have uncovered even more needs, such as family packs and food boxes for young people transitioning from foster homes (Brettkelly, ibid.). Good goes on to say that charities such as his can't meet the demand due to difficulty in securing sustainable funding. Even with multiple government and non-profit initiatives operating in this space, Good says there is still an unmet need, and that his charity can't meet the demand, because it's difficult to secure ongoing, substantial funding through private businesses. "We could pick up five schools tomorrow and say, 'what do you need?' and they'll say, 'we need 100 packs every day'. That's one school" (ibid.).

4.4.3 Criticisms and Areas for Improvement with KOKA

There were various "teething problems" in the initial roll out of KOKA, some of which are referred to in earlier sections. Of note are the following:

**Food Waste –* There have been reports of large amounts of food waste (NZHerald, 2022[325]) with some students saying they are not getting the kinds of foods they want to eat from the KOKA programme:

> *"A peanut butter sandwich, a piece of fruit and a packet of corn chips is the kind of simple school lunch option [one child] said they would like to eat each day. Instead, he and his classmates are being served up things like reheated kumara mash or meatball burgers as part of the Government's Ka Ora, Ka Ako Healthy Lunches in School programme" (ibid.).*

**Food Wastage* – The wastage of food in some schools, particularly during the initial phase, has been frequently raised both in the media, in the Kura Kai interviews and in anecdotal conversations the report writers have had with people while undertaking this research. For example, the principal of Rowandale School in Auckland, Karl Vasau (Brettkelly, ibid.) noted how different the food provided through KOKA was from what the children were used to. He stated:

"Most of our children don't eat anything unless it's deep fried, it's brown, or it's got some sauce on it… It took a while for the kids to get used to them, but once they saw their friends eating it, once they saw their teachers eating it, there's very little wastage now."

**Lack of integration into school curriculum* – Garton et al (2023) found that the potential of a national school food programme is not being reached by the current model, and improvements could be incorporated if KOKA is re-funded post-2024. This could include everything from school gardens where students learn how to grow their own food, which may also encourage them to eat more fresh fruit and vegetables if they had a role in growing it, as well as preparation of meals, preserving and storage skills, education about nutrients within food groups, connections to local growers such as field visits, connections to community groups involved in food provision and related learning about food security, social supermarkets and how poverty is linked to food insecurity, marketing etc.

**Lack of coordination between schools within regions* – instead of each school having to work out its own systems, menus, sourcing of ingredients and so forth, better coordination could be achieved through a coordination role to facilitate such things within regions.

**Understanding the dietary preferences of the recipients* – in some schools there continues to be what many consider to be an unreasonable volume of food waste. There are various reasons for this, including student absenteeism. However, in many cases, this appears to be due to the students not liking the food on the menu and that food then ending up going to waste a lot of the time. This could be addressed by efforts to better understand the current dietary eating patterns of students in a given school community, and gradual efforts to adapt that over time by incorporation of new ingredients in ways that help to socialise the "new meals" well ahead of time.

Furthermore, surplus meals could be distributed to foodbanks and other local food distribution outlets to ensure that they are being eaten by people in need of food, even if those people are not the original intended recipients. This rechannelling of government-funded food to those who need it reduce food waste and also improves food security initiatives in an area. This is happening to some degree in the Manawatū, where surplus or un-eaten packaged KOKA meals are provided to Just Zilch, who then offer them to people who go there seeking food.

**Collaborations between local growers and KOKA programmes* – improved coordination between local growers and KOKA buyers could enable the local supply of fresh produce that is suited to the needs of multicultural communities. Currently, each school sources its own ingredients if they do in-house meal provision, and the head chef often has little if any knowledge about the horticultural systems in their area, who grows what or how they might be able to go about accessing different ingredients than what is commonly available in main supermarkets.

4.5 A KOKA Case Study: A School in the Manawatū

4.5.1 The Start of KOKA

This Manawatū Case Study School (MCSS) chose to deliver KOKA lunches internally in their new nut-free commercial kitchen (see photos over). Installation of such kitchens is funded through the Ministry of Education for schools who choose to provide their own KOKA lunches in-house. The kitchen manager employed by MCSS to implement the KOKA programme has experience in hospitality and catering. Many students at this school go on a high school that offers hospitality as a subject, as does the local UCOL tertiary education provider. The MCSS KOKA manager says that exposing children early, in intermediates, helps those who want to pursue this subject.

The MCSS catering staff provide lunches for 531 students and 20 teachers each day, including for the 42 students with special dietary requirements: lactose intolerant, halal, coeliac, gluten free, vegetarian and vegan. Meals are served in compostable containers and with compostable cutlery.

At the early stages, it had already become apparent that mayo and butter in rolls are not liked, and coleslaw, tomato and eggs were not popular. However, popular meals were macaroni and cheese, butter chicken curry and meatball subs. Meals are delivered to classrooms in compostable packaging and their minimal leftovers were composted.

4.5.2 The MCSS KOKA Kitchen Visit

From 10.15am to 1.30pm on 6 Sept 2022, two of the researchers visit the school and spoke to the MCSS Principal who the introduced us to their KOKA Manager, with whom we then conducted an unstructured interview about their KOKA programme.

The following photos were taken during the site visit:

MCSS Kitchen

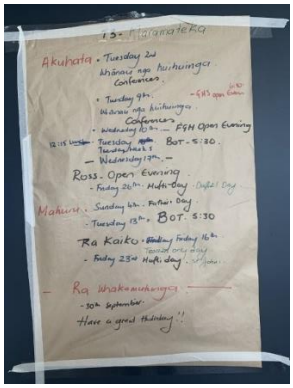
Special Dietary Needs Lunch

Special Meals Required

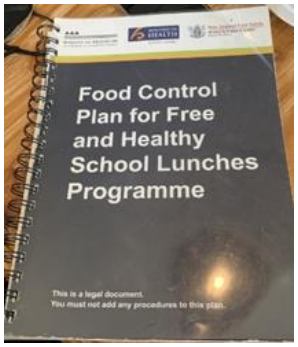
Special Diet Needs

Food Prep (Minestrone Soup)

Example MCSS Meal Plan



Example MCSS Schedule



KOKA Compliance/Regulations

The following themes emerged from the interview and our observations during our time there.

**Cost and Scale of the KOKA Programme*

Funding is provided to the school at $5.40/meal, excluding staff salaries; at the MCSS they estimate that in their kitchen they can feed four people for $10-15 per meal.

Government policy states that all students receive a free lunch through this programme, irrespective of their personal circumstances. The school principal agrees that this is important, so that there is no stigma associated with the free lunches. (The school also offers a free breakfast programme via the Sanitarium and Fonterra programme, and approx. 30-40 children come to that on average each morning). The school understands that 32,000 KOKA meals are delivered nationally, of which 3000 are delivered in the Manawatū and 18,000 in Auckland. When asked about how other schools are doing the KOKA programme, the MCSS KOKA manager mentioned a collective group in Auckland that runs food-in-schools for multiple schools, which is run by parents. They are also aware of schools where mums volunteer to cook the lunches on a roster.

**The Kitchen Premises – "Village Kitchen":*

We initially met with the MCSS Principal, who took us to the custom-built commercial kitchen they have installed in their old science classroom area. Schools that are participating in the KOKA programme have the option to build their own kitchens and deliver meals that are custom made on site; or purchase meals that are made off site (main providers in the Manawatū /Horowhenua area are Libel, behind Dressmart; Compass, previously based on Massey University campus and now in Milson; and Subway/Pita Pitt in the Foxton area).

"Village Kitchen" is the name given to the space to reflect their vision for it to be heart of the school, the place where people come together to share space, food, time. The Village Kitchen enables the school to integrate food programmes into the school.

The kitchen is beautifully laid out, with aesthetically beautiful touches that give it a welcoming and warm atmosphere, including the very long wooden table at one end, at which staff can sit and eat, talk, plan etc. The equipment is brand new, and includes huge ovens, food warmers, slow cookers, pantries, storage/packing areas. The school chose to build a deck area alongside the kitchen, and multiple round picnic tables to enable students to sit and eat their lunch at certain times, which gives a sense of eating at a café, or in your back yard at the picnic table.

**The "Village Kitchen" KOKA Manager:*

The MCSS KOKA manager met us and showed us around the kitchen space, referred to as the "Village Kitchen", and the room next door where the meals are sorted into classroom packs. The KOKA manager is passionate and enthusiastic about the Village Kitchen that they have created for their KOKA programme. We also met other staff who work in the kitchen, including one person who used to be an RTLB teacher and has a good relationship with the children. They sometimes dress up in costumes suited to specific events (e.g., Easter bunny – see end of section); the "Village Kitchen" staff also visit the children in their classrooms to bring special foods (e.g., Easter buns), thereby bringing the "kitchen" into the teaching spaces and building the "village".

The MCSS COKA manager and other staff have experience in the hospitality and food delivery trade and have qualifications in teaching and psychology. They stated that they are passionate about making a difference in the world, in part due to the challenges before immigrating to New Zealand including having to cook in mud ovens and experiencing food insecurity and political instability. The MCSS KOKA manager draws on these experiences to deliver the best KOKA programme they possibly

can in their Village Kitchen. This is not “just a job” where “the lunch lady dishes out food and then goes home”.

Their role really matters to them, and they care about improving the wellbeing of the students, having a workspace that people like being in and that is comfortable and like a home kitchen space, the heart of the home/school. They actively and intentionally seek out ways to improve processes, menus, interest in new ingredients amongst staff and students, ways to incorporate the KOKA programme into other aspects of the school experience. They produce a Powerpoint presentation for teachers to use in their classes about aspects of Village Kitchen – for example, when they introduced soybeans into the menu for Buddha Bowls, they created a PPT about soybeans, what they are etc. In this way they help to socialize new ingredients amongst the student (and staff) population before they have it in an actual meal.

**KOKA Menu at the “Village Kitchen”:*

THE KOKA Manager is free to design their own menu. There are no conditions put on them by the Ministry regarding specific meals that must be provided, other than general guidelines about the proportion of Green “good” vs Red “bad” foods. They aim to have 9 fruit/vegetables in each lunch. This can include onion, garlic, herbs and the piece of fruit that goes to every student with every meal.

Popular meals at the school include mac and cheese, meat ball subs (they do it with vegetables and on wholemeal buns), butter chicken, sweet and sour chicken with rice, buddha bowls, bacon and egg slice/quiche, wraps with yoghurt dressing and sandwiches.

They mentioned a “fail” meal that they tried which was unsuccessful: pulled pork bun, which takes two days to make, was not a hit with the kids who saw it as “stringy brown gravy”.

Special meals are provided for students who have particular dietary needs – a form is given to parents upon enrolment of their children which asks questions about allergies or dietary/health conditions that the Village Kitchen needs to be aware of. This is not for students who simply do not “like” a particular ingredient. On the day we visited, 8 different meal types (halal, vegetarian, vegan, lactose intolerant, gluten free, no egg, no nuts, soy free) were noted for the 36 children who needed a special meal. They operate a nut free kitchen for everyone.

They shared that determining what constitutes “special dietary need” is tricky. They rang the 36 parents of the identified children with allergies/special dietary needs and asked what they eat at home, to help them work out their KOKA menus. However, dietary needs are not the same as dietary preferences or individual likes/dislikes. It was noted that child education is required regarding personal responsibility for their own allergens, and not expecting others to take sole responsibility for this.

They try to introduce two new dishes per term and hope to introduce more Pacifica dishes in the future. They test what types of ingredients/dishes the kids will eat by adapting existing menus.

When introducing new foods, the KOKA Manager firstly informs the school’s staff first of the planned new foods to be introduced, at their Monday staff meeting, and gives the teachers a PPT presentation for them to show their class (e.g., history of the soybean, interesting information about it etc). The teacher can then build this into other aspects of their syllabus, e.g., history about the Silk Road. Thus, by the time the “new” food appears in an actual meal, the students already know about it and it isn’t “new”.

THE KOKA Manager commented that cooking “home-made” types of meals on site greatly adds value to the quality of the meals they are able to provide for the KOKA programme. This is in stark contrast to some of the KOKA meals she knows are provided at other schools who get meals delivered by external providers.

Cultural responsiveness is very important to lunch provision in this school, as food is an important aspect of the culture of the school. Some of the new foods in the KOKA programme may not have been part of a student’s prior diet. At the MCSS, the KOKA programme enables them to foster food education to their students by facilitating access to foods that they are not used to and don’t necessarily have at home e.g., many kids don’t eat slaw at home. So, the KOKA meals are adding to the diversity of diets and nutritional sources the children are getting.

Cost dictates what food/ingredients they can provide. They have had to swap out expensive ingredients with cheaper replacements. E.g., Buddha bowls – cucumber is expensive, so they found a replacement, soybeans or edame beans (but introduced this new ingredient via teacher classroom PPTs first).

They would love to be able to provide a fully cooked meal every day but staffing and oven capacity constraints limit this. If they are going to do a big home cooked meal, they have to do a “buy in” type of meal the day before, so the staff have the time to do the prep work for the big home cooked meal for the next day.

A local bakery makes their sandwiches once a month; however, that bakery is about to close, so they will have to find another source for this.

**Consumption of Lunches:*

As the whole school can’t fit in the outdoor area adjacent to the Village Kitchen area all at once, the regular routine is that lunches are eaten in the classrooms. A student from each classroom comes to the Village Kitchen at 12.15pm to pick up their designated “box” which contains all the meals for their class, including any designated special meals. Fifteen minutes are set aside for lunches to be eaten, before the children go out to “play” at lunch break.

However, once a week, specific classes (on a rostered basis) are served their meals from the Village Kitchen premises and get to eat it in the outdoor picnic table area on the deck beside the kitchen.

The school has independently decided to provide the free lunch to all of their staff and all relievers, as well as the students. Head teachers of each classroom eat their lunch with the children in their classroom. This helps to forge good relationships between teacher and students, as they are eating together, and keeps teachers happy. Also, in this way, the teacher is modelling the eating of the “healthy lunch”, including trying any “new” ingredients, and can monitor what is being eaten, what is liked/disliked, etc. The school absorbs this cost but sees it as an integral part of the lunch programme that they wish to deliver. It ensures the teachers also have good healthy lunches, which contributes to their wellbeing.

At the KOKA Manager’s request, the interviewees [Sita and Derrylea] stayed on for lunch so that we could observe the children coming to pick up the boxes of meals for their particular classroom – their exuberance and enjoyment at collecting their lunches was very evident. We were kindly given the minestrone soup of the day that had been prepared for the students having the special meals, with sandwiches, which was absolutely delicious and of restaurant/café quality.

Sourcing Ingredients:

They school makes as much of their dishes on site as possible. However, if a staff member is away or sick, and they can't pre-prepare specific dishes they had planned for the next day(s), then at times they will purchase dishes from bulk wholesalers, e.g., lasagne (which they said is the same as that used by another external KOKA provider in the area, Libelle).

Packaging / Waste:

The main meal is dished up into disposable containers that are returned to bins outside the kitchen after the meals are eaten. Any food waste is also put into these bins. It should be noted that great effort is taken to determine the exact number of meals that are required on any given day, to minimize food waste. At the start of the day, the kitchen is notified of student absences so they can deduct that number of meals from the daily lunch requirement. Likewise, the kitchen is updated on any events happening in the school that might impact on staff lunch requirements. Thus, there is minimal "surplus" or waste. However, any waste that is generated is collected by the Council, composted and then returned to the school as fertiliser for their on-site school gardens.

Waste minimization is an important part of their KOKA programme. They can do things at their intermediate school that wouldn't necessarily work in a high school.

Other Important Roles that the Village Kitchen Contributes to the School:

We discussed the many "added value" contributions that the Village Kitchen and the staff themselves make to the wider school. Examples include:

-Voluntary "Time Out" – From time to time, children also come and sit at the long wooden table in the kitchen if they need a "time out" from the stresses of the classroom – this is appreciated especially by children that find it hard to sit still and focus on academic subjects the whole day. Likewise, staff sometimes come and sit there during their breaks if they want a quieter space than the main staff room.

-Aforementioned "food for events", such as daffodil day cupcakes, Easter buns (hand delivered to the classrooms by the "Easter bunny"; i.e., Village Kitchen staff).

-Surplus food (with notes about safe food storage and handling) is packaged up for children who need it to take home – this is put into non-descript backpacks so that it isn't obvious which children are taking surplus food home. In this way, the wider whānau of the students benefit from any surplus from the KOKA programme.

-Additionally, sometimes the KOKA staff take surplus food to the gate at the end of the school day, to distribute it to children as they leave school, to take home.

- The Village Kitchen enables the school to integrate food programmes into the school.

-School Open Night (for potential new students and their whānau): the KOKA Manager provides pizza with vegetables and a protein, and has a korero with the parents. This is a great way to "introduce" the KOKA programme to prospective students and parents. They received very positive feedback after the School Open Days and enrolments were up.

-Syllabus opportunities linked to the KOKA programme, e.g., PPT for "new" ingredients. But there are huge additional opportunities that could be developed if she had the time (see "Government Opportunities" section).

**Other Success Factors of the MCSS KOKA Operating Model:*

-Importance of staffing/leadership/managers involved with the KOKA programme – they can greatly enrich the value of the programme to the school, families and the wider community. THE KOKA Manager comes from a background in South America where people worked hard to make life better and care about what they do. This attitude underpins her philosophy and attitude to provision of KOKA at this school.

"It starts at the top" – at the MCSS, the principal and school management had a vision for how KOKA could benefit their school if done well, including the planning, cooking, marketing, selling, employing the best staff for the KOKA programme etc (not just doing it as minimally and cheaply as possible).

-Adequate storage and freezer space is critical to being able to provide lunch in-house.

- Professionalism in the way the MCSS KOKA manager and staff approach KOKA and the pride they take in what they do and how they go about their job is an example to the students of the types of food and hospitality jobs that children could get into as a meaningful career pathway;
the ability to come to the Village Kitchen is also great for students who need to be active and can't sit in class all the time.

- Catering for particular needs: e.g., a student with aspergers at the school can't eat certain things so his Teacher Aid brings him to the kitchen to make his own sandwich. Things like this makes life so much better for this child and his classroom. Having an "inhouse" KOKA programme allows for such things, which you couldn't do if the lunches were out-sourced. Relationships are forged with special kids with special needs in the kitchen. Also see above re "menu" for special dietary needs.

- Time out Space: It is also a voluntary time out space for teachers who sometimes hang out in the kitchen.

-Kitchen visioned as the Heart of the School (like in the home). "More than just walls and machinery". It fills a pivotal niche. Does away with the institutional feel if you have a nice space to eat/commune. This type of a safe comfortable space in school is needed more than ever in places where people/children may be struggling.

"Village Kitchen" has to be visible – a physical location in the school for the actual equipment and cooking facilities, but also visibility via being at the school gate at 3pm giving out meals to kids to take home, or to other free food re-distributors who collect surplus food from the school.

-Socialise new foods before they incorporate them into the menu, to teachers first via PPT, who can introduce it to their classes before it appears in the actual meal.

-Importance of getting the right staff – Leadership, Gender mix, Personality:

> Leadership by Example (including what we eat, i.e. teachers eating the "new" foods alongside the kids), being a team player, mucking in to get the job done, relationship building, having vision, caring, manaakitanga.
> It is CRUCIAL that the person running the kitchen is the "right" person (and noting these important factors in their job description and resourcing them to deliver quality) as to whether KOKA is an assembly line job OR adds value throughout the whole school.

-Teacher Head Chef/Kitchen Manager: As parents, teacher, and/or RTLB, Village Kitchen staff have multiple perspectives on the role of food, schools, etc – and they see the kids each day so get to know them, hear from them directly etc. External food providers aren't able to have this insight into the workings of a particular school and its demographic/needs/culture.

-The KOKA managers aims to regular Facebook posts about the KOKA meals.

**Vision / Ideas for the Future:*

Many of the ideas below also relate to the discussion about Government Policy in section 3.3.6. The MCSS KOKA manager has a vision that the following activities and initiative could be incorporated into the programme:

-Plant to Table – utilise more ingredients from their own school garden.

- They want to find a use for the Village Kitchen space after 1.30pm and are considering possibilities have after school whānau/community cooking programmes, e.g., parents with children coming in for cooking lessons then taking meals home – this would also enable greater use of their kitchen facilities than current situation where KOKA cooking and prepping for the next day are over by early afternoon.

-Networking/collaboration with other teachers/schools who do their own KOKA in-house, to share ideas and "best practice" initiatives (this could be something the government helps to set up and resource).

-School as a Community Hub – coordinating and sourcing ingredients, meal planners/chefs, gardens/growers, contracts with local growers (see the discussion in section 3.3.6, Government Policy).

-Vision is for children who may be less academic or struggle to sit still in the classroom all day to be able to come to the Village Kitchen for a type of "timeout", to talk with the Village Kitchen staff, chill at the big kitchen table, etc, in a positive environment akin to popping into the kitchen at home to talk to mum while she's getting tea ready… perhaps doing some "homework" at the kitchen table.

-Syllabus opportunities linked to the KOKA programme.

-3-year Vision:
1) start up phase;
2) allocate area as a 'wellbeing space' for student voice, with collaboration of the Board, teachers;
3) Curriculum intervention – teachers implementing it (e.g., for "new" foods i.e., eggplant, soy bean, brown rice).

**Government Policy / Ministry of Education Opportunities:*

-*Regional coordinators* – the MCSS KOKA manager suggested such a role could be helpful in the following ways:
a) bulk buying of core ingredients at discounted prices;
b) further to bulk buying, they could source speciality foods to meet diverse dietary needs, e.g., halal (certified – currently difficult to know which meat is certified and which is not), different kinds of pastas. This would make it easier to add diversity to the lunches because schools could be more assured that they could source different types of ingredients. Likewise, growers/manufacturers might be encouraged and more motivated to grow/process specific ingredients at the scale/quantities that made it financially viable for them, if they were assured of a certain level of demand from regional KOKA buyers.
b) organise and manage logistics of grower/producer-to-school supply chains with local growers/manufacturers, supermarkets, food distributors etc to purchase and transport bulk food to each region where it could then be distributed to all schools doing KOKA (and other related food provision groups) – instead of each individual school/chef having to source all ingredients themselves and work out which suppliers can be relied on to consistently provide specific

ingredients; having someone else to do this on a regional/national scale would save them a lot of time and help with their meal planning;
c) support network for teachers/schools doing their own KOKA (or even for those who currently buy in from external providers, but considering how to do more in-house, or locally and not from big providers from outside the region).

-"*Spare Capacity*" – consideration of how resources, e.g., kitchens, can be used for other purposes in the school and/or wider community… schools being a "hub" for the community. Practicalities of this would need to be worked out with Ministry, principals etc. This would be in addition to anything individual schools wanted to offer, and perhaps organised by groups outside the school? as teaching staff may not have spare capacity to offer such services to the wider community, or skills in legalities/technicalities/compliance issues to get it going.

-*Compliance* – this is a big issue as stringent systems are needed for many factors to meet the requirements for many things e.g., nutrition/quantities of ingredients, clean up, cooking particular things such as poultry, temperatures of e.g., fridges, supplies and deliveries. Currently each KOKA teacher/manager has to work all this out for themselves (other than a one-day training offered at UCOL at the start of the KOKA roll-out, which not everyone could attend). It would be helpful if such training and pointers for Compliance factors was promoted amongst all the KOKA teachers/ managers through regular comms (perhaps by the Regional Coordinator, if there was such a thing) to make this easier for new schools coming on board, as it can be a steep learning curve and could even be prohibitive.

-*Syllabus* – there are numerous ways that the KOKA programme could be integrated into other aspects of the syllabus. It would be good if the Ministry facilitated this and provided lesson plans/syllabus ideas for schools, so each school didn't have to independently all do it. For example, maths (quantities), performing arts (history of ingredient/meal), language (of food/cultures), horticulture (growing, composting, preserving), food tech/cooking. Classes could be given practical opportunities to do things, e.g., On Week 1, Room X will be involved in the menu planning, cooking and marketing of the Wed Lunch.

-*'Acceptable' Nutrition*: The Ministry of Education provides feedback on menus (they take away the meals, deconstruct them, and then provide feedback to the school on the breakdown of various nutritional components, e.g., how much fat, protein etc). They don't provide the guidelines to start with, but to provide feedback on what each meal provided by their KOKA programme contains from a nutritional components point of view, and then suggests ways that, e.g., a "higher fibre" pasta could be incorporated in a given meal instead of the pasta currently used.

However, the point was made that "quality" of a meal is more than just the biophysical breakdown of the fat/protein/carb etc content. Quality should take into consideration: nutritional content, emotional wellbeing fostered by consumption of the meal, impact on attendance and participation in class (and if there is less wagging of classes), academics.

-*MPI Accreditation*: The Ministry for Primary Industries could/should be supporting schools to source products – and giving examples of possibilities for improving the nutritional quality of ingredients or sourcing products at cheaper prices; e.g., replacing low quality "white" foods for better quality things, e.g., soybeans.

-*Training*: There was a UCOL Health and Safety course for Schools who were intending to offer their own in-house KOKA. All Manawatū and Horowhenua staff came together for this – it was the start of what could have been a great ongoing network of staff all working on the same new initiative

together. Having someone (external to the individual schools) to help coordinate this and keep it going would have helped. Criticisms included that the training covered the requirements of record keeping but was very wordy, too daunting and not user-friendly.

The local Council Health Inspectors do verifications but due to Covid this was done via Zoom. It included things like whether there were cleaning charts for specific dates, calibrating a thermometer etc. You are liable if someone gets sick at home, so they give notice with food kids take home regarding heating, use by etc.

-Accreditation of the Health and Safety Process is very difficult. It is not easy to ascertain what is required because MOE information is not user friendly/accessible (and this is coming from someone with experience of running a restaurant, so imagine how difficult it would be for people who are new to hospitality and taking up KOKA at their local school). Assistance with this would be helpful and might enable more schools to have in-house kitchens delivering quality food.

The Standards include: Kitchen layout plans; Risk assessment; Training and competency; Equipment; Water; Washing; Contamination; Keeping cold foods, Pests; Separation of foods; Preparation; Cooking, serving, cooling cooked food; Hot food; ; What's in food, Temperature; and Allergens.

**Long-term plan for KOKA:*

The KOKA manager was unsure whether the government-funded KOKA programme will continue. They noted that evaluation of the programme identifies the huge contribution it makes to students, schools and their whānau, when it is rolled out effectively, and this is good to provide evidence for why it should continue.

Things the KOKA manager mentioned that were evidence of the success of the programme at their school included:

-Smiles when a child takes a backpack with meal/s home for their whānau;
-Kids who are able take cake home for Pasifika fusion, and positive impact of this;
-Easter buns and other special events from Village Kitchen, which connects the kitchen into other aspects of the kids' lives (see photos below and over);
-Food is a conversation starter with the kids and the teachers – stronger bonds are built, more likely to foster conversations about important matters, and encourage learning.

Below are examples of weekly meal plans and related "Village Kitchen" activities:

"*Each week our Village Kitchen provides our ākonga with a range of fresh healthy (& delicious) lunches!*

The logistics of running the kitchen are heavily reliant on suppliers and often menu changes become necessary at short notice. While we know a number of whānau would prefer to know menus ahead of time, this isn't practical."

Below are photos from Special Lunch Days at the MCSS – KOKA staff from the "Village Kitchen", dressed as the Easter Bunny, visiting classrooms at Easter.

Below is the Subway KOKA Lunch in Schools promoted on the MCSS social media.

4.6 Feedback from Kura Kai Interviewees about KOKA

Although not the focus of KK case study, the topic of KOKA did come up in many of the interviews. These findings that relate to KOKA will be covered in more detail in an upcoming article by Venkateswar et al. (2024[326]) but a summary is provided below.

Participants noted that a critical difference between KOKA and the KK initiative is that KK's Rangatahi Programme whereby the food delivery programme is delivered by the students and incorporated into the school curriculum, and KK can become a hub for community-led food provision:

> *"gets the students involved in helping solve the issue [of food insecurity] where it's not just the handout, you know? Which I know it's good, the lunches is good. But, … I think [the Rangatahi Programme is] going to be a really good programme because we're kind of changing that and we're getting lots of people involved in it to help solve the issue moving forward…*
>
> *And what we're hoping to add is the community side of things. Like not just learn to make a banana choc chip muffin and read a recipe and then take it home and or eat it at playtime, you know? Which is what, like you start learning a manual in Home Ec. But, just at that high school level where food, bulk cooking, budgeting, you know, using what's in season. Using all those things.*
>
> *And it's really bringing it back to how a lot of our rangatahi, well our other generations were raised on the marae, you know? And cooking like for, like that whole village component. And that's where I think Kura Kai can really become that hub. And where we're heading is to become a hub in the community as that small village of teenagers who are willing to help people the whānau that need it … [there can be a] lack of connection with their local marae. But, if the kids are at high school why can't that be that link?"*

Other KK participants noted that their school was not a low enough decile to receive KOKA, yet know that there is a huge level of need within their student population, and they could have greatly benefited from KOKA funds to build a commercial grade kitchen which would have allowed them to "feed our community better".

Some participants talked about their negative experiences with KOKA. For example, one said they were "disheartened" by their nephew's KOKA lunches, stating that they were "not age appropriate" and that the "food is bad…Lunch is not recognisable food". There was a common feeling that the KOKA lunches must be better matched to the demographics of the area being serviced, so that the meals are things that the children want to eat and are better matched to the types of foods they are used to, i.e., meet their cultural preferences. Gradually, new ingredients could then be introduced to increase the nutritional value of the meals, but to present children with completely different meals to anything they have eaten or even seen before, resulted in the children not eating the meals and them being wasted. Further, the meals needed to "look nice", whereas some feedback from participants revealed that some meals, particularly those brought in from certain external providers, had been transported a distance to reach the school and had arrived in a poor state, which looked unappealing.

One participant was involved in both KK and KOKA meal provision. They did a survey of the school students on what they wanted to eat, with the favourites being nachos, pasta meals and mac n cheese. They noted that none of these favourite meals were on the Ministry of Education menu list. This participant got the school children to organise the KOKA menus, themselves. This participant has a hospitality background which greatly helps them design and cook appealing meals, and they only employed people to help with KOKA cooking who they knew could cook well, including in bulk. They try to build in reciprocity whereby they give scraps to a local piggery who then donates a pig for tangi or other event involving the local school community. They also noted that with KOKA, the:

> *"last meal in school is one o'clock in the afternoon… from then until potentially 10 or 9 o'clock the next morning they haven't eaten".*

KK can help fill that gap for the children that need it. They also noted that there are utilise under-utilised public facilities and thought that it would be good to roll KOKA and other food provision

services out nationally, utilising commercial kitchens in, for example, Council facilities when not being used.

Another participant stated that:

> *"My kids go to [name of] College, they're a terrible example…They're an outside provider, [name of provider]… what ends up happening with the food is the kids throw it around the school field. But, according to [name of provider] they're ticking the Heart Foundation, the Government Ministry's expectations of healthy meals. I've never seen so many frozen beans in my life. I'm trying to fight the system on this one. I think it's a disgrace of taxpayer's money and a waste of the opportunity.*
>
> *And even, you know, the government are very, are bleating on about greenhouse gases and food waste is one of our biggest contributors to greenhouse gases. But, the food in lunches is probably a huge contributing factor to that because the tons of food that are thrown into schools bins daily. Because the kids, and it's inedible. The kids won't eat it, yeah, I, and taxpayers, us hardworking people are funding it. And this isn't a political thing. I'm not into politics at all… But, this is an absolute disgrace of how a box gets ticked, and yes we're doing a good thing by feeding these starving kids. But, there's no follow up and no. It's not measurable. Quality checks. There's no KPI's coming out the other end. Like, are kids actually getting food? Fed? Well, there's food available, but they don't want to eat it because it's awful. My kids come home starving… my kids are well looked after. But, they take their own lunch actually, but my son doesn't. But, it's just shocking every day. Like I'm constantly emailing those photos to [name of provider] and they keep telling me that there's nothing wrong with them. That they are doing exactly what the Ministry wants. So, and I've tried to get a meeting with the Board of Trustees of [name of] College and that's like, oh I just don't even think it will happen any time soon. But, this is one of many schools around New Zealand. So they're ticking that box and they're doing the right thing. Oh yeah, we've got the schools, the Lunches in Schools, but the waste. You know, I drive to that college on a regular basis and there's probably 30 wheelie bins out the front smelling of rotten food. So that will give you an idea how that scheme's working".*

When that participant was asked why the school in question wasn't doing their own meals in-house, they explained that it was "too hard" for the local community to coordinate the programme:

> *"So I was involved in that process. The Board of Trustees wanted to use locals in the community and they reached out to a lot of businesses. And what they were actually going to do, because you can opt in for a tender with a company like* [name of external provider], *or you can get a payment where you manage it yourself as a school, right? So, the Board of Trustees really were keen to get local businesses involved and, you know, like the local sushi shop would do one day, and one of the bakeries would do the next day. And school volunteers might do another day and so on. But, it just became 'too hard basket', which is a real shame. So, basically, a lot of the businesses decided that they didn't want to come on board with that. So, they went with the tender. Now the tender was only meant to be for six months, I believe, or a three month, 90-day, and it's still going a year and a half later".*

At the above school, the external KOKA provider ended up taking of the school's canteen, putting ovens in, and bringing in contractors to deliver the KOKA programme in the school. The participants shared that:

> *"I'm quite vocal about it. So whenever on Facebook I see* [external provider] *coming up on my* [Facebook] *feed with these beautiful lunches that they're showing, I'm in there straight away with those revolting pictures [taken by their children or others at the school]. It's actually gotten so bad at that school, and I know because I've spoken to other schools around New Zealand as well, it's not just them, it's New Zealand wide. It's gotten so bad that even the people in* [location of school] *that are hungry and desperate and homeless will not eat the leftovers at the end of the day that are taken to the food stands. So, that will give you an idea. And the principal has got his head in the sand about the whole thing. But, I've since learnt from a teacher friend there that he actually eats the lunches. So if he doesn't have a problem with the quality then [he thinks] 'why would anyone else?'… So just to give you*

an idea, [external provider] *each day out of* [location] *College, is making $4160. So, money for jam… [for the 640 kids they provide lunches for]".*

She said that the food waste is contributed to by inappropriate food options on the menu: *"The kids hate the yoghurt, so the yoghurt, cartons and cartons of yoghurt each day. Because by the time the kids get it, it's actually room temperature."*

The above KK school coordinator noted that they provide tasty, cost-effective meals for KK, saying that their KK meals are "better than the free lunch programmes in local schools". She did an experiment to see what she could cook with the equivalent KOKA funding, because she stated that the external provider is "not value for money". She found that:

> *"For $140 I was able to make 83 meals: 52 Mac'n'Cheese and 31 chilli and rice, which is $1.71 per serve, compared to $6.50 per serve for lunch in schools.* [Another regional school nearby] *gets $4160 per day to feed 640 kids".*

Another participant from the lower north island stated:

> *"Both the schools [in their area] do have the food in schools programme [from an external provider]. But, I get real, I mean I haven't been there much this year, but certainly last year when I was there, there was quite mixed response from the pickup of that… Lots of young people don't eat it… I don't think they like it. I think, I know at [name of school] at one stage, I mean it, the odd time I, if there was spare I'd take one. And they had like this quiche that was liquid-ey all at the bottom. Like, you know, it's just unappealing. So, the things like the fruit or the biscuits or the muesli bar or whatever is in there, they tend to go. But, the sandwich and that not so. And I think also there's a level of the kids might be a bit picky with what's in it. They might not like it. And I guess it's challenging, you know, to service a whole school and make everyone happy…*
>
> *I think personally that if we're wanting to feed our kids in schools, we need to have like the cafeteria where they go along and get like an actual meal that's made on site, with a couple of options. Like it's kind of hard, it's a one size fits all. It's really hard for young people and like lots of schools, the cafeterias are now run by external, like not internal. And I think you've got no control over that when it's not in, like you've got no oversight on that…*
>
> *From what I've seen I think it is a one size fits all. It's a bread roll or a wrap or, you know, but, you know, imagine if they did something, you know, like what's that, what's that noodle one that they do all the time? Oh it's gone from the top of my head, but you know, when you've got sort of a high Pacifica, high Māori [demographic], I do think it needs to come into that decision making. And I actually think, like I don't want to eat just the same stuff every day.*
>
> *Like we eat Mexican some nights, curry, like having a variety is good. And it's also exposing them to other foods, cultures in an indirect way. Yeah, so I personally don't think, as I said, I haven't been in those schools for a little while this year, so things might have changed. But, certainly from when I was there last year it was just your bog standard. You know, hitting your targets of whatever their nutritional needs are. Because they are nutritionally I think looked at, to make sure they're fitting the mark. But, you know, there's a price point isn't it? So you're only going to provide, it's all down to the cent I suspect…*
>
> *"I guess, yeah that's tricky isn't it to have a blanket, one size fits all. And I actually think that, you know, across New Zealand different demographics and different communities, and they have different needs. So, I actually think it needs to be individualised to your community because it's very, yes I guess you need some sort of level of guideline. But, maybe under those guidelines you have more, some more structure or some guidelines relating to your specific communities that you're trying to service…*
>
> *Back when I was at school, the parents sort of ran the tuck shop and stuff. But, now it's sort of, kind of an outsider the schools don't really have the same level of oversight…*

I know when last year they complained and things picked up, so the reception, they definitely look at it and they do not hesitate to kind of put in their feedback of what's working well, what's not. You know, nobody wants waste. They, if there is spare meals they'll send them home with children, with their rangatahi to give, use with their family. So, there's definitely no waste at school, which is key, because there's always hungry mouths there, one way or another. So yeah."

4.7 Insights regarding KOKA lunch programme

This research into the KOKA school programme has shown that there is great potential for the initiative to be an effective means of improving the "accessibility" and "availability" of "good food" to rangatahi. The KOKA programme also has the potential to play a significant role in the "affordability" of such food within communities and regions through greater collaborations between food producers and providers, thereby supporting the local food economy.

However, feedback about the KOKA programme has varied between schools and regions, with negative feedback often relating to the perceived "unattractiveness" of the lunches due to issues such as in looking unappealing, being soggy, not being the type of meal that young children want to eat, not being good value for money when compared to the meals that other school-based food provision programmes have been able to produce for the same amount of money, and the generation of food waste from lunches that are not consumed.

The MCSS case study, however, is an exemplar of how a school can implement a successful KOKA school lunch programme, when the "right people" manage and lead the design and delivery of the programme, and it is supported by the school principal and board to be integrated into other aspects of the school's learning programmes. Ensuring the KOKA programme considers the cultural and dietary food preferences of its student population in meal planning and delivery is essential to positive uptake of the programme, and minimising food waste.

The KOKA programme increases the "accessibility" and "availability" of food for rangatahi, however it is not always the type of food that the students who it is being delivered to consider to be "good food". This highlights the need for more research into what constitutes "good food", as this various enormously from person to person, whānau to whānau, and community to community. The cultural and dietary preferences of students within each KOKA school must be considered in the planning and implementation of KOKA school lunch programmes to ensure the meals "fit" the demographic of that school.

Thus, there is room for improvement within the KOKA programme more broadly, particularly in terms of the biophysical nutricentric focus on the meal's ingredients, when this results in meals that are not attractive to the students and end up being wasted. The implementation of the KOKA programme is more successful when the lunches "match" the dietary preferences of the students they are being prepared for, as meals that are not eaten have no impact on the wellbeing or educational outcomes for those students and can result in food waste. More considered planning on how the nutritional content of school lunches can be increased over time could foster improved uptake of the programme, particularly in schools where the student population is not used to the kinds of meals that are typically being provided through KOKA food providers. "New" ingredients could be incorporated into meals over time, to give the students time to adjust to a more varied diet.

Furthermore, there is great opportunity for increased collaboration between KOKA schools, and centralised planning and accessing of ingredients for KOKA schools, particularly those who are doing their KOKA programme in-house. Bulk ordering of ingredients could lead to greater "affordability" of

some ingredients. Local farmers could be encouraged to grow fresh produce for the KOKA programmes, including niche items that may be less accessible in supermarkets but are important dietary items in Māori, Pasifika, Asian and other groups who are represented in KOKA school populations.

Furthermore, collaboration between KOKA schools and the wider community could enable shared use of resources, contributions to wider community food security and enhanced community cohesion.

The findings of the KOKA research are explored further in Section 6.3.

5. Regional Food Resilience in the Manawatū: A Case Study

5.1 Community-Based Food Provision in the Manawatū

In the Manawatū, there are several community-based food providers and organisations that work to address food insecurity and support the local community, thereby improving the accessibility, availability and affordability of good food within the regions, particularly for people who are most at risk of food poverty. Some key examples are listed below, including a focus on at exemplar in section 5.2 – the Manawatū Food Action Network (MFAN).

5.1.1 Just Zilch[lxv] is a food rescue organisation based in Palmerston North who collect and redistribute surplus food from local businesses to the community for free to individuals and families for free, no questions asked. They are New Zealand's longest running free store, having provided food to more than 250,000 people since they began in 2011. They have re-distributed the equivalent of 2.06 million food items, or 825 tonnes, that would otherwise have ended up in the waste stream. On average they give away nearly $40,000 worth of food each week. About 215 people are provided with food every day, who in turn support a further two people in the home, i.e., about 645 people a day. They act as a central hub, also supporting about 50 other non-government organisations throughout Palmerston North, Manawatū, Tararua, Whanganui and Horowhenua, with their 90-odd team of volunteers.

5.1.2 Food Banks operate in Palmerston North and the wider Manawatū region providing emergency food parcels to individuals and families facing food insecurity. They are charitable organisations who typically also offer support services and referrals to other community resources. Examples include the Methodist Social Services and the Salvation Army Food Banks. The Salvation Army work collaboratively to address the root causes of food insecurity and financial hardship, aiming to provide mana-enhancing practices for Kiwis experiencing poverty related hunger.[lxvi]

Physical copies of a "Minestrone Soup" recipe handout from their "Foodbank Project" (see Section 2.8.2) were recently handed out at Just Zilch (see 5.1.1), which is indicative of the efforts that local social services and food redistribution agencies go to, to collaborate and support each other.

5.1.3 Koha Kai Whare Social Supermarket Opened in August 2023[lxvii], Koha Kai Whare is the first social supermarket in Palmerston North (Supermarket News, 2023[327]). Koha Kai Whare, a partnership between Foodstuffs North Island and Palmerston North Methodist Social Services (PNMSS), will operate in addition to Methodist Social Services' food bank.

Koha Kai Whare aims to build up to being able to cater for 100 clients a month, providing them with a week's worth of groceries every four weeks. Support staff are on-site to assess clients' needs and help them access other services. On 23 August 2023, on their FB page, PNMSS stated that demand for the social supermarket and Kai box supports had rocketed, with them seeing over 500 people since opening for bookings on 15 August 2023.

Partner supermarkets contribute financially to a fund that powers the scheme, and there is a financial expectation that users contribute to the cost of the groceries, which helps fund further food purchases for the store. Pak'nSave Palmerston North are the "buddy store" for Koha Kai Whare, providing ongoing support and training, and keeping the shelves stocked.

[lxv] https://enm.org.nz/directory/just-zilch
[lxvi] https://www.foodbank.org.nz/pages/our-vision
[lxvii] https://www.facebook.com/tekareremaorinews

Figure 5.1 Points System at Social Supermarket
Source: Palmerston North Methodist Social Services FB page, 16 Aug (left) and 14 Aug 2023 (right)

The store is purposely designed to look and feel like a regular grocery store, but clients spend "points" instead of dollars – for example, a large family might be allocated 75 points to "spend" how they wish, suited to their dietary, cultural, and personal preferences, on a wide range of goods typically stocked by supermarkets. Clients are free to select the items they want within the points-limit. The points system is aligned to retail prices, which the store's managers envisages will help people to budget.

When interviewed by Stuff News (Dallas, 2023[328]) at the launch, Rik Te Tau, the general manager of Palmerston North Methodist Social Services talked about a scene he has watched play out numerous times, which he hopes will be stamped out by this "more mana-enhancing" alternative to the traditional food bank:

> *"A family sits in their car, taking 40 minutes to pluck up the courage to walk inside and ask for a food parcel… for many people food banks carried a stigma that was akin to begging, where people felt they had to prove themselves worthy of a parcel."*

He goes on to say:

> *"It's personally important to me that young people see their parents shop, that they actually don't see their parents go in and beg for something… It's our right to have food."*

Willa Hand, a Foodstuffs employee who has the job of finding suitable community organisations for Foodstuffs to partner with, and locations where there was high need, stated that in the midst of a cost-of-living crisis, need was everywhere in New Zealand. She said that it was a misconception that only people "at the bottom of the cliff" had need for a social supermarket, and that in her experience, the people accessing social supermarkets were everyday Kiwis, genuinely needing support, who only needed to lose one shift in their working week to not make ends meet:

> *"What we're finding is there's a whole range of people who, for whatever reason, have found themselves needing a bit of support right now. So they're used to shopping in supermarkets. To them going to a food bank is foreign and can be quite daunting."*
>
> "It's about people having choice, dignity and empowerment. What we know is that people who are able to contribute to their shopping, and have more efficacy, have a better sense of self in that situation, and we just want to enable that. To create a space with no judgement."

Other than excluding cigarettes, vape products or alcohol, the managers don't make "social decisions", such as excluding sugary drinks, as they state that it is important to ensure clients are able to make the same decisions as every other supermarket shopper.

5.1.4 Community Pantries / Pataki Kai are community-based initiatives whereby locals are encouraged to donate surplus items directly into these pantries and/or to take what they need. There are an increasing number of these around the country[lxviii] including in the Manawatū[lxix] – the latter link has tips for making effective sharing tables or pantries.

Te Pataka Kai 4412 is one example, which has been used by more than 400 whānau in Palmerston North each week, with numbers continuing to increase (Jacobs, 2021[329]) – see Figure 5.2 below.

Figure 5.2 Te Pataka Kai 4412
Source: Jacobs (ibid.)

During lockdown Whakapai Hauora Charitable Trust and other Māori organisations were struck by the severity of the kai insecurity whānau were facing, and thus the Te Pataka Kai 4412 food pantry was established. The programme's manager stated that:

> *"The people who needed it were the people who won't speak up that they need food and will go without because they're too whakamā about asking for it, or admitting that they need help."*

It is run out of two shipping containers on the lawn of Tānenuiarangi Manawatū Incorporated in Awapuni. The main difference between Te Pātaka Kai's set up and other foodbanks was the wraparound support systems available to whānau. For anyone needing help, there were Whānau Ora navigators, suicide prevention services, counselling, addiction specialists, doctors and Covid-19 vaccinations on hand. If a person needed assistance in other areas of their life, help was only a stone's throw away. About 25 per cent of those who used the kai bank had taken up the chance to use other services. There was also a secondhand clothing area for families, which included bedding and other household items they may need.

5.1.5 Community Fruit Harvest Manawatū is a volunteer-led initiative that reduces food waste by harvesting surplus fruit from regional trees and orchards and distributing it to local charities and community organisations. They facilitate the sharing of fruit from people's own back yards and orchards in Feilding and the Manawatū.

5.1.5 Community Gardens, Food Sharing Initiatives and Seed Libraries – Communal garden spaces enable people to grow and share fresh produce. Many of these community initiatives also host regular community meals and gatherings, providing an opportunity for social connection and

[lxviii] https://www.patakai.co.nz/p257taka-locations.html
[lxix] https://www.enm.org.nz/manawatu-food-action/sharing-tables-1

sharing food. These social benefits are often cited as being even more appreciated than the food that comes from these gardens. Furthermore, seeding libraries/banks in the region[lxx] enable free access to seeds for anyone wishing to growing their own kai, and to house donations from those who wish to share. Food sharing tables or events are also increasing within the region, such as the Palmy Crop Swap that runs the second Saturday of each month.[lxxi]

There are many community gardens within the Manawatū[lxxii]. For example, "Growing Gardens and Communities"[lxxiii] provide free gardening workshops, as well as support and mentorship for gardeners, and have garden plots behind the Awapuni Community Centre, where people can come for workshops or to take part in working bees to learn about gardening. Moheke Community Garden[lxxiv] is another community-initiated and run berm garden with veges, colourful blooms and fruity trees. Established in 2012, the garden consists of thirty-five raised garden beds, 28 fruit trees, shared composting, and involves 26 households and over 50 residents. The aim is to look after the existing fruit trees and gardens, add new plants (mostly fruit trees, some veges, and natives), weed and mulch; helping create a connected, community-minded street; contributing to food resilience and connection to nature. There are a few other berm gardens in other Roslyn streets that are also a part of this.

5.1.6 Community Meals – Food support is provided by a number of groups within the Manawatū[lxxv] including free hot meals provided by various churches in the region such as Legacy[lxxvi] free hot dinners on Monday nights, for example. In what has proven to be a successful model, their community meal programme began in 2013 (Lacy, 2023[330]). Preparation for their 6pm dinner starts at lunchtime and there are about 15 people in the core team. The multigenerational volunteers provide longevity. Children are fed and entertained in a neighboring hall, giving parents a break. Volunteers driving Legacy vans pick diners up from their homes.

5.1.7 Social Service Agencies – Various food provision is provided through social support agencies throughout the region such as Te Whare Koha Highbury: Te Roopu Oranga O Highbury Trust who provide a range of free things including lunch meals and other kai including from their vegetable garden, household items and clothing. Another social agency is Luck Venue,[lxxvii] a MASH-supported[lxxviii] entity that supplies weekday free breakfast, lunches for a small fee, and can provide Kai packs for whānau in need. They also hold cooking sessions that help people develop cooking skills and knowledge about healthier eating. Some food is also sourced from business donations of surplus food. Importantly, their services are also included during holiday periods.

Likewise, the Palmerston North Street Van[lxxix] core business is being present in the central city providing hot food and drink to patrons and providing safe transportation to people who need a ride home. They provide transport for schools and organisations, and distribute food to individuals, families, schools and organisations during the week. They also provide food for homeless people and

[lxx] https://www.enm.org.nz/manawatu-food-action/seed-exchanges
[lxxi] https://www.enm.org.nz/manawatu-food-action/palmy-crop-swap
[lxxii] https://www.enm.org.nz/manawatu-food-action/community-garden-directory
[lxxiii] https://enm.org.nz/directory/growing-gardens-and-communities
[lxxiv] https://enm.org.nz/directory/moheke-community-garden
[lxxv] https://enm.org.nz/manawatu-food-action/food-free
[lxxvi] https://legacy.net.nz/just-hope/
[lxxvii] https://www.facebook.com/luckvenuepn
[lxxviii] https://www.opencounseling.com/new-zealand/palmerston-north/counseling-agency/luck-venue-mental-health
[lxxix] https://www.southernhealth.nz/services/palmerston-north-street-van

those in desperate need. They are staffed from people from all walks of life and represent 32 different churches from 16 different denominations. They are largely a volunteer organisation funded mostly through community support and the Friends of The Street Vans.

5.1.8 Meals on Wheels

– The New Zealand Red Cross has been providing a Meals on Wheels[lxxx] delivery service to people who are unable to cook for themselves since the 1950s. It is the role of Te Whatu Ora Health New Zealand to provide nutritional support to the community by making low-cost, home-delivered hot meals available to residents who need it. The meals are prepared by district health services, food service contractors, community health trusts or retirement villages. New Zealand Red Cross coordinates 3,000 volunteers to deliver the hot lunches to people who have a disability or ongoing health problems that mean they have difficulty preparing a meal for themselves. In addition to food, the Meals on Wheels volunteers also provide regular social contact to and an opportunity for someone to check that everything is OK with the people they drop meals to. These subsidised meals cost the recipients $7.20 per meal. They are available in the Manawatū[lxxxi] and throughout various other places in New Zealand, on a 4-week meal rotation menu.[lxxxii] Frozen meals are available for weekends, public holidays and if people prefer to eat their meal in the evening (as they are designed to be eaten hot, at lunchtime when they are delivered.

5.1.9 Eat up

– this provides breakfast and lunch food to disadvantaged Manawatū school and kindy kids who would otherwise go hungry so they can grow, learn and succeed.[lxxxiii] Eat Up launched in New Zealand in early 2020 and is currently operating out of a hub in Palmerston North, with an aim to support schools, down to Wellington, up to Hawke's Bay and New Plymouth and in-between, with future plans of expanding across New Zealand. They will run public and workplace volunteer sandwich making events, initially in Palmerston North and surrounds, Levin and Wellington.

Another critical group that promotes food resilience, sovereignty and sustainable food systems in the region is the Manawatū Food Action Network (MFAN) who are the focus of the case study explored in the next section.

5.2 Manawatū Food Action Network

5.2.1 Environment Network Manawatū

The Manawatū Food Action Network (MFAN)[lxxxiv,lxxxv] is one of the two main collective focus areas of Environment Network Manawatū (ENM)[lxxxvi] with the other being Manawatū River Source to Sea – see Figure 5.3 below.

[lxxx] https://www.redcross.org.nz/get-help/community-services/get-meals-on-wheels/
[lxxxi] https://healthpages.co.nz/directory/listing/food-services-meals-on-wheels-midcentral-dhb
[lxxxii] http://ourhealthhb.nz/assets/Meals-on-Wheels/Meals-On-Wheels-menu.pdf
[lxxxiii] https://www.eatup.org.nz/
[lxxxiv] https://enm.org.nz/manawatu-food-action/About-MFAN
[lxxxv] https://www.facebook.com/manawatufoodaction
[lxxxvi] https://enm.org.nz/

Figure 5.3 Environment Network Manawatū Programme Structure
Source: https://enm.org.nz/about-environment-network-Manawatū

Environment Network Manawatū are the environment hub for the Manawatū Region, facilitating and enabling communication, cooperation, and collective action amongst its 65+ member groups and the community. They are connected to a national network of environmental hubs throughout Aotearoa[lxxxvii]. They have six pou for enhancing our regional food economy[lxxxviii], which are supported by key actions for enhancing regional food ecology[lxxxix]. The six ENM are:

1. Pou tikanga (mahinga kai, pātaka kai) / Traditional food cultures;
2. Pou taiao / Regional ecology;
3. Pou atua / Approaches to growing and harvesting food that honour soil, water, air, and biodiversity;
4. Pou mauri / Appropriate energy and resource use to respect the integrity of life;
5. Pou ohaoha / Economy;
6. Pou tangata tiaki (kaitiakitanga) / Education and culture change as care for the future.

5.2.2 Background to MFAN

Formed in 2016, MFAN is a collective of social services, food resilience groups in the environmental sector, Massey academics, health organisations (and other community stakeholders) [xc] working together to increase collaboration, education and service opportunities to benefit the local community around issues of food security, food resilience, food sovereignty and food localisation. They focus their main activities on food banks and sharing sites, food waste capture, harvest capture, food resiliency, localising food, community gardens, community food education, crop swaps, seed banks, composting and more.

MFAN seek to foster and assist food resilience projects which are successful in increasing the mana and sovereignty of food-insecure communities. They received funding from the Palmerston North City Council in 2020 to enable continuation of a part-time coordination role, which has resulted in

[lxxxvii] https://www.environmenthubs.nz/
[lxxxviii] https://www.environmentnetwork.org.nz/application/files/5214/9006/5425/ENM-Kai-Food-Vision-Statement-2017-alt.pdf
[lxxxix] https://www.environmentnetwork.org.nz/application/files/1414/9006/3646/Mahi-Actions-Food-Vision.pdf
[xc] https://enm.org.nz/directory

increased communications, networking, resource-brokering, cross-organisation collaborations and capacity-building of resilience groups.

Some of the larger active groups within the network include Just Zilch and Community fruit Harvest Manawatū, which were explored in Section, 5.1. Additional groups involved include EnviroSchools[xci], Plant to Plate[xcii], Whakapai Hauora, Te Waka Huia, Supergrans Manawatū, Social Services, and Massey University researchers in food security.

5.2.3 Projects

Their projects include mahinga kai activities that support local and community food initiatives, regrowing intergenerational food cultures, conserving heritage varieties and respecting indigenous biodiversity and pollinator habitat, in ways that care for the planet's soil, water, and climate. They partner with other individuals and groups who wish to make home-grown, community-grown, and locally-farmed food more accessible to local people across the region.

**Planter Boxes / Gardens* – various growing gardens, community garden installs, and home gardens have been installed. For example, there is a Kainga ora Planter Box programme, where planter boxes are made by rangatahi from the local kura who attend UCOL 2 days a week. Feedback shows that whānau love getting the planter boxes/gardens, has an immediate impact on hauora, leads to greater interest in gardening, and brings improved coordination between the groups participating in the schemes.

**4412 Kai Resilience Strategy* – A resilient food system has been defined as one that "is able to withstand and recover from disruptions in a way that ensures a sufficient supply of acceptable and accessible food for all" (John Hopkins Center for a Livable , n.d.).

Te Tihi o Ruahine, established in 2013, is an Alliance of nine Hapū, Iwi and Māori voluntary organisations and service providers who have come together to inspire a collective approach with a constant and unwavering commitment to whānau[xciii]. Kai security has been identified as being of fundamental importance to the Te Tihi Ora-Konnect collective impact initiative. Ora-Konnect brings together community organisations and resources to activate: 'A connected healthy community' within the 4412 (south-western suburbs) postcode in Palmerston North.[xciv] The Kai Security Squad are helping people journey from food insecurity to food resilience and to food sovereignty, through the 4412 Kai Resilience Strategy at MFAN.

Funding was received from the 2021 Lotteries Covid-19 Community Wellbeing fund to develop the 4412 Kai Resilience Strategy (KRS)[xcv]. It was informed by a Situation Analysis study (MFAN, 2021[331]) that defined the food challenges facing people in the 4412 postcode in Palmerston North, in order to then create a coherent, achievable strategy to support people to move from food insecurity to food resilience and food sovereignty. Readers are encouraged to read this report, which offers a thoughtful insight into the complexities that contribute to food insecurity for the 4412, which will also be instructive for understanding food poverty everywhere.

[xci] https://enm.org.nz/directory/palmerston-north-girls-high-school-enviro-group
[xcii] https://enm.org.nz/directory/plant-to-plate
[xciii] https://tetihi.org.nz/
[xciv] https://tetihi.org.nz/collective-impact/ora-konnect/
[xcv] https://www.enm.org.nz/manawatu-food-action/kai-resilience-strategy

Despite being surrounded by abundant food sources, approximately one third of the people of Palmerston North postcode 4412 experience food insecurity:

> *"The 4412 area of Palmerston North is home to over 25000 people, it's an area rich in diversity, hopes, skills and connections, but where many struggle to provide enough food for their whānau... In theory, there is currently sufficient available food for residents of 4412. Palmerston North is surrounded by an abundance of food from nga hau e wha. The rich vegetable growing soils of Horowhenua to the south, the Tasman Sea to the west serving up kai moana, the dairy producing paddocks of Taranaki to the north and the orchards and vineyards of Hawkes Bay and Waiarapa to the East. Besides these primary industries, Palmerston North is the Pataka Kai of the lower North Island with several large food distribution centers using the city as a hub to transport hundreds of truckloads of food across the motu daily. Much of the region's vegetable growing serves national markets, with pastoral farming primarily serving international export, nonetheless, these combine to surround Palmerston North— including 4412—with abundant food"* (ibid., p. 2, 11).

The contributors to food insecurity in 4412 are many and complex. In addition to income and financial contributors, the MFAN report that the:

> *"complex tangle of food insecurity also includes mental and physical health, housing insecurity, gang culture, drug and alcohol addiction, education and skill levels, information and communication networks, the policy environment, broken families, land alienation, intergenerational impacts of all these challenges, and other intractable challenges. The current and rapidly escalating housing crisis, the COVID-19 pandemic, and economic recession are additional stressors on the current food system."*

The report also explores current food availability and access challenges; barriers to using food; risks to food availability and access (section 3.3), and intergenerational dimensions of the food system (ibid.). Of note for the purposes of this research is their note that:

> *"reliance on charitable organisations for free food underscores risks associated with potential organisational instability: funding decreases, scarcity of volunteers or qualified workers, or other organisational changes that have flow-on impacts for food security outcomes. There are risks to informal community networks, also, especially if they rely too strongly on a single kuia, or one or a few community leaders: these social risks underscore the essential importance of education and skills transfer, including informal forms of social mentoring and the importance of fostering a co-leadership culture. These risks also sit within the larger social context of growing inequity,*
> *which puts increasing pressure on social networks and local service providers…*
> *In local food systems without sufficient long-term storage, the period around spring equinox is often considered the 'starving season' because autumn crops such as pumpkins or kumara are more likely to be exhausted while early summer crops are yet to emerge. One local example of this is the relative abundance of summer fruit available through Community Fruit Harvesting and the current coordinator's desire to locate more 'off-season' harvestable free produce. Even when global systems do not fail, local, fresh produce is disproportionately important to nutrition. There's a need to be more strategic about planting for year-round neighbourhood-based produce harvesting"* (ibid., p. 16).

Of particular pertinence to this research are the following conclusions from the MFAN (ibid. p.20-21) report, which highlight the many considerations that must be taken account of when implementing "healthy eating" or food delivery programmes, and the unintended consequences that can be created by well-meaning but uninformed activities:

- A median income in 4412 is insufficient in some neighbourhoods to pay for median rental costs.

- Money is only one of many factors impacting food access. Others include time, energy, physical and mental health, and other factors that affect personal and whānau resilience.
- Transportation to budget food outlets requires time, planning, information, and additional resources, such as physical capacity and bus fares or the complex resources necessary to drive to a shop.
- Budget shopping erodes choice and food sovereignty.
- Nine free food providers serving 4412 residents collectively distribute food up to 3,600 times weekly, however, there is evidence they do not meet full demand.
- Fresh produce, and healthy food more generally, is especially costly and challenging to access and use.
- Not all food assistance is equally respectful of the mana of those seeking help, and shyness and cultural differences can be a barrier to seeking support.
- When families have insufficient food to contribute in ways that meet cultural norms and social expectations, they are more likely to experience food insecurity and/or to stop participating in social activities.
- Food cultures have been disrupted, including intergenerational skills transfer and practices of growing, preserving, cooking, and eating food.
- By some estimates, close to half of 4412 residents live in rentals. Tenancy agreements and housing instability are barriers to home food growing.
- Food grown in community spaces is vulnerable to a myriad of factors, including vandalism, land use and policy changes, insufficient community participants to tend the food, and pollution of traditional foraging locations.
- Not all available foods are equally suitable to all diets. Dietary choices are influenced by childhood and other life experiences, relationships within households, a wide range of personal motivations including desires including desires to raise healthy children and to avoid food waste, cultural requirements, and taste preferences. These factors are indicative of why self-determination with respect to diet is a challenge that cannot be described through calorie counting alone.
- 4412 sits within a larger food system that faces its own risks, for example risks arising from environmental problems, social inequity, and supply chain failures.
- Particular risks associated with potential supply chain disruptions include insufficient nationally-grown grain, insufficient regional preserving facilities, and insufficient early spring produce.
- Childhood experiences have myriad long-term impacts, with child poverty and food insecurity contributing to reduced outcomes for generations.
- 4412 is full of resources that can be leaned on to establish solutions.

Building on the last conclusion, that 4412 has many resources that contribute to food security solutions, the 4412 KRD project implementation phase was about initiating and facilitating the many projects identified by the community as urgent to bring greater kai resilience to our rohe. Thus, MFAN has continued, initiated or supported a multitude of food-related projects and activities. These include gardening and cooking programmes in schools, adult community education in horticulture, beekeeping, permaculture, cooking, preserving; in-home, one-on-one mentoring in gardening, cooking, and preserving; partnerships with groups and organisations serving children; edible plantings in community reserves, schools, and other shared spaces; produce sharing tables and support to get these going; volunteer fruit and produce harvest and distribution; farmer's markets, community markets, and support for growers' co-operatives; local distribution for a

community-supported farm; land care advice for farmers; funding for eco-oriented community food initiatives; and tie-ins with groups and organisations addressing hunger. They have also produced a Food Rescue Guide[xcvi] in an effort to reduce the estimated 30% of food that goes to waste in New Zealand when many of the whānau in our community are suffering from food insecurity.

In the six months since the KRS release, MFAN:

- Delivered 53 planter boxes to Kainga Ora residents.
- Presented one workshop of funding opportunities for food support organisations.
- Built three community gardens.
- Built 30 māra kai in whānau homes
- Planted 24 fruit trees on PNCC land and 40 in whānau homes.
- Brought a trailer for community activities.
- Hosted two Manawatū Food Action Network huis.
- Created Let's Grow 4412, an annual fun food event.
- Helped facilitate 12 Let's Grow Highbury sharing sessions
- Supported Palmy Crop Swap.
- Rescued hundreds of seedlings from nurseries and distributed them to the community.
- Started a research project on rescuing more food in our region.
- Created a kai support poster which we delivered to community organisations.
- Presented a kai resilience submission to PNCC.
- Employed a part time māra kai builder.
- Held weekly māra kai sessions.

5.2.4 Insights from MFAN Coordinator

An interview was conducted with the MFAN Coordinator, Daniel Morrimire to learn more about his vision for food security and sovereignty the Manawatū and wider Aotearoa.

**Pathway to Working for MFAN* – Morri grew up in a rural environment, on a kiwifruit and poultry far, surrounded by fruit tree all around him. A childhood recollection was that:

> *"if I was hungry I'd go out and get mandarins and I knew which time of year it was and we'd have plums and we'd have guavas and… we had vegie gardens growing things".*

He then spent seven years in the airforce where he experienced a:

> *"complete change living in the barracks in a city and kind of completely detached from that [nature-based] world".*

He then met his now wife and moved to Palmerston North where he completed a Science degree at Massey in zoology and ecology, where he once again "connected back nature", followed by a graduate diploma of primary teaching. He then taught at a Montessori early childhood centre for four and a half years before taking on his current position at MFAN.

His prior life experiences all contribute to his MFAN mahi:

> *"part of my job is to being able to build a connection within the community".*

He currently resides in the foothills behind Massey with his wife and children, where they try to:

> *"live a sustainable lifestyle in connection with the land. We've got a couple of electric vehicles, we've got solar panels on our roof, we have our own water supply, we have our own gardens, we are growing an orchard. We try and use permaculture type systems and have just been moving into what*

[xcvi] https://www.enm.org.nz/manawatu-food-action/manawatu-food-rescue-guide

I'd call a food forest system, and there's a particular term, syntropic agriculture, which refers to the practice of restoring land to a forest ecosystem, but in a way that also produces food for humans and how they're to be really closely aligned, with the aim of creating a fungal soil culture rather than a bacterial soil culture."

Morri's passion for sustainable living is a theme of both his work and private life. He shared his hope to introduce regenerative systems such as what he has at home more as a kaupapa with some of the organisations in town that he works through MFAN.

** ENM Staff and Funding –* Environment Network Manawatū (ENM), of which MFAN is a part, is an entity that was started up by its predominantly voluntary-based member groups, as an umbrella coordinating organisation. It has grown to have an equivalent of about eight or nine part-time staff (at the time of the interview), including: Morri who works 24 hours a week; another colleague who leads the 4412 strategy (see previous section); one of Palmerston North's previous mayors who works part-time progressing the Manawatū Food Rescue Declaration project, which focuses on diverting surplus food to places like Just Zilch who redistribute it to people in need; and a paid part-time local gardening champion who assists the Growing Gardens and Communities organisation to install gardens at people's homes free of charge, as well as helping implement a community education program funded by Kāinga Ora. Thus, their staff work across:

"the whole spectrum… from food rescue to what I call food sovereignty. There's a lot of food insecurity in particularly the 4412, which is where it started out. Like, the food poverty is a real, very real thing… in parts of Palmerston North and particularly in this area and so there's a lot more organisations doing a lot of good work helping them… some are the ambulance at the bottom of the cliff in terms of food parcels and food support. And others are at the top (of the cliff) and I suppose if you think of the phrase "give a man a fish vs teach a man how to fish"… There'll be some organisations for and against…and if you're interested in politics. And sometimes we have some conflicts. Some people don't think we should give someone a fish. You should be teaching them how to fish. But the reality is you can't teach someone how to fish if they're hungry … you need to be doing both. There's people who need the immediate help. But at the same time, you don't want to put all your focus there. You want to be able to have a plan to make things better especially possibly being able to teach people how to fish. So, yeah, so that's what I'm doing. And as I say, we've got a lot of organisations who we help support. Something I'm learning is not trying to do everything myself, but try and organise to help other people do things."

MFAN also supports Community fruit Harvest Manawatū, the initiative 'Growing Gardens and Communities', and other related groups (many of which are described in the previous section).

A local woman involved in various MFAN initiatives is passionate about foraging and making her own food. She is also a social media influencer, who:

"does lovely posts on Facebook, she's really proficient at social media… she's got a really nice presence and works for all whānau and gets them involved. She's not afraid to kind of, if they're a bit shy, can I come and get you, and kind of get involved. So, yeah, so she's really a fantastic, she also volunteers with the community fruit harvest team, so that's also another meaningful part of the whole thing is I suppose is the preventing the food waste by going round to people's, who have got fruit trees and, and, yeah, harvesting them and giving to places in need."

MFAN had funding from both Te Awa Foundation and Horizons Regional Council. The Horizons funding is specifically about supporting the planting of fruit trees in people's homes "which Morri said was "really exciting", noting that some recipients "give a bit of a koha back if they can afford it".

They received ~$15,000 from the Horizons climate change fund for their work on local food resilience such as planting fruit trees in small areas which has multiple benefits including producing food and shade. Morri explained:

> *"in places where you've got low socioeconomic or state housing, there tends to be hardly any trees. And so the effects of climate change is going to be disproportionately worse in those places. So anything we can do to get more trees, if they grow fruit at the same time, …[is] a win."*

As well as planting free garden beds for the last several years, they are also now planting fruit trees.

**Learnings Post Covid and Cyclone Gabrielle* – Morri noted that he knew of nurseries now scrambling to save as many seeds as possible, post Gabrielle. MFANs supply of fruit trees for their community projects was also disrupted due to devastation experienced during the cyclone by their Napier and Hastings-based fruit tree suppliers. This highlighted the:

> *"real need of our community to have people who can propagate fruit trees. Because the whole food resilience thing is not just, it kind of goes deeper than just being able to grow your fruit and vegetables. It's more, where do you get the fruit and vegetable seedlings from? Do you have your own seeds? And so, again I kind of, I tend to advocate for heritage variety seeds where you can grow true to type, rather than relying on companies that sell hybrid crosses that you can't save seeds from. So, and I suppose again with fruit trees, I'd really like to see the ability in the community to propagate food producing plants, I know we've got some lovely people like Sarah from Edible Gardens who are local and do their own propagating."*

This had fuelled Morri's interest in education around practical ways to increase food resilience, and he noted there some interesting online courses in:

> *"preserving and storing food in those really traditional ways of preserving excess foods. I really want to do that course to upskill myself because I think there's a lot of knowledge around food that has been lost over the last kind of many decades through the western industrialised food processes… events like COVID… have given society a big of kick into considering new perspectives."*

Furthermore, given that Manawatū is also prone to flooding, it was evident that communities must give space to water, instead of insisting in flood prone areas or tree-felled areas.

**Land Use and Food Sovereignty* – Morri noted that wise planning for water and land use is imperative, noting that this is a:

> ***"****really wide issue that inherently probably comes down to land use… But if you've got a large area where the catchment is all plains and farmland, and there's no trees to slow down the water when it comes down, I think you're going to get problems. And it's a system-wide thing. You can't just build stop banks in one part of the river because then that pushes the problem down[stream]. And then you need to put stop banks there and do it there…*
>
> *let's return it to the forest which would be ideal…*

**Dietary Preferences and Land Use* – Morri noted that the environmental impacts of food production cannot be ignored:

> *"As a society, that's a really big problem that we're going to come up against quite soon I think is looking at land use and meat production and actually, do we need to shift from having a meat-based diet, which requires all this land to be open paddocks, and actually maybe moving towards a plant-based diet, which then allows more forest to be used… I think it's a really big problem and there's a lot of moving components… land use is a very big part of it."*

**Urban Farms* – people growing food in urban environments at their own homes is something that Morri suggested was a potential solution, which is why it is a focus of MFAN:

> *"Growing their own food is actually part of the solution to that is getting, looking at more urban farms, people using their back gardens to grow food. And though you might think it's small, it's one of those things that have effects that multiply if every single person does it, then all of a sudden, maybe you only need a quarter of the land area outside the city."*

**Partnerships between Local/District/Regional Government and Community Groups* – A strategically important relationship between ENM and policy makers is their 'partnership status' with Palmerston

North City Council (PNCC). Multiple PNCC staff and Councillors are actively engaging with and support ENM/MFAN activities including getting fruit trees planted in outer city areas and community gardens established. Recognising the importance of engaging with people who have decision-making power to raise awareness about important changes that need to happen, Morri commented that he had:

> *"put in a submission for [PNCC's] draft budget to… include a budget line for creating a food resilience policy for the city…. the little pebble in the stream that is hopefully going to make a big impact further down the track… also advocating within the community, getting things going from that end, it's also trying to advocate from the top down trying to get policies and advocate for, yeah, as I say, policies within local council that support initiatives".*

He also noted that MFAN is forging some good relationships with Horizons Regional Council that can be built upon, and that efforts were ongoing with Manawatū District Council. They are also working to foster more community-minded rather than NIMBY (not in my back yard) thinking in submissions processes, for example, where there is sometimes a tendency by some people not to want community gardens next door.

**Diverse Crops and Community Gardens* – This is a focus on MFANs work, with Morri noting that the increasingly diverse cultural communities within the Manawatū region grow many crops that are not typical in New Zealand and that there is huge satisfaction in getting things such as rice to grow here. He observed that:

> *"we're really scratching the surface in terms of what some whānau are capable of growing for themselves… I've just noticed that I suppose with climate change and things, the climate's getting warmer, I think there are more opportunities to think outside the square about what things we are growing."*

Morri spoke about his ideas to collaborate with farmers in their network who have unused greenhouses and using them for food production, as well as trialling growth of "new" foods currently are sourced outside the region or imported from overseas. Furthermore, MFAN are exploring Kainga Ora building plans to incorporate gardens, and under-utilised commercial resources:

> *"They've got a house where there's nothing there at the moment* [so that empty space could be used] *as a mini garden. People do that and that's part of the [4412] project…* [and submission groups looking into related social enterprises]*… so we are going to try and get Kainga Ora blocks that they know aren't going to be used… and do something so that groups can then grow crops on and them, perhaps on-sell to the community…*
>
> *see what commercial growers there are, what resources there are around if we need them, are they being under-utilised or maybe there's room for collaboration…*
>
> *moving on from supporting large monoculture, agriculture type places* [to those*] that are being a bit more community-minded… maybe rather than growing fields and fields of potatoes… looking at types of crops, growing different types of things.*
>
> *And I suppose part of that is around knowledge, I mean, I mean, you can think of the traditional kind of western crops like potatoes and beans and carrots. But you'd kind of assume most people know how to grow a bean because I've grown up with that. But actually, no, there's a lot of people don't have a clue. And when you think outside that, well, what other kind of cultural crops …* [such as a Bhutanese group that MFAN are working with]*… they're not two generations removed from growing food. They are living it and so they have got the knowledge there and that's a really valuable asset."*

**Mara Kai –* Various Manawatū schools are involved in the EnviroSchools programme. Some local early childhood centres and kura also have their own gardens and support the local community gardens.

Morri noted a change in the ECE sector from "smaller more natural centres, to kind of urbanised heavily built", resulting in a loss of "connection with that soil"; whereas primary schools often have community, have gardens in the schools, and:

> *"it's just a matter of resourcing and having people know what to do with them, it's a real problem. We get some passionate parents or teachers kind of run things by themselves and then get to the end of their time there, and they go away and no-one knows what's happening".*

To help school-based gardens work more effectively, MFAN are looking at setting up systems to keep community gardens going by employing funding from Sports Manawatū, which has a focus on keeping kids active, to employ a teacher aide a few hours a week to run lunchtime gardening sessions or take some classes out to do things:

> *"So, we're trying to look at other ways of supporting schools. I've just made initial enquiries with someone from the Ministry of Education office … I see that as a key missing link… collaborating with schools."*

Morri mentioned a new teacher at a local high school who is proactively looking into utilising space to put in fences (for windbreaks) to allow garden beds, and teaching Year 9 and 10 students how to grow things:

> *"it's trying to encourage the whole holistic thinking about everything is a tricky thing, and again training opportunities. It made me think, 'actually, maybe there's a need for* [syllabus support around] *school garden management'".*

Possibilities include Council-supported programmes that support schools and gardens, such as what EnviroSchools do, but including over holidays periods where currently the school gardens are often abandoned during such times and go to weed:

> *"So, this is where networking* [is important], *so there's the silos within curriculums in school, but also getting the school to partner with* [others, e.g., people] *who may have unused land – a short-term kaitiaki".*

**Connecting KOKA to Wider Food Sovereignty* – Morri has considered the potential for large-scale food provision programmes such as KOKA to facilitate the transformative changes that are required to build food security for local communities. He suggested that, despite some creating a lot of food waste, KOKA school lunches has huge potential, in part due to the large amount of food being channelled through this programmes. Schools are:

> *"perfectly placed* to [link school food delivery to wider aspects of food provision systems] *but often they don't have the resources of the support to really progress it themselves. So, kind of they've got full workloads.*
>
> [However, schools could facilitate*] that entire arc of growing and harvesting food [as a] pipeline into the school lunch within the schools… and the wider community, and then it's part of the curriculum, rather than teaching subjects in silos, you're doing projects practical activities and then kind of incorporating different subjects into it."*

His knowledge of KOKA delivery was that:

> *"it started off really nice and then got progressively worse and worse and worse… so the company are making it and bringing it here… It might look nice to begin with, but then wait two hours until the kids get it, and it's an unappetising mess of congealed stuff… So, although I think that the idea is really good in terms of equity, of giving everyone the ability of eating healthy, nutritious food… reality is actually a lot of kids didn't eat the food. …*
>
> *[A local school has now] got kitchens at the school… making lunches on-site and I gather it's a lot better because teachers are talking to them about growing things … and how they can maybe grow some of the things they're using…*
>
> *There's an opportunity if it gets done well, you can incorporate the whole cycle of growing your own food and the kids eating it and then them learning about how actually you need to compost things and*

that turns back into soil which then feeds the seeds you put in, which grows a plant. So, there is a real opportunity to use the food in schools as a part of that cycle… It's a real teaching opportunity to have the kids involved in every stage of it.

It's always good to have the schools that are doing it well and have got passionate people to see what's happening and then gather that knowledge and share it with other schools.

It's a nice initiative [with] *a good purpose, but it's the way it isn't linked to the whole food production system, and lost opportunity for the students to be involved in it.*

When asked what he would do if he was in charge of the KOKA budget for food in schools, Morri suggested that the bulk purchasing power of government could be put to good use, for example, in bulk purchase of composting systems and long-lasting garden beds:

"As a government, you could buy kind of 10,000 of them much cheaper than if every school had to go buy their own… ideally you'd have the ability to buy by scale and provide the schools with the resources, the compost systems, the garden beds, a few tools and things to get them started."

Training:

Alongside the investment in infrastructure for gardens and composting, Morri recognised the need for investment in teacher training, or training for:

"outside members of the community who come along and work beside you… The ideal thing I see is the teachers passionate about having that as part of the learning in their classrooms…. project-based learning, the experience-based learning rather than subject silos… You need all of those things lined up… Have all the processes and systems, you can go from there."

Motivated Teachers:

However, without the right teachers on board who are willing, motivated and supported to utilise gardens, Morri recognised that this could be wasteful use of resources:

"I suppose again if you've got someone who's really passionate about it and wants to do that, but because of the school or because of lack of resources, they can't, it's hard."

Need for Coordination of Systems and Resources:

Having someone to coordinate things so that the system is in place for individual teachers in schools to pick up and run with, is an important way to facilitate a more integrated garden to plate type of programme be implemented, that incorporates KOKA:

"You kind of need all the buckets lined up to get it going and I suppose the best way I can do it is help the buckets, I can help so they've got the systems in place or they've got the resourcing if they want it…

I've thought about doing a little instruction video and posting online about how you take apart a pallet and kind of make a little compost thing."

**Vision for an EnviroCentre in the City* – MFAN had a plan for an EnviroCentre to be set up by the Resource Recovery Centre in Palmerston North, but funding has thus far not been secured for it. The vision for the ideal centre would be for it to have solar panels, back up energy, a star link, a community kitchen, and resourcing that the Cycle Gabrielle experience has shown that communities need in the immediate aftermath of a disaster. Such venues should be designed to withstand the worst-case scenario, so should be built up high to reduce flood risk. He stated that it is important to build in resilience, and to learn from the lessons of what has just happened with storm events in NZ.

He also noted the importance of community input, and would thus bring people together to brainstorm solutions, with the aim to develop a consensus vision for the future, supporting communities. Currently, he considers that MFAN do have a pathway to voice their views, idea and concerns to policy/decision makers, and to advocate for the community, but is uncertain how effective they would be to try and access the MP, PM and people at that level of government.

**Future Research Opportunities* – a number of future research opportunities were identified that could be of benefit to MFAN, helping them facilitate their goals.

-Pilot studies of initiatives MFAN is interested in to ascertain their effectiveness, in order to then apply for larger grants to fund more substantive ongoing studies.

-Evaluative research to measure and better understand the impacts of what MFAN is doing; for example, impact stories related to how many gardens have been established as part of the MFAN growing garden and community projects and the ways in which people benefited from having them, including money saved on groceries; quantity of fruit harvested and better understanding of where this fruit was distributed and the impact on people who received it;

-Review the literature to identify other groups undertaking work similar to MFAN to better understand what works elsewhere that could be useful in the Manawatū.

-Changing from industrial monoculture horticulture to mixed crops, regenerative/permaculture crops, organic gardening, including in urban environments.

-Analysis of national-regional-local chains in the food network, and the links to food health, safety regulations, what fosters and prohibits local initiatives.

5.2.5 Insights from MFAN initiatives

The MFAN are an exemplar on how diverse groups within a community can collaborate and form a critical network to build food security, resilience and sovereignty in a region, in ways that are good for the people, the environment and the local economy. The shared vision held by member entities and people who participate in their events, enable synergic outcomes whereby efficiencies across the food production and distribution chains are created. MFAN provide the umbrella leadership and organisation of activities whereby people who wouldn't otherwise know each other can work together, contributing resources of time, seeds, plants, planter boxes, knowledge of gardening/composting/cooking/preserving etc, to greatly increase the food security in the region.

The various MFAN-led and supported initiatives increase the "accessibility", "availability" and "affordability" of "good food" in the community, including those ingredients that meet the cultural and dietary preferences of the diverse demographic groups within the community. They also reduce food waste, facilitate/promote food-related educational opportunities and liaise with local and regional government to promote food resilience and sovereignty at that political level, with Council representatives involved in their activities.

There is potential for even more collaboration and networking between groups that would further the reach and impact of MFAN, for example through intentional engagement with school food providers such as KOKA schools, and liaison with other national networks operating in the food provision space, for example with entities such as the Māori Wardens and Kura Kai. There is much to be gained by interested groups in other regions from the knowledge and experience of those involved in MFAN, and it is hoped that the findings presented in this report will thus be beneficial to such groups.

The findings of the KOKA research are explored further in Section 6.1 and 6.3.

5.3 live2give Organics

5.3.1 Background

A Manawatū-based social enterprise Organic Farm focussed on regenerative principles, live2give[xcvii] operates according to the ethos that recognises that:

[xcvii] https://live2giveorganics.nz/pages/about-us

> "*everything in nature is useful for something else! Every plant, every living thing, every element exists and functions in a perfect symbiosis with each other"* and that *"respect, appreciation and understanding of natural cycles"* is required." *Regenerative thinking and acting means making a conscious decision in favour of a permanently functioning partnership with nature. Receive and give back or pass on, no more and no less than is needed! This lays the foundation for healthy growth… The farmer takes care of the health of the soil without overexploitation or underexploitation…."*

For them, operating a farming for food system in this way is fulfilling:

> *"Just the fact that one thinks and acts in harmony with the laws of nature is reward enough in itself."*

An earlier related initiative which they were affiliated to, Wholegrain Organics, operated out of café premises in "the Square" centre of Palmerston North, where they sold organic produce, breads, products and ready-to-eat meals that could be consumed at café tables on the premises. They also operated an educational programme where high school students from local high schools came into their premises to learn how to cook organic plant-based food. Much of the plant-based ingredients were sourced from their own gardens located just outside the city. The café and commercial kitchen part of the venture closed during the Covid period. They state that:

> *"Over the last 5-6 years the business was especially run to provide youth with a place to learn, grow and contribute to their local community. While the business has had to make dramatic changes the spirit of giving is still very much alive* [in live2give]."[xcviii]

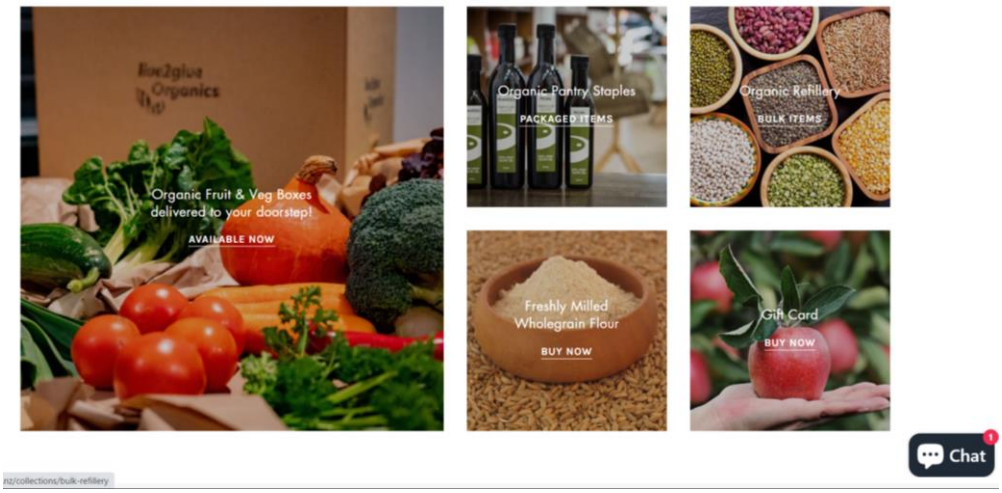


Figure 5.4 live2give Website
Source of photos: live2give website

Subsequently, 'live2give' arose, which continues their organic farming project. They now operate via an online shop[xcix] through which they sell a variety of organic fruit, vegetables, tofu, bread, dry goods, and produce boxes (see Figure 5.4). They despatch orders via twice-weekly runs in their own chilled truck throughout some lower North Island cities, or nationally via NZ Post (see Figure 5.5).

[xcviii] https://live2giveorganics.nz/blogs/news/table-cellspacing-0-cellpadding-0-border-0-align-center-width-600-class-email-container-tbody-tr-td-align-left-class-column-container-p-strong-wholegrain-organics-update-strong-p-td-tr-tbody-table
[xcix] https://live2giveorganics.nz/collections/test

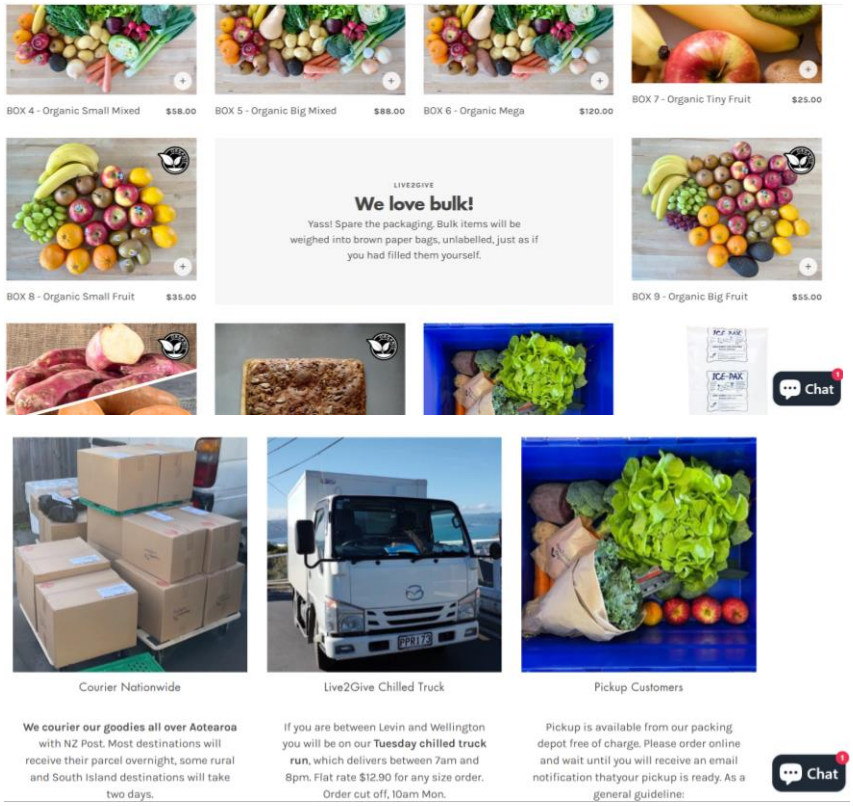


Figure 5.5 Delivery Options at live2give

They "believe in selling food, not plastic" and so make a point of sourcing sustainable packaging in bulk, such as card, glass or tin.

5.3.2 Trialling Sustainable Food Production Methods

Owner, Robert Hall, prioritises farm management practices that benefit soil health, and they have therefore implemented regenerate practices in the land blocks used for their gardens.

They are supported by the Ministry for Primary Industries[c] for trials into regenerative farming methods with the use of cover crops and mulch. Mulch prevents capping and erosion in the soils, reduces various crop diseases and improves water efficiency.

These innovative farming trials are attempting to find effective ways of growing vegetables that will be resilient in future changed climatic conditions such as increased temperatures with potential periods for drought. It is that hoped that these systems can be used in the future by small and large-scale growers.

A video on their website[ci] shows how their regenerative organic farming system operates (see Figure 5.6).

[c] MPI Sustainable Food and Fibre Futures (SFFF) project, 2021-2025; Case study, p.21. https://www.mpi.govt.nz/dmsdocument/52975-Regenerating-Aotearoa-Investigating-the-impacts-of-regenerative-farming-practices

[ci] https://live2giveorganics.nz/

Figure 5.6 live2give Regenerative Organic Farming System

According to MPI,[cii] organic[ciii] exports have grown exponentially in recent years and mainly comprise fresh fruit and vegetables, dairy, and beverages; thus, their investment into technologies that can support this type of farming into the future.

As stated by Curran-Cournane and Rush (2021[332]) intensive conventional outdoor vegetable production practices have been associated with high environmental nutrient footprints. For example, continuously working up the soil via rotary hoeing, harvesting, and deep ripping can negatively impact soil carbon levels and biodiversity, and coupled with excessively high fertiliser application rates, can render the soil more vulnerable to contaminant losses, such nitrogen leaching.

(Basher et al., 1997[333]; Basher et al., 2004[334]; Curran-Cournane, 2020[335]; Francis et al., 2003[336]; Haynes and Tregurtha, 1999[337]). The aim at live2give is to minimise the need to till the soils, so after perennial weed removal, a mulch cover is laid over the land/soil (see Figure 5.7), and crops planted directly into them utilising a specially designed tractor system developed by the farm managers.

A handout distributed during their farm tours summarises the steps taken to establish and plant diverse crops in such healthy soils. Their vision is fertile soils permanently covered and permeated by living roots at all times. It begins with soil loosening and bed preparation in autumn to get rid of compactions and thoroughly removing perennial weeds as they can become a serious issue in mulch systems. They utilise frost-resistant annual cover crops for permanent root penetration. Harvest mulch with coarse and fine parts is used to cover the soil prior to planting, which completely shades the ground – this is sourced from various summer crop mixes being tested by the team. Mulch layers are topped up to achieve sufficient weed suppression, the depth of which is part of their research trials.

Crop seedlings are then planted directly into the mulch later without further tillage, using their specially designed MulchTec planter, which has the capacity to plant up to 4000 plants per row. They are continuing to research how to maintain a permanent cover crop without destroying what has been built up in the soil, and ensuring sufficient food in the soils for earthworms over winter, i.e., investigating a “wholefood diet” for plants.

They say:

[cii] https://www.mpi.govt.nz/export/food/organics/
[ciii] https://www.mpi.govt.nz/agriculture/organic-product-requirements-in-nz/

"Did you know that soil always wants to be covered and have living roots all through it? If that is done, not only our veg, but also the soil life will thrive. These regeneratively grown organic leeks grew under a nice protective mulch layer – the earthworms as well as our leeks are loving it!"

Figure 5.7 live2give Farming System

Live2give was recently showcased in the regional magazine, Palmy Proud (Papaioea Palmerston North City Council, 2023[338]) where owner, Robert Hall, spoke about their initiative, founded on the principles of community:

"We asked ourselves, what gives the best service to our local community? Locally, people need good-quality vegetables and so that's where we can help".

Robert Hall recognises the big challenges facing every farmer due to climate change:

"We wanted to share what we do here with our family community so those who would like to progress into a regenerative system have access to research and knowledge to technically implement that with as low a risk as possible."

They are building on the knowledge of a team member who worked on a farm in Germany where such farming practices have been operating for decades, which has resulted in the specially made machinery that plants, fertilises and waters seedlings directly into mulch. An adapted version of that system is being trialled by live2give to suit Aotearoa's climate. This includes efforts to tackle dock and buttercup by methods such as sewing initial deep-rooting cover plants that will break up the soil and make it more fertile, and encouraging an abundance of worms (see above photo), which then reinforces soil health as the worms effectively "do all the cultivation for us creating beautiful soils" (ibid.).

Understanding and working with nature underpins their farming practices. Limiting direct interference with the soil, a mulch layer covers the soil, eliminating the need for mechanised weed management systems. The soil becomes "alive and it becomes a diverse ecosystem".

Such systems bring more stability to farmer's growing season, as the soils become more resilient to more intense weather patterns including both high temperatures and increased rainfall events. This is of interest to other farmers with the live2give team contracting out to other farms and trialling the system at lower risk in situ, elsewhere.

Customer purchases also provide income that enables them to continue their trials.

**Collaboration* – good working relationships with other local food producers who share their organic regenerative philosophies is critical to their business model. They sell regeneratively grown produce from their own organic farm, as well produce, kai and related products from other organic growers,

thereby supporting other local regenerative organic growers and creating a market that has greater reach that what any one grower could do alone:

> *"The bread they sell is made from spelt grain grown in Bulls, milled in Palmerston North and baked in Kapiti. They support other organic growers to complement what* [they can offer] *to their customers"* (ibid.).

They are interested in growing such cooperative relationships with others in the supply chain.

Robert notes that customers increasingly like to know how and where their food is grown. The live2give food system is helping to build resilience into local food supply, which is particularly important given increasing concerns about food security as a result of extreme flooding, drought, transportation disruptions and rising prices: "*We are a business… but it is more than that for us. It's about the community, good healthy food and working with nature*" (ibid., p.27).

5.3.3 Insights from live2give

live2give are an exemplar of how a grassroots small-scale farmer/grower can contribute to food security in the local community and the wider region through the sustainable production of "good quality" highly nutritious produce. Furthermore, they also show how innovative technologies can be utilised to foster resilience within farming systems to make them more suited to the changed climatic conditions, thereby improving the "availability" and "accessibility" of fresh produce even in times of drought or greater rainfall. Such innovations are going to become increasingly important and local food producers adapt to meet climate change.

live2give are also an example of how small scale good producers can contribute to each other's economic viability, through shared learnings and collaborations – for example, organic produce from farms within the region being included in "food boxes" for sale and distribution throughout the lower north island, thereby enabling each farmer to access customers that they would not necessarily be able to reach if they operated independently of each other. Such collaborations enabled sharing of distribution networks, which decrease transportation costs, and keep costs lower for customers. The findings of this research are explored further in Section 6.

6. Key Findings and Recommendations for Future Research

This chapter summaries the key findings from the research and makes recommendations for future research.

6.1 Availability, Affordability and Accessibility of Good Food

Henry and Morris's (2023, 2024) synthesis framework conceptualised the categories and relationships for food, eating and health. It found that capitalism, culture and colonisation influence food and nutrition policies, dietary choices and holistic wellbeing, and that food accessibility, affordability and availability impact on how "good" – a person's diet is.

Official dietary advice in Aotearoa New Zealand is laid out in section 2.5. Although there is increasing intent in government policy to recognise the variance in peoples' and communities' lived experience of food consumption and dietary preferences, the biophysical "nutricentric" assessment of "healthy diets of individuals" still dominates.

Building on Henry and Morris' synthesis framework, the second phase of the research explored school and community-based food provision and "healthy eating" initiatives, with a focus on improving food accessibility for groups at greater risk of experiencing food insecurity.

Despite the abundance of food grown and produced in New Zealand (see sections 2.2 and 2.3), and the promulgation of healthy eating initiatives that have attempted to improve the diets of New Zealanders (see section 2.5 and 2.7), food insecurity and poor overall vegetable and fruit consumption continues to be problematic for some key groups (see sections 2.3 and 2.5).

Food insecurity, food poverty and inadequate diets are complex problems influenced by interrelated issues that require comprehensive yet nuanced responses by public policy makers as well as through community-based initiatives. From a biological perspective, there are people who regularly experience hunger as they simply do not have enough food, largely due to financial hardship. This links into the biochemical aspect of food poverty, whereby some people's diets contain inadequate amounts of critical nutrients for optimal health because they cannot afford or access the diversity of ingredients required for optimal health (for example, see section 2.3.2 to 2.3.4). Furthermore, cultural factors impact on whether affordable food, or even free food, is actually consumed if it is unappealing and does not meet peoples' cultural preferences (see section 2.3.5).

There is a substantial literature about the human health and wellbeing benefits from consuming a nutrient-rich diverse diet, comprising a balance from the different food groups (e.g., see sections 2.5 and 2.6). Although there is an awareness for the need to incorporate people's diverse food cultures into dietary recommendations, public healthy eating programmes and official dietary advice such as those outlined in sections 2.4-2.7 often target the biochemical aspects of food poverty by promoting consumption of optimal quantities of foods from specific food groups – for example, the 5+ day campaign encouraging people to eat at least five servings of vegetables, and campaigns by others including the Heart Foundation and the Ministry of Health to eat more "good foods" and reduce intake of "not good" foods. The admirable intent of such initiatives is to encourage people to act upon the latest 'science' about "diets that help us achieve optimal health", but the onus is typically put on the individual or their whānau to "make better food choices".

However, the pragmatic realities of people's lived experiences within households, whānau, community groupings and regions mean that people's diets do not always meet optimal healthy eating guidelines. The reasons for this gap between optimal and actual diets, "healthy" or not, are

complex and varied. However, common factors relate to issues of practical inaccessibility and limited range of "culturally preferred healthy options" being readily available, budgetary limitations exacerbated in times of cost-of-living crises that increase unaffordability of food, and capacity or capability limitations relating to people's skills and knowledge of growing, cooking, and preserving diverse foods, as explored in Section 2.3.

To be effective, “healthy eating” programmes must incorporate mechanisms to improve people’s access to affordable food of sufficient nutritional content, that meets their cultural dietary needs. Food delivery programmes that intentionally plan and then deliver “good food that people want to eat” consider far more than just the nutritional content of the food or meals provided, but also its appropriateness for the people the food is being provided to (see sections 2.3.5, 2.6, and 2.8.3 2.7.4 to 2.7.6). As identified in our exemplar case studies (see Chapters 3-5), this necessitates an awareness of the food norms and preferences of whānau and communities and the attractiveness of the meals at the time of consumption. To some extent, school- and community-based programmes are attempting to address all facets of food poverty (see the next section). For food distribution programmes that are designed for people to take food home to eat, this also requires consideration about the “shelf” life of the food, and whether people have the equipment at home to store or reheat it.

As outlined by Henry and Morris (2003, 2004), and evidenced in our case studies, a plethora of factors influence people’s ability to access affordable foods that meet such “nutritionally optimal diets”. Furthermore, ingredients that meet the cultural preferences of our increasingly multicultural population may not be readily available. Our case studies evidenced that accessing a range of affordable nutritionally-optimal food is particularly problematic for people experiencing financial hardship, for whom transportation to supermarkets and other food distributors can be challenging, and for whom they may face practical limitations in capacity to store, cook or preserve foods.

Section 5.5.2 details MFAN’s Kai Resilience Strategy, and the need for food delivery policy and programmes to take into consideration the lived experiences of people and communities who are experiencing food poverty. Consideration must also be given to the unintended consequences that ill-informed programmes can create, which can exacerbate problems of resource scarcity, food waste and more entrenched attitudes against consumption of diverse foods with high nutritional content. Cultural, social, financial and other contextual factors impacting on dietary choices must be taken into consideration.

It is critical that people involved in food provision policy development and programme delivery, particularly to people experiencing food poverty, consider the factors affecting peoples’ capacity and capability to access, grow, store, prepare and heat “optimally-nutritious” food, particularly for programmes that are designed for people to take food home to eat, this also requires consideration about the “shelf” life of the food, and whether people have the equipment at home to store or reheat it.

Furthermore, “good food” that appeals to one person or group may never be consumed by another group. Food cultures and dietary preferences provide a critical role in improving people’s health and wellbeing and reducing their food security. Thus, consideration must be given to how it is viewed, from the culturally determined perspective of the cultural groups to whom that food is being provided, in addition to what they consider to be “healthy food” from a nutritional perspective.

While New Zealand’s agri-food system meets the needs of many people, it is failing others who continue to experience food poverty (see sections 2.3.3, 3,3,4, 3.3.6, and 5.2). It is evident that

poverty and related hardships are having a profound impact on many people, whānau and communities, which impacts on funds available for purchase of food. Food poverty is interlinked with wider socio-economic issues, and it is critical that they are holistically addressed in a systematic way.

As noted above, there was widespread acknowledgement by research participants of the depth and complexity of food insecurity issues, and the need for prioritisation of government spending on the most critical needs first, such as for food and housing, to ensure most basic needs are provided before other higher-level goals can be considered. Food provision programmes must be designed to consistently meet the diverse food-related needs of targeted groups, including addressing the social, cultural and financial factors that contribute to food poverty.

Diversity of diet becomes a lesser priority to whānau and their communities when they are struggling to provide three meals a day to their children, in which case their focus is on sourcing affordable ingredients within limited budgets. The rising price of fruit and vegetables results in less of such things being included in regular diets. School and community-based programmes are thus intentionally attempting to build local food resilience and sovereignty amongst whānau and communities, to reduce reliance on costly and unreliable supermarket food suppliers and strengthen personal/community food resilience systems.

As shown in section 2.7.3 and the KOKA case study (Chapter 4), government "Healthy Eating" and food in school programmes are encouraged to provide meals that tick all the "public healthy eating" and "optimal nutritional content" policies, but don't necessarily meet the cultural and dietary preferences of the intended recipients (see sections 2.7.5 and 4.4.3). In the worst-case scenario, this ends up with the meals being wasted. Another important consideration is the difference between food security and food diversity that must be acknowledged when planning and evaluating school food programmes, or any programme aimed at improving the nutritional value of diets. When people are 'food poor', any food is better than no food. Likewise, 'reasonably healthy' food that is actually eaten, does more for a person's health and wellbeing than a 'perfect' meal according to official nutritional guidelines that is not eaten and ends up thrown away. People who rely on food banks and suchlike (e.g., see section 5.1) often have very little choice about which foods they can access. However, recent initiatives such as "social supermarkets" do offer recipients greater choice of ingredients, which goes some way to increasing the dignity and mana of the process they have to go through to access food that meets their needs and preferences, and for which they have the equipment and capacity to cook or heat.

Food accessibility, affordability and availability are also influenced by global food security issues, climate change, land use regulations, and demographic changes such as urban sprawl into highly productive lands best suited to food production (see Chapter 2). The resilience and diversity of local, national and international food production and distribution systems influence food accessibility, availability and affordability. This research identified the importance of consistent and reliable provision of food to people who need it. To meet the varied dietary preferences of Aotearoa New Zealand's increasingly multicultural population, a range of affordable food needs to be produced for domestic consumption by our agri-food sector that meets people's dietary needs and preferences, that they can then access. Transportation and logistics networks, the food provision industry, and community-based providers play a pivotal role in connecting food that is affordable and desirable with the people who want it.

As weather and climate changes increasingly disrupt food production, and contribute to scarcity of some foods, consideration must be given to how food resilience can be built into New Zealand's food supply chains through regenerative sustainable practices, diversified food production systems, new

innovative technologies, collaborative locally-supportive networking to produce synergistic outcomes, and targeted assessment of the specific types of food demand/consumer segments that could be supplied by the agri-food sector.

As concluded by Curran-Cournane & Rush (2021), all sections of the food system have a responsibility to ensure equitable access to foods that are beneficial to public health as well as planetary health. In particular, there is a need for greater production of legumes and dark-leafy green vegetables, in regenerative ways that enrich soils and better meet the culturally diverse dietary preferences of our increasingly multicultural society. Nutritionally diverse diets are critical to ensuring national food security, especially in times of disrupted food supply chains due to pandemics, climate change-related weather events and suchlike.

Furthermore, diversification of land uses within New Zealand's agri-food sector would better provide for the diversity of dietary needs and preferences of New Zealand's multi-cultural society. Promotion of a wider range of diets could create more options for food producers as awareness increases about the existence of specific types of food demand or specific consumer segments that could be supplied by the agri-food sector.

6.2 Effective School and Community-Based Food Provision Programmes

Numerous community- and school-based initiatives to address healthy eating and food insecurity -related issues have been implemented in Aotearoa New Zealand (see sections 2.5 to 2.8), and around the world (see section 2.4). School and community-based food provision programmes aim to address food poverty in their communities, particularly for people most at risk of food poverty, but often struggle to meet the scale of need. Such programmes are typically voluntary-run, under-resourced, and have the least-defined problems. This research aimed to describe and build understanding of this struggle and identified factors that hinder or help the effectiveness of such initiatives.

Our case study research provided huge insights into the food poverty being experienced by some people and groups throughout Aotearoa New Zealand, the significant role that school and community-based organisations can play in addressing food insecurity, and key factors that contribute to their success.

Grass-roots efforts to address food insecurity in local communities can foster significant benefits both for the recipients of the food programmes, as well as for the people involved in the delivery of these programmes (see section 2.8 and Chapter 5). Schools can play a critical role in food security, as they are well placed to act as community hubs connecting other groups with similar food related initiatives to collaborate and support each other, creating synergistic benefits for all (see section 2.7 and Chapters 3 and 4). They can also create opportunities to educate and build skills for rangatahi and whānau in numerous health and food-related areas. As healthy eating habits are commonly established in early childhood and can improve health and educational outcomes for rangatahi (see section 2.7), the Ministry of Health has implemented various strategies and initiatives focussed on children, in an effort to maximise the impact of its health promotion interventions, with a view to helping children make healthier choices and establish lifelong habits.

Our research, particularly the Kura Kai case study (see Chapter 2) has shown that partnerships between community groups, schools and other people/groups in local communities can create synergies that greatly enhance food sovereignty and enhance mana and wellbeing. Involving rangatahi/students in food provision programmes provides mana-enhancing opportunities for them

to contribute to their whānau and the wider community, whilst developing life skills through a holistic education that will enhance their own food security into the future. This was evidenced, for example, in Kura Kai's rangatahi programme (see section 3.3.3). Reconnecting rangatahi and the wider community to knowledge systems about the growing, harvesting, cooking, preserving and consumption of culturally preferred diets also helps (re)-build social connectedness, cultural identity and wellbeing (see section 3.3.4).

As was noted in Kura Kai and MFAN interviews (see Chapters 3 and 5), when younger generations become disconnected from sources of their food, they are losing knowledge about growing, harvesting, preparing, cooking and preserving food. Furthermore, food is inextricably linked to culture and identity (see section 3.3.5) – when food diversity and quality diminishes, it has quite profound impacts on health, wellbeing and identity. Such factors become barriers to consumption of healthier diets, as do our increasingly busy schedules which lend themselves to takeout and pre-packaged meals, homelessness or emergency housing where it is difficult to prepare or reheat food, and inability to store or preserve food for later consumption.

The collaborative nature of MFAN fosters connections between people within the community who are interested in fostering local food security, builds important networks between people who share a common vision and purpose, thereby strengthening the local food production and distribution system. Similarly, live2give (see section 5.3) are investigating innovative regenerative agricultural methods to sustainably produce organic produce, and have formed a collective with similar local farmers, which enables them to provide produce boxes with an array of different foods to people – working with other groups in this way allows all the farmers who are involved to reach more customers than would be the case if they stayed independent.

The case study findings show the important role that schools, social enterprises and community-based organisations can play in local food security, through collaborations that draw on strengths within local communities and strengthen local food economies. Benefits of community-focused approaches to food choices and diets include the targeting of initiatives to the unique needs and characteristics of the target group, building of community cohesion, strengthening traditional and cultural culinary practices, promoting life-long healthy eating practices, and improving knowledge and capability development about growing, sourcing, cooking, preserving and distributing food. They can also underpin local economies, providing support for local producers to diversify crop production.

The case studies explored in this research shared common traits that contributed to their success in food provision, including having: a clear vision and purpose to address food insecurity, requisite leadership and personal attributes, a sustainable customisable operating model where people work to their strengths and collaborate with others to draw on the resources within their networks, and clearly linked operations to ensure delivery of impact in the community (e.g., see sections 3.3.2 to 3.3.4 and section 4.4).

Our case studies showed that effective school food programmes are well supported by the school principal and other teachers involved in relevant courses and incorporate the initiative throughout the school syllabus and activities, thereby enabling a holistic education linked to the food programme. They are appropriately resourced and run by the "right" people who are passionate about both food and people, and tailor the programme to the food needs and preferences of the particular demographic in their school or community. This reduces food waste and encourages positive participation in the programme. Furthermore, school food programmes were able to facilitate greater impact if they had an in-situ kitchen space in which rangatahi were able – and

encouraged – to go if they needed food, or wanted to talk to the teachers/staff in the kitchen about anything that was troubling them, thereby recreating a "safe space" for rangatahi, akin to a "kitchen being the heart of the home" environment at school.

Community-led and school-based programmes have arisen to address issues of food insecurity and nutrient-poor diets, including the KOKA, Kura Kai and MFAN initiatives explored in this research. Programmes that are successful tend to display the following characteristics: when managed well, resourced adequately, and undertaken by people who are passionate about enhancing local food security and sovereignty, these programmes can make a significant contribution towards improving access to healthy food. They must be staffed by the "right people" with the vision and passion for mana-enhancing food provision, an effective business operating model that is fit for purpose for the target demographic, is culturally appropriate and starts with food that is "recognisable" and gradually adds in "new and healthy" options, and effectively utilises social media for maximum reach to people with shared goals and motivation to engage in community initiatives. Programmes that rely on the goodwill and contribution of volunteers need to remove as many over-burdening or demotivating barriers as possible, giving their volunteers the freedom to tailor programmes to the local needs and resources within their community.

Furthermore, community-based food provision programmes require appropriate social infrastructure whereby they have the connections required to get food out into the community quickly. This requires connection to suppliers of freshly grown and surplus food as well as "trust relationships" and linkages to the intended recipients and distribution systems to connect to in a timely and efficient manner. The government should support those entities who are already doing the mahi in the community and have the pre-established networks and social relationships in place to ensure timely and efficient distribution of kai to the people who need it. Better systems and processes are needed around cataloguing the kinds of needs there are amongst different sections of the community, so needs can be met more appropriately – for example, is it a "one off" need, or is the need ongoing, and what other supports could help the food recipients get out of food poverty both at a macro and micro level?

Social enterprises and community-based initiatives thrive in supportive cultures where innovation and learning is encouraged. Relationships are critical in school-based food delivery programmes, as well as community-based volunteer programmes, and it is therefore important that "the right people" are engaged in such initiatives who have the social and cultural competency to connect with recipients of food, as well as rangatahi participating in cooking and distribution of food. Matching people to roles for which they are best suited and then mentoring, training, resourcing and cheering them on, makes a big difference to morale. Engaging in initiatives where you are privy to the highly complex and sometimes harrowing experiences of others, can take a personal toll, and it is important that support mechanisms are in place to manage stressors, set boundaries, and have clarity about what volunteers should and should not be expected to do, dependent on their own skillsets, background and training. Leaders in community-based food distribution programmes should forge connections to other people and networks to help resource their programmes.

Leaders of such food delivery initiatives can also utilise their influence and voice to lobby decision makers and funders, ensuring that the knowledge and awareness they have about social issues such as food insecurity from participation in programmes such as Kura Kai, KOKA, MFAN or live2give can be "heard" by policy makers. Measuring the "impact" of such initiatives (for example, see impact of Kura Kai in section 3.3.4) is an important factor in ensuring the knowledge and understanding about the causes and impacts of social issues are incorporated into frameworks and models for government policy. The role of government, community, school and related groups, and how they

can be better coordinated to achieve optimal outcomes, needs further research, as well as the potential role of schools to be "hubs" for local community initiatives.

Alternatively, school food programmes are less successful (see section 4.4.3) when they are inadequately or inappropriately resourced, have minimal integration of the programme into the school curriculum, and the programme managers have less understanding of the specific food needs and preferences of its community and does not therefore cater to those diverse needs. School food programmes that are designed and then assessed according to the nutritional content of the ingredients, without also taking into consideration the social and cultural components of people's diets tend to have less uptake of the programme, resulting in reduced consumption of "healthy food", or indeed reduced consumption of any food provided at school, with resultant food waste.

Case study participants recommended government supports to coordinate school food programmes within regions, and between local growers and school food programmes, such as KOKA, as a way to reduce the load on school staff while maximising the potential gains from such programmes. Facilitating the collaboration between all groups engaged in local and regional food provision with people linked to schools providing food, would also enable better use of resources and improved outcomes for all (see sections 3.3.6 and 4.4)

Government agencies can also support the effectiveness of community-based initiatives by facilitating collaboration between groups operating within the food resilience space; helping to connect people in need of resources with those who have underutilised resources within the community – e.g., underutilised commercial kitchen spaces for bulk cook ups or storage of surplus food resources; garden spaces; providing requisite expertise in areas such as grant writing, gardening, menu planning and budgeting; and syllabus development in related topics. Government funding should be directed to those groups who are already operating on the ground and have well-functioning distribution networks in place to efficiently get food directly to the people who need it in a timely manner (see section 5.2.4).

6.3 KOKA

Our Kura Kai and KOKA case studies are exemplars for how school food provision programmes can be effectively designed and implemented to help improve food security in local communities. Such food delivery programmes are successful when led by "the right people" who are passionate about food and the role it can play in promoting health, identity and wellbeing, as well as strengthening local food economies. Such leaders also have the requisite networks into the community, to access a wide array of produce that meets the dietary preferences of the people for whom the meals are intended, and intentionally make the effort to understand what children consider to be "good food" and how their food programme can be implemented to best meet those dietary preferences.

There are calls for programmes such as KOKA to be continued and even extended to other schools and into the early childhood education sector, where early food habits are established (see section 2.7.1). As noted above, themes emerging from participant feedback about the KOKA programme revealed actions that we recommend could be taken to increase the success of the programme:

1. Currently, KOKA is not offered in all schools throughout Aotearoa New Zealand, and whether or not a national roll out is possible is a budgetary consideration for government. However, we recommend that it be continued beyond 2024, and expanded to Early Childhood Education centres or kindergartens to ensure that children in their early years also have access to nutritious meals, setting them on a healthy trajectory from a young age.

2. Rangatahi should be given mana-enhancing opportunities to be included in decision making and delivery of food provision programmes that impact on them and their communities. The benefits of doing so are significant and go well beyond food consumption to include improved social connections, development of skills in meal planning and preparation, leadership, budgeting, food systems, and improved knowledge about how to bolster food sovereignty.

3. Modifications to the system are needed, in particular to reduce food waste. This could be achieved by:

(i) better matching of meals to the specific dietary preferences of the demographic group in each school. Recognise that a "one size fits all" approach will be ineffective. Evaluate and modify the programme, seeking feedback from students and whānau regarding appropriateness of menus, how they are served, and options to ensure surplus food is distributed to meet community needs.

(ii) if certain whānau feel they can afford to provide lunches for their own children and don't need "free government-funded food", encourage them to:

a) notify the school that they do not need to provide lunches for their children, and the lunch suppliers could reduce the numbers of meals they prepare, accordingly, and thus, reduce food waste;

b) donate the equivalent amount of funding back to the school by way of voluntary donations.

3. Integration across all aspects of the school curriculum would provide significant additional benefits for the KOKA programme. This could include food related credits, but also financial literacy and budgeting.

4. Collaboration between schools within regions who have the KOKA programme would provide synergies and supports to enable improved processes, ingredient sourcing, and potential cost savings. Such networking amongst teachers could also be expanded to include collaboration between growers and food producers, and connections to researchers to ensure learnings are captured.

5. Collaboration between schools and other groups within the community to build resilience into local food systems, such as what is being done with groups such as MFAN and KK.

6. Related to points 4 and 5, a centralised coordination role within regions, or even nationally, to help with ingredient sourcing, including intentional liaison with farmers and growers regarding improved access to diverse foods, would lessen the inputs required from school staff and provide significant potential benefits to the diversity of crops grown to match the dietary needs of schools and communities.

6.4 Future Research

Ongoing research is required to help us better understand the issues facing school and community-based groups in delivering food to people most at risk of food poverty. Studies to explore how to maximise consumption by target groups of such food provision programmes, including the cultural factors that influence dietary consumption patterns, are also recommended. Further research and policy emphasis is also required to better understand the extent of food insecurity and related social issues, particularly in rural communities, where accessibility can be even more problematic than in bigger cities.

Such research could also explore what particular demographic groups consider to be "good food". This would improve our understanding of how the agri-food sector, including growers, importers, supermarkets and other players in the food distribution chain, as well as people involved in food policy and food delivery programmes, educators, parents/whānau and communities may perceive

“good food” differently, particularly as it relates to how readily food consumers can afford and/or access those culturally preferred foods and have the means to transport, store, preserve and cook it.

Opportunities for different groups engaged in initiatives to reduce food poverty to come together to share their learnings would help to maximise the uptake of learnings from research such as that reported here about effective models for school and community-based food provision programmes.

As climate change increasingly impacts on our agri-food system, both in Aotearoa New Zealand and the world, it is also recommended that further research is conducted on the resilience of our food production and distribution systems. It would also be beneficial for future research to explore how local food sovereignty efforts can be better supported to build food security, particularly within people currently at the greatest risk of food poverty, including for localised climate-resilient farming.

Further research is also required to provide clarity around what factors increase uptake of “healthy foods”, i.e., what “good food that people want to eat” looks like for the groups for whom most food provision programmes are targeted. Such studies should explore successful school and community-based food provision programmes in Aotearoa New Zealand and around the world (e.g., see sections 2.7 and 2.8) that purposively consider the cultural components of food associated with identity and wellbeing would. Future research should also examine the impact of such culturally informed programmes on the health, wellbeing and educational outcomes for the people and whānau receiving the meals, what the financial implications are, and whether they result in reduced food waste.

The fact that there are statutory requirements mandating the need to address the health and wellbeing of children in New Zealand including for adequate food and nutrition, as outlined in sections 2.5 to 2.7, it is critical that further research is conducted to foster better understanding by policy makers, researchers and people involved in food provision programmes of how access to affordable, culturally preferred “good food” can be improved, so that less New Zealand children and whānau experience hunger and the related issues in health and education.

7. Outputs from this Research Programme

Outputs from this programme that further explore the frameworks, policy implications and operational learnings for people involved in the agri-food, food security, resilience and sovereignty spaces in Aotearoa New Zealand include:

Hardy, D.J., Palakshappa, N., Venkateswar, S. (2024a). School and Community Based Approaches to Healthy Eating and Food Security in Aotearoa New Zealand. A Comprehensive Report prepared for the Agri-food Systems Working Group, Our Land and Water National Science Challenge. School of People, Environment and Planning, Massey University, Palmerston North.

Hardy, D.J., Palakshappa, N., Venkateswar, S. (draft, 2024b). School- and community-based programmes to reduce food poverty in Aotearoa New Zealand (working title). For submission to Food Culture and Society.

Hardy, D.J., Palakshappa, N., Venkateswar, S., Henry, M., Morris, C. (2024c). Beyond the Unicorn Eater: Social Approaches to Healthy Eating and Food Security in Aotearoa New Zealand. A Summary Report prepared for the Agri-food Systems Working Group, Our Land and Water National Science Challenge. School of People, Environment and Planning, Massey University, Palmerston North.

Henry, M., Morris, C. (2023). Between what we eat and what we should eat: Towards a Synthesis Framework. Report prepared for the Agri-food Systems Working Group, Our Land and Water National Science Challenge. School of People, Environment and Planning, Massey University, Palmerston North.

Henry, M., Morris, C. (2024). Between what we eat and what we should eat: Towards a synthesis framework. Royal Society of New Zealand's (JRSNZ) upcoming Special Issue on 'Feeding New Zealand people better – from farm to fork'.

Palakshappa, N., Hardy, D.J., Venkateswar, S. (draft). The role of social enterprises in fostering community wellbeing (working title). For submission to Journal of Business Ethics.

Venkateswar, S., Hardy, D.J., Palakshappa. N., McLeod, H. (accepted for publication in 2024). Farming to Flourish: building diverse diets, equity and inclusivity into Aotearoa New Zealand's domestic food economies. Royal Society of New Zealand's (JRSNZ) upcoming Special Issue on 'Feeding New Zealand people better – from farm to fork'.

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[4] Palakshappa et al. (2024, draft). The role of social enterprises in fostering community wellbeing (working title). For submission to Journal of Business Ethics.

[5] Hardy et al. (draft, 2024b). School- and community-based programmes to reduce food poverty in Aotearoa New Zealand (working title). For submission to Food Culture and Society.

[6] Hardy et al. (2024c). Beyond the Unicorn Eater: Social Approaches to Healthy Eating and Food Security in Aotearoa New Zealand: A Summary Report prepared for the Agri-food Systems Working Group, Our Land and Water National Science Challenge. School of People, Environment and Planning, Massey University, Palmerston North.

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Appendix A: Business Operating Models of Participating Kura Kai Schools

Business Operating Model in School A (Central North Island)

This is one of the schools that was identified by Kura Kai managers as a model school to share "best practice". These participants have shared with other schools how students can gain NCEA credits through integration of the KK programme. It is hoped that this school coordinator could help develop modules that could be shared with other KK schools, and perhaps visit other schools to share their KK rangatahi programme.

-Networking, Community Awareness and Resource/Fund-raising:
Recognising the importance of building networks with the community, they have formed local collaborations that are expanding their "reach" and enabling them to do more. For example, they have connected with a local restaurant and Go Generosity[338], and sometimes receive fruit and vegetable donations from a Misfit Garden[338]. As community awareness grows, their funding and donations are starting to snowball. They are looking at doing more fundraisers in 2023.

Additionally, they utilise word of mouth and social media to build community awareness of Kura Kai initiatives underway at school, offer meals to people who need them, and invite donations. The social media posts reinforce "the good" that students feel they are doing through participation in KK to make a difference to people in need, including within their own whānau for some rangatahi.

-Rangatahi Programme in Conjunction with other Food Provision Programmes:
They have implemented the KK Rangatahi Programme, whereby the students themselves cook meals during their classes for distribution to people in need of food, as well as organising bulk cook-ups where community members can also participate. The school is also using a STEM class to come up with some recipes and food options.

They can currently do 60 meals in a 90-minute class. The decision of what to cook is currently an ad hoc process currently, based on what ingredients are at hand. They are working on ways to consolidate resources for a cook-up. Resourcing and time is a struggle, as there is only so much you can cook in a 90 minute class, so they do "easy" meals like pasta.

The participants stated that having two paid cooking teachers involved in this school's KK programme really helps. It provides a means to give students easy access to food on a regular basis, for example, cook up cans from Kids Can and doing a shout out to students saying there is hot food available. Cooking rooms have become a "safe place to congregate".

In addition to Kura Kai, this school also has KidsCan[338] support and operates a KickStart[338] breakfast programme. This has enabled them to show real resourcefulness by using donations from various sources to support all their initiatives, e.g., using leftover KidsCan canned food for KK cook-ups. They also run a breakfast club using REAP Funding.

-KK most Effective when Teachers have Good Relationships with Rangatahi:
This participant stated that the whole KK initiative in their school is facilitated by relationships and knowing people *and* their situations.

The role extends well beyond "teaching" and food provision:

"Effective teaching is about relationships. Mutual respect. If you are an effective teacher, you provide an important conduit for information and awareness".

The KK coordinator in this school had inadvertently taken on a "motherly role" in the school and community through the "kitchen is the hub of the home" type of a role, whereby food was provided to rangatahi in need, along with a listening ear if needed. They have created a 'space' where there are no barriers to asking for food, and the kitchen class space is an environment of trust and "no shame".

There is a "feel good" factor from participation in KK. This participant said it was rewarding to be involved in KK, and not just having random conversations with students about credit for their course work, but conversations that turns into meaningful interactions with students.

-Meal Distribution via Truancy Officer:
The KK school coordinators are the school food tech/hospitality teachers. They source, cook and store the meals, and distribute them directly to rangatahi who need them within the school. However, distribution of meals to people beyond the school itself is done by the regional truancy officer, who provides the lynchpin connection to the wider community.

Business Operating Model in School/Regions B (Lower North Island) and C (South Island)

-Community Connections:
This participant spoke about her KK volunteer coordination in two different KK schools/regions. In School/Region B, she regularly contributed 20-30 hours per week, with the support of an additional 30-40 regular volunteers. In comparison, in School/Region C, she initially found it more challenging to get volunteers to service one freezer, and noted how much harder it was to get volunteers to cook. This may be due to her not have as strong networks as she'd had in her previous location, and the lower awareness in the community about KK, until AsureQuality came on board and offered to do Christmas cook up, as well as people from her previous networks also moving to her new location and pre-existing volunteer networks being re-established. This participant uses social media to create awareness of the KK initiative and the community need for food. In School/Region B, they had organised a "big cook up" in a school.

-Meals Provided by Volunteers Outside the School:
These schools are not operating the new rangatahi programme, and they are thus reliant on volunteers from outside the school to cook the meals, which was not a problem in the first school but is proving difficult in the second school. However, this participant stated that the new rangatahi programme is good and ensures that food is accessible for students.

Business Operating Model in School D (Lower North Island)

-Wants to Give Back:
This participant explained that they have been with KK since its inception:

"I've been there from the inception of Kura Kai, partly for me how I initially got into it is that I'm very privileged. I'm aware of my privilege and I really want to give back in my community in sort of a voluntary way. And it was kind of trying to find something there that I connected with. I'm also a nurse that works in schools, so I see firsthand what the financial strains, all that psycho-social stuff that

impacts on families, I see it a lot. And I've worked, I work in a youth health service. So I've worked, I've been there for 18 years… So when I, Makaia , I followed her on Instagram and I saw that she was doing this so I was like oh my goodness here is something that I'll be able to do both. Not only do some sort of volunteering, but also giving back to young people whom I just enjoy so much working with."

-Coordinator already well Integrated into the School through School Nursing Role:
This KK School coordinator is a school nurse who has close collection to the schools in her region, which made introducing KK into the schools seamless as they already knew her:

"The beauty of me being the coordinator and particularly in those schools is that I'm already linked in those schools. So we've worked in them both. I'm not currently working in them, but I've got very good connections. I was in at [name of school] *just the other day covering a clinic. So, I definitely think that made it quite seamless because they know me. It's not some sort of, not, they're always very grateful, but it's been an easy process for me to come in and deliver meals and all that sort of stuff from my point of view, given that they already know me quite well, from working in their schools."*

Furthermore, this participant stated that the school nurses that are in schools conduct assessments on Year 9 students, at which time they can gain insight into food poverty issues that might be relevant to a particular student:

"a Year 9 health assessment [for the lower decile schools]… all Year 9s that started college were called in by the nurse, the school nurse. And we did like a psycho-social assessment… looking at their home, education, eating, activities, alcohol, drugs, smoking, sexuality, spirituality, suicidality or, you know, moody stuff. So, they were all called in for that. We used to do baseline. We'd do vision screening, blood pressure, height, weight, BMI. That was an opt-in, so young people, we would call them in, explain a bit about our service, that it's confidential. And then they decide whether they want to go ahead with it or not. I'd say 95 percent would say yes to it... It takes a year to do because there's like 180 to 200 and something [students] depending on the year nine roll that you have to call in…

It's evolved because we know the importance of connection and rapport building... So, it's an opportunity to meet and greet, this is who we are. We also, so I can provide health services… I can certainly assess and book [GP] appointments. In three or four of our schools we've got a GP clinic, so a GP goes in once a week to see any young people that needs a GP. And for a lot of reasons there's some financial strain as to why they might not have gone, or just even getting to the appointment might be challenging…

Sometimes we'll do a BMI and say the BMI is really high or even really low, that definitely prompts me to have a conversation around what it is you're eating. What, you know, if they're wanting to lose weight, we look at how could you reduce? I'm also acutely aware that young people, it's challenging and you don't want them to go on a diet. You want them to be making better and more conscious food decisions. So it's kind of like, okay, could you look at what you're eating. How much you're eating? Could you add in something else and remove something different? And then sometimes I'll check in with people, the same with people that are underweight. I'll go, you, I get it, you can't sit there and eat a massive big plate of food. But, if you could add in a few more extra little snacks throughout the day to kind of bump up your weight. So yeah we do some education, but I think they aren't aware."

We asked this participant where they think young people are getting their information from about "healthy eating", and if they had awareness about the public health messaging around the role that food plays in our health. They stated:

"No, I don't think so, because I think like most of the learning that gets done is very much, you know, they might watch a video or something. I think there's not, you know, in an ideal world isn't it, you could have some real specifics, like, you bring in a whole pile of food. What would be a good lunch, you

know, where it's practical and they're thinking and, you know, even researching okay so this and how much? Or you couldn't use this or only a little bit of this. It doesn't actually have to be that complicated. But, I think there's, if they do it, like physically it's going to imprint way better than just watching or reading a video. Because you just zone out…

'five plus a day' has been around for so many years, but actually if we think about the financial strain of having fresh fruit and vegetables, what can be alternatives? Can it be a tin of fruit, or using some frozen vegetables instead of fresh vegetables? How can we be creative to still include vegetables as part of our diet, but without the fresh five plus a day kind of viewpoint?"

This participant noted the time pressures on parents these days and how it contributes to meal planning:

"we're busier, there's more pressures and demands on us, so then something has got to give. And if you don't place value or priority on that food and the freshness and stuff, well that's likely to be the first thing to go isn't it?... [it is about] *awareness, access, cost. Yeah, I think they all play a part and I think for different families it would be varying what aspect of that might weigh more than the other. But, I think it plays into all of them. I think everybody is, there's a connection on that for everybody".*

This participant also stated that it is helpful if there is one key person in the region who works as the central hub to help the schools operating in the region collaboration and share resources – they do have such a person in their region and it works very well.

This is an example of how having the right person in the KK coordination role within a school can greatly enhance how easily and effectively they can operate the KK programme.

- Media Collective of KK volunteers:
This is used as a platform to collaborate with other KK coordinators in the region. This participant reaches out to the regional KK network when her freezers are low and asks if other KK coordinators have spares for her. The schools in this region are not operating under the new rangatahi programme, as they started up with KK before that new scheme was established.

-Food Distribution:
This participant noted that food distribution can be challenging if there is no one in the school that is a point of contact for this, knowledge that she has from having working in various schools in the region:

"from working in the schools that have a lot of need in their schools, are quite busy as schools. And so it's finding the time or having the person nominated to be the distributor of the food, can get challenging."

In their role as a nurse, they have or currently do worked in various schools in the region, which gives them direct access to the rangatahi who may be experienced need.

Business Operating Model in School E (Auckland Region)

-Social Infrastructure and Collaborative Networks:
As has proven to be critical throughout all of the KK programme, being connected to others who can help you achieve more, is a critical part of how effective this regional KK programme is.

This participant has the infrastructure to deliver meals at a large scale throughout the region. They have large freezer capacity at their premises, enabling them to store ~500 meals in their freezer. As

noted above, they also actively seek out other people and groups who have infrastructure to complement their KK programme. They stated:

> *"Find the people who have the infrastructure and networks that you need and hook into that".*

This participant utilises an extensive network they are connected to across the region, which means they can link into about 70 to 100 other people, that "is enough to take care of a lot of the work that we have to do." Their extensive networks play a huge part in the effectiveness and scale of meal preparation and delivery that they are able to achieve in the KK arm of their operations.

-Requisite Skills and Experience:
Related to the above point, this participant has a background in the hospitality and social services sectors, that has provided them with proven skills and knowledge about food sourcing, storing, preparation and delivery, and the interpersonal skills to deal with diverse people and groups in the social services space. They also have pre-existing links to agencies that aid them in quickly getting food out to where it is needed in the community.

-Strong Communication Channels Enabling Fast Response Times and Shared Resources:
Social media is widely utilised in their networks to communicate with others involved in the food distribution networks they are connected with, reach out to others when supplies are running low, or to share resources, pick-ups and drop offs, and so forth. They said:

> *"I've got this network of* [people] *and vehicles and we cover all of Auckland. All I need to do is pick the food up, put it in the freezer and… put out a Facebook message to all of the coordinators, "okay who needs food? I've got 400 meals in the freezer".*

Food is shared between KK volunteers and schools within the region – for example, when one school's KK freezer is running low, they call on other KK coordinators and volunteers within the region to see if they have surplus meals that they can share (this practice occurred in other regions, also, but not at the scale evidenced here). Such collaborative sharing relieves the pressure on individuals and also minimises food waste. This participant utilises the transportation networks available within his networks to pick up surplus food and deliver it to people who can cook it up and/or store it, and to also arrange delivery to people who need meals or agencies who distribute meals.

-Developing Capability, Succession Planning, and Taking care of the Wellbeing of your People:

This participant placed importance on ensuring they had "the right person" in charge, with the right skillsets, expertise and personality to "make sure the [KK] programme is being taken care of properly". They create opportunities for new people to participate in their programmes and consider succession planning so that their programme continues if any individual person retires, moves away or is unable to continue for whatever reason. Additionally, they "have good structures in place, and then put people into the structure and teach them routine". Choosing the right person in the first place is important to succession planning.

They referred to the importance of "helping people to participate"; for example, "provide petrol vouchers or lunch money to people doing cook ups or deliveries…helping them do what they would normally do in their little community but it's the wider reach".

Recognising that being a volunteer can be a tiring and energy-sapping task, they encourage their volunteers to think about self-care and build wellbeing initiatives into their operations, for example mihimihi/massage, hair and nail sessions, and so forth. Wellbeing is an important consideration to

prevent burnout – massages, hair/nails etc. They commented, "you've got to teach a person how to take care of themselves… Don't hold onto negativity. Re-ground yourself".

-Leadership and Mentoring:
This participant epitomises "teaching by example". They prioritise "mentoring rangatahi to serve", by exemplifying through their own behaviours that they are "here to serve my community".

> *"Because when you have a group of rangatahi they just naturally do that because that's what they've seen. It's the old scenario of monkey see monkey do. If there are enough times that an adult is doing it and people are seeing it, they just cling on and just jump in and do it…* [Be the one who is] *first onsite, last onsite, make sure everyone's fed, rested, well looked after."*

They encourage rangatahi to take on responsibility within their programmes, and "have their back" if they get things wrong, as "everyone makes mistakes". This participant encourages rangatahi to give things a try and uses as many experiences as possible as opportunities for learning and growth.

They are passionate about helping kids to be seen in a positive light, noting that this is something that "is invisible and unconsciously done".

*KK acts as a Conduit to Enable "Community Looking after Community" Initiatives:
An insightful observation made by this participant was how KK provides the framework for community-minded people to deliver on their vision and goals in the food security space:

> *"It's about the community looking after the community and it just needed a conduit to do it properly."*

Thus, it is a model that other groups can pick and up tailor to their own situation, is empowering for local communities, and promotes food sovereignty and strengthens connections.

-Food Support Cards:
This participant talked about innovative ways they have of connecting with rangatahi who may be experiencing food poverty at home, in ways that encourage them to connect with KK.

> "We've actually put out with the school programme our food support cards. Especially with the rangatahi, don't be shy, don't be afraid to give us a call… the parents reach out, 'oh my son or daughter came home with this card, we're just wanting to know what support we can get from you… as opposed to sending them to another service provider when you've already dealt with them".

This approach is very effective in maintaining connections with rangatahi beyond the school week or term, including in holiday periods when they may otherwise end up with food again, and have to be referred to another agency. Having to engage with multiple different people and explain the tough financial situation you are in and that you don't have enough food is a difficult thing for people, and lessening the amount of times they have to do this is of real benefit.

-Trustworthiness and Relevance:
To be effective in reducing food insecurity and ensuring less people go hungry, people and agencies involved in such programmes need both up-to-date direct links to people in need of food and be trusted by those people so that they will accept the help without feeling whakama / shame. When identifying community needs, this person looks at the situation from the bottom up, from the perspective of the people receiving the food; for example,

> *"there is no point giving a family a frozen meal if they are living in a car – there are 400 families living in cars".*

This participant also spoke about the importance of openness within the community and having open conversations.

-Cultural Role of Kai:
Further to the above point, this participant spoke about the importance of building on the cultural context of the food recipients, and the important role that kai plays when visiting people. Taking kai with you is important "so it doesn't become shameful turning up to talk to whānau". It was noted that this cultural custom applies to many cultures including, for example, Māori, Pacifica and the Indian community.

-Sustainability:
This participant noted that everyone needs an income to be able to keep participating in initiatives such as KK, as volunteers "still have to pay your bills".

They are involved in numerous food-related initiatives, some of which are unpaid voluntary roles, as well as other commercial programmes, including family involvement in a local KAKA food in school programme. They take care to keep their commercial and voluntary operations separate, but having a component of what they do generating an income for their whānau helps them to be able to continue participating in community voluntary projects.

-Keys to KKs success:
This participant stated that the keys to their KK success were having structure and routine, life skills and whānaungatanga – e.g., "are you coming for a cuppa"; show respect, treat one another as family; and having previous experience within the hospitality industry.

Business Operating Model in School F (Auckland)

-Innovative Model:
This school is operating with a new innovative model, and as such is quite different from all other schools in this research. This enables them to incorporate KK in ways that would not necessarily be possible elsewhere. Nevertheless, some insightful observations were noted that are summarised below, some of which may be applicable in other schools/regions.

-Access to Rangatahi through Role as School Counsellor:
The KK coordinator in this school is in their counselling department, and thus has direct access to rangatahi who may require support, including meals. The school also has an in-school social worker who is able to distribute KK meals as part of her role.

-Culture/Stigma of "Needing Food":
This participant stated that they had experienced issues with some people feeling "whakama" and personal shame from not being able to provide for their family and this had sometimes contributed to reticence to accept meals:

> *"for some families it is seen as whakama, very shameful. And so that can be quite a hurdle for a kid to accept and say, 'yeah we need some meals'".*

Referring to the school social worker, this participant stated:

"part of what he does is turn up to a family going through that social work stuff, he'll arrive with a bag of food. And sometimes it's like 'yep', and other times it's like deeply insulting…so he'll quickly put it away. Some families completely refuse even though we know there's need."

This school is still trying to work out what is the best delivery approach for each case, e.g., whether to drop meals at the door, knock on the door? They are subtle about how meals are given to students at school to take home, so they can put the meal in their school bag so other people don't actually know… or we drop off after school when no one can see".

"There is, particularly for some Pacifica kids, a big awareness around [Māori and Pacifica kids being the demographic at their school who are most likely to need food]*. I mean, I had one Pacifica kid the other day certainly going, 'why is it that we Pacifica are like this? What are we doing and all?' So she was feeling quite a stigma that they need food. So we did work around that as well".*

This participant noted that some rangatahi who are often in need of meals come from "the working poor", and "very large families" who have many mouths to feed.

The school is flexible about to whom and how they distribute the KK meals:

"We sometimes give it out during the day for lunch as well, if someone hasn't got a lunch and they feel like a better meal than a toasted sandwich and an apple [which is provided at this school, anyway]*, we'll heat up one of the Kura Kai meals".*

-<u>Defining "Need"</u>:
Related to the above point, this participant noted that "need" is not only about financial poverty, stating that they give meals to people who may be experiencing grief or be in crises and have difficulty functioning and preparing meals:

"grief causes families to struggle and meals help at such times… [or] the family can be in crisis, like mum in hospital, or a staff member whose wife passed away".

-<u>Catering for Unique Demographic or Cultural Needs</u>:
This is a very multi-cultural school with students who have diverse cultural requirements and dietary preferences, including recent immigrants or refugees. So they are planning to get some outside volunteers including an Indian chefs connected to the school, to come in to cook vegetarian meals so they can get them out to families in need of such food.

Recognising the pressures on children and families within the school is important at this school, as there are varying stressors being experienced. For example, this participant noted that for many new immigrant families, there is:

"a lot of pressure [on kids] *to study, study, study… That has it's positives but it's high pressure on kids. Especially arriving in a fairly lax New Zealand culture when they watch other people cruising around at college".*

-<u>Hauora Education</u>:
This multi-cultural school has a holistic hauora focus that is incorporated into all areas of their curriculum, in innovative ways, with three hours specifically on hauora per week.

"Sometimes that is mindfulness, sometimes about food, or exercise, depending on what the learning coaches have conjured up for that week. Not just curriculum subjects, but actually broadening out to really try and touch more bases in keeping our kids well".

This school has its own chickens, beehive and garden on site.

-Meals Sourced from Outside the School:
The school's children do not participate in the food cooking and distribution. Staff have prepared meals from their homes for the KK freezer, from $800 supermarket vouchers provided by KK managers. Also, 200-300 meals were donated to them by School E (above) who coordinate KK throughout the Auckland region.

However, this participant noted that, previously at another school in Auckland where he used to work, KK had circulated invitations to the school inviting to meet with them. As there was a big need at that school, he immediately joined up:

> *"They were fantastic. They used to just turn up once a term with the huge baskets, like a couple of hundred meals. And they would ring us up halfway through the term, 'how are you going, do you need any more?' And if we did,* [KK] *would top it up…they provided everything. We didn't do any of the cooking. That was pre-Covid. … Since then, they give you Pak n Save vouchers, but they try for the schools to come up with their own initiatives. And then* [School/Region E] *came on board which really topped it up, because they were doing like two deliveries a term".*

-Educate the parents:
This participant noted the importance of parents being part of the solution in terms of improving the wellbeing of rangatahi at their school, knowing about healthy eating and lifestyles:

> *"We ask, 'how are things at home and what do you eat? What are you eating?"* [during parent teacher interviews] *if we think it's an issue".*

Business Operating Model in School G (Bay of Plenty)

This is a great model for schools that have students who wish to lead the KK programme in their school, themselves.

-Initiated and Run by Student Coordinators:
Cultural Prefects at this school initiated and implemented all aspects of the KK programme. This included writing a full proposal about the KK initiative (what they wanted to do, how they would do it) and present it to their principal to get sign off. A parent of one participant, also is a teacher at the school, had heard of KK and told them about it. They looked it up on social media, liked what they were saw and approached KK to get involved. They did not ask for funds from the school, but did request use of the Food Tech block, which required coordinating with the Head of Technology, and for the PP freezer to be in the PTA shed. They chose to "get the programme up and running in Term 1 instead of halfway through the year and people thinking 'oh what's this?'".

-Regular Liaison with KK Managers:
The consistent input and support from the KK managers via phone calls and emails was important. KK sent the school a freezer within 2 weeks of them getting school approval to run the KK programme through their school.

-Show Initiative and Utilise Existing Networks/Connections:
One of the participants works at Pak n Save (PnS), and other people at the school knew the owner, who had previously sponsored school community initiatives. So, the participants made a proposal to, and met the owner and managers at, PnS, explaining about KK and what their school wanted to do. PnS gave them $1000 from which they have been able to source most of the ingredients – they buy

ingredients when things are on special, e.g. meat week, which one of the participants finds out about early on as she works there.

-Student and Parent Cook-ups:
At this school, students from Years 7 to 13, and volunteers (usually parents of the kids who come along) do the cooking. The KK student coordinators advertise the cook ups on social media two weeks before and again in the week of the cook up, to tell the community it's happening, what they're cooking, and inviting people to participate. They do one big cook of 20-50 meals per term to fill the freezer. The did a test run at the beginning and made 20 meals. They do large family trays and single meal trays.

For the first big cook up, they asked volunteer cooks to bring packets of spaghetti, sauces etc, but for rest of the cooks they used the PnS $1000 voucher. They stated that they:

> *"have been careful with the $1000 funds they have, and manage spending carefully".*

The commented that it would have been good to have a school garden to get vegetables from for the KK cook ups.

They have had lots of people volunteer, the largest was about 40 people, so they had to split the group into two. They stated that:

> *"It was a little overwhelming. We didn't realise so many people would show up".*

-Building on Previous Experience:
The participants spoke about how the previous experience they've had of bulk cooking on their marae and at school events helped them with the KK programme:

> *"at the marae we do bulk for like big family gatherings. We do bulk batches, we cook a whole lot of food and everyone eats… At school we do hangis every so often. So we're used to doing that".*

-Holistic Education and Capability Development:
The participants stated that they had gained valuable experience in project management, organisation and distribution that they felt was helpful to them in securing tertiary scholarships and was very good to have on their CV:

> *"organising the entire thing ourselves was very new to us… More the distributing that we had to learn a lot about".*

-Identifying Groups for Meal Distribution:
The participants stated that at this school there was not much of a need for meals. However, they did provide meals to student and staff families in the school who had covid, commenting that:

> *"'need' can be for the staff, not just the students".*

Additionally, they developed partnerships with groups in the wider community who could benefit from receiving ready cooked meals. These included the Pacific Island Community Trust, who they met in their role as cultural prefects when the Trust came to their school; and [a rehabilitation] clinic in their area, where one of their mother's works. They liaised directly with these groups, initiating the contact and sharing details about their KK programme and offering to deliver meals, stating that: "*it was a bit nerve wracking".*

-Menu Selection:
At the start, they chose to cook meals based on the recommendations on the KK website. For later cook ups, they chose meals based on cost effectiveness and things that were easy to bulk cook such as Shepherd's Pie, Spaghetti Bolognese and Mac n Cheese, which they stated are "hard to get it wrong".

-NCEA Credits:
They have integrated their KK cook up in some Food Tech classes; for example, one class had to find a charity that needed food, so they did chicken lasagne through the whole school process, as their assessment. That is now part of the school curriculum, which they got credits for.

-Transition Planning:
These participants ensured that a succession plan was in place to transition the programme to up and coming Year 13 students to take over when they left school, and this has proven to be very successful. They:

> *"tell her how we've done everything…and hopefully set her up with our contacts as well and we want to have a meeting with [KK GM] Marie as well so we can introduce them to each other".*

Their suggestion for student coordinators in other schools thinking about taking KK on, is:

> *"be organised; it becomes a lot harder if you're not organised and not communicating well".*

Business Operating Model in School H (North Island, rural)

Three KK people from the school in this small town participated in the interview: the school coordinator (the school's tech teacher) and two community volunteers. The interview covered a lot of topics and provided a lot more detail about their KK programme than gained from some other interviews. We have included much of the information provided by the participants here, because it is an insightful look into the KK programme from initiation through to a period of intense demand. It provides insight into many of the issues faced by community-led social services that require ongoing consideration by policy makers, researchers and groups engaged in these initiatives.

-Establishing KK in their Town:
This KK programme in this school is coordinated by the Food Tech teacher in the school, alongside two community volunteers. They were one of the earlier schools to come on board, when KK led the search for a school in this town.

Before there was a KK presence in this town, one of current the volunteers, who has their own farm and business, had excess food that they wanted to donate to people in need. They found KK on social media and approached them about donating food/meals. KK originally proposed that this participant drop meals to the KK base as there was no KK programme in her town. This was impractical, so in 2020 KK approached schools in the area – the first one said no as they didn't have the facilities, so the KK manager then approached the principal of the current KK school, just before the COVID lockdown. The principal then asked their school tech teacher if she would like to take KK on, but as she was a first-year teacher, she declined. The following year, the tech teacher was approached again and this time said yes. The tech teacher stated:

> *"I think yeah the second time around when* [School Principal] *said 'do you want to give it a go', I thought 'yeah bugger it, we will'. And I'll be honest, I was quite cynical to begin with, 'oh is it going to work? How much time is it going to take up? Oh it won't take up too much time'."*

To which one of the community volunteers at the interview, responded:

> *"It's now [her] life".*

*<u>Menu Planning (not just "good enough"), Ingredient Sourcing and Cost</u>:
These participants initially sourced many of the ingredients used in KK meals, themselves, from their own personal supplies and cooked them at home, and then stored them in the KK freezer at the school. Over time, as people in the area became aware of what the KK volunteers were doing, others would donate their surplus ingredients, and the KK volunteers would have to work out what they could cook with such items. The participants stated that KK menu requirements were quite prescriptive initially, with there being a "list of foods that you had to make", which "put me off", so they decided that,

> *"if it can freeze and reheat well and still be tasty and good then that's what I'm making with whatever I happen to have available".*

Thus, in the initial phase, all ingredients were sourced from the volunteers themselves, or via donations from their networks. (The school now operates a multi-pronged approach, including the Rangatahi model, see below).

The school coordinator noted that they provide tasty, cost-effective meals for KK, saying that their KK meals are "better than the free lunch programmes in local schools" (refer to discussion about the KOKA programme in the next chapter). She did an experiment to see what she could cook with the equivalent KOKA funding, and found that:

> *"For $140 I was able to make 83 meals: 52 Mac'n'Cheese and 31 chilli and rice, which is $1.71 per serve, compared to $6.50 per serve for lunch in schools.* [Another regional school nearby] *gets $4160 per day to feed 640 kids".*

These participants are clear that the KK food needs to be nutritious, and that just because people are poor doesn't mean the meals can be "anything":

> *"Yeah and it doesn't matter if it's just bread, at least it's food. So* [person who receives bulk surplus food from the supermarket and redistributes it throughout the community, including to this School] *makes sure that the bread that comes here, they like the pizza bread, they like the cheese rolls. And so she tries to give them those things and then if there happens to be deli meats and stuff like that, she throws it in. There might be some frozen pies, like ready cooked food that can just go straight in the microwave, she also puts that in the school boxes. And we're the opposite with Kura Kai, it's just bread's not good enough. We make sure that the meals we make have got, you know, everything is in them… There's lots of protein. There's lots of veges, yeah. Carbs".*

In terms of the popular things that people prefer to eat, these participants noted:

> "*We tried doing … crock pots of soup or pasta with a bit of mince or stuff in it and the kids didn't like it, which was interesting… Well we ended up doing* Spaghetti Bolognese and Mac'n'Cheese, Lasagne, Pizza. *We do lots of pizzas because we get lots of pizza fixings and they're so easy … So a Shepherds, or casseroles, sausage casseroles, yeah. And they're tasty, but we make sure they're not spicy or too*

highly flavoured. Because you know, we've also got to bear in mind that probably the majority of the people that we're catering to may not be used to those sort of flavours. Mild chicken curries".

-Expanding the KK programme to Meet the Community Need:

The participants quickly realised that they needed to expand the KK operation to meet the scale of need for food they were discovering in the community:

> *"So it's kind of just spiralled. Because it actually ended up being bigger than what ever of us ever imagined I guess. So, then it was like 'right we need to problem solve, how we can keep that freezer constantly full?'. So that's when we got students involved. Had some amazing support from the year nine Dean who offered … the year nine cohort [to also do cooks]. So, we … had the two kitchens going and we did a big cook off."*

-Multi-Pronged KK Model:

As outlined above, the KK programme in this region initially started out by KK volunteers cooking meals at home, largely from their own resources. They continue to do this, but at smaller scale.

They now also run two additional things: community cook ups, and the "new KK model whereby the tech students do cook ups in class as part of their curriculum, i.e. the Rangatahi Model.

Cooking at home was okay, initially, but these participated expressed how much they enjoyed the social aspect of coming together to do cooks at the school kitchen, and the efficiencies this created:

> [volunteer] *had purchased the freezer that was at the school, and then* [KK coordinator / tech teacher] *kind of went 'let's do this through school as well'. And yeah like a lot of what* [tech teacher] *implemented, just like efficiency. Like the efficiency is amazing. So we do a lot more with a lot less because also we can do it together… more fun than trying to, because I have got the world's worst kitchen".*

They now predominantly do bulk cooks, stating their philosophy of 'go big or go home'. KK purchased them a second because they didn't have enough space for all the food they were cooking. Having the school kitchen space to do the big cooks ups also enabled them to cook much more, and to involve more people. They make it easy for people to participate, and use people's different strengths, including having a chef join in on a recent cook up:

> *"some people come along each time and some people come and go and come back. And it depends on when they're available and when we're doing things".*

Thus, they went from home kitchens that were small and had to cook "on your own", to "using trestle tables at school":

> "*That's the beauty of our model, is that we kind of have these different prongs that work really well. So we're still, like [community volunteer] still produce some … pizzas in my kitchen yesterday because we had some things that were donated. And you still produced some food just last week kind of thing…. And [Tech Teacher]'s got the kids cooking. A really cool thing is so we still cook home food and then Karen brought in the idea of making it part of the curriculum, which has been just an incredible blast. Like seriously brilliant.*
>
> *Yeah, and then the third prong of it was I kind of went, because I know volunteers. I know that you get five people who do everything, or in our case three people who do everything. And the other people want to do stuff, but they just, either they don't know how or they don't have the same resource we do. And I'm a big believer in making things really easy for people. I learned in SPCA that not everybody wants to clean litter trays and cuddle cats. Some people have got marketing, some people have got*

fundraising, some people have got data entry. So how do we bring in people that can still help us and make it easy for them? So that's where the community cooking days comes in. So we basically say who wants to turn up, it's going to be social, it's going to be friendly, it's not going to cost you anything. You're going to give us half a day of your time and you're going to feel good because we're going to produce a couple of hundred meals that morning".

*Introducing the Rangatahi Model:

A paradigm shift was required in the mindset of the food tech class where they went from being used to cooking food that they then ate themselves or got to take home, to giving away the food they cook in class (via KK). Excerpts from the interview are provided below to illustrate this journey that the tech teacher went on with the students as they introduced this new model, which has become known as the "Rangatahi Model".

When asked how receptive her tech students were to the idea of giving away food they cooked in class, the KK Coordinator/Tech Teacher stated:

> They are now *"because it's year two. And so every year level that I have has to give back to the school every term. So my year 10's will be doing a big Kura Kai thing. And the week after that they're doing a big baking for food banks."*

But initially:

> *"With all my normal students… my thing is giving back. And because they're such self-righteous kids at times, it's like 'right I'm going to get in a bit of Kura Kai'. They're so self-centred too: 'I make food I want to eat all of it.' Yeah, they're like this… I hated watching that. Like it was a real eye opener because I came from a hospitality background before I did my teacher training. So, I've always learnt to be hospitable and, you know, you make food for other people…*
>
> *Then all of a sudden I was watching these kids in these two classrooms just being little creatures* [because they were no longer eating the food they cooked]. *But, that also exposed alot of kids here that were vulnerable, that didn't have food. And you could tell. And even their body language was an eye opener. Like the ones that would cook something but would quietly put it away in their bag and take it away. And I often questioned why they were doing that when everyone was sitting down and eating. And it's because they would either share it with a family member that has no food. So, I was able to pinpoint kids that needed a little bit of help, and I could go up to them and say 'hey, come and have a look over here'. And I'd lift the lid quietly on the freezer and say 'oh shall we pop one into your bag?' And they'd be like 'oh why would you do that?' 'Well, take it home, help the family out'. And so they'd come back, and they'd come back again. And yeah, they're families that we know need help. So that's kind of why I thought 'right we need to go bigger…we need a lot more support".*

In introducing the Rangatahi model, this KK coordinator/Tech Teacher decided to teach her class about poverty and food insecurity before allowing the to do the "fun" cook up part of the syllabus*:*

> *"The first time I did the unit of work, the reception from the kids was very bad. They were really really disgruntled. They were very rude to me. Passive aggressive. … I went home over the weekend quite upset. I'm like 'oh my god', you know, 'what's wrong with these kids today?'*
> *So, I found every possible You Tube video I could on poverty and living conditions of people and food banks and found as much as I could related to New Zealand. And when I had them on the Monday, they thought they were coming into cook. And I'm like, 'nope you're not cooking'.*
> *So, they had to watch these movies and then they had to write me an essay about it and how it provoked their feelings. Did they feel impacted by it? Maybe they knew someone that could do with a*

hand. And there was a pretty immediate shift with them. And so we were able to move forward in a positive direction…"

"And … made them think about community. Like part of the project that [Tech Teacher] *made them do, like she did not let them cook until they got it".*

"Yeah so I think it was about a week before they were allowed to cook again, a week and a half. So that's the worst thing you can do to a kid in food technology… out of the group of 25 in that particular class, there were probably three that remained passive aggressive towards me and every time I would walk past, 'why the fuck am I doing this', you know? And I would just go up to them and…say… 'look, you are very privileged to not be in this situation, but it's only the flip of a coin and it can change overnight'.
And, you know, I talked to them also about… why don't they ask their parents their financial situation? Is it all smoke and mirrors? And I explained that, you know? You may have everything you want, but your mum and dad might have 50,000 dollars wrapped up on the credit card, you know?
So, we did an exercise of, they had to go home and ask mum and dad what the mortgage was? What their incomes were? I didn't get any of the information. … I wanted them to have that conversation. And because I think that's important. I'm really open. They need to be involved yeah".

The Tech Teacher read the NCEA Standards and identified areas where students could get NCEA credits as she realised that what they were doing for KK tied in with the standards that the hospitality kids, for example, were working on for their food waste class. Not all kids need the credits, but often come to the cooks anyway to help KK.

-<u>Kids helping with Community Cooks</u>:
The participants spoke about how they are intentionally incorporating KK into as many different aspects of the school, and the wider community as they can. In particular, they encourage the children to participate, both in the school cooks, and the wider community cook-ups. One of the Community Volunteers stated that she also gets her grandson to help her:

"My grandson helps me. I made him sit down when I joined. 'Because he said: 'what is this thing that you're doing, grammie? Why is there food everywhere?' And I made him sit down and drew a square and I said, 'okay how many kids at your school?' And I think there were 250 in the junior school.
And I said, 'now draw a square and now multiply that. Go 10 by 10 by 10 by 10'.
And he said, 'I thought you said we weren't doing maths'. And I went 'well I want you to picture that and then in your brain you need to multiply it by, you know, a hundred out this way and a hundred across that way'. And I said 'that's how many kids are hungry in New Zealand at the moment. That's how many kids don't have enough food'. And then I fact checked myself and I had to go and say to him, 'I got that wrong, actually, I've overestimated and there's not that many hungry kids, there's only like 200,000'. And he just looked me in the eye and he said, 'that's a lot of hungry kids Grammy'. And he said, 'none of them go to my school'."

The kids have got a great way of masking stuff, eh? Like, their resilience is absolutely incredible. But, you know, you can tell with their behaviours and that, that they're actually hungry. And some of them are brave enough to come up like, you know, we'll have the trolley over here or in the other room. Not so much the other room. But, here like with the Year 7s, I find that once they've done their cooking, they've cleaned up and they're lining up ready to go, quite often you'll have a kid come up and go 'is that apple going spare?' And I'll be like 'yeah you can have it?' 'Oh are you sure? Will no one else need it?' And I'll be like 'yeah you can have the apple' and they'll quietly put in their bag because they're hungry. So I'm all about if they're hungry they eat, you know?

-Community engagement and ownership:
The participants talked about the role that the wider community is increasingly playing in their KK programme:

> *"The other part of it that I really like is that it's people in the community, even if they don't' come along, they've heard of Kura Kai. They know we exist. Which means that a) when they're in need they know how to get hold of us. And b) if they've got excess, because we're also asking for excess food, fruit and veges and stuff, they know we're going to use it... the other big thing really is* [the KK school]".

-Matching Meal Size and Packaging to Recipient Circumstances:

This needs to be appropriate to meet the requirements of the meal recipients, for example so the meals need to fit in school bags if students are taking them home, so they package up meals in smaller sizes.

> *"We've learned along the way about packaging and meal sizes and stuff. We were like oh we've got to feed families so the big foil containers are perfect for that. But, then kids couldn't put them in their school bag and take them home without other kids knowing they had them. So… instead of giving them a big food container they might take three or four… So we mostly package in small containers.*
>
> *And at* [local pa site], *there's no power on that pa. So those families have been living like that for generations, and it's, that's their normal. They know exactly how to live, but we had to go 'is our packaging working for that?'... Yeah because I was worried that we were putting food out to elderly people in foil containers and it couldn't go into a microwave. But, actually you know, the foil container can go on a barbecue no hassles. So we kind of went around what works for different people and how we can make that suit?"*

-Collaborating with Other Groups to Source Resources and Funds:
The participants realised that they couldn't keep drawing mainly on their own resources and the donations of the local supermarket, which were decreasing as the cost-of-living crises set in, and needed to find additional funds/resources to be able to continue their KK programme and meet the ever-expanding needs of the community. They started collaborating with other social agencies that had opened up in their town, who acted as a central point for surplus food redistribution. That agency

The Tech Teacher/KK coordinator spoke to someone on their School Board who was also connected to the local rūnanga about finding sources of funding as well as how to package meals in ways that would work for the local people who needed the meals on the pa. They also arranged to pick food up from the other social agency in the town, who had become a central hub for redistribution of surplus food. They stated that the input from all of these other groups was significant:

> "*I tell you what, it's life changing. I felt like we were literally holding our breath waiting* for [other social agency in town to] *set up a food hub finally here in* [their town]*…six months ago.*

-The Difficulty with Food Distribution:
The participants spoke at length about the time, energy and cost it takes to distribute KK meals. Unlike the case in some other KK schools/regions, the KK coordinator/Tech Teacher does most of the food drop offs herself. Someone donated petrol vouchers for their use, but this doesn't go near covering the costs they incur doing both one-off and regular runs to drop off food to people's homes in their town as well as neighbouring towns throughout their region:

"At the end of the term [KK coordinator/Tech Teacher] basically does a school holiday kind of run if you like. And then she comes in during the school holidays and delivers to families. She [personally goes around and distributes]… it's her life now… Yeah, I'm in my car an awful lot… Yeah some days it's not fun. It's actually quite, yeah it's quite stressful and I get quite agitated".

In rural communities, food delivery can also entail having to open and shut gates, which adds to the effort it takes to do drop offs:

Coordinator: "The time and also, because I live in [neighbouring town]. *Just having to open gates and it's the little things".*
Volunteer: "Yeah wouldn't it be nice if someone came and opened the gate for you?".

The participants spoke about how having the freezers in the school as a hindrance to their delivery systems, because this meant that the Tech Teacher/KK coordinator had to be at the school to access the food, which was problematic if she was not available or needed time off:

"I've got people wanting food today and I've basically, I've said to them 'how urgent is it? Can you do another day, because I've got a really important meeting after school'. 'Because I, you know, I don't want to be still delivering at seven o'clock at night. And that's not because I'm being selfish, it's, at some point, you can't".

The participants spoke about efforts they had made to get more people involved, so that the current three main people leading KK in this town weren't spread so thin. However, they spoke about the need to be thoughtful about where the meals go so their time/resources in providing and cooking all the meals weren't wasted by them being distributed inappropriately:

"And we try and balance like, we've had a couple of discussions around it and we're just getting the same people relying on us for food. And so somewhere like the community centre goes, 'well we can provide food during the week, but can we have your food for our freezers on the weekend?' And we're like 'yes, we want our food to be available'. But, we don't want it to be like them taking our hard work and not being thoughtful about who it's going to. So, it's trying to find that balance as well. Like we bust our guts producing this so we want to make sure it's going to people that really have the need for it. The right people. So as much as we could go, 'oh look we could have the freezer at the community centre and they could give it out to anybody'. Because they're not putting the mahi into producing it, they don't have the buy in to making sure it's going to the right places.

So, it's really hard to balance that. I think with the community centre though, my understanding is – because they do come and get food off us – quite often it's the place for accessing them for emergency housing people. Yeah, but I'm thinking if we had somewhere outside that was distributing as well, that it would need to be someone who understood the kind of, the ramifications of it needs to be produced somehow. Well and just also they need to be open…. because like the weekends and the school holidays, I'm here all the time basically… loading up the car and distributing it out because I can."

Furthermore, the KK programme was doing meal delivery for DHB/Medical Centre patients:

"we live in a, like this is a satellite town, … [KK volunteer was talking with the doctor from the] *medical centre* [a few years ago]… *about the fact that in January and February we were going to need more food because people overspend at Christmas time and then the bills come due and then everyone runs out of money. And her friend the doctor said, 'is this food for anyone?' Because she'd been in a meeting at the DBH the night before in Tauranga and they didn't have a plan".*

The participants also spoke about the importance of maintaining the trust that food recipients have placed in them, and how much it can take for people to acknowledge they need help with food, how

people can be very sensitive about such things and it has taken a lot for them to overcome their shame and even ask for food. This makes them cautious about who they are willing to "let in" and assist with food distributions.

*Reciprocity – Meeting Community Food (and Social-Emotional) Needs:
In addition to addressing food security, these participants talked about how their KK programme is also meeting the social and emotional needs of some of the people they drop food to, who may be shut ins or elderly who don't get to see other people very often. The participants recalled a time when one recipient cried on their shoulder for 20 minutes. Many recipients want to show their appreciation and give back what they can, for example, eggs from their chickens, fruit off their own trees:

> *"Yeah they're like really sad. And lonely. This one … had chickens right? So she had packaged up all the eggs because* [KK coordinator] *had dropped off some food the day before. And then I was dropping her the balance off. And when she came out she had stripped her tree, like she had an orange tree and she had lots of eggs. And so she was giving stuff to me to give to other people".*

-Programme has Expanded Well Beyond the "Standard KK Model":
The "distribution programme" occurring through the KK programme in this school/region has become much bigger than the typical KK model. The participants spoke about how supermarket delivery is unreliable, and how during periods of Covid lockdown, this jeopardised the food security of many people:

> *"if you order food from our supermarket and you want it delivered, it takes seven to 10 days. … And half of it is out of stock. And this is like just before COVID's going to go, we're going to have problems. And there was no plan. Like there was zero plan for this town. So, and we've got all of these elderly. And during that period we were sending out 450 meals a week… It was insane".*

Furthermore, they have identified needs in the community for more than just food, and are attempting to fill those other gaps, also:

> *"It's become even bigger now, too, hasn't it. Because you're providing out toiletries and care packages and all sorts. So at the start of the school holidays, it's not just frozen meals, it's bags of fruit. It's bags of veges. It's tins. It's toilet paper. It's all sorts. Eggs. Biscuits."*

> *"[Tech Teacher/KK coordinator] is going to bust soon if we don't find a way… we have to find the volunteers who have got the vehicle access, the money… We need it to be a zero-cost equation for people to help us. So that whoever's doing the running around can get some petrol vouchers. But, not only petrol, but maybe I don't know. Something else as well because it's, see I don't think Marie and Makaia really realised how big we would take it. They are quite gobsmacked that we are, they planted the seed and we ran with it. We're certainly doing a lot more than….anywhere else in New Zealand."*

People in need of their meals can also have special dietary needs; for example, a couple on a special diet because the wife has cancer and the husband is blind, so the KK team cook for them and deliver meals once every six weeks:

> *"take half a dozen meals so that there's like one meal a week he doesn't have to cook… before we started, no one was doing it. And she can't eat meat or protein. Like her diet from her doctor is like, it's no dairy, no meat, no eggs. So like you're really low on, it's basically vegetarian, gluten free, dairy free, wheat free. That's really hard to cook for."*

-Sense of Responsibility:

The participants spoke about their concern for the wellbeing of the people they were currently distributing food to, if they stopped doing it. Now that they were aware of the scale of the need, and had forged connections with these people, they felt a sense of responsibility:

> *"We never expected it to be this big. I never wanted to feed hungry people, it wasn't on my frigging agenda because people shouldn't be frigging hungry. It makes me so angry. So, but the problem is there, we've just got to keep doing it. And honestly it's the best thing we can do for our community. So it really is, it's how we're going to keep ourselves safe. It goes all the way away around… you can't turn a blind eye. You'd be a pretty rotten person if you did."*

-Personal Boundaries – Finding a Sustainable Model:

The following dialogue between the KK coordinator/Food Tech Teachers and the KK Volunteers demonstrates the importance of establishing boundaries to prevent burnout, and looking after your own wellbeing. (Note: some of the factors contributing to this issue of overwhelm amongst volunteers in social support roles is discussed in the Section 3.3.6 about Government Policy}.

> KK Coordinator:
> *"There are days where I've had to say 'enough is enough. No, I can't deliver to you today, you're just going to have to wait'."*
> KK Volunteers:
> "*And it would be good if we had a freezer elsewhere, because you know,* [the volunteers] *could pickup that slack. Whereas it does tend to be you carrying that load."*
> KK Coordinator:
> *"Yeah like I could have had a full teaching load and then I've got to go and do 10 deliveries. And I just feel by the time I get home I'm actually mentally drained, you know? And we've had volunteers say oh yeah, but I can do it. And they don't turn up… I'm out of resources. Like I've got all the food, but I'm out of… time and energy* [and petrol]*".*

The participants recognised that they had reached, if not exceeded, the limits of what they could do with the KK programme and that, for it to be sustainable, and that they can't own everyone's hunger or loneliness:

> "Like I can't own everything, you know what I mean?"
>
> "The other thing is when I go to people's places and some people just want to talk. And you're like 'I've really got to go, I've really got to go, I've really got to go.' And I, you know, you leave there and it's, you can't own that either, you know? You've got to have a bit of a thick skin."

-Potential Role for Retirees and our Time-Rich People:

There was discussion about which groups of people KK could connect with to fill in the gaps and lessen the load on the KK team in this school/region. Ideas included bringing in retirees who are time-rich to help cook/deliver meals to elderly shut-ins. One volunteer stated that:

> *"My parents could do* [specific elderly community]… *because a) they've got friends in there. But, also it's really really mentally good for them. And dad drives and electric car so it doesn't cost him anything to go anywhere. Well it's a hybrid. And they have time… and my mum is a visitor. She wanted a volunteer job. Like so she wants to just go and hold people's hands because they've got no one."*
>
> *"Yeah it's finding the people with the time. And that's a really good connection. Because it's the sort of thing that helps for every, it helps everyone."*

-Incorporating "Food Resilience" into Curriculum across the School:
There was discussion around utilising the school garden to produce vegetables for KK. The participants noted that, while some produce had come from school gardens, it had been difficult getting Hort teachers to grow produce for the class cooks as the focus tended to be on the theory of horticulture, not the practical growing of food. Likewise, the participants talked about the potential of using other school classes to contribute to the "KK" initiative such as the Hard Material teacher getting their students to make planter boxes for the school vege garden.

-Building Community Food Resilience – Lessening Reliance on the Supermarket:
The participants spoke about ways that food security could be improved in their region:

> *"across the board on our schools, our daycares, and all the rest of it, like we've got a food walk. Yeah a kai walk yeah… Just out of town and we should be planting fruit trees and nut trees and they should be in every schools, every day care, every. Like because my grandson he goes to a little tiny private school on the outskirts of town. They've got fruit trees everywhere and he forgot his lunch one day and the teacher told him, well suck it up princess you're never going hungry as there's plenty of fruit trees, so."*

> *"as a community, we've got this beautiful main street and all the kids are planting the baskets and all the rest of it, you know? They could be fruit. We could add fruit trees. There could be, you know, bloody hell, plant tomatoes in them or whatever… Where was I recently actually and, was it Rotorua and they had veges growing in their main streets… it doesn't get… stolen, vandalised."*

The participants spoke about having people with good gardening skills in the community tending to the school vege garden, or community gardens donating produce to KK for cook ups:

> *"it needs more people with more time to be able to put, but at a real level as opposed to an intellectual level."*

-Ideas for Volunteer Recruitment and Donations:
To build more awareness in the wider community about how people can assist with KK, and the wider social supports that are required, the following ideas were suggested:

Media stories in local newspaper, which elderly read, seeking their input.
Liaise with groups such as Lions for support.
Vehicle to help with collection and distribution.