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Food Security in the Inner East Catchment

Population Groups 'At Risk' and
Potential Initiatives Recommended



DEAKIN
UNIVERSITY AUSTRALIA

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with Rebecca Morgan (Inner East Primary Care
Partnership)

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Introduction:

Food Insecurity is an issue of growing concern with its rising prevalence. Estimates now show around 5% of Australians experience food insecurity, with 40% of those individuals experiencing it at severe levels. ¹ Food Insecurity is defined as 'limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways'. ² Currently in Australia, food security is considered an important social determinant of health due to the short and long-term effects it can have on individual health. These impacts include:

- Emotional and psychological stress such as depression, anxiety, and lowered self-esteem.
- Deterioration of health and physical appearance.
- Lack of energy causing lethargy and therefore effecting concentrating and learning.
- Social and interpersonal effects including social exclusion, shame, and/or negative illegal actions.
- Impact of stress on parent-child relationships. ³

Groups at Risk in Australia:

While current research in Australia has only indicated a minority of 5% of Australians experiencing food insecurity, there are people living on low or uncertain incomes that are more likely to be considered 'at risk'.

Aboriginal and Torres Strait Islander People:

Indigenous Australians are at risk of Food Insecurity due to factors such as remoteness, poverty and cultural transition. ³ Income and employment, family obligations, inadequate housing, remote store practices and lack of transport can also increase the likelihood of food insecurity in the Australian Indigenous population. ⁴ In 1994 the National Aboriginal and Torres Strait Islander Health Survey reported that nearly 30% of Aboriginal adults worry at least occasionally about going without food, indicating extensive food insecurity, which is even greater for those living in remote areas. ⁴ Aboriginal and Torres Strait Islanders living in remote areas were more likely to report having run out of food (36%) compared to 20% living in non-remote areas. ⁴

Homeless People:

In 2014, 2.5 million (13%) Australians aged 15 years and over reported experiencing homelessness at some point in their lives, with more than half of these people (1.4 million) having an episode of homelessness in the last 10 years.⁵ Homelessness can affect the onset of food insecurity in individuals as it often precludes access to kitchens and food storage facilities, limiting the ability to store food and prepare meals.⁶ Food hardships and nutritional deficits may result from food insecurity within homeless individuals.⁶

People on Low Incomes:

In 2013-2014, 4 million Australians were reported to be living in low-income households with 830,000 under 15 years of age, 2 million between the ages of 15 and 64 years and 1.2 million over the age of 64.⁷ Food costs play a significant role in influencing food choice among low socioeconomic status (SES) groups, who often have to cut back on food spending in order to be able to afford other essentials. During the 2007-2008 financial year, food prices rose 3.9%, while some basic foods increased significantly; cheese by 14.2%, milk by 12.1%, poultry by 11.0%, and bread by 6.8%.⁸ A study conducted in 2012 assessed the affordability of a Healthy Food Basket (HFB) in Metropolitan Adelaide. Results found that healthy foods were significantly less affordable in low-income families where up to 28% of income would need to be spent in order to afford the HFB.⁸ A longitudinal study of the cost of food in Victoria found that the mean cost of a HFB increased from \$424.06 ± 38.22 in winter 2012 to \$451.19 ± 33.83 in summer 2014, representing 31% of household income.⁹ These findings show that a healthy diet may be unaffordable in Victoria.⁹

Disabled and Aged People:

In 2015, 18.3% (4.3 million) of Australians were reported with a disability.¹⁰ Of the 4.3 million with disability, 1.4 million were reported to have severe or profound disability, with over half of these individuals aged over 65 years and accounting over 654,600 people or 47.8% respectively.¹⁰ These individuals with severe or profound disability have the greatest need for assistance with core activities – communication, mobility and/or self-care.¹⁰ According to the International Classification of Functioning, Disability, and Health (ICFDH) disability denotes the negative aspects of the interaction between an individual and their health and the individual's contextual factors (environment and personal factors).¹⁰ In the 2015 Australian Bureau of Statistics survey, a person was considered to have a disability if they report having a limitation, restriction or impairment which has lasted, or is

likely to last for at least 6 months and restricts everyday activities.¹⁰ Disability is therefore highly linked to food insecurity due to the limitation in the amount or type of work a person can complete, resulting in a limited or lack of money to purchase food.¹¹ As disabled individuals also require a large amount of assistance in day-to-day activities, something as simple as preparing their own healthy meals can be a difficult task, especially without the assistance of a carer, which many individuals may not be able to afford, increasing their risk of becoming food insecure.¹¹

Asylum Seekers and Migrants:

Approximately 1.7 million of the people born overseas arrived in Australia to live after 2003 and were aged 15 years and over.¹² Of these 1.7 million people, 1.5 million of those were recent migrants or temporary residents.¹² This was collectively made up of recent migrants equating to 63% of the population (552,600 people had a permanent visa and 368,700 people were now considered Australian Citizens).¹² 36% were temporary residents with approximately 525,000 currently on their temporary visa.¹² Key influences on food security within Asylum Seekers include the conditions accompanying the temporary visas, which is most often financial restriction and opportunities for paid work.¹³ They also include the limits placed on English language.¹³ A study conducted by the Asylum Seeker Resource Centre (ASRC) in Melbourne found that more than 90% of asylum seekers experience food insecurity and more than half have no income.¹³

People living in Remote Areas:

Currently it is well known that food security in many remote Indigenous communities is poor with the supply of healthy food often being infrequently supplied and generally with a lack of choice which is low quality and expensive.¹⁴ The cost of fresh and nutritious foods found in these remote communities are found to be considerably higher than those in urban and Regional Australia.¹⁴ These costs may be exacerbated in these remote communities where household incomes are often very low and there may be no alternatives to the local store.¹⁵

Within the Inner East Catchment, four council areas were identified with 'at risk' groups for Food Insecurity and can be seen in Table 1.

Table 1: Vulnerable Groups in the Inner East Catchment:

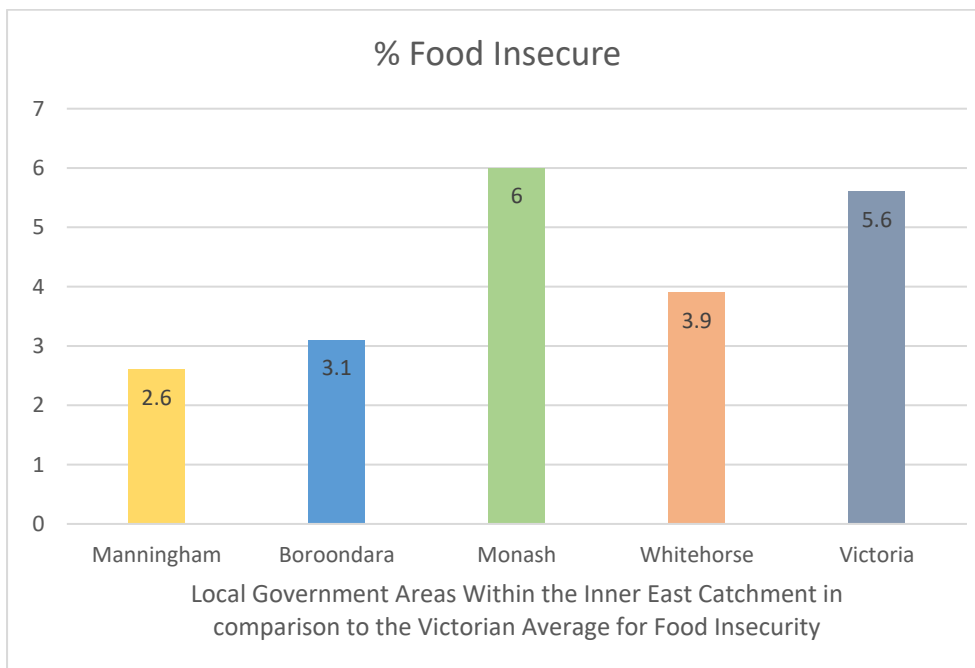
LGA	Population Groups Identified as “at risk”	Local Context
Manningham LGA	<ul style="list-style-type: none"> • People with disability or mental health problems • One parent families • Low income households experiencing mortgage and rental stress • Migrants 	<ul style="list-style-type: none"> • In Manningham there are 5021 (4.5%) of people needing assistance with their day to day lives. • 70% of people requiring assistance are over the age of 65 years. • 42.6% of Manningham residents do not meet the requirements of fruit and vegetable intake. • In Manningham 40% of the male population has reported to be overweight, compared to 21% of women. • 2809 household dwellings are receiving rent assistance from Centrelink. • 12,638 households in Manningham are ‘low income earners’ and have reported experiencing mortgage stress.

LGA	Population Groups Identified as “at risk”	Local Context
		<ul style="list-style-type: none"> • 5% of dwellings across the municipality do not have access to a motor vehicle. • Food Insecurity in Manningham is at 2.6%.¹⁶
Boroondara LGA	<ul style="list-style-type: none"> • Low Income Earners • Sole person households • Homeless • Non-English speaking residents 	<ul style="list-style-type: none"> • Some 15% of residents live on less than \$600 per week. • Approximately 380 people in Boroondara are homeless. • Low-income earners are doubly disadvantaged due to the higher cost of living in an affluent municipality. • Food Insecurity in Boroondara is at 3.1%.¹⁷ • Telephone survey of 1000 residents found that access to nutritious and affordable food was important, being rated 8 through to 10 (with 10 being extremely important) by 78.1% of residents.¹⁸

LGA	Population Groups Identified as “at risk”	Local Context
Monash LGA	<ul style="list-style-type: none"> • Migrants • Elderly • Socially and economically disadvantaged • Unemployed • Indigenous Australian Residents • People with disability 	<ul style="list-style-type: none"> • 45% of Monash residents were born overseas. • 22.5% of the Monash population is 60 years and over. • Monash has an unemployment rate of 6%, which is higher than the Victorian average of 5%. • In 2011, City of Monash had 355 indigenous residents. • 7740 people (4.6%) report needing help with their day-to-day lives due to disability. • Food Insecurity in Monash is at 6%, which is the highest in comparison to neighbouring Councils. <p style="text-align: right; margin-right: 20px;">19</p>
Whitehorse LGA	<ul style="list-style-type: none"> • Migrants • People in low and middle socioeconomic areas • People of non-English speaking backgrounds • Unemployed • Substance users 	<ul style="list-style-type: none"> • In the <i>2007 Community Indicators Victoria survey</i>, 4.4% of Whitehorse residents had run out of food in the previous 12 months and could

LGA	Population Groups Identified as “at risk”	Local Context
	<ul style="list-style-type: none"> • People with limited access to motor vehicles • Elderly 	<p>not afford to buy more.</p> <ul style="list-style-type: none"> • 20.8% of persons living in Whitehorse have experienced transport limitations in the previous year. ²⁰ • Food Insecurity in Whitehorse is at 3.9%. <p>19</p>

Figure 1: Percentage of Individuals experiencing Food Insecurity within the Inner East Catchment established from the 2007 Community Indicators Survey



Methods:

Over a period of 4 weeks a range of scoping activities were conducted to develop an understanding of food security in Australia, including:

- An assessment of grey literature;
- A review of academic articles;
- An assessment of City Action plans for 4 councils within the Inner East Catchment were reviewed – City of Boroondara, City of Manningham, City of Monash and the City of Whitehorse – to establish population groups within these councils that are considered ‘at risk’.

Information from these resources was synthesised to establish population groups within these councils that are considered ‘at risk’ of food insecurity, and to develop an understanding of best practice interventions and policy approaches to addressing food insecurity. Case Studies were then revised and summarised below, with the key findings and evaluation of each provided where available.

Case Studies



Vic Health’s ‘Food for All’ Program

The Vic Health’s ‘Food For All’ (FFA) program is an initiative that aims to help people regularly access and consume a variety of nutritious foods, particularly fruit and vegetables. The program was run over a period of 5 years, between the years of 2005 and 2010, and was in partnership with local government and concentrated on priority populations. The following participating councils took the lead in reducing barriers to accessing healthy foods in their communities. ²¹

Table 2: Council and Area of Action within the VicHealth Program ²¹

Council	Area of Action
Brimbank City Council	Aimed to improve access to fresh food for disadvantaged people by setting up a fresh food delivery service for elderly residents and developed community gardens to address local food supply issues.
Cardinia Shire & City of Casey	Both addressed transport and food access issues in council planning reform. This project saw the development of ‘The Farm to Plate’ education program and the development of school-based community gardens. They also partnered with local producers and service agencies, and encouraged fast food retailers to provide nutritious and affordable food through an award scheme.
City of Greater Dandenong	Aimed to strengthen partnerships with community service providers to address local food security issues of access and affordability. They developed policies and planning around food security, housing, community centres and neighborhood houses. The project identified facilities for the development of community kitchens and provided support to community

Council	Area of Action
	gardens. The council also improved promotion of local free bus services and low-cost meal options at selected cafés.
Frankston City Council	Formed a Food Security Advisory Group to increase access to healthy food in Frankston. This led to the development of a council food security policy, as well as a horticultural training program to complement community garden initiatives.
Maribyrnong City Council	Aimed to improve access to and supply of fresh fruit and vegetables through bulk buying schemes and home delivery services. The council developed workshops, mentoring and community education programs to raise awareness of food security issues.
Melton Shire Council	Established a 'Veg out Van' to provide a fresh fruit and vegetable delivery service, delivering to key community outlets.
Swan Hill Rural City Council	Encouraged local retailers to stock healthier food choices, and worked to provide healthier food choices in tuck shops and local government venues. Council also improved transport options for people to access food retailers.
Wodonga City Council	Incorporated food security issues into council planning. Also expanded on the Food Security Network, and improved the nutritional value and variety of Meals on Wheels options.

Evaluation:

As well as program assessment, the overall evaluation produced two valuable areas designed to assist local government in advancing a food security plan. These areas are:

- A series of information sheets entitled 'Ten ways local government can act on food security'.
- Ten micro-movies that visually represent the information presented in the information sheets. ²²

These two areas were established through the experience and knowledge that were gathered through the individual programs run by participating councils.

The results below describe the progress of the FFA program in achieving the goals and objectives outlined at the beginning of the programs commencement.

Goal 1: Reduce Local Government Systemic Barriers and Local Infrastructure Barriers to Food Security

The FFA program was successful in identifying infrastructure that was a barrier to food security in affected disadvantaged groups. The main infrastructure barriers that were identified within the projects were:

- Lack of public and private transport to and from shops.
- Lack of cooking equipment, food storage and cooking facilities.
- Lack of local shops that supply affordable, appropriate healthy food.
- Lack of an appropriate environment to grow fresh food. ²²

However, the projects did not identify natural environment barriers that were of significance, except in relation to the use of land for community gardens and local food production. Some of the FFA project strategies managed to help reduce infrastructure barriers through the setting up of markets and stalls selling affordable fruits and vegetables to those individuals on low incomes, to help ease economic barriers. ²²

The provision of community transport to fresh food outlets, and advocating easy access to fresh food outlets to state and government transport organizations, helped reduce the transport barriers in some municipalities. ²²

Goal 2: Increase regular access to and consumption of a variety of foods, in particular fruits and vegetables, by people living in disadvantaged communities

FFA projects data provided evidence that healthy eating and food supply strategies did result in increased awareness, knowledge, food skills and intention to implement new knowledge. Some strategies such as café meals and emergency food relief programs gathered evidence of increased fruit and vegetable consumption. ²²

Key Findings:

Limitations:

- As this was conducted in a naturalistic environment, there was no comparison against a control group.
- Evaluation of strategies by partnership organisations was not always possible as they occurred outside the control of the project officers.
- Information regarding those individuals that had recently run out of food was largely unavailable in the participating local government areas. ²²

Frankston Community Kitchen Pilot:

Beginning in September 2004, the Frankston Community Kitchen Pilot aimed to improve participant's food security through acquiring food knowledge and skills whilst reducing social isolation. The issues it aimed to address were:

- Food access and use.
- The poor physical and financial access to affordable and good quality, fresh produce.

Originating in Canada, the Community Kitchens model has been shown to enable participants to take control over their own health. This project was based on community development principles and intended to foster personal empowerment through self-help and mutual support strategies.²³

Community Kitchens also aim to affect change in the domains of food access and food use. Local research undertaken in Frankston City showed food insecurity to be a problem for a significant proportion of the community with this issue being attributable to financial inadequacy, transport limitations, and distance to fresh produce outlets. A limited 12.6% of respondents had access to fresh fruit and vegetables within 500m of their home.²³ 12.3% of individuals also reported going without food in the last 6 months due to a lack of money, in comparison with the Victorian average of 6%.²³

This program was available to aged, Indigenous, disadvantaged, youth and migrant individuals.

Evaluation:

Evaluation results have demonstrated that community kitchens had a significant impact on participants regarding many aspects of healthy eating. These areas included: improvements in cooking skills, meal planning, budgeting and shopping habits, fruit and vegetable consumption and food safety and hygiene practices. Results also show that Community Kitchens provide a setting where people can interact socially and expand their friendship networks – an aspect that was seen to be most valued by participants.²³

[Evidence of Outcomes – Healthy Eating:](#)

The following results have been taken from the Frankston Community Kitchens Project Twelve Month Evaluation Report (2006).

Cooking Skills and Behaviours:

- 54% of participants surveyed in the 12-month preliminary evaluation felt that their cooking skills had improved greatly since joining the Community Kitchens.
- 58% of participants reported using recipes from the Community Kitchen in their home, however only occasionally.
- 14% reported preparing meals from scratch following the program.
- Over 40% reported feeling more motivated to cook at home and 50% reported cooking more meals at home since joining a Kitchen. ²³

Nutrition Knowledge:

3 year evaluation showed that:

- 42-48% of participants reported discussing nutrition within their kitchens.
- 60-70% of participants were able to identify healthier food choices from a list. ²³

Eating Behaviours:

- Participants interviewed reported healthier eating since joining Community Kitchens.
- Preliminary Evaluation showed that this could be partly attributed to feeling more motivated to cook at home (43%).
- Increased motivation and using Community Kitchen recipes at home resulted in 64% of participants reporting a reduction in fast food consumption in the Preliminary Evaluation.
- 43% of participants reported that they have increased their consumption of fruit and vegetables, which is very similar to the 45% found in the Preliminary Evaluation. ²³

Food Spending Habits:

- Many participants discussed changes to their food budgeting habits stating they were looking for cheaper options, “shopping around”, writing shopping lists and reading food labels.
- Preliminary Evaluation perceived that participants were spending less on non-nutritious foods, yet perceived overall spending had increased significantly.
- Heightened enthusiasm about going shopping (50%) and increased confidence to try new foods may also lead to an increase in spending. ²³

Menu Planning:

- 28% of participants reported an increased use of shopping lists and 7% in meal planning.

- In the 3 year evaluation, participants reported discussions within their kitchens on the modifications of recipes to save money (95%), the estimation of food costs (100%), writing a shopping list (74%) and reading food labels (42%).²³

Social Inclusion:

- Participants surveyed in the Preliminary Evaluation stated their favourite part of being involved in Community Kitchens was the social aspect – the friendships developed and social interaction.

In the 3 year evaluation:

- 26% of participants surveyed reported that they had increased their friendship network since joining the Community Kitchens.
- 58% of participants interviewed reported an improved sense of confidence, happiness and health since joining the Community Kitchens.²³

Community Strength:

In the 3 year evaluation:

- 43% of participants reported joining other community groups in the Frankston area since joining the Community Kitchen.
- 69% of participants reported improved confidence on taking on new tasks.²³

Key Findings:

The Frankston Community Kitchens Pilot Project provides evidence regarding the practice of community kitchens in achieving an increase in healthy eating, social inclusion and community strength.

Stephanie Alexander Kitchen Garden Programs:

Stephanie Alexander Kitchen Garden Programs provide inspiration, information, professional learning and support for educational institutions to deliver pleasurable food education, in conjunction with educators, partners and the wider community.²⁴ This pleasurable food



education is provided to children during their early learning years, in order to form positive food habits for life. In order to establish these positive habits, food education should:

- Emphasise the flavours as well as the health benefits of fresh, seasonal, delicious food.
- Dishes cooked reflect the vegetables, herbs and fruits grown, season-by-season in the school gardens by the children, and reflect the Australian Dietary Guidelines.
- Kitchen educators emphasise balance and moderation, and recommend fruit-based desserts as 'sometimes only' foods.
- Integrate into the curriculum or learning framework as it can reinforce literacy, numeracy, science, cultural studies and all aspects of environmental sustainability.
- Deliver observable social benefits to the children, including those with special needs.
- Encourage critical thinking, teamwork, an understanding of cause and effect, and increased levels of observation.²⁴

Evaluation:

Evaluation of the Kitchen Garden Program was undertaken in 2011-2012 and was completed at a National level. The evaluation adopted a matrix framework to assess the impact of the program at 3 levels; impact on the students and families, impact on the schools (including teachers, volunteers and the school communities), and the program level outcomes in relation to health promotion in schools.

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Program Evaluation:

The Stephanie Alexander Kitchen Garden Program has been implemented across 177 Australian schools which received funding to establish gardens and kitchens with the view of providing at least 2 years of kitchen and garden classes run by specialist staff, in cooperation with teaching staff and community volunteers.

Overall findings across lifestyle domains:

Student and parent surveys conducted assessed four lifestyle domains: garden lifestyle behaviours, kitchen lifestyle behaviours, eating habits and food choices.

Kitchen Lifestyle Behaviours:

Overall, the evaluation provided evidence that there was significant improvements in students' kitchen lifestyle behaviours (as reported by parents) and food choices.

- Nearly 20% of parents indicated that they prepared more meals at home once their child had participated in the program.
- 77.4% of parents indicated their child asked them to make foods that had been made at school as part of the program.
- 71.9% of parents of students reported an increase in willingness of their child to cook at home since the start of the program. ²⁵

There was, however, no significant difference reported in gardening lifestyle behaviours and eating habits.

Garden Lifestyle Behaviours:

- More than 80% of school students reported they learned new things in the garden.
- Almost 1/3 of parents reported spending more time in the home garden working with their child since the beginning of the program. ²⁵

Eating Habits:

- 20% of parents of initiative school children reported that students ate fruits and vegetables more often after participating in the program. ²⁵

Enablers to Participation in the Program:

- The program model provided a 'vision' that can be used as a guide to implementation.

- A strength of the program was engaging the wider school community; their time, commitment and personal resources were critical to the establishment and implementation of the program in schools.
- Program volunteers potentially gained skills and capacities through their engagement with the program.
- The program model supported an engaged, whole school approach to the wellbeing of students and the environment.²⁵

Barriers to Participation in the Program:

- The program model may be too inflexible and limit the capacity of some schools to participate; this may apply particularly to schools whose students would benefit the most from the program.
- This program should be reviewed to consider how it can be made more adaptable for local school environments. Currently the program model has limited flexibility in recruiting and retaining a sufficient number of appropriate volunteers, maintaining specialist staff support, managing funding delays and the specific circumstances and needs of the range of schools involved.²⁵

Key Findings:

The key findings of the evaluation were as follows:

- There was strong evidence of increased child willingness to try new foods including a significant difference between program and comparison schools.
- There was evidence of statistically significant increases in child knowledge, confidence and skills in cooking and gardening.
- Increases in food literacy occurred in both the program and comparison schools and therefore cannot be attributed to the impact of participation in the school program.
- The program was considered particularly effective at engaging 'non-academic learners' and children with challenging behaviours.
- Transfer of program benefits to the home environment was not one of the goals of the program but is emerging as a flow-on benefit.
- Program schools on average generated \$1.93 of additional resources for every \$1 of government funding invested in the Stephanie Alexander Kitchen Garden Program.²⁵

Australian Food Hubs Network:

Food Hubs work directly with farmers to assist in the marketing and distribution of their products, making it easier for local businesses and communities to get access to fresh local food. Food Hubs focus on coordinated marketing and distribution so that farmers can jointly market to restaurants and food service, wholesale customers and institutions, or to households and businesses.²⁶

Food Hubs range in scale from volunteer-run buying groups using temporary spaces for receipt and packing of goods (like community halls and churches), to permanent and well established Hubs providing a variety of businesses with educational and/or food access services.²⁶



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[Local Organics Food Hub:](#)

The Local Organics Food Hub is an incredible example of the far-reaching impact food hubs can have on household food access, community food skills and knowledge and farm viability through the creation of direct connections and relationships between urban residents and local farmers.

Established in 2010, Angie Orrego (Co-Founder) works alongside founding organic farmer Rod May. They now operate a community store, as well as offering wholesale organic produce to a number of cafes and businesses in Melbourne, and facilitate community events including farm visits and food skill workshops.²⁶

There are 4 main focal areas of operation:

1. *Responding to Farmer's Needs:* Local organics are able to respond directly to farmers needs by putting the call out to customers when there is a surplus of stock or trialling their own 'local organics' commercial batches or 'value-added' products.
2. *Reducing Food Waste:* Local organics accept irregular shapes and sizes, defying the conventional food system trend of rejecting around 30% of 'imperfect' produce.

3. *Education and Social Change:* Farm updates, seasonal meal plans, food skill workshops and farm visits to empower people and organisations to engage with their food from a number of new perspectives.
4. *Creating Inclusive Food Systems:* Local Organics Food Hub operates as a social enterprise and looks at reinvesting a percentage of its profits back into this social cause, with the aim of operating as a co-operative that provides benefits to three parties: farmers, workers and consumers. ²⁶

Evaluation:

The 2013 National Food Hub Survey gathered information on the financial state of food hubs, the numbers and types of farmers and ranchers that they work with and the types of customers they serve. The 2013 survey was conducted by the Michigan State University Centre for Regional Food Systems in Little Rock, Arkansas. ²⁷

Producers and Suppliers:

- Food Hubs worked with a large variety of suppliers, with the majority (61%) working with 40 producers or fewer. These producers tended to be slightly more often women or people of colour.
- 58 Food Hubs responded to the question about the percentage of producers who were women, and on average 19% of the total of these hubs' producers/suppliers were owned or operated by women (compared to a 14% national average). ²⁷

Types of Products Sold:

- 22 Hubs concentrated their sales almost solely (95% or more) on fresh produce and herbs, while 3 Hubs focused their sales almost solely on meat and poultry. ²⁷

Challenges, Opportunities and Barriers to Growth:

Challenges:

Six challenges were identified by at least 10 Hubs:

- Managing growth.
- Balancing supply and demand.
- Access to capital.
- Finding appropriate technology to manage operations.

- Negotiating prices with producers and/or customers.
- Finding reliable seasonal and/or part time staff. ²⁷

Opportunities:

- 96% of Food Hubs indicated that demand for their Hubs' products and services was growing.
- 50% or more Hubs indicated that they saw "many" or "some" expansion opportunities with 12 different customer types.
- 8 out of 13 Hubs noted that they saw expansion opportunities with elder-care programs, such as the Meals on Wheels Program or retirement communities. ²⁷

Barriers:

- Some Food Hubs indicated that the demand for their products and services was growing.
- Increasing staff was the barrier to growth that the most Food Hubs noted (54%).
- Food Hubs also noted securing more product supply and increasing delivery capacity as top barriers to growth. ²⁷

Key Findings:

- Beyond aggregating and distributing food, many food hubs offer a number of additional services through their operations to their producers, customers and communities. This is evident with more than 50% of Food Hubs participating in product storage, marketing services for producers, and food donation to local food banks.
- Most food hubs are able to sustain their core food aggregation and distribution functions without substantial outside grant funding. Food Hubs of all ages and operational structures generated a positive cash flow, with annual sales increasing in both the 2011 and 2013 surveys.
- Almost all Food Hubs believe the demand for their products and services is growing. However, most Food Hubs indicated that they needed assistance with overcoming operational barriers, such as accessing capital.
- In particular, Food Hubs struggle in the areas of managing growth and balancing supply and demand. ²⁷

Food Fairness Illawarra (NSW):

Food Fairness Illawarra is a not-for-profit association of community groups, individuals, agencies and government organisations that are passionate about providing good food for all. This refers to fresh, nutritious, safe and sustainable food. ²⁸ Food Fairness Illawarra also takes interest in anything that affects the access to good food in the area including:

- The use of fertile land.
- Farming which looks after the natural environment.
- The cost of putting good food on the table.
- The availability of and access to shops and markets that sell good food.
- Supporting organisations that work with people experiencing food insecurity.
- Raising community awareness about providing access to good food for all.
- Sharing skills and knowledge about growing and eating good food. ²⁸

Food Fairness Illawarra works collaboratively with their members to share information and resources, to develop skills and knowledge to further strengthen the 'good food potential' among community members and to bring awareness to the community and key decision makers to further develop good food policies. ²⁹

Within Food Fairness Illawarra there are multiple ongoing projects, one of which is the *Stir it Up! Project*. This project supports people to promote healthy eating and good food in their local community by providing free training to volunteers which focuses on healthy eating, practical food ideas, presentation skills, kitchen safety and food hygiene. On completion of this training, volunteers are provided with a nationally recognised qualification which allows them to go out and deliver healthy eating activities in their own community. Activities provided may include presentations at community gardens, talks and displays, cooking demonstrations, supermarket tours or facilitating cooking classes.

³⁰

Evaluation:

Project Outcomes – Achievements:

In 2015, the *Stir it Up! Project* was running its fifth year of the program, and it was expected that eighty (80) healthy activities would be delivered to 800 individuals. The 2015 Annual Report stated that ninety-three (93) healthy activities were conducted between September 2014 and September 2015,

with an additional sixteen (16) activities run by the end of December 2015. The total number (109) of activities delivered was 1.4 times the projected target. The number of community members who attended these 109 activities was approximately 2,240 people giving an average attendance of 20.5 people per activity. This can be broken down to 49.2% adults and 50.8% children. ³¹

In comparison to the previous year, there was a three-fold increase in requests for cooking classes and a 25% rise in talks and displays delivered to the community. Over eighty percent (80.6%) of activity requests throughout the year were completed, with the 19 requests that weren't completed being due to a lack of volunteers available or factors being outside the control of the *Stir it Up! Project*. ³¹

Project Outcomes – Downfalls:

A decrease in Healthy Eating Activities was reported with a decrease from 72% to 51%. This was due to more complex requests and/or they were a part of longer-term programs. ³¹

Key Findings:

The *Stir it Up! Project* is continuously developing and improving due to the annual evaluations that take place at the end of the projects yearly completion. The 2015 Annual Report has stated visions for 2016 in order to expand on the resources currently available to community members and to improve overall access to healthy food for all individuals. The outlined 2016 visions are:

- To enhance the sustainability of the project and pilot by training a group of volunteers in the Illawarra region.
- Support current peer educators with ongoing training updates and other support.
- Provide bridging training to mentors who wish to work as peer educators.
- Continue and expand work with Aboriginal and Torres Strait Islander communities.
- Continue to develop resources for *Stir it Up!* Volunteers.
- Analyse data and produce an evaluation report. ³¹

Australian Red Cross 'Good Start Breakfast Clubs':

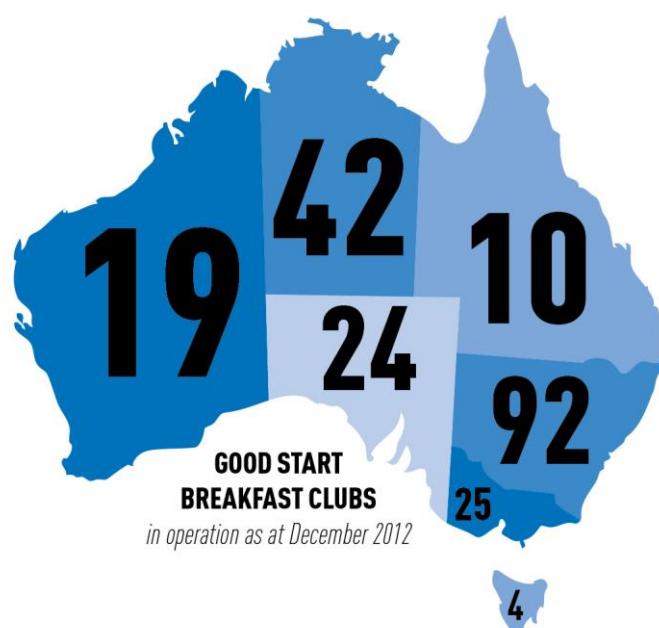
Every week, 1 in 4 Australian Children go to school without breakfast.³² The Australian Red Cross holds a 'Good Start Breakfast Club' which provides a healthy breakfast and nutrition information to thousands of school kids, who otherwise might go to school hungry. Breakfast clubs are more than just providing a healthy start to the day, they provide a safe and supportive environment whereby children can sit down and enjoy a nutritious morning meal with others. It is also an environment where adults can display positive behaviours towards healthy eating and good hygiene, therefore providing the children with excellent role models.³²

Breakfast clubs are run right around Australia, from cities and towns to remote Aboriginal and Torres Strait Islander communities.

One of the long term goals is to support communities in running their own breakfast programs, ensuring community control and ownership as well as sustainability of the program.³²

Evaluation:

Currently evaluation of 'Good Start Breakfast Clubs' has not been undertaken.



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Australian Red Cross 'FoodREDI Education Programs':

The Australian Red Cross FoodREDI Education Programs teach people how to get value for money and achieve a balanced diet in a relaxed atmosphere. Red Cross helps families make sustainable changes to diet, physical activity, food budgeting and healthy weight, which helps them to improve their health and prevent and manage chronic disease better. ³³



The nutrition education program is holistic, multifaceted and community focused, which allows it to target a wide range of vulnerable and hard to reach groups including Aboriginal and Torres Strait Islander people, people from culturally and linguistically diverse communities, migrants, refugees, the elderly, people with disability and young people. ³³

Red Cross aims to teach people how to get value for money and achieve a balanced diet through:

- Increasing consumption of fruit and vegetables for healthier eating;
- Improving education on good nutrition, healthy weight and physical activity;
- Skills to choose, prepare and cook healthy meals;
- Greater economic self-reliance through improved budgeting skills;
- Increasing confidence in implementing new knowledge and skills, and;
- Reduction in food insecurity and reducing social isolation. ³³

Evaluation:

Evaluation of this program has not yet been undertaken.

Policy Context in Australia



Classifying policy areas across two dimensions:

Policy areas within the food system and physical activity environments can be classified across two dimensions:

- The level of governance that is primarily responsible for administering the policy action, and
- The sector to which the policy action applies most directly.³⁴

Multiple Levels of Governance:

The first dimension of analysis recognises that multiple levels of governance are responsible for developing and implementing policy interventions. In Australia, the levels of governance include local government, state government, national government, and international governance (which is acknowledged through the policies of International organisations, such as the World Health Organisation). The policies of organisations, including government agencies, non-governmental organisations and the private sector may also be used as tools in health prevention.³⁴

Policy Actions that Influence the Food System:

In order to thoroughly analyse the policy actions that influence the food system it is important to consider all sub-components of the food system, including primary production and the inputs to primary production, food processing, distribution, marketing and retail, catering and food service.³⁴

Table 3: ‘Policy Areas’ that influence the food system in Australian context³⁴

Sector	Local Government	State Government	National Government
Primary Production	<ul style="list-style-type: none"> • Land- Use Management • Community Gardens 	<ul style="list-style-type: none"> • Primary production subsidies and taxes 	<ul style="list-style-type: none"> • Primary production subsidies and taxes
Food Processing		<ul style="list-style-type: none"> • Food Safety 	<ul style="list-style-type: none"> • Product Composition Standards

Sector	Local Government	State Government	National Government
Distribution		<ul style="list-style-type: none"> • Food Transport 	<ul style="list-style-type: none"> • Importation Restrictions, Subsidies and taxes • Quarantine
Marketing		<ul style="list-style-type: none"> • Marketing to Children • Marketing practices in schools 	<ul style="list-style-type: none"> • Marketing to Children • Nutrient content disclosures in marketing material • Consumer Protection (e.g. misleading advertising)
Retail	<ul style="list-style-type: none"> • Land – Use Management • Density for local fresh food retailers • Density of fast food outlets 	<ul style="list-style-type: none"> • Products sold in schools 	<ul style="list-style-type: none"> • Nutrition labelling • Health claims on food products • Incentive system for welfare recipients to buy healthy food • Food taxes / subsidies
Catering / Food Service		<ul style="list-style-type: none"> • Nutrition information in restaurants 	

Sector	Local Government	State Government	National Government
		<ul style="list-style-type: none"> • Food safety 	

Some areas, such as the marketing of food to children can be influenced by the policies of multiple levels of government as well as the policies of corporate organisations and industry bodies, and is therefore noted as an issue.

A study conducted on Government regulation in promoting healthy food environments, sought to identify regulatory interventions targeting the food environment, and barriers/facilitators to their implementation at the Australian state government level. In-depth interviews were conducted with senior representatives from state/territory governments and non-government organisations to examine participant’s suggestions for regulatory interventions for healthier food environments.³⁵ The main themes outlined were the need for whole-of-government and collaborative approaches; the influence of the food industry; conflicting policies/agenda; regulatory challenges; the need for evidence of effectiveness and economic disincentives.³⁵

Supported interventions included the mandating of nutrition and cooking classes at selected school levels, with >60% support from participants.³⁵ Implementation of food service policies to ensure nutritional quality for foods served within workplaces was also identified as a supported intervention, with >80% of participants supporting this.³⁵ Pricing reforms (taxes and subsidies) were also widely suggested, however caution needs to be taken so that they do not have a negative effect on low-income households or have other negative consequences.³⁵

A similar study undertaken in Victoria, was developed to study a set of potential policy interventions at the local government level and to test their value (relevance and applicability) with key local government informants.³⁶ The study was conducted in Victoria, which contains 79 local government municipalities – 31 in metropolitan Melbourne, 10 regional cities and 38 rural shires. A panel of public health researchers and practitioners refined a list of nine policy areas which appeared the most promising areas for local government to act on.³⁶ Any intervention, however, that was developed to place an outright ban on certain foods was given a low priority, as it was evident that this intervention would not have the greatest chance of implementation within council, and therefore would not be successful.³⁶

Table 4: Policy area for potential Local Government Action³⁶

Policy Area	Examples of Potential Regulatory Change
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Food policy requirements for government-funded or regulated settings.	Mandate the development and implementation of food policies which include the provision and promotion of healthy foods as well as food handling requirements.
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Within this study, it was found that respondents could not see a role for local government in food policy beyond meeting their statutory obligations under the Victorian Health Act of 1958 to regulate food hygiene and safety. Out of the 11 interviewed public health researchers and practitioners, only 3 of these participants responded that they considered food policy a worthwhile policy option for local government.³⁶ A secondary aim of this study was to understand why this policy intervention did not gain support at the local government level, considering local governments have jurisdiction or significant leverage over many food environments. These environments include council properties such as workplaces, but also local recreation centres such as kindergartens, day-care facilities and other cultural facilities. According to Allender et al, there are two possible hypotheses that may explain why informants did not support policies that contribute to healthy eating. One may be that the reluctance is historical; that current public health initiatives are engrained in the public hygiene models of the late nineteenth century.³⁶ The second hypothesis is that the current policy environment actively diverts attention from creating environments supportive of healthy eating.³⁶

It is therefore evident within this study that creating supportive food environments could be shared between multiple portfolios such as community health, environment and waste, and sustainable development. The mandated requirement to create and evaluate supportive food environments for each local government could change the perceptions of the role of the local government.³⁶

Planning for Food Security in Urban Areas:

The planning system can have both a positive and negative impact on the food system as a whole as it recognises the potential of an important planning system to address food security issues. Planning can limit certain land from being used for non-agricultural uses, allocate land for agriculture, designate areas for shops including food outlets and can increase the overall access to goods and services.³⁷

Role of Planning in Local Government:

It has been suggested that more changes need to be made at the state and federal level before local government planning can play an important role in addressing food security issues. Food security must be incorporated into council development plans in order to have provision for community gardens, open space areas and large balconies, to combat the increase of food insecurity occurring within highly developed areas.³⁷

Table 5: Roles and Responsibilities for the Hierarchies of Government³⁷

Level of Government	Roles and Responsibilities
National Level	<ul style="list-style-type: none"> • Policy and Global Trade • National Food Plan • Food Sensitive Planning and Urban Design by the Heart Foundation
State Level	<ul style="list-style-type: none"> • Supporting Regional Communities • Introducing policy in many government departments (enhances the opportunity to support the local governments to act upon the issues)
Local Level	<ul style="list-style-type: none"> • Interest in micro-planning and measures whether or not the desired outcomes are being delivered

Challenges affecting the success of food security initiatives:

Maintenance:

One of the largest challenges to food security is both the time and financial costs of maintaining fruit and vegetable crops. It is advised that councils could plant edible landscaping species such as fruit

trees where community groups request them and are willing to care for and harvest them. One downside to council maintenance is that often staff are not trained in the maintenance of particular species, which require pruning, pest management and harvesting.³⁷

Public Liability and Risk Management:

Public liability has been established as an issue, however council appear to be becoming more lenient as there is an increase in successful food security projects both nationally and internationally. It has been stated that every risk requires a management strategy and each proposal needs to be assessed on what the ratio of positive to negative outcomes are. Community gardens seem to tackle public liability in a different way, as there is often a management structure in place.³⁷

Funding:

It is recommended that a National Food Security Council should be established which would have the ability to co-fund local, state and territory food security projects.

More education and awareness surrounding food security issues also needs to be raised. Increased awareness in the community and amongst key decision makers at council could increase food security priorities and could potentially allow for it to be allocated funding in the annual council budget.³⁷

The Planning System:

With areas becoming highly developed, there is now a large focus on how to incorporate food security initiatives into new developments through balcony and rooftop gardens, living walls and additional public open space to cater for urban agriculture.³⁷

Lifestyles:

With a change in lifestyle over the years, and more individuals working longer hours, there has been a shift which has resulted in reduced opportunities for homeowners to spend time gardening, in turn leading to homeowners looking for low-maintenance plant species. A lack of general interest in gardening and an increase in other recreational activities may also be a cause in the decrease of skills and knowledge surrounding the basics of gardening in the younger generation.³⁷

Recommendations for State Government:

- Assist with increasing food security by policy changes that would allow Local Governments the support to enhance food security.
- Investigate ways in which food security initiatives can be embedded within planning regulation, policies and guidelines.
- It has been suggested that planning tools could position food security initiatives as a high priority and explicitly mention it more frequently throughout.
- Acquire funding from Commonwealth Government to fund large-scale food security projects, or to redistribute to Councils for them to fund their initiatives.
- Link with the private sector so that funding initiatives can come from there as well.
- Education and advocacy is also considered an important role for State Government.³⁷

Practical and Policy Recommendations:

Access to Fresh Food:

- Have a productive food garden at every community centre and host frequent fruit and vegetable swaps in suburbs.
- Support school gardens and make these accessible to the community. This can be promoted by placing community gardens and edible landscaping close to transit corridors.
- As practiced in Vancouver there are two initiatives that have great potential:
 - 'Grow-A-Row, Share-A-Row' program which encourages gardeners to grow an extra row of vegetables to donate to those in need.
 - 'Neighbour Backyard Gardens' program which allows households to register and share their own underutilised front yard or back yard with someone who wants to grow their own food but may not have the land or resources to do so.
 - Both of these initiatives appear to be relatively cost-effective.³⁷

Health and Wellbeing:

There is enormous potential to increase food security through Local Government Health plans by:

- Placing food security as a priority and acknowledging the positive health and wellbeing impacts that it may have.

- Increasing local food production: there may be a reduced need for importing food from other areas which therefore eliminates the need for transportation and eliminates the impact of carbon emissions from the transport of food and as a result reduces 'Food Miles'.³⁷

Leadership and Education:

- By increasing awareness and political and civic leadership it is believed that food security issues can be largely overcome.
- Awareness can be improved by promoting and educating the community on food security issues, but also by involving community members in practical areas such as hosting cooking and gardening workshops, film screenings and other events to educate the community on how to reduce their vulnerability to these issues.³⁷

Administrative:

- Investigating support systems that will assist in improving food security in the area is also beneficial. This can include applying for State and Commonwealth government funding for new food security initiatives and projects.
- Council may also need to encourage community groups to apply for funding so that they can receive additional financial support, which the Council may not be in a position to offer.
- Development of a 'Food Security Officer' within Council to manage food security projects and to undertake the investigative research that is required.³⁷

Further Research:

- Investigating and analysing current organisational structures and determining which departments (including planning) could potentially address food security issues.³⁷

Food Security Policy:

- Development of a food security policy allows the potential to combine many of the above recommendations into a formal strategy to achieve food security outcomes.³⁷

Tackling Food Security at the Local Government Area Level:

Many interventions have been examined including food taxes and subsidies, collective kitchens, community gardens and nutrition education. Policy level interventions appear to be the most likely to have a population level impact, but this is based on associations and modelling and so the evidence should be treated with caution. Local level interventions primarily based on pricing would need to consider the cost of healthier foods for the most disadvantaged groups (such as those from low-socioeconomic backgrounds and different cultural groups) in order to tackle food security through this technique.³⁸ At the community level, community gardens and kitchens may be useful for building social relationships and improving mental and emotional wellbeing, however they are unlikely to address food insecurity.³⁸

Please see Appendix for a systematic review of Policy-level interventions.

Considerations for Implementation:

- Advocate for broader policy-level action on food security with State or Federal Government.
- Support other agencies to deliver community-based interventions that will tackle food insecurity.
- Determine if council has the capacity to intervene on any of the determinants of food security.
- Work with council to integrate food insecurity principles into existing policies and plans.
- Work alongside those responsible for land-use and urban planning to ensure or create access to healthier food particularly in areas of deprivation.
- Create access to healthier food options by working with those responsible for local laws and regulations.
- Consider the wider social and economic determinants when trying to impact on equity and sustainability.³⁸

Urban Planning:

Food Security Interventions and What May Work:

There are 3 key areas in which planners can take action to ensure food sensitive design principles are implemented. Firstly in relation to land use patterns it is possible for council to modify byelaws in order to adjust the size and location of signage that advertises specific types of fast food outlets. This will therefore influence the access to particular fast food outlets and potentially increase the consumption of healthier food choices. Secondly planners can take action in relation to urban design measures by including food production options into building, street and neighbourhood design. Finally, and most importantly, local government can take action in relation to different modes and patterns of transport. Transport to key food retail outlets should be provided to community members, food retailers should be encouraged to provide transport and delivery services and/or ensuring the walkability for residents to reach local and fresh food outlets can all help in advocating for access to fresh food products and potentially create awareness surrounding food insecurity.³⁹

Urban Food Production:

Urban agriculture appears to have an impact on health generally and on economic status which can impact on consumer food access. There is a wide range of settings in which urban food production occurs including:

- *Public Space Food Production:* which would be made available to all in parks or nature strips as initiatives of Council. There is little evidence to suggest that food production in public spaces is effective in relation to combating food insecurity.
- *Supported Communal and Community Gardens:* run for education or social interaction reasons, specifically in areas of vulnerable groups. Some of these gardens would be sited in education or training settings such as TAFEs, schools, kindergartens, child care centres and disability services.
- *Independent Community Gardens:* for individual use for those who do not have space to grow their own food at home or prefer the interaction and support of interacting with others.

- *Private Domestic Gardens:* In 2011 we saw the emergence of garden sharing in Victoria, where people with available, unused gardens allow those without gardens to grow food on their property. This initiative supports others in growing their own food. ³⁹

What may work in Urban Food Production?

- In relation to the built environment urban agriculture can be supported by planning to support food production in new development buildings such as roof tops and balconies.
- In relation to the economic environment, local government can support urban food production by providing practical and financial support through;
 - Composting bins
 - Water use (tanks, hoses and pumps)
 - Soil preparation (labour support, fertiliser, compost or topsoil provision)
 - Growing (raising beds, seeds, seedling and tools)
- In relation to the social environment, local government can promote the environment, nutritional and economic benefits of domestic food production. ³⁹

In 2005 – 2010 the Swan Hill Rural City Council participated in the Food for All program. Throughout this program Council assisted the garden group to apply for federal government granting that enabled them to install water tanks and a watering system and to purchase fruit trees. Council also provided some infrastructure support in the form of framing for a greenhouse so community sessions would engage and involve more participants. ³⁹

Peri-Urban Agriculture:

Peri-urban agriculture strategies support the viability of peri-urban food production and provide generalised community benefit. In many cases, these strategies require adaptation to increase food access for those who are currently food insecure. Long term goals to retain high quality food producing land around major cities require national, state or at least regional action. Local level action is also necessary to support the viability of peri-urban food producers and ensure community food security goals can be met. ³⁹

Landshare Australia is an initiative that brings together people who have a passion for home-grown food, connecting those who have land to share with those who need land to cultivate their own food.

Based on the concept developed in the UK it supports the idea of freeing up more land for growing produce.³⁹

The *Penrith Food Project* is one of the longest established food security projects in Australia with the goal of increasing and improving the supply of affordable, acceptable, nutritious and safe food to residents and workers in the Penrith local government area.³⁹

Recommendations:

- 1. Strategic and comprehensive approach that responds to the specific challenges faced by population groups with high levels of food insecurity.** A strategic and comprehensive approach to overcoming food security issues is necessary, locally, regionally, and at the state and federal level.
- 2. Regional and State wide response.** In relation to urban planning and peri-urban agriculture, action at the regional level and advocacy for action directed to state and federal governments would be effective.
- 3. Practice guidelines for local government.** Local government may find it valuable to have access to guidelines containing information to relevant literature as well as advice on how to take action on specific areas such as food security and community partnerships.
- 4. Analysis of the legal framework – specifically planning, regulatory and economic powers.** Analysis of the legal framework would identify where existing planning provisions, regulatory and economic factors act as barriers to food access especially for disadvantaged populations.
- 5. A funding stream for food security projects.** An on-going funding stream that is targeted to the initiation, maintenance and evaluation of community food security projects could usefully support the development of practice experience and evaluative evidence of effectiveness.
- 6. Rigorous evaluation evidence.** There is a need to build up a body of high level evaluation of food security interventions. Funds and expertise are required to ensure that the design and implementation of food security interventions incorporate evaluation.
- 7. Documentation of practice experience.** There is a lack of documentation of existing examples of food security interventions and the methods used to get them underway in local government.
- 8. Potential role of a food policy council.** A food policy council could be active in advocacy, lobbying, summarising research, reviewing literature, developing practice guides, building up partnerships, providing expert advice to government and non-government and the community, and initiating or implementing programs. ³⁹

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Appendix:

Table 1: Scope of evidence from systematic reviews of interventions to tackle food insecurity at the local government area level

Reference	Title	Scope	Quality	No. Studies	Strength of Evidence	Findings	Relevance
1. Policy-level interventions: Price elasticity, food taxes and nutrition labelling [4 reviews]							
Andreyeva et al., 2009 ⁽⁷⁾	The impact of food prices on consumption: A systematic review of research on the price elasticity of demand of food	To estimate the effect of price changes on consumer demand for commodity foods categorised in the 'Dietary Guidelines for Americans' <ul style="list-style-type: none"> • Only US-based studies included • Focused on groups of products rather than brand 	Strong	160	Moderate	The majority of studies take an economics perspective so do not examine impact of pricing on public health or the effects of price changes from unhealthy to healthier food choices for key categories. There is considerable data on price elasticity which could be useful. Highest elasticity was seen with food away from home, soft drink, juice, meat and fruit. Nine studies examined price elasticity for low-income groups suggesting they are more sensitive to price changes than the overall population.	Public health
Powell et al., 2009 ⁽⁸⁾	Food prices and obesity: Evidence and policy implications for taxes and subsidies	To assess the impact of altering the costs of unhealthy relative to healthier foods through food tax policies on food consumption and overall diet for subsequent impact on body weight.	Moderate	9	Low	Findings are based on associations using cross-sectional or longitudinal surveys. Small taxes or subsidies are not likely to significantly affect BMI but non-trivial pricing interventions may influence weight outcomes, particularly in children, those from low-SES backgrounds and people at risk of overweight. A dual approach is proposed (particularly for children and adolescents) where energy-dense (unhealthy) food options are taxed and low-energy (healthy) foods are subsidised concurrently.	Public health

⁽⁷⁾Conclusions given reflect the conclusions of review authors - on occasions the wording may be the same as that written in the review article if this was necessary to give a concise representation of authors conclusions

⁽⁸⁾Price elasticity is "the percentage change in purchased quantity or demand with a 1% change in price". Demand is inelastic when relative change in purchase is less than the change in price (less than 1.0). Demand is elastic when the relative change in purchase is greater than the change in price (more than 1.0) - higher price elasticity = greater population shift in purchasing.

Table 1: Scope of evidence from systematic reviews of interventions to tackle food insecurity at the local government area level

Reference	Title	Scope	Quality	No. Studies	Strength of Evidence	Findings	Relevance
1. Policy-level interventions: Price elasticity, food taxes and nutrition labelling [4 reviews]							
Caraher et al., 2005 ^[9]	Taxing food: Implications for public health nutrition	To set out the current evidence for food tax and implications at a population level - specifically explores the impact of food tax on behaviour	Moderate	8	Low	Four types of tax were identified: i) raising general revenue (eg. GST/VAT), ii) extending GST to high fat foods and using revenue for prevention, iii) direct taxing of specific foods for behaviour change and some use of revenue for prevention, iv) direct taxing of specific foods for behaviour change with no intended use of revenue. There was no research evidence examining a national / state level food policy to impact on behaviour, although general food taxes did exist at this level. Only two papers modelled the potential impact of taxing on behaviour. Findings suggest that food taxes could be used to: i) encourage healthy eating by consumers ii) reduce consumption of certain foods (eg. snack foods) iii) direct manufacturers towards producing healthier options iv) reduce / prevent obesity Authors suggest that taxing could be more effective in controlled settings, particularly for children.	Public health
Cowburn et al., 2005 ^[10]	Consumer understanding and use of nutrition labelling: a systematic review	To explore consumer understanding and use of nutrition labelling which is culturally applicable to Europe	Moderate	28	Moderate	Of the included papers 19 looked at consumer understanding, and 9 looked at use of nutrition labelling of which just 3 reported studies conducted in a real-life setting. There are many limitations in assessing the use of nutrition labelling and further research is needed - due to the small number of studies no conclusions can be drawn.	Public health

⁴Conclusions given reflect the conclusions of review authors - on occasions the wording may be the same as that written in the review article if this was necessary to give a concise representation of authors conclusions

⁶Price elasticity is "the percentage change in purchased quantity or demand with a 1% change in price". Demand is inelastic when relative change in purchase is less than the change in price (less than 1.0). Demand is elastic when the relative change in purchase is greater than the change in price (more than 1.0) - higher price elasticity = greater population shift in purchasing.

Reference	Title	Scope	Quality	No. Studies	Strength of Evidence	Findings	Relevance
2. Matson-Koffman et al., 2005 ^[13]	A site-specific literature review of policy and environmental interventions that promote physical activity and nutrition for cardiovascular health: What works?	To explore whether or not policy and environmental interventions can increase peoples' physical activity or improve their nutrition	Strong	65 pre-1990 64 post-1990	Moderate	Of the included studies 44 and 48 (pre/post 1990) were nutrition-related and 30 (15/15) of these were community-based. Relevant conclusions are presented here. Findings suggest that policy and environmental interventions can increase physical activity and improve nutrition, but only some studies followed a rigorous evaluation design with a control group. Early studies examining comprehensive community-wide approaches showed positive effects and a true 'grass-roots' approach was considered important. Later research showed that 'point-of-purchase' strategies involving labelling in restaurants, grocery stores, cafeterias, vending machines improved consumption. Other successful interventions were suggested to include: <ul style="list-style-type: none"> • Modification of food-service preparation • Price reductions of healthier foods and food coupons (more so if combined with education) • Interventions with media component changed individual fruit and veg consumption, selection of low-fat milk and organisational offerings of healthy foods 	Public health

Reference	Title	Scope	Quality	No. Studies	Strength of Evidence	Findings	Relevance
3. Community-based interventions [3 reviews]							
Ciliska et al., 2000 ^[12]	Effectiveness of community-based interventions to increase fruit and vegetable consumption	To examine the effectiveness of community interventions to increase fruit and veg consumption in people aged 4 years and over, and to explore the differential effects of interventions.	Strong	15	Low	udies are described by target groups and only four were set in the wider community - others were school, worksite or primary care. It appears easier to change fruit than vegetable intake. Multi-component interventions including targeted education with multiple contacts were most successful (as opposed to short or 'one-off' interventions). It was not possible to draw conclusions on the differential effects of interventions.	Public health
Robinson-O'Brien et al., 2009 ^[13]	Impact of garden-based youth nutrition intervention	To explore the impact of garden-based youth nutrition intervention programs on nutrition-related outcomes	Moderate	11	Low	he limited literature here suggests the evidence for effectiveness of garden-based nutrition programs is promising. Programs may have the potential to lead to improvements in fruit and veg intake, willingness to taste and increased preference when preference is low. However it is difficult to draw strong conclusions on the limited and low-quality studies available. Further research needs to examine impact on dietary behaviour in youths.	Public health
Engler-Stringer et al., 2005 ^[14]	Collective kitchens in Canada: A review of the literature	To summarise the available literature on collective kitchens	Low	6	Low	The authors suggest that collective kitchens may be an effective health promotion strategy but have limited capacity to impact on food security. Research is limited to a few collective kitchens and participants, and most studies have been qualitative. No studies directly measure the impact of collective kitchens.	Public health Community services

Reference	Title	Scope	Quality	No. Studies	Strength of Evidence	Findings	Relevance
4. Nutrition education for individuals [2 reviews]							
Eyles et al., 2009 ^[15]	Does tailoring make a difference? A systematic review of the long-term effectiveness of tailored nutrition education for adults	To update and evaluate to long-term effectiveness of tailored nutrition education for adults - to determine if tailored nutrition education is effective compared to generic and no education in the general population and effective for improving eating behaviours of low-income and priority ethnic groups	High	15 meta-analysis 5 narrative review	Moderate	Tailored nutrition education appears to be a promising strategy for improving dietary intake of adults over long-term (<6 months), including for low-income and priority ethnic groups. Most studies focused on fruit and veg intake and percentage energy from fat.	Public health Community services
Pérez-Escamilla et al., 2008 ^[16]	Impact of peer nutrition education on dietary behaviours and health outcomes among Latinos: A systematic literature review	To assess the impact of peer education/counselling on nutrition and health outcomes among Latino populations - considers type 2 diabetes, breastfeeding, nutritional knowledge, attitudes and behaviour	Moderate	22	Moderate	Evidence suggests that nutrition education delivered by peers can have a positive impact on compliance with self-management of diabetes, breastfeeding, nutritional knowledge and dietary intake in this population group. Note - only a component of this review is relevant.	Protection, prevention, inspection

⁷ Defined as "any set of learning experiences designed to facilitate the voluntary adoption of eating and other nutrition-related behaviours conducive to health and well-being"