Submission on inquiry into the most effective ways for Western Australia to address food insecurity for children and young people affected by poverty.

Joint Standing Committee on the Commissioner for Children and Young People

Suggested citation of this document:

Godrich, S., Miller, M., Cooper, T., Wallace, R., Sambell, R., Huang, R., Devine, A. Submission on inquiry into the most effective ways for Western Australia to address food insecurity for children and young people affected by poverty. Edith Cowan University. Joondalup, Western Australia.

The team wish to acknowledge Dr Natalie Strobel, Senior Research Fellow from ECU's Kurongkurl Katitjin, for her review and comment on our submission.

Date: 14 July 2022

Contact: [redacted]

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Introduction

Edith Cowan University (ECU)'s School of Medical and Health Sciences welcomes the opportunity to make a submission to this inquiry. ECU offers tertiary education based on collaborative approaches and integrates interprofessional learning and practice. The 'food security and food environments' research program spans topics from household food insecurity, local government facilitation of healthier food environments and systemic change to drive food security action. Additional programs supported by ECU include the 'National Nutrition Network – Early Childhood Education and Care', which promotes healthy and sustainable food environments for children 0-5 years, 'RefreshED' which provides access to quality and professional nutrition learning materials for kindergarten to year 10, and Farm to Fork ECU which is a digital game for food systems education in years 6 to 9. ECU Staff engage with community to strengthen the health workforce and increase the effectiveness of their research work. Furthermore, ECU's Nutrition and Public Health team, embed food security concepts and solutions into teaching curriculum to foster workforce development in this area. ECU's Public Health team is interested in contributing a submission to this inquiry, given the team's research centres on this critical issue and the potential opportunities to address it.

Food security and nutrition are inter-related. As such, over several decades, various definitions of food security and nutrition security have emerged [1]. While food security is about access to food, the term 'nutrition security' takes food security one step further, focusing on the importance of healthy food and *diet quality* to support optimal health and reduce disease, and similarly, the importance of equity and a reduction in health disparities [2]. **Food and nutrition security** occurs when:

*"all people at all times have **physical, social and economic access to food** of **sufficient quantity and quality** in terms of variety, diversity, nutrient content and safety to meet their dietary needs and food preferences for an active and healthy life, coupled with a sanitary environment, adequate health, education and care."* [1]

Food security is now recognised to encompass six dimensions: availability; access; utilisation; stability of the supply [3]; agency; and sustainability [4]. Availability refers to effective food production to supply enough nutritious food. Food access refers to economic and physical resources to obtain appropriate foods for a nutritious diet. Food utilisation incorporates knowledge of basic nutrition and cooking skills, food safety and food preparation facilities. Stability refers to food access that can withstand climatic or economic disasters or seasonal events [5]. Agency refers to an individual's empowerment to make decisions about what food they eat, and having their voice represented in food policy. Sustainability refers to regenerative agricultural practices that protect future ecosystems. These food systems and socio-economic aspects of food security are complemented by nutrition security's focus on human health [1]. Figure 1 (below) provides a visual representation of the determinants of food security across the six pillars.

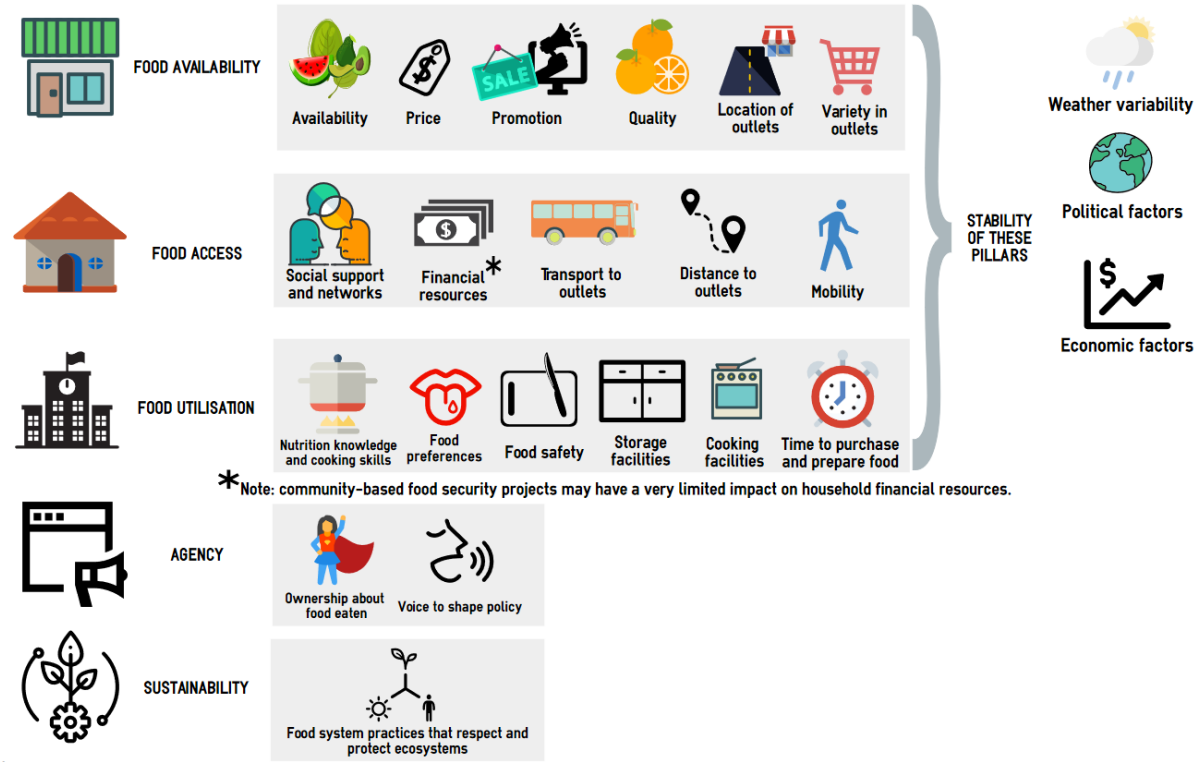

Figure 1: Determinants of food security [6-9].

Food insecurity is a lack of regular and reliable access to food to meet growth and development needs [10]. People experience food insecurity when they obtain food in socially unacceptable ways, or they cannot access food in adequate quantities for good health [11]. Whilst often oversimplified as an issue of poverty and the inability to afford food, the disruption of any of the abovementioned food security dimensions may ultimately impact food security status [12, 13].

According to national estimates, approximately 4% of the Australian population experience food insecurity [14]. However, this issue disproportionately affects several population groups including Migrants (72%)[15], young adults (47%-64%)[16, 17], very low income earners (61%)[17], people who are divorced or separated (54%) [17], people living with a disability (38%)[16], and First Nations community members (22%)[18]. Those living in rural locations (21%)[16] are another identified group at higher risk of food insecurity [19], although, people living in remote communities are often underrepresented in national surveys.

Food insecurity contributes to short- and long-term health implications. Physical health impacts include poor general health [20], obesity [21, 22] and poor dietary intake and nutrient deficiencies that are associated with poor growth and development, and contribute to the burden of chronic disease (e.g. diabetes [23] and heart disease [24]) in Australia. Food insecure adults can experience mental health concerns including depression and anxiety [25]. Even marginal insecurity has been associated with an amplified risk of adverse health outcomes [26]. Psychological impacts among children include problematic behaviour [27], poorer academic performance [24], and low self-esteem and self-efficacy [28]. For these reasons, food insecurity represents a significant public health issue worthy of accurate and consistent monitoring and action. Whilst accurate and regular monitoring is incredibly important, we need to move beyond understanding the issue. The structural causes of food insecurity must be addressed.

Income is the most measured driver of food insecurity and has most likely been associated with the issue. Recent Canadian research demonstrated that increases in both minimum wage and annual welfare income, decreases the likelihood of food insecurity. For example, for every dollar per hour increase in a person's wage the likelihood of food insecurity decreased by 5%. Similarly, an increase in annual welfare by $1,000 per annum reduced severe food insecurity odds by 5%. In addition, increasing the income tax rate for low-income people by 1% resulted in a 9% higher odds of food insecurity [29]. Adjustment of the threshold before income tax is levied is therefore an effective way to reduce food insecurity for working people on low incomes. Such people who are working in low-paying, insecure or short-term employment, are particularly vulnerable to food insecurity. Therefore, to improve the issue, policy measures must target financial resources of vulnerable families.

ECU's submission will focus on Terms of Reference 1-7. We focus on the critical links between poverty and food insecurity, and the social, psychological and physical impacts of child food insecurity (TOR 1); the drivers of food availability, access, utilisation and stability (TOR 2); food relief in WA (TOR 3); how food literacy programs are implemented and evaluated (TOR 4); the importance of offering nutritious school meals and implementing the right model (TOR 5), current initiatives including the Food Community project, proposed initiatives such as statewide Food Policy Councils, Early Childhood Education and Care and Youth Sector food provision (TOR 6). Finally, we call for food security to be viewed as a basic human right for all children, young people and their families, in Western Australia (TOR 7).

While we acknowledge that the root cause of food insecurity is poverty, **we have focused our recommendations on actions the Commissioner can undertake within The Commissioner's functions** outlined in the Commissioner for Children and Young People Act 2006 (WA).

Summary of recommendations (not in order of importance)

1. Commit to **annual food insecurity monitoring** in WA, including in remote WA, via the Wellbeing Monitoring Framework (WMF).
    - The 18-item United States 'Household Food Security Survey Module' should be explored for use, as is or adapted for the Australian context, with adult respondents.
    - For children and young people's perspectives, the 'Self-Administered Food Security Survey Module for Youth Ages 12 and Older' should be used. This tool has been shown to be valid and reliable, when used with children as young as nine years, across regional and remote WA [30].
2. **Develop a dedicated advisory committee** focusing on food security, with a 33-33-33 split in representation between metropolitan, regional, and remote areas. The advisory group would be tasked with identifying services and policy decisions, in response to evidence, to best address food insecurity in WA.
3. **Advocate for the increase in government support for low-income families**, such as through a WA-government utility subsidy, or advocacy to federal government to maintain social security payments above the poverty line.
4. Advocate for and **support** the implementation of **strategies to increase self-esteem and self-efficacy**, such as in school settings. Interventions should prioritise girls, as they are more vulnerable to low self-esteem and low self-efficacy when living in food insecure households.
5. **Connect and coordinate food security researchers** in Western Australia to conduct a comprehensive, statewide understanding of food access issues and food security from a child's perspective.
6. **Advocate** for **portfolios other than Health and Social services** (e.g. industry, agriculture, etc) to contribute to **improving food security for children and young people.** For example, through a whole-of-government **Child Wellbeing Strategy for WA.**
7. Advocate for **continued WA government funding for Foodbank to deliver SBPs in schools that need them**, with consideration given to increasing the resource allocation to reflect projected increased demand.
8. Advocate for additional resources to **set up a School Breakfast Program Best Practice Network** to share and develop innovative ways of delivering the SBP, addressing barriers and value-adding. It is suggested that this network be online to facilitate engagement and collaboration and could be housed either within the Foodbank WA or Department of Education website.
9. Advocate for establishment of an annual **small grant scheme for SBP schools to apply for funding to upgrade equipment or facilities** as part of a continuous improvement plan.
10. Engage with Foodbank WA and the Department of Education to **encourage more collaboration amongst schools** for efficiencies in food collection and resourcing of breakfast programs. For example, encourage a trial at a District and School Network level through Network Principals and via school leader professional associations to assess feasibility and effectiveness of this approach.

11. Advocate for a review and pilot study of the best way to **track student attendance** at SBP for performance monitoring purposes. These data are important to inform policy and to justify investment.
12. **Advocate** for **increased focus on school-based food and nutrition education, incorporating experiential learning,** to develop **universal food literacy** as a critical life skill.
13. **Advocate** for **school policies, environments and programs** that support development of food literacy.
14. **Advocate** to the **Department of Education and external providers** of school-based food and nutrition education programs for the **Refresh.ED Food and Nutrition Education Scope and Sequence** to be used as the **sequential scaffolding** for K-10 food and nutrition education in WA aligned with WA Curriculum.
15. Investigate the potential for **incorporating mandatory food literacy education training in the pre-service training** of all primary school teachers.
16. **Advocate** for the establishment of **universal school meal programs in WA,** that consider the applicability of findings from international experiences to inform implementation in WA schools.
17. **Partner with ECU** to undertake the funded statewide scoping study on **Food Policy Councils in regional WA.** This initiative would foster the development of coordinated and focused workplans to address the pillars of food security, which supports a community led and place-based response.
18. **Develop a framework**, in consultation with leading national representative of Early Childhood (NNN-ECEC), which requires ECEC to provide food to children in care, which is monitored by existing assessment and rating mechanisms, in a collaborative way with the Department of Communities and identify potential implementation and monitoring strategies. For the youth sectors, the Youth Affairs Council of Western Australia and/or WA Council of Social Services could be approached to manage similar consultations with the youth sector including the youth homelessness sector and local government.
19. **Advocate for updating the national 'Get up and Grow' resource** in alignment with Western Australia's developed framework.
20. **Support Youth Work services to contribute to crisis support and educational initiatives** for food literacy.
21. WA government should **view food security as a basic human right** and **fulfil** the binding **International Covenant on Economic, Social and Cultural Rights commitments.**
22. Advocate for the **incorporation of human rights language into existing WA policies and plans**, across government departments.

Response to the Inquiry Terms of Reference

Term of Reference 1: The impact of poor nutrition on children and young people and the extent of the problem in Western Australia.

Problem:

We have limited data on how many WA children are impacted by food insecurity.

Children are particularly vulnerable to food insecurity [31] and the impact can be lifelong. The Foodbank Australia Hunger Report 2021 reported that **more than one million Australian children reside in food insecure households** [32]. Despite the significance of the issue, there is limited evidence about child food insecurity in WA. A study conducted by Godrich et al (2017) reported a **prevalence of 20% food insecurity among regional and remote children 9-13 years** [30]. Children who lived in a moderately disadvantaged location were 2.6 times more likely to be food insecure, as compared to children from an area deemed to have high disadvantage. This suggests that families may not believe they need support or are 'slipping through the cracks'. Almost two-thirds of the 100 Families WA project adult family members reported very low and 18.8% reported low food security in 2019. **Among children, almost half (47.2%) had low food security and 11.1% very low food security**, as reported by adults within the family [33]. Parents typically protect children from hunger as much as possible, though the situation for 43% of severely food insecure parent participants in the Foodbank Australia Hunger Report was so challenging, that they reported their child went without eating for a whole day [32]. The Commissioner for Children and Young People WA's Speaking Out 2019 survey found that **11.4% of participating children and youth (Years 4-6) either 'never' or 'sometimes' had enough food to eat in their home** [34].

Food insecurity is inextricably linked with poverty, and poverty contributes to a cascade of disadvantage [35]. Evidence suggests that pre-COVID (2015-2016), **17% of Western Australian children were living below the poverty line**. This translates to 88,000 children living in poverty [36]. A child's **experience of poverty in their first five years of life substantially impacts their development** and potential employment in adulthood [35]. When investigating the relationship between socio-demographic factors and food insecurity, a study in regional and remote WA found that **children whose families received government financial assistance were 2.6 times more likely to be food insecure** [30]. Three quarters of the 100 Families WA respondents relied entirely on Centrelink payments for income. Australian data has demonstrated that **job loss and difficulty securing a job doubles the odds of food insecurity** within households. The impact of this financial stress was highly evident. **More than two-thirds of families in the 100 Families WA project reported an inability to pay utility bills on time**, almost three-quarters sought assistance from social support agencies and more than half (51%) had gone without food [33]. It doesn't take much to tip a family over the edge. Foodbank also reported **unexpected bills (35%)** or low incomes (30%) were the most common reasons why parents reported food insecurity [32]. A study conducted during the COVID-19 pandemic (2020) found that women whose employment status changed because of COVID-19 had a six-fold increase in likelihood of experiencing very low food security [37]. Homelessness is another significant issue that has been described as a "public health emergency" [38]. People who are homeless are at increased risk of contracting COVID-19; social distancing is problematic, access to

sanitation and hygienic living conditions can be challenging and underlying health conditions can exacerbate health implications [38]. Some emergency food relief initiatives ceased operation due to COVID-19 concerns, reducing options for vulnerable groups to access food. Collectively, Australian findings reflect international evidence that low average wages and high unemployment increased the likelihood of food insecurity in U.S. households with children [39]. This demonstrates the challenges these families face to reallocate scant resources, such as money to buy food, which impacts mental and physical health [33]. Food is often the 'elastic' aspect of a household budget, and therefore children's dietary intake is often impacted by a household's financial difficulties [40]. At the same time, many families concurrently managed a chronic health condition, mental health condition, issues such as homelessness, abuse, discrimination, or crime. Stressors such as abuse and crime have been associated with a **three-fold increase in odds of being food insecure** in Australia, while mental health conditions and disability **doubled the odds of food insecurity** [41]. Collectively, **five or more stressors increases the likelihood of food insecurity nine-fold** [41]. In a WA study, Philippson et al (2018) found that domestic violence was a key cause of food insecurity among single parent households, due largely to the continuous relocation costs associated with children starting new schools, rental bonds, and power and water connections [42]. Families strive for the basics, and when they cannot acquire these basics, the associated poverty and food insecurity results in lifelong impacts, which can transfer across generations. USA research has identified exposure to childhood trauma as a root cause of adult hardship, which can carry through to their own children [43]. We **must intervene in early life to break this cycle of disadvantage** [35]. As one single mother explained,

> *"So how can they reach the goals so that they can achieve better than what I did, as I want them to have a better life than mine. But how can they see that light at the end of the tunnel when all they see is broke?"[42]*

Poor nutrition in pregnancy can have lifelong impacts

Poor quality and insufficient nutrition in early life can have a lasting biological legacy. Early life, or commonly referred to as the first 1000 days (from conception until two years of age), is a time when fetal programming for diseases such as diabetes, heart disease and mental health conditions can occur [44]. An underlying molecular mechanism for the derailing of a healthy trajectory in these infants is "epigenetics". Epigenetics is a way in which a child and pregnant mother's environment can affect how the genes are expressed or work in the child. One of the better studied forms of this "DNA methylation" which involves the addition of a methyl group to cytosine (one of the building components of DNA), and in doing so can affect the way the DNA is read without affecting the actual code or sequence. Poor nutrition, including inadequate calorie and protein intake, or excess intake as occurs with pregnancy diabetes has been shown to alter the DNA methylation of the child [45].

Psychological impacts of food insecurity in childhood

Food insecurity is also associated with other psychological, physical, and social impacts. Research suggests that children have a deep understanding of how financial challenges affect their family [46], and as such, experience anxiety and worry [3]. They understand the employment situation of their parents, and sense the tension within the household when expenses erode income. For example, a child from a sole parent household described their parent's urgency to withdraw welfare

funds before direct debit withdrawals for bills went through, in order to purchase food for the week [46]. Food insecurity can also contribute to behavioural problems [27], and impaired academic performance [24]. It has been associated with low self-esteem and low self-efficacy for healthy lifestyle choices, such as healthy eating, among Canadian children [28]. Girls can experience food insecurity disproportionately to boys. For example, in the same Canadian study, girls from moderately food insecure households had 67% higher odds of experiencing low self-efficacy and self-esteem to make healthy lifestyle choices. This was in comparison to their food secure counterparts [28]. Food insecurity among girls can have a pronounced and negative impact on their social skills and feelings of fear [47, 48]. Other impacts of food insecurity include family disharmony. Parents in a 2018 WA study reported withdrawing from their children, increasing family relationship difficulties and reinforcing poor child psychological health [42]. Children reportedly misbehaved due to hunger, fighting with their siblings and were increasingly angry and aggressive towards their parent, further contributing to psychological distress within the family [42].

Social impacts of food insecurity in childhood

Food insecurity can also impact children's involvement in family meal selection and preparation. Food insecure children are less likely to help with meal choice among families, in comparison to their food secure counterparts, with a Canadian study finding children from food insecure homes were 33% less likely to help choose family meals [31], which could be due to cultural differences associated with children's involvement in meal selection. Children from food insecure households were also 67% more likely to help prepare family meals, as compared to children from food secure households [31]. During COVID-19, many schools closed across Australia. These closures particularly impacted disadvantaged students, *"exacerbating inequalities*" [49]. For example, students who rely on school-based food relief would have been impacted by such school closures that removed their ability to access food. Philippson et al (2018) described the impact of buying cheap foods on children's social interactions. Parents expressed concern about providing 'marked-down' or 'on special' foods to their children, due to bullying from school peers: *"Ew, you're eating food that's going off."* School absenteeism was high, children did not participate in school excursions, after-school sport, or peers' birthday parties, due to being food insecure [42]. The lack of participation in school reflects other Australian evidence, which has also suggested lasting emotional and behavioural impacts [40].

Physical impacts of food insecurity in childhood

Regional and remote WA evidence found food price; promotion of healthy food; location of food outlets; and food variety within outlets were significantly associated with adequate vegetable consumption among children [50]. These food security determinants have the potential to impact children's dietary quality. Food insecurity can compromise dietary intake, leading to nutrient deficiencies such as iron deficiency, and poor growth and development [51]. Such nutrient deficiencies can have serious and lifelong impacts on children's potential academic achievement [52]. In addition, food insecurity can negatively impact children's oral health. Some food insecure households are unable to afford dentist visits and are required to wait prolonged periods of time in the public health system. US children in food insecure households had significantly greater odds of poor oral health. Enhancing food security may not only see improvements in nutrition and oral health [53], but could substantially reduce health system costs.

When asked what they need to be safe and well, 100 Families WA respondents often focused on food, i.e.: *"Food in my stomach, nutritious food, money in my bank to provide for my kids"* and *"Stable clean home for the girls and enough money to feed and clothe my girls"* [33]. To address food insecurity, we must first have an accurate understanding of the magnitude of the issue, then address its structural causes through a focused governance structure that provides adequate metropolitan, regional, and remote community representation. Settings such as schools provide an ideal opportunity to offer support.

Recommendations:

- **Commit to annual food insecurity monitoring in WA, including in remote WA, via the Wellbeing Monitoring Framework (WMF).**
    - **The 18-item United States 'Household Food Security Survey Module' should be explored for use, as is or adapted for the Australian context, with adult respondents.**
    - **For children and young people's perspectives, the 'Self-Administered Food Security Survey Module for Youth Ages 12 and Older' should be used. This tool has been shown to be valid and reliable, when used with children as young as nine years, across regional and remote WA [30].**
- **Develop a dedicated advisory committee focusing on food security, with a 33-33-33 split in representation between metropolitan, regional, and remote areas. The advisory group would be tasked with identifying services and policy decisions, in response to evidence, to best address food insecurity in WA.**
- **Advocate for the increase in government support for low-income families, such as through a WA-government utility subsidy, or advocacy to federal government to maintain social security payments above the poverty line.**
- **Advocate for and support the implementation of strategies to increase self-esteem and self-efficacy, such as in school settings. Interventions should prioritise girls, as they are more vulnerable than boys to low self-esteem and low self-efficacy when living in food insecure households.**

Term of Reference 2: Challenges for children and young people in accessing enough nutritious food.

Problem:

Western Australia (WA) is unusual, with a greater proportion of its population residing in urban areas [54]. People living beyond metropolitan areas experience significant barriers to accessing healthy, affordable, and quality food. Examples include poorer food availability, variety, quality, and higher food cost. Inequitable health service provision, a lack of collaboration, limited cooking and nutrition knowledge are other challenges [55].

As the dimensions of food security include food availability; access; utilisation; stability; agency; and sustainability, the forthcoming section will outline key issues associated with each dimension. Figures 2, 3, 4, 5, 6 and 7 depict the determinants within each dimension.

Food availability dimension of food security

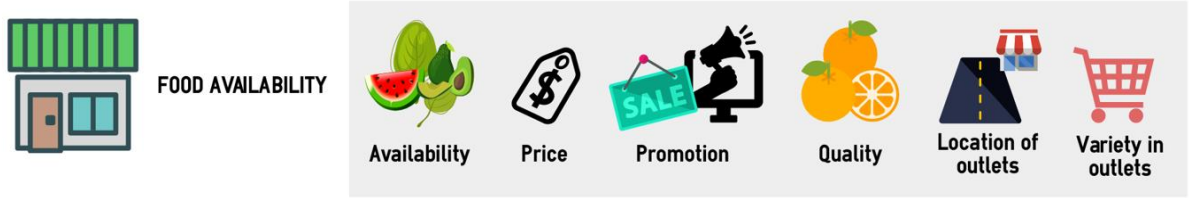

Figure 2: Food availability dimension determinants.

Food availability

Low food availability can indicate food insecurity [56], and where children and young people live dictate the food they have available to them [55]. Some locations are well-stocked with a variety of nutritious foods, whereas others have almost bare shelves by the time the next food truck arrives. Food availability in regional WA has been impacted by COVID-19. Products including fresh produce and staples such as pasta and rice have been limited. Purchasing limits imposed by supermarkets have increased the difficulty for families to access enough nutritious food [57]. A recommendation within the final report from the national inquiry on food pricing and food security in remote First Nations communities, included encouragement of *"establishment of more local distribution centres by wholesalers in major regional centres closer to remote communities"* [58]. This action is likely to increase food availability for remote WA children.

Food price

The price of food has substantially increased, with one large supermarket reporting food prices have risen 4.3 per cent in the first quarter of 2022 [59]. Several reasons have caused the substantial rises, including the war in Ukraine, increasing diesel and fertiliser prices, COVID-19 and unfavourable weather events [60]. Community members and food supply stakeholders alike recognised higher food prices during COVID-19. Community members reported spending more of the household budget on food during this time [16]. Community members who agreed COVID-19 impacted food price were significantly more likely to be food insecure (3% vs 31%, $p = 0.048$) in a regional WA study conducted in 2020 [16].

In WA, the most recent Food Access and Cost Survey (conducted in 2013), reported a 2.9% increase in the cost of a Healthy Food Access Basket, from $564.99 to

$581.27 per fortnight [61]. Food was substantially more expensive in regional and remote locations, compared to metropolitan Perth. For example, the total cost of a whole Healthy Food Access Basket cost $546.17 in Major Cities compared to $688.57 in very remote areas [61]. There is evidence that indicates food prices rise in rural and remote areas of Western Australia due to the demand and supply being limited to perhaps one store in some cases, resulting in limited food options, as well as limitations in the quality and quantity of stock supplied [9]

In remote WA communities, food prices have previously been described as "inflated", which is particularly challenging for those on low incomes, e.g.:

> *"The freight's just enormous …I feel it's just wrong that the people who can least afford it but most need it are charged so much for it… There's a fruit pack with 5 or 6 pieces of fruit maximum, and that's $13.80.*" [55].

High freight costs, and the reduced economies of scale for purchasing and retailing in small communities contribute to higher food costs. Higher food prices in regional as compared to metropolitan areas has been echoed elsewhere in Australia [62]. High food prices are yet another compounding factor with the increasing cost of living, making it increasingly difficult for families to make ends meet.

Food quality

Across regional WA, stores with high produce turnover or alternative food markets increased the quality of food [55]. In remote areas, food quality is suboptimal, often due to the lengthy food transport required. Food distribution can be inefficient, with produce transported from food growing areas to metropolitan Perth, and redistributed back to those same areas for sale [55].

Location of outlets

In regional and remote WA, residents of small towns often have food availability challenges, given the fewer number of food outlets [55]. In very remote areas, residents may have access to only one food retail outlet [61]. Outlets may be located centrally in towns, which increases the difficulty for families living in outlying areas to access food [55]. Alternatively, some small towns have single service stations that provide minimal products sold at higher prices [63]. Participants in one study acknowledged the importance of accessing a larger scale supermarket to not only purchase a selection of foods, but also to make it financially affordable [63]. Other issues include locations of lower socio-economic status having a higher density of junk food outlets in residential areas [64]. The prolific availability of major fast-food chains close to secondary schools, has been suggested to be a key driver of fast food purchasing among young people [65].

Food variety

Non-metropolitan food outlets can have poorer food variety than outlets in major cities [56, 66-68]. Food variety in these locations can be limited to a small range of 'hardy' produce such as pumpkin, oranges and onions, and often tinned and frozen food is the norm [55].

Food access dimension of food security

Figure 3: Food availability dimension determinants.

Financial resources

Low income has been consistently associated with food insecurity, within Australia and internationally [30, 39, 40]. People relying on government financial support need to spend more of their income on a healthy food basket, as compared to those on a low income (25-40% vs 18%) [56]. Perceived 'cheap' foods such as pasta and rice, are often purchased to make meals stretch further [55]. Priority financial commitments such as bills are a strong influencing factor for First Nations family's food purchases [63]. Such factors influenced both the type and quantity of food families were able to purchase, with some describing this as an everyday ordeal [63]. This resulted in the uptake of inexpensive, often less nutritious food being purchased, including the substitution of fresh fruit and vegetables for processed alternatives, to ensure children received something to eat [63], i.e.:

"[I] Find it hard sometimes to eat healthy like have fruit and vegetables every day. Sometimes [it's a] bit tight with money and [I] buy food that fills you up. Fruit doesn't [fill you up] and it's expensive. . . . . Always hear about why important to eat healthy to stop diseases like diabetes, but when you try to, it's very expensive."

Transport to outlets

Access to appropriate transport is also a factor for accessing food, with evidence of hardships occurring when a personal car is inaccessible, taxi services are too expensive and when using public transport is limited with young children [63]. "[I] find it hard with shopping since [the] local supermarket closed. Shopping Centre not within walking distance but was a short drive from my house and [I] relied on a lift or taxi that didn't cost very much. Now [I] have to pay more for taxis, as [I] travel further to go shopping" [63]. Both Stakeholders and participants in one Australian study identified transport being one of the most significant factors impacting access to food, due to the necessity of public transport when an individual does not own a car, and the limit of the amount a person can carry in one trip [69]. The study linked the need to make more frequent trips to buy food with an increased cost of food due to the inability to save money by potentially buying in bulk, which was associated with the choice to eat less healthy for lowered costs [69]. An association between stores with limited healthy selection, such as convenience stores was also made as individuals desperate to access food had little choice as to where to get it [69].

Distance to outlets

Some families in regional WA have to travel to other towns to source their food, sometimes located several hours away [55]. The distance that food needs to travel to reach regional and remote stores negatively impacts food quality and taste [55].

Food utilisation dimension

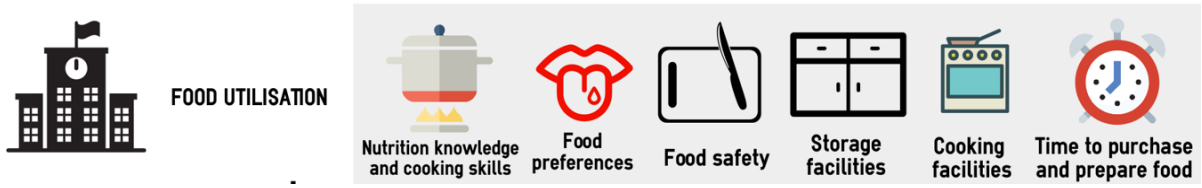

Figure 4: Food utilisation dimension determinants.

Nutrition knowledge and cooking skills

Cooking and nutrition knowledge and skills influence how food is utilised. Some parents have competing priorities, and lack time to prepare nutritious food for their children [55]. A WA study also identified food literacy as a contributing factor to food insecurity, as some families in Australia cannot risk learning new recipes to address nutrition due to a lack of money to spare in the case that their families, including children, do not eat the food that is prepared [69]. This was associated with the idea from stakeholders that it is easier and cheaper to teach families about budgeting than it is to teach them food literacy and new recipes [69]. Children's involvement in food preparation is also associated with food insecurity. In one study, Canadian boys from food insecure households were 65% more likely to assist with food preparation/cooking more than four times per week, as compared to their food secure counterparts [31]. This was confirmed in a recent Western Australian study of young people aged 12-15 years who had become homeless [70]. Several reported that they had had to prepare food for themselves and younger children from a very early age (early primary school onwards) because adults are not present to do this. For families under social and financial stress, simple, economical, and healthy food preparation skills are especially important from early childhood onwards, continuing into youth and young adulthood. This is equally important for migrant families. Research has shown that knowledge-sharing about recipes, cooking skills and gardening techniques, and sharing knowledge about where to access culturally appropriate foods - between established and newly arrived community members - helped to foster social capital [71].

Food preferences

For children of migrant families, culturally appropriate food can be challenging to find, particularly in larger supermarket chains [71]. People have reported difficulty identifying culturally appropriate foods based on food labels or packaging. This resulted in food and money being wasted because the foods purchased were not appropriate [71]. Where culturally appropriate foods were available, they were often found in speciality stores and were more expensive [71].

Food storage and preparation facilities

Household preparation and storage facilities vary across the state. However, previous research reported frequent power outages in regional WA being an issue for many families [55]. A common factor in an Australian study [63] was conditions of areas of the house for food preparation and storage. Some families in the study reported unsuitable kitchen preparation space, with broken facilities [63]. It was indicated that a freezer could assist in reducing the costs associated with more

frequent supermarket visits to buy items such as meat [63]. Another study reported lack of access or unusable facilities to prepare food increased the difficulty of accessing food [69]. This was confirmed in a recent WA study of young people who were homeless where some reported not having access to facilities to prepare food, or living in housing without access to electricity or gas [70, 72]. Also addressed was the fact that many of these people share facilities with other people including strangers, and this inhibits their ability to cook and prepare food [69]. Additional issues for children included a lack of food storage facilities for lunches at school. This issue reportedly increased consumption of non-perishable foods for lunch [55].

Time to purchase and prepare food

Some families have very little time to purchase and prepare food, due to work commitments [55]. Canadian research reported that food insecure children were more likely to prepare meals four or more times per week, in contrast to food secure children. One possible explanation for this could include that these children were required to undertake family meal preparation because their parents were required to work [31].

Stability dimension

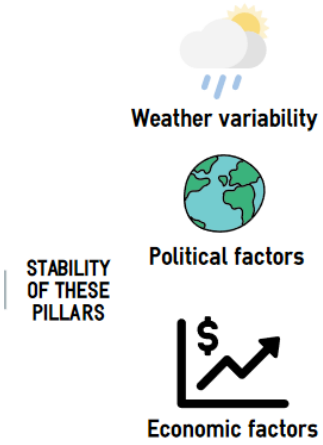

Figure 5: Stability dimension determinants

The fragility of the current food system has been uncovered by undesirable weather events Australia-wide, the COVID-19 pandemic, and the war in Ukraine. Locally, recent WA regional fires, cyclones and adverse weather conditions, coupled with infrastructure failures and power outages common in regional and remote areas, affect food supply and household food storage. Thus, affecting the quality and nutritional quality of the produce. With increasing climate change, changes in rainfall, droughts and extreme weather events will be experienced more frequently [73, 74]. These issues will greatly impact those most vulnerable to food insecurity by compromising food availability and access. For example, means of road closures, crop destruction, decreased yields and further transportation issues [74]. Collectively, a recent report asserted that shorter food supply chains increase food supply resiliency [74].

These factors exacerbate other causal factors of food insecurity, such as low income, unexpected unemployment, high housing costs and/or debt [30]. Affordability of food is changeable, as it often competes with other fixed or unfixed expenses such as power, transport, bill payments or medical emergencies [75]. Responsibility over time has shifted largely to individual responsibility, rather than putting policies in place that address the root causes of food insecurity [69]. Overall, food security issues are caused by a multitude of factors, and therefore, should not solely be the responsibility of one portfolio.

Agency dimension

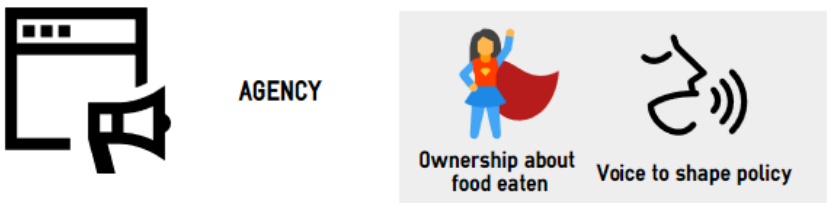

Figure 6: Agency dimension determinants

Agency is a critical dimension of food security, as it represents a person's empowerment to make food decisions that impact their life, and improve their wellbeing [4]. Additionally, it represents how a person can contribute their voice to policies that impact them. Agency is a basic human [4] right and links to calls for a human rights-based approach to food security. Often, food relief services do not support recipients' agency over their food choice and consumption, having been described as *"intrusive and strict"* [76]. Families are provided with the food available to charities, which may be nutritionally suboptimal. The perception that *"beggars can't be choosers"* is common [76]. They may be required to or feel obliged to adhere to religious practices to obtain food, which abolishes their agency [76]. As a result, families may not access food relief which may make accessing food challenging for children. Food relief users in an Australian study said they wanted no *"cap in hand"* food services, and would instead prefer vouchers for farmers' markets, subsidised supermarket access, local food via direct access to farmers, or through centrally-located food hubs [76]. Supporting newly arrived migrants to locate culturally appropriate food also enhances their agency to purchase food from their cultural heritage [71].

Sustainability dimension

Figure 7: Sustainability dimension

Sustainability is paramount to ensure future food security for all. Food systems must function in a way that does not compromise environmental, economic, and social outcomes. Importantly, ecosystems should be respected and protected [4]. This is imperative considering increasing climate change. In WA, centralised food systems underpinned by unsustainable food production increases the difficulty for families to access affordable, nutritious food [8]. A 2013 Department of Agriculture report [77] indicated the two major Australian retail chains had a 60% share of fresh food sales, with national lines procured from less than 12 large growers per supermarket supply chain [78]. These large suppliers *"dwarf most Western Australian farm businesses"* and reduce prices received by smaller growers through other market channels [77].

Environmental instability, such as due to fires, storms etc., drought, unreliable water supply and poor soil quality are impacting food production, and ultimately, food

system sustainability and food security [79]. For example, during a drought in 2005-2007, fruit and vegetable prices increased 43% and 33% respectively, which was twice the rate of the Consumer Price Index [79]. Further sustainability issues include food transport. For example, where food is produced in one region, transported to Perth for sorting and then redistributed to the region of origin for sale at a much higher price [8]. This highlights the unsustainable nature of the food system. Food waste is also a critical issue [80]. Existing policies are hampering sustainable food systems in this state, with the perception among stakeholders in one WA study that inadequate government support is provided for regenerative farming [80]. In order to achieve food and nutrition security for all, government must support a transition to more sustainable food system practices [80].

These interconnected dimensions, and their embedded determinants, represent numerous challenges, but also a plethora of opportunities, to support and enhance food security for Western Australian children and their families. However, more should be understood about levers for change. The responsibility to enhance such food security spans beyond the Health and Social Services portfolios alone. One of the **functions** through the **Commissioner for Children and Young People Act 2006 (WA) is to *"to conduct, coordinate, sponsor, participate in and promote research into matters relating to the wellbeing of children and young people"*** [81]. Therefore, the Commissioner should coordinate and conduct research to understand issues relating to healthy food access and child food insecurity, from children's perspectives. In addition, there have been several ongoing calls for the development of a whole-of-government Child and Wellbeing Strategy for WA, including from the former Commissioner for Children and Young People [82]. Advocacy has included emphasis on long-term targets that span individual government agencies [82-84].

Recommendations:

- **Connect and coordinate food security researchers in Western Australia to conduct a comprehensive, statewide understanding of food access issues and food security from a child's perspective.**
- **Advocate for portfolios other than Health and Social services (e.g. industry, agriculture, etc) to contribute to improving food security for children and young people. For example, through a whole-of-government Child Wellbeing Strategy for WA.**
- **Develop a dedicated advisory committee focusing on food security, with a 33-33-33 split in representation between metropolitan, regional, and remote areas. The advisory group would be tasked with identifying services and policy decisions, in response to evidence, to best address food insecurity in WA.**

Term of Reference 3: The extent to which food relief:

a. Is currently accessed by children and young people, including at school and in early childhood education and care settings

b. Is effective

Background:

Almost all countries provide some form of school feeding program to ameliorate the detrimental effects of food insecurity on children's health, wellbeing, and overall [85-87]. The World Bank describes such programs as a 'social protection tool' [88] to support the education and health of children and adolescents through improved capacity for learning and promotion of healthy eating, with the school being widely accepted as an effective setting for intervention [88-93]. In high-income economies, school feeding programs have existed, on average, for almost 40 years [87, 94-96]. In countries such as the USA [97-99], UK [100-103] and Canada [104, 105], SBPs are well established although with variable funding and delivery models.

Australia is an exception to this, with no history of providing free or subsidized school meals other than the 'free school milk' scheme (1951 to 1974)[106]. As such, there is no coordinated national or state-based program to ensure all low-income families have access to free or subsidized school meals for their children. Instead, state and territory governments typically provide support for charitable organizations to tackle food insecurity at the school level mainly focusing on breakfast provision [107-111]. For lunch, the onus is usually on families to provide a packed meal or money to purchase lunch at a school canteen or equivalent [112]. However, some breakfast programs allow students to also make their lunch or individual schools provide lunch money or food for students known to be without. Only recently have organised lunch relief programs been established by charitable organisations charitable organisations [112, 113].

School breakfast programs:

School breakfast programs run by charities began to emerge in Australia in the early 2000s in response to a growing recognition that many children go to school hungry. Notably, decisions about participating in a school breakfast program are made at the individual school level, including whether to make the program universal (i.e., inclusive of all students) and how it is positioned within the school's strategic planning and overall approach to supporting disadvantaged students.

Currently, Australia does not have a nationally funded or legislated breakfast program. Each state has programs run by various organisations such as Foodbank and the Australian Red Cross, as well as some community group initiatives, to support disadvantaged primary schools. Foodbank, as Australia's largest food aid charity, is also "the largest provider of school breakfast programs in Australia, supplying in all states and territories."[114]. As a non-profit organisation, Foodbank relies on donations of food and funding from the food industry, business and public sectors, and other NGOs, as well as grants from individual state governments.

Foodbank WA, with the longest running SBP since 2001, receives approximately $1 million per annum from the state government in support of its program. However, while WA has a smaller population than Victoria and Queensland, it has perhaps the

greatest logistic challenges (apart from the Northern Territory) for transportation of food to its rural and remote communities. This burden adds to the costs of running its programs with increased difficulties in adequately supplying quality perishable foods, including fruit and vegetables and dairy products, to these remote areas [30].

There is a body of published research that points to the benefits of consuming a good breakfast, not only for physical health and wellbeing through improved nutrition [115-117], but also supporting the premise that students are more readily engaged for learning, with participation in SBPs having been shown to improve school attendance, class behaviour and academic achievement [118, 119]. SBPs can also be a means for facilitating meaningful social interactions with peers and mentors such as older students, teachers, support staff and community volunteers [120-122] leading to a stronger sense of school connectedness which in turn contributes to positive education and health outcomes [92, 119]. In addition, the effectiveness and sustainability of SBPs and NEPs are dependent upon programs being embedded within the school setting and supported by sector policy [123]. In Australia, the school setting is of key importance to the successful deployment of SBPs and related nutrition education programs (NEPs)[124, 125] and consequently their role and place-based approach provides support, networking and advocacy opportunities with, and for, other key stakeholders, including families and communities, and those in government, policy and health care systems, and the media.

Evaluation of Foodbank SBNEP:

A multi-disciplinary team from ECU was the lead agency in a three-year (2015-2018) evaluation of the School Breakfast and Nutrition Education Program (SBNEP) delivered by Foodbank WA to schools across Western Australia [109]. The SBNEP specifically targets schools that have a low Index of Community Socio-Educational Advantage (ICSEA) and/or a significant subset of students at risk of disadvantage. The SBP is accessible to schools from public and private sectors and caters to students from Kindergarten through to Year 12. Highlights of the evaluation relevant to this inquiry are summarised below.

The key aim of the SBNEP is to improve the nutrition and wellbeing of children who are vulnerable to poor diet and health by improving access to a variety of healthy foods in schools. It is jointly funded and monitored by the Department of Education (DoE), Department of Health (DoH), and Department of Primary Industries and Regional Development (DPIRD) (supported by Royalties for Regions) and is delivered by Foodbank WA under a contracted Service Agreement. Funding covers the bulk purchase of seven shelf-stable core food products, plus transportation costs and a staff member to coordinate the program. The range of products provided free-of-charge to schools

A mixed methods approach was employed for this study, drawing on responses from state-wide surveys of SBP coordinators, students and teacher journals plus interviews conducted with stakeholders including parents and community members in five case study schools.

Reach of Foodbank SBNEP to children and young people at school

At the time of evaluation, from 2015-17, the SBNEP was reaching more than 420 schools and 17,500 students per year, located across all regions of WA - from inner

metropolitan area of Perth to the remotest regions of the state. (This reach has increased to more than 21,000 students in 490 schools) [126]. The results showed the program was successfully assisting WA schools to address the hunger needs of vulnerable youth and students at educational risk due to factors such as poverty, family food insecurity, family dysfunction, cultural and linguistic diversity.

The support for vulnerable youth provided via the SBNEP is not strictly limited to low socio-economic areas, since pockets of disadvantage exist across the social spectrum. Schools in more affluent areas report the need to assist families who are struggling due to job losses and economic downturn. Such schools can make a case for accessing the SBNEP to meet the needs of their disadvantaged students, and those that have done so are very appreciative of the support. This flexible approach to SBP registration in WA is commendable in being more consistent with the best practice principle of universal free breakfast reducing stigma for the most vulnerable [104, 127].

Notably, the evaluation found SBP attendance rate was lower for secondary students with correspondingly lower school, teacher and self-report ratings for school attendance, and other indicators of capacity for learning. Onset of puberty has a negative effect on students' self-efficacy, school connectedness and academic achievement [128], so there are good reasons for schools to consider ways of boosting SBP attendance to mitigate these negative effects. Teenagers are more likely to be breakfast skippers or to arrive at school too late for a 'sit down' breakfast, hence traditional breakfast approaches may be less effective.

Effectiveness of Foodbank SBNEP

The results of the SBNEP evaluation clearly showed that the program is not only successful in assisting WA schools to address the hunger needs of vulnerable youth and students but has other notable effects including:

- Better attendance and punctuality
- Improved mood and better behaviour: SBP was seen to smooth students' transition from home to school, reducing incidences of inappropriate and disruptive behaviour, and generally contributing to a greater sense of calm and order in the classroom and school overall.
- Readiness for learning: students who attended the SBP on a frequent basis appeared to reap greater benefits in terms of capacity for learning than infrequent attendees.
- Increased capacity to learn: positive effects were mitigated through readiness for learning, on task concentration, attendance, punctuality, productivity in class, behaviour and social skills.
- Reinforcement of healthy eating messages: SBP students are being exposed to healthy food choices that they may not otherwise encounter in the home
- Building of social skills and better relationships: SBP provided a safe and supportive social setting to interact with peers and adult school staff and community volunteers. Frequent attendees reported higher levels of impact on personal and social capability than infrequent attendees.
- More parental engagement and community cohesiveness: 40% of SBP schools draw on support from families and community to assist in running the

SBP. By promoting it as a community event where parents/carers and children alike can join in and socialise, SBP can be a catalyst for engagement of parents who might otherwise be difficult to reach and engage.

For many schools, the social benefits of the SBP are seen as equally important and possibly a catalyst for 'capacity for learning' benefits also noted. The informal setting of the SBP is perceived to contribute to the development of positive relationships between students and staff and to bring students together in a way that encourages a widening of friendship groups and greater sense of connection to the school. Those schools that include parents and families in the SBP report significant benefit for school-community relationships.

School leaders and teachers described the SBP as having a palpable effect on the overall atmosphere of calmness and orderliness of the whole school. This 'cascading' influence of the SBP is captured in the model of engagement shown in Figure 8 below. It builds on an earlier investigation of the School Breakfast Program [129] and encapsulates the interrelationship of the social and educational benefits at the whole school level. Some schools report that those benefits seen at the whole school level extend further to a reduction in incidence of antisocial behaviour beyond the immediate school environment.

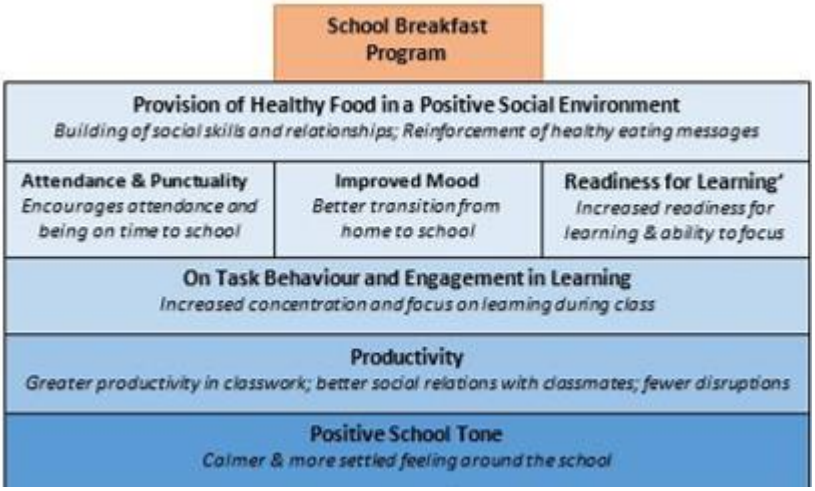

Figure 8 School breakfast program model of engagement and impact.
Modified from Byrne et al 2014

SBP Operation

Although Foodbank WA provides support and advice on how to set up and run a successful breakfast program, individual schools choose their own delivery model and bear the responsibility for the day-to-day running costs. Figure 9 shows the continua of focus and influences found across schools in the 2015-2018 evaluation of Foodbank SBP [109].

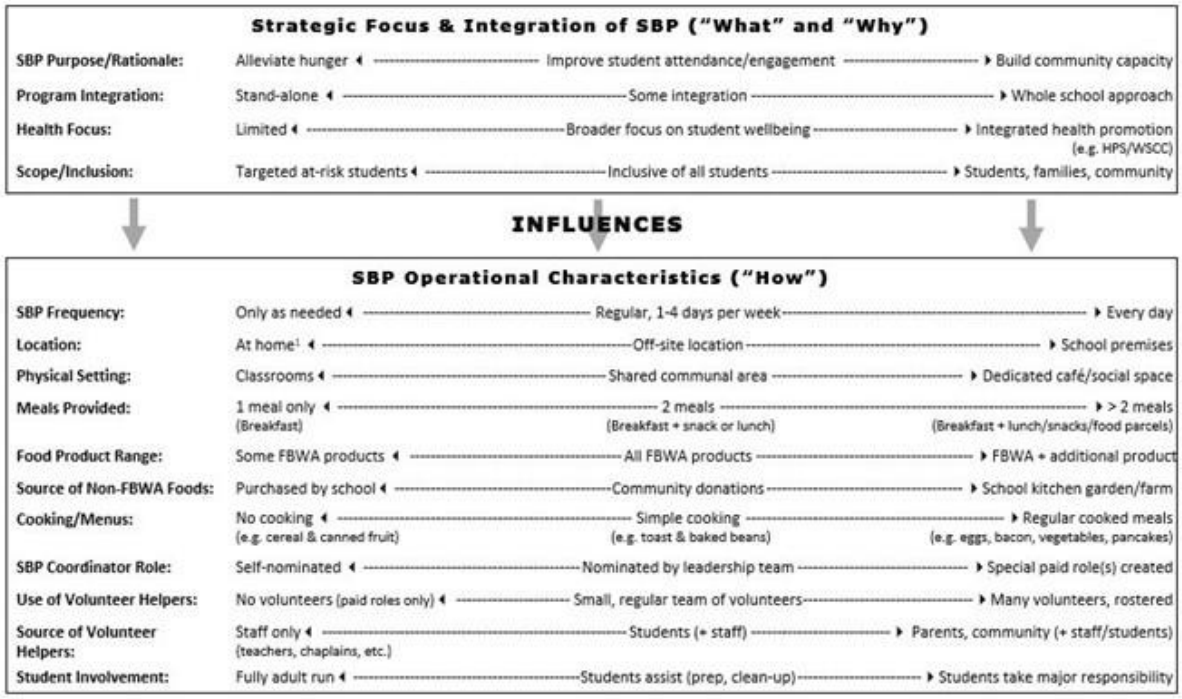

Figure 9. Key characteristics and implementation continua of School Breakfast Programs in WA schools

Most schools rely on volunteers (e.g., teachers, support staff, students, parents, other community members) to run their breakfast program. The seven core products provided by Foodbank WA are by necessity shelf-stable including two types of breakfast cereal, canned fruit in natural juice, canned spaghetti in tomato sauce, canned baked beans, long-life milk, and Vegemite. These were seen to be of good quality and provide a reasonable level of variety for students. Many schools are also able to supplement their menus with products sourced through school funds, donations, and school/community kitchen gardens.

Challenges

- **Recruiting volunteers:** 40% of SBP schools draw on support from parents and families to assist in running the SBP. However, they commonly reported difficulty in recruiting sufficient volunteers from within the school community and for some this was identified as a barrier to further expansion and improvement of their breakfast program.
- **Gaining access to good quality fresh produce**: is challenging for metropolitan and regional schools alike, albeit for different logistical reasons.
- **Compliance with Department of Education's Healthy Food and Drink Policy.** Some additional products being provided in a small proportion of schools are non-compliant. While this is not necessarily a general cause for concern, the right to access healthy food may be of greater importance for economically disadvantaged students whose overall diet is particularly nutrient poor and who are at increased risk of diet-related illnesses and diseases.
- **Delivery/pick up of Foodbank WA core products** and access to fresh produce present logistical problems for some schools, either due to geographical location or resources. These issues do not prevent schools from

participating but are perceived as a barrier to expansion and improvement of the SBP in individual schools.

- **"Holiday hunger":** During school holidays, children do not generally have access to SBP and therefore, families are required to make financial resources stretch to accommodate the increased food needs. If they are unable to meet these additional food needs, children may experience hunger [130].

Opportunities

- **Enlisting help from students:** Some schools emphasised the value of student involvement not only to reduce the burden on teaching staff but also contributing to development of important life skills and greater student self-efficacy, as well as instilling values of reciprocity and giving.
- **Support from the wider community (other than parents/families and students):** This includes outside volunteers to assist in the day-to-day running of the program, donations of food products and financial support to purchase supplies or equipment. Schools (25%) that were successful in securing support from local businesses, community organisations and individuals attributed this to being seen to have a genuine comprehensive ethos of care and concern for the health and wellbeing of students and families.
- **Addressing shame, stigma, and perceived culture of dependence:** Increasingly over the study, schools made SBP available to all students to mitigate any perception that the SBP was addressing poverty or neglect or that the SBP may be facilitating an abdication of parental responsibility and a culture of dependence. This is consistent with international literature, and the view that school feeding programs are an effective 'social protection tool' with educational and social benefits beyond alleviating hunger [88]. This may be an area where further work can be done to educate schools about the benefits of SBPs.
- **Incorporating SBP in an integrated approach to health and wellbeing** helps deal with the inherent challenges and resource implications of feeding children every day.

Conclusions

- SBPs not only assist WA schools to address the hunger needs of vulnerable youth and students but have notable effects on student educational, behavioural and social outcomes as well school 'tone' and increased engagement within the community.
- School communities across WA differ greatly in terms of their social contexts and health and educational learning needs, rationale for implementing a breakfast program, desired outcomes and benefits and implementation strategies. SBPs in WA schools therefore need flexibility in delivery across the state.
- At the school level, the main threats to sustainability are staffing levels and access to volunteers, time constraints, and financial/budgetary issues that limited the provision of adequate facilities and menu variety.

- A key ‘protective factor’ to mitigate these threats is adoption of an integrated approach to health and wellbeing which embeds the SBP in strategic planning, thus receiving more policy and resource attention.

Recommendations:

- **Advocate for continued WA government funding for Foodbank to deliver SBPs in schools that need them, with consideration given to increasing the resource allocation to reflect projected increased demand.**
- **Advocate for additional resources to set up a School Breakfast Program Best Practice Network to share and develop innovative ways of delivering the SBP, addressing barriers and value-adding. It is suggested that this network be online to facilitate engagement and collaboration and could be housed either within the Foodbank WA or Department of Education website.**
- **Advocate for establishment of an annual small grant scheme for SBP schools to apply for funding to upgrade equipment or facilities as part of a continuous improvement plan.**
- **Engage with Foodbank WA and the Department of Education to encourage more collaboration amongst schools for efficiencies in food collection and resourcing of breakfast programs. For example, encourage a trial at a District and School Network level through Network Principals and via school leader professional associations to assess feasibility and effectiveness of this approach.**
- **Advocate for a review and pilot study of the best way to track student attendance at SBP for performance monitoring purposes. These data are important to inform policy and to justify investment.**

Term of Reference 4: The extent to which food literacy programs aimed at children and young people and/or their parents/carers:

a. Are currently accessed

b. Are effective.

Background

Schools provide the universal reach and educational environment with potential to build food literacy from early childhood to adolescence. Food literacy has multiple constructs which can be addressed within different learning areas of the school curriculum [131]. However, inclusion is somewhat ad-hoc and frequently delivered by external organisations to support specific school-based programs. In WA this includes Foodbank, Cancer Council Crunch and Sip, WA School Canteen Association and Stephanie Alexander Kitchen Garden Program. Barriers identified in Australian studies include limited education sector and school leadership, unsupportive school environments, a crowded curriculum and poor availability of teaching resources with explicit links to the curriculum [131-134].

ECU SMHS working with Schools of Education, Science, and Arts and Humanities, have considerable experience in the development, implementation and evaluation of food and nutrition education resources for schools. Outlined below are three cases studies which illustrate the potential reach and impact of school-based nutrition education and the importance of recognising and supporting teachers and schools to achieve universal development of food literacy as a critical life skill.

Refresh.ED food and nutrition curriculum resources

In 2012, recognising the need or teaching resources with explicit links to Curriculum, the WA Department of Health contracted the ECU SMHS to develop, promote and evaluate a suite of age-specific curriculum support materials that will encourage and support teachers from Kindergarten to Year 10 to include content on food, healthy eating, nutrition and food preparation skills. The result was the free online food and nutrition education resource Refresh.ED, which was launched in 2014 and continues until June 2022 with DOH funding to be refined, promoted and evaluated by ECU to help teachers introduce food and nutrition into K-10 classrooms. Scaffolded by the Refresh.ED food and nutrition education Scope and Sequence, four teaching units are available per year level focusing on food source, choice, experience and health and linked to specific learning areas in the WA Curriculum. These units incorporate 3 to 5 lessons and include teacher professional learning videos and information sheets are also available as downloadable materials from the website. Additional support is available via Facebook and through pre-service teacher training.

Use of Refresh.ED in classrooms

By June 2022 over 8000 users were registered to download Refresh.ED resources and over 3500 teaching units were downloaded at least once per year, nearly half of these (48%) by teachers in WA. Based on 2018 impact survey results that showed 75% of units downloaded by teachers were used during that year in the classroom, it is likely that over 1260 Refresh.ED units were taught in WA classrooms in 2021-22, reaching over 25,000 students per year (assuming 20 students per class).

Approximately 60% of these students were in pre-primary and primary school classes and 40% in secondary.

Teacher perspectives of Refresh.ED impact on their teaching

A 2018 survey of 70 teachers who registered to use Refresh.ED in the previous two years found that the Refresh.ED resources were being used mostly in Technologies and Health and Physical Education learning areas. Amongst teachers using the resources, over 70% agreed that using Refresh.ED increased classroom activities related to food source and choice and over half were able to increase activities related to food preparation and handling as well as the overall time spent teaching food and nutrition in the classroom. Satisfaction with the teaching resources was high, especially the teacher information section of units and the learning tasks appropriate to year level. The teacher professional learning resources were also considered relevant, useful, and easy to use.

Over half of the teachers surveyed had no or minimal pre-service or in-service training in food and nutrition education. Most teachers reported Refresh.ED resources helped to increase their nutrition knowledge and confidence to teach nutrition whilst saving time preparing for classes. Even for teachers experienced teaching food and nutrition, in the words of one respondent, the resources "kept them up-to-date and motivated to try something different". Pre-service teacher trainees who participated in 2-hour workshops on Refresh.ED unanimously acknowledged the relevance and usefulness of such training and their likelihood of using the resources once qualified.

Support for nutrition education in schools

Whilst respondents were generally motivated to teach food and nutrition, a significant proportion reported low support for this role from schools and parents. A quarter (27%) of teachers surveyed disagreed that healthy food and nutrition education is a high priority in their school, 43% disagreed that the school took a 'whole of school' approach to support healthy food and nutrition and 32% disagreed parents at the school support healthy food and nutrition education. Similar low priority for food and nutrition education has been reported elsewhere in Australia [131, 133].

Teacher perspectives on student response

Most teachers surveyed reported interest from students in learning about food and nutrition, with at least 80% agreeing that Refresh.ED units had increased student interest in examining their own food selection and eating habits, trying new healthy foods, making healthier food choices and cooking and preparing healthy foods. Teachers made the following additional comments about student responses to *Refresh.ED* units: *"Students are now able to tell me what food groups they have in their lunch box and are visibly excited/engaged when they see they have something from each section of the healthy eating plate"(Early years teacher)."Students are eager to share what they've learned with their family" (Primary HPE teacher). "It has been a really helpful unit of work to approach the subject in a sensitive way for students who may come from a home with eating habits that don't fulfil a healthy balanced diet" (Early years teacher).*

Conclusions

- Teachers who downloaded Refresh.ED resources were already highly motivated to teach food and nutrition
- Teachers showed a high level of satisfaction with the teaching units and are comfortable accessing online Refresh.ED resources, leading to a change in the content of food and nutrition lessons taught, more confidence to encourage children's healthy eating; and more interest from students.
- Teacher training in food and nutrition education is low or limited in scope but inbuilt teacher information and delivery guides help to increase food and nutrition knowledge and confidence to teach nutrition whilst saving time preparing for classes.
- Lack of parental and school support may be barriers to teacher engagement in food and nutrition education.

Evaluation of Foodbank Food Sensations program

The Food Sensations® program was included in the three-year (2015-2018) evaluation of the Foodbank School Breakfast and Nutrition Education Program (SBNEP) conducted by muti-disciplinary team from ECU [109]. The SBNEP specifically targets schools that have a low Index of Community Socio-Educational Advantage (ICSEA) and/or a significant subset of students at risk of disadvantage.

Food Sensations lessons are delivered by trained Foodbank or regional Health service staff. Lessons are typically 90 minutes in duration and include interactive classroom activities and a hands-on cooking session in which every child helps to prepare one or more healthy dishes that are then shared with the whole class. Lessons are tailored for specific year groups from pre-primary to year 10 and linked to the Health and Physical Education learning area of the Australian Curriculum. These are available free-of-charge to teachers from the Foodbank WA "Superhero Foods HQ" website. Children receive a free recipe booklet to take home containing simple recipes for healthy meals and snacks. Schools can also access a range of free food literacy resources that feature the Superhero Foods and their associated health messages, including posters, playing cards, storybooks, and placemats for use in the School Breakfast Program.

Classroom teachers were asked to complete a post-session evaluation, while students complete an evaluation sheet up to two weeks before and immediately after each Food Sensations® lesson aimed at gauging change in their scores for knowledge and attitudes to healthy eating. During 2016-17, 77 schools were included in the evaluation, with a total of 1,714 (1,492 primary and 222 secondary) students and 178 teachers participating.

Student Results

The median knowledge scores for primary and secondary school students demonstrated significant improvements in knowledge in both groups. Small gains were seen across a range of the areas of food literacy that contribute to the knowledge scores, including the correct identification of healthy versus less healthy foods, knowledge of the nutritional features of fast foods, knowledge of the amount of sugar in soft drinks, ability to interpret food labels, and knowledge of kitchen safety

and hygiene practices. Whilst collectively, students started with relatively positive attitudes, statistically significant improvements in positive attitude were seen from pre to post for all but 2 of 7 items for primary students and for 5 of the 9 items for secondary students.

Teacher Results

Over 95% of teachers strongly agreed or agreed that the sessions were suitable for their students in terms of age, literacy, numeracy and social context. They were unanimous that their students had enjoyed participating in the session and that it helped improve their students' attitudes towards healthy eating. 99% of the teachers either strongly agreed or agreed that the skills learned in Food Sensations® would positively contribute to their students' health, with many reinforcing this in their open-ended comments and reporting that students were keen to apply their new skills and enthusiasm for cooking healthy homemade meals at home.

Five items sought teachers' feedback about the impact of the Food Sensations® lessons on their own knowledge and practice in relation to nutrition education: relevance of Food Sensations® content to the Health and Physical Education curriculum; improvement in their own knowledge of how to teach children about choosing healthy foods; motivation to include more nutrition education in their teaching program; intention to use the Food Sensations® support materials in their classroom; and the need for more professional learning in nutrition education. Almost all teachers (≥ 97%) strongly agreed or agreed with these items, except in relation to professional learning. For the latter, 78% agreed or strongly agreed that the Food Sensations® lesson had highlighted their own need for more professional learning in nutrition education. In their open-ended comments, several teachers flagged their intention to use the Food Sensations® resources in future class activities.

Conclusions

- A single, well-planned, experiential nutrition education session that engages all students in cooking simple, healthy recipes can be successful in improving students' knowledge and attitudes to healthy eating.
- Incorporating hands-on cooking activities is a powerful way to engage students of all ages in nutrition education.
- School-based cooking lessons can be successfully conducted without specialist kitchen facilities, only requiring access to power and water.
- The modelling of successful nutrition education lessons by experienced facilitators, and ready availability of comprehensive lesson plans and free resources that are linked to relevant curriculum, provide valuable support for teachers to incorporate ongoing nutrition education into their classroom programming.

Farm to Fork ECU computer game for adolescents

Background

Educating adolescents to increase knowledge about healthy food choices is no guarantee that individuals will adopt healthy dietary behaviours [132, 135, 136]. Achieving dietary behaviour change is complex, challenging, dynamic and predominantly contextual [132, 137, 138]. The home, school and community

environments in which students live, and their interest, motivation, and skills to select and prepare healthy foods are critical to acting on their knowledge of healthy choices [132, 139, 140]. For effective nutrition education, development of broader food literacy is recommended, including an understanding of food systems in which dietary choices are made [140, 141].

The food system is a complex web of activities and influences that revolve around primary production of food commodities, processing, distribution, access, marketing, consumption, health impacts and waste management [142, 143]. Food system education offers opportunities for cross curriculum education but is also challenging in a crowded curriculum. Recently, interactive computer games deliberately aligned to curriculum and learning outcomes have been identified as promising vehicles for nutrition and food systems education [144, 145]. Through game play it is possible to simulate aspects of the real world, model large, complex food systems across a shortened timeframe and allow students to virtually experience the consequences of actions all within one lesson [146].

With seed funding from Healthway, a multi-disciplinary ECU team co-designed and evaluated the Farm to Fork computer game which focused on managing the commercial, environmental and health aspects of a food supply chain for potatoes. The evaluation with 250 years 7-10 students at 5 Perth high schools aimed to explore food systems education as a viable means to interest and engage adolescents in nutrition education. Through small group discussions, the study examined the learning outcomes from adolescent students playing the game in class and the additional interests it invoked in students to learn more about nutrition and food systems.

What students learned

Discussion of learning focussed on three topics

1. Healthy food choices: about two thirds of the 73 responses focused on ways to make healthy food choices (36.3%) and the health benefits from making healthy food choices (27.3%). One group related food processing to “the junk food problem”, commenting that it contributed to people “getting more fat.”

2. Growing, processing, and marketing foods: nearly half (45.9%) of the 94 group responses related directly and/or indirectly to the complexity and steps in the food production process, including the time needed to grow and produce food and waste generated.

3. *Food and resource waste*: most of the 76 group responses for this topic reporting that the food supply system generates a lot of waste (41.9%), and food processing increases waste

What students wanted to learn in addition to the game content

Most of the interest in learning more about *making healthy food choices* (n=64) focused on the identification of healthy foods (54.7%), producing healthy foods (21.9%) and the benefits of healthy eating (14.0%). The students were interested in “how to change people’s preferences for unhealthy foods”, why “fries have a high demand?”, “how many people really buy unhealthy foods?” and “why people find junk food tastier?”

For *growing, processing and marketing foods* most group responses (n=83), revealed interest in how to produce foods other than potatoes (22.9%), including the resources needed and steps to grow and harvest (15.7%), accessing seasonal, local food (14.4%), processing and packaging (13.2%), and marketing of foods (14.4%). Students wanted information that could make them more "aware of what happens to food before we eat it."

For the topic of *waste in the food system* (n=72), ways to reduce waste (36.2%) were of highest interest, suggesting additional learning could focus on "how to be food-wise" and "recyclable products; how waste is produced (18.0%), statistics pertaining to waste (16.7%) and the effects of waste (11.1%).

How students would like to learn more about topics in the game

Group responses (n=138) identified immersion activities (48.6%) as the most preferred pedagogical approach to learn more about the game topics. This included activities like computer game play, field trips, growing food, cooking food, and composting and recycling activities. They perceived these types of experiential activity as a better way to self-connect to food production.

Access to Farm to Fork game

Originally released in 2020 on the App Store for iPads, and already with 4700 downloads, the game is now available for Windows PC to provide greater access and flexibility for schools. A free teaching resource booklet and a Power Point presentation on how to play the game are available to support educators.

Conclusions

- Students are interested in a more holistic understanding of food beyond health. This includes learning more about the way we produce, distribute, and consume food and their links to human and planetary health.
- A shift in focus of food and nutrition education towards food systems rather than individual behaviour change may help schools to effectively engage and support adolescents to become critical and reflective consumers of food products.
- By considering the whole food system schools can provide opportunities for engaging students and developing food literacy not just in health learning areas but also across science, geography, business, and economics - and more broadly in sustainability education.
- Students favour immersive learning experiences to reinforce formal classroom learning, some of which could be facilitated through supportive school policies and environments that model healthy sustainable food systems. Examples include school produce gardens, farm and supply chain-related activities, in-class cooking activities, local provisioning of school meals, and food-related waste management [147-150].

Recommendations:

- **Advocate for increased focus on school-based food and nutrition education, incorporating experiential learning, as a means to develop universal food literacy as a critical life skill.**

- **Advocate for school policies, environments and programs that support development of food literacy.**
- **Advocate to the Department of Education and external providers of school-based food and nutrition education programs for the Refresh.ED Food and Nutrition Education Scope and Sequence to be used as the sequential scaffolding for K-10 food and nutrition education in WA aligned with WA Curriculum.**
- **Investigate the potential for incorporating mandatory food literacy education training in the pre-service training of all primary school teachers.**

Term of Reference 5: Government-funded school lunch programs.

Internationally, Government funded school lunch programs have a long history [72, 151]. Publications have been most numerous when research has been funded during times of policy change, and less numerous at other times. For this reason, this submission draws upon the historic literature as well as contemporary research. Many discussions that first emerged in the historical literature, have subsequently re-emerged, even as the purposes for school meals have changed and diversified. Various programs have been well documented and evaluated in several countries including the UK [72, 152-155], France [156], Finland [157] Portugal [158] and the USA [151]. From these discussions and evaluations, it is possible to identify:
Internationally, Government funded school lunch programs have a long history [72, 151]. Publications have been most numerous when research has been funded during times of policy change, and less numerous at other times. For this reason, this submission draws upon the historic literature as well as contemporary research. Many discussions that first emerged in the historical literature, have subsequently re-emerged, even as the purposes for school meals have changed and diversified. Various programs have been well documented and evaluated in several countries including the UK [72, 152-155], France [156], Finland [157] Portugal [158] and the USA [151]. From these discussions and evaluations, it is possible to identify:

a. Rationales for school lunch programs;
b. Factors to be considered when designing successful programs;
c. Problems were encountered and how addressed; and
d. Relevance of international experiences to the contemporary Western Australian context.

Each of these elements will be briefly summarised in the following paragraphs:

Rationale for school lunches as a point of intervention:

Early 20th century programs focussed on ‘feeding programs’ to provide sufficient calories for the malnourished poor [72]. Starting in the 1970’s and continuing today, the focus has changed to addressing childhood obesity, [153, 159] and supporting healthy food choices by children and young people which requires fresh nutrient dense food that includes fruit and vegetables. Since the 1980, there has been a greater focus on food literacy programs [157, 160]. Most recently, discussion about the environmental school meals has gained prominence [158, 161].

School meals provision resolves the problem of how to target ‘healthy eating’ provision. Nutrition is provided directly to children and young people in the school environment, which is offers almost universal access to school aged children and young people [72]. In WA this would potentially provide access to most children and young people aged 5-17 years) for 40 weeks per year. [151, 157, 160-162]Studies have shown that a nutritionally balanced lunch may significantly contribute to the nutritional value of the total food consumed by children and young people [151, 162] and that when these are provided free to those on low income, a high proportion of children and young people took the meals [162]. School lunch programs have been developed that incorporate opportunities for food literacy education [157, 160, 161]. There may also be secondary educational benefits of school meals programs (improved attendance, better educational engagement) or secondary social benefits

(on behaviour and on social relationships if the meal environment is suitable) but these are not the focus of this submission.

Historically there has been considerable discussion about how meals should be provided and whether they should be free of charge to children from poor families and subsidised/ low cost for others. There has also been extensive discussion about the practicalities of implementation [162]. For example, there has been on-going discussion about whether meals should be prepared locally with fresh ingredients or commercially packaged pre-prepared meals that only require re-heating. Other discussion has concerned how to design menus that are both healthy and acceptable to children and young people.

Factors to be considered when designing successful programs:

Be clear about the purposes of the program. Is it about child health? is it about food literacy? Is it intended as a public health intervention? **If the purpose is health, nutritional standards must be set.** Nutritional standards were considered essential [159]. When these were not specified the nutritional quality of the food provided declined and was criticised for providing unhealthy food that was filling but did not contribute positively to nutrition [155].

Provide for culturally appropriate food, special diets and some choice [154, 163]. Attractive food presentation of healthy food encourages consumption [163].

Consider staffing and facilities for food preparation and dining and the management of food service and dining environment. This includes whether food should be mostly prepared onsite, mostly off-site or whether it should be outsourced. Policy on use of pre-processed and pre-prepared foods has implications for staffing, for environmental impact and for nutrition. Crowded and rushed dining mean some children do not eat their food [152]. All decisions have implications for supervision of children and young people [72].

Consider environmental impacts For example, packaging, transportation [161], and food waste [158].

Get costs and subsidies right: Some studies showed that uptake was very price sensitive. Provide free meals to children and young people from the poorest families and subsidise costs for other children and young people [164].

Problems encountered and how/whether resolved:

Balancing healthy eating with student choice: Some programs reported a tension between healthy food and student choices. When healthy food was presented attractively there was good uptake [163].

Price sensitivity: Studies from the UK reported that a price rise led to a steep drop-off in uptake of meals by those who paid (even though the meals were still subsidised). If children and young people can purchase unhealthy food more cheaply (or bring unhealthy food from home) they may opt to do this unless the healthy food is seen as attractive and good value.

Staffing costs, food quality and environmental impact: Higher staffing cost for meals made on site prompted the move to more pre-prepared food but this led to lower food quality in the 1970s [164] and more food waste [158]. Environmental

impacts and low nutritional value of pre-packaged meals and the recent availability of commercial food preparation machinery that was not previously available has changed some of the factors and may mean that on-site food preparation is viable for some items [161]. Demas et al. examined the health and environmental impacts of pre-prepared food and suggest that there would be both health and environmental benefits in entering agreements with local growers and preparing meals onsite and that this need not cost more. Some evidence from Portugal that when food was locally produced there was less food waste [158], however the findings from the UK were that when there were healthy 'chip free' days there was more food waste. Other studies reported that attractive presentation of food contributed to the uptake of healthy choices [163] and a pleasant environment and low prices improved uptake overall [163].

Implementation: This raised many concerns including how to serve so many meals in quickly without the meal being rushed. This is especially difficult in large schools and was sometimes addressed by having a staggered school lunch break. Meals prepared off-site created packaging waste and requires refrigerated storage. If served fresh, meal preparation requires more staff on-site and may require non-disposable serving methods.

Relevance of international experiences to Western Australia:

Climate: There is less of a tradition of eating cooked lunches in WA than in Europe, especially in the warmer months/ areas. Hot meals (or meal element, for example soup) may be appropriate in winter in the south of the state.

Existing school canteens: Many operated by volunteers with a paid manager work from quite limited food preparation facilities. Therefore, programs may need more paid staff, better facilities, and equipment if a more comprehensive nutritional lunch program were instituted. Further, schools may require more vegetable preparation equipment if the emphasis is on freshly prepared food.

Dining space: Such spaces are limited in many schools. Australian schools may not be readily able to emulate the French system of seated dining unless classrooms were used for dining. If 'dispersed dining' in classrooms is adopted, this has implications for supervision.

Nutrition literacy: School lunches could be integrated into the school health curriculum appropriately for different year levels.

Environmental waste management: Some schools have systems for managing food waste and paper packaging through worm farms and composting. This would need more planning, especially in large schools.

Recommendation:

- **Advocate for the establishment of universal school meal programs in WA, that consider the applicability of findings from international experiences to inform implementation in WA schools.**

Term of Reference 6: Any other existing or potential initiatives.

Existing initiatives:

Projects aiming to address food security among First Nations people

A recent rapid systematic review [165] identified 25 Australian studies of projects aiming to address food security among First Nations people. Seven studies included retail- or store-based interventions, such as a 20% discount on fruit, vegetables, water and artificially sweetened soft drinks, which resulted in increased consumption of these items. Five articles described cooking classes to improve nutrition and food security, with some reporting an increase in cooking skills. Four studies reported on a community-based, multi-sector interest group approach, which demonstrated success, and three studies reported on school-based interventions. For example, a school breakfast program or school garden projects. These demonstrated success in incorporating nutrition education, cooking, and gardening skills into the school environment. Two community food programs provided culturally appropriate food for clients, while one sporting club food environment employed a health promotion model to address nutrition. Nine studies reported on an evaluation, which found economic incentives such as price discounts on healthy foods were effective in improving diet quality. Overall, critical aspects of program success included community connectedness, cultural appropriateness, and sustainability. Projects require systematic consideration of the factors that shape the food insecurity experience among First Nations people [165].

Food Community project

Wicked problems or 'grand challenges' are complex, systemic, interconnected, and urgent issues, requiring insights [166] and action from all levels of government which includes an integrated approach. Complex issues, such as food security, will be more effectively addressed through a **place-based focus.** Therefore, a comprehensive approach to understanding existing solutions, and how the effectiveness of these solutions could be strengthened, is important.

The South West Food Community pilot project used Wicked Lab's Australian-first Systemic Innovation Lab approach [167]. The project used a systemic approach to identify initiatives addressing any of the determinants of food security (i.e. transport to food outlets, food availability, nutrition knowledge and cooking skills) in South West WA. The project evaluated the initiatives against system change characteristics and co-designed actions to increase the effectiveness of the initiatives within the system.

The approach included Form, Explore, Map, Learn, Address, Share (FEMLAS) stages. Form included formation of a core team and reference group. Explore included stakeholder engagement and interviews with 52 initiative owners (i.e. staff, volunteers) to collect in-depth initiative information about food security initiatives and assess initiatives against 36 system change characteristics. For example*, create connections with other projects, groups or individuals who are addressing food security in the area* (system change characteristic: 'establish network linkages'). The 'Map' stage included entry of interview data into the online, award-winning Tool for Systemic Change, to graphically depict where initiatives possessed the system change characteristics, and which aspects of system change could be strengthened. Data collected also included initiatives' network of partners and how they work

collaboratively. The Learn stage included identifying windows of opportunities that could be harnessed through initiative and system changes. ‘Address’ included a multi-sector stakeholder/participant workshop to review results and co-design food security action plans to enhance the effectiveness of current initiatives, through addressing windows of opportunity. Participants were supported to address windows of opportunity through the facilitated action planning session and a purpose designed advocacy training course (The Public Health Advocacy Institute’s ‘Pathway to Policy: Food Community’). A visioning exercise assisted with identifying potential new initiatives that were needed to fill gaps and support food security action. The Share stage included embedding the results map into the purpose-built Food Community website to disseminate information throughout the food security system.

An evaluation six months after the Address stage, identified 25 changes to system change characteristics across the sample of government and community food initiatives re-interviewed to measure impact. This represented a shift in the system of food security initiatives. This shift in the system could potentially result in a more effective way to increase healthy food availability, access, and utilisation. This ground-breaking work presents a unique opportunity to improve community-level food security in rural and remote areas, through a focus on strengthening initiatives working on one or more determinants of food security. This is particularly important for rural and remote areas, where many of the populations most vulnerable to food security issues reside. Project knowledge dissemination has included South West Food Community being featured as a case study across several documents and platforms including a 2020 OECD report; a book chapter (In Press); on the Heart Foundation’s award-winning Healthy Active by Design website; published five academic papers [168-172]; the development of a tailored website – www.foodcommunity.com.au - to connect and inform the network; twelve recorded webinars created for the Food Community website, collectively viewed almost 9,000 times; 13 invited presentations delivered locally, nationally and internationally; the Food Community project was showcased in the Foodies in the Field national podcast. Project impact has included exemplar activities undertaken by South West Food Community participants, such as professional development, which catalysed new funding opportunities and partnerships; creation of a new community network addressing food availability and accessibility; facilitation of local committee meetings with government and community organisations that aimed to address food insecurity, to drive local action; increased collaboration to reduce duplication among food security programs; consultation with community members to include their ideas in local government work; amplified advocacy with local governments to highlight the need to address food security in policies; strategic alignment of community projects with local government strategies, leading to increased local government funding; encouragement of Elected Members to use community ideas, leading to local government sharing information about food initiatives.

This project has recently received statewide scale up funding and will be extended across six WA regions (Kimberley, Pilbara, Midwest-Gascoyne, Wheatbelt Goldfields, Great Southern) from May 2022-2025. Figure 10 visually depicts the approach that will be taken, statewide:

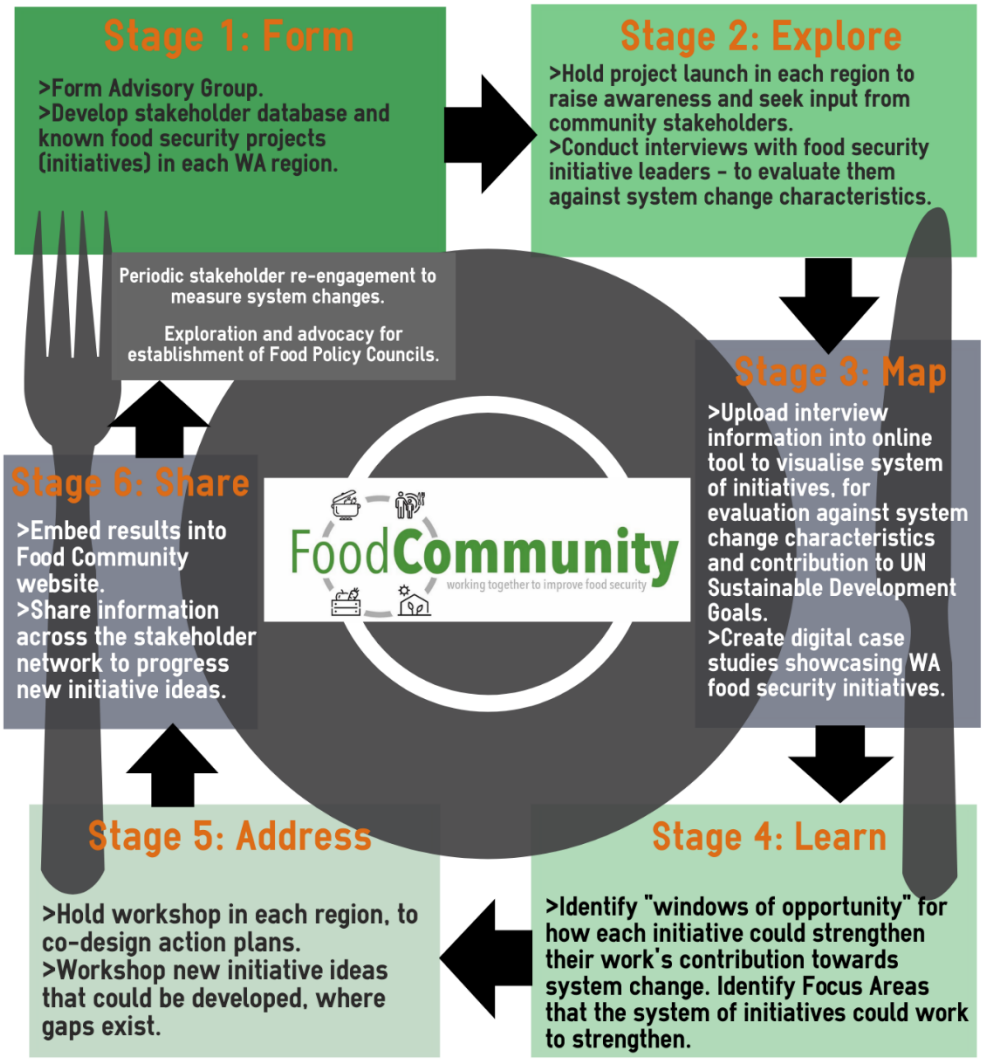

Figure 10: The Food Community project approach, adapted from Wicked Lab's Systemic Innovation Lab methodology.

1. *Local Food Environments*

Local Food Environments is an online tool and guide for local governments in Western Australia to explore their built food environments. This guide supports local government staff to explore the organisational structure and needs of community to support healthier food environments with a main aim to improve the local food system and increase access to healthy food within the community.

Potential initiatives:

Food Policy Councils

A sustainability and governance strategy embedded within the Food Community project includes exploration of the establishment of regional Food Policy Councils (FPC). These models are increasingly being utilised to facilitate participation in food system decision-making in Europe and North America. A FPC generally consists of a diverse range of representatives such as local and state government, universities, farmers, retailers, representatives from food banks and other charitable organisations, social justice groups, public health practitioners, and interested members of the public [173]. Stakeholders work with various levels of Government to address challenges associated with local food systems and enhance availability,

accessibility, and affordability of healthy foods for local residents [174]. They work collaboratively to embed actions to achieve sustainable and resilient food systems in government policy/plans.

No such FPC model exists in regional Western Australia. A regional FPC was specifically recommended as a next step by our South West Food Community project participants in 2018. Furthermore, recommendations from our COVID-19 and South West Food Supply study in 2020 included 'boost collaboration between food supply stakeholders and consumers', 'cultivate authentic local opportunities for direct food sales', 'educate consumers about food production' and 'plan for future food system disruptions', among others. These recommended strategies are ideally aligned with FPC activities that would support a sustainable, local food system that supports food security for all. Other potential FPC activities to support a sustainable food system that enhances food security, could include:

- Create and facilitate a network for stakeholders across the food system;
- Create a strategic plan and vision incorporating shared principles for 'food sustainability' and 'food security' through a broad range of issues, such as ecosystems' protection and biodiversity; food justice and fairness; valuing local economies, local food systems, community resilience and social cohesion;
- Influence food related policy to improve local and regional food systems to be more sustainable;
- Facilitate the development and implementation of food programs including education on sustainable food systems for food system organisations/stakeholders.

ECU has recently commenced a statewide FPC scoping study, across WA regions, supported by Category 1 funding. Learnings from the scoping study (anticipated to be completed in 2024), will inform development of region-based models. These models are likely to also be suitable for adaptation in urban/metropolitan Perth.

Early Childhood Education and Care (ECEC): An opportunity to reduce childhood food insecurity

There is a well evidenced link between food security and positive impact on developmental attainment in early childhood [175, 176]. Household food insecurity has been identified as a root cause of disadvantage which remains with a child across its life course [177]. In 2018 a Foodbank report found children are more likely to live in food insecure households (22%) compared to adults (15%) [178]. Food insecurity statistics reflect varying degrees of food insecurity in children. Pockets of high disadvantage are not unexpected and include children in rural and remote locations (NHRA, 2016), First Nations people [179] and those living in areas of low socio-economic disadvantage [40, 175, 176]. Household food insecurity has been identified as a root cause of disadvantage which remains with a child across its life course [177]. In 2018 a Foodbank report found children are more likely to live in food insecure households (22%) compared to adults (15%) [178]. Food insecurity statistics reflect varying degrees of food insecurity in children. Pockets of high disadvantage are not unexpected and include children in rural and remote locations (NHRA, 2016), First Nations people [179] and those living in areas of low socio-economic disadvantage [40, 176], this highlights that not all children have equal access to food.

Attendance at ECEC is being encouraged to improve the developmental outcomes of children [180] and a 2016 report found Australian children under three years of age had below average levels of participation in ECEC when compared to all OECD countries [181]. In Australia we are seeing governmental bodies seeking opportunities to better target resourcing and support to ECEC particularly where there are high levels of disadvantage. The Australian Early Development Census data showed there was a small but significant increase in developmentally vulnerable children specifically in the health and wellbeing domain [182].

Optimising nutrition for children in the first 1000 days is foundational to educational attainment [183, 184]. Currently there is limited evidence of how many ECEC services provide food nationally, it is estimated this is close to 30% [185]. ECEC services can provide up to 67% of a child's recommended dietary intake [186]. An internal report from Queensland Government found that ECEC services in low SES areas were less likely to provide food and would ask parents to bring food from home, which was also supported by Thorpe et al (2020) research. This presents multiple challenges for ECEC and families, including an additional financial burden on parents to provide food if they can, a reduction in 'control' in the type of food that is offered to children and the burden placed on services when children are not provided with food.[183, 184]. Currently there is limited evidence of how many ECEC services provide food nationally, it is estimated this is close to 30% [185]. ECEC services can provide up to 67% of a child's recommended dietary intake [186]. An internal report from Queensland Government found that ECEC services in low SES areas were less likely to provide food and would ask parents to bring food from home, which was also supported by Thorpe et al (2020) research. This presents multiple challenges for ECEC and families, including an additional financial burden on parents to provide food if they can, a reduction in 'control' in the type of food that is offered to children and the burden placed on services when children are not provided with food.

There is limited evidence around the benefit of quality food provision in ECEC. However, the Food Research and Action Center in the US sees school lunches as critical for children to obtain the required nutrition for learning and receiving free or reduced-price school lunches reduce food insecurity by nearly 4%. In addition, the provision of school/kindergarten meals improves dietary intake, positively impacts health and obesity rates and meeting children's needs leads to a better learning environment. The World Food Program report suggests every $1 invested in school meals communities receive a $9 in economic return.

A Heckman report highlights the importance of recognising that nutrition in ECEC produces quality outcomes, this evidence suggests that there is a 7-10% return per annum on investment in this sector. A recent Australian study by Thorpe et al (2020) cited the utilisation of ECEC to combat food insecurity is already underway through the Child and Adult Care Food Program (CACFP) [187]. This program is unique as it adopts a social justice approach, in that, it does not facilitate direct food provision to families but rather a sliding fee mechanism based on parental/guardian income, which subsidises food provision in ECEC. This reduces the stigma attached to handouts and is simply reflected in the cost to parents for their children to attend ECEC where food is provided.

In Australia over 1.3 million children access ECEC services, including long day care (LDC), family day care (FDC) and out of school hours care (OSHC). In March 2020, 111,320 children accessed ECEC in Western Australia from over 79,000 families via 1,226 approved services. The majority of these were in LDC (68,180 children (55,030 families)) followed by (OSHC (41,710 children (29,710 families)) and then FDC (9,840 children (6870 families)). This included 2,600 First Nations children accessing LDC (4%). Given the high cost of ECEC, it is likely that vulnerable children may not be accessing childcare. Food availability in ECEC programs may not reach vulnerable children, particularly those aged 0-3 years of age. Further, there are no ECEC-specific programs for these 0–3-year-old children, apart from those through the Child and Adolescent Health Service, WA Country Health Service or Aboriginal Medical Services, through child health checks. Playgroups may contribute to food availability through supply of fruit for morning tea, for example, however they may only operate one or few days per week. Closing the Gap 2020 reported that 97.7% of WA First Nations children (in Inner Regional areas) attend pre-kindy; early education for 4-year-old children [188]. These situations, where attendance among vulnerable children may be higher, represent a unique opportunity to support food security through healthy food provision.

In 2018 the National Nutrition Network – Early Childhood Education and Care (NNN-ECEC) was formed to promote healthy and sustainable food environments for ECEC. The network has 35 members consisting of researchers, practice agents and government bodies which support this sector. NNN-ECEC members have come together for several reasons which include promoting the unique opportunity ECEC services offer for healthy food provision to positively impact the food and nutrition security of children who access these services. More details about the network can be found via the following link https://www.nationalnutritionnetwork.com.au/. A recent collaborative project of the NNN-ECEC supported Health and Wellbeing Queensland to aggregate publicly available data sets to identify regions of vulnerability to target resources to seek opportunities to support food provision. This strategy provides a protocol for WA to utilise publicly available data to target resourcing.

Resourcing could be targeted to incorporate similar strategies as the CACFP. The success of these strategies in the United States could be applied in Australia, and include, connecting ECEC services with local growers to bolster their access to healthy, culturally appropriate foods. Additional research conducted by Rutz (2018), investigated the merits of connecting farms with ECEC to support food provision, which reflects a socially embedded food system as it was seen as providing social and emotional benefit to children beyond normal procurement strategies. This study found that establishing a ‘food hub’ for ECEC food procurement addressed food insecurity by supporting families on low income.

The CACFP program did not only a focus on the quality of food provision being offered in the services but also how food can be distributed to their families via ECEC. For example, supplementary activities which support food access programs included, easy pickup options, such as boxes of local farm produce obtained through community-supported agriculture arrangements, which parents can easily access during pickup times and services could access for their food supply. Other local programs could expand to offer different types of food assistance, such as prepared meals. Food access programs may also offer direct nutrition education programming

and activities through intervention programs to increase families' access to, and children's acceptance of, foods that are both healthy and culturally relevant. All of these provide a pathway to a more integrated approach, adding to the sustainability of efforts to reduce food insecurity, in addition to building from the existing community capital.

In Australia there are two main policy documents that guide food provision in ECEC 'Get up and Grow' and 'Australian Dietary Guidelines' whilst the National Quality Standard for ECEC [189] provides guidance in Quality Area 2. However, there is no actionable framework which states ECEC should provide food. Given recent US evidence citing cost as a barrier for food provision in ECEC [190], replicating strategies evident in the CACFP, as discussed previously, are worthy of investigation.

Youth Work: Potential for practical action on food insecurity and education on food literacy

More than 1.2 million children and young people are Growing up in poverty [191]. Within this group First Nations children are over-represented. A study in rural NSW found that young people contacted by First Nations youth night patrols were especially likely to be hungry [192]. Others who were over-represented in this group are young people (aged 12-25) who are homeless because they are not able to live with parents [70]. The three main concerns of youth work in Australia are: a) welfare of young people, b) informal education of young people, and c) supporting young people to participate in society and act with peers on issues of concern [193]. Through youth homelessness services, and through local government youth programs, youth workers have contact with some of the most food insecure young people, including those who do not engage with other services and do not attend school (add ref Cooper, 2020). Several youth agencies operate emergency relief programs for young people. Youth workers who are attached to schools are well placed to support children and young people facing immediate food insecurity at school as well as those facing long-term food insecurity. At present, youth work agencies are not explicitly funded to undertake this work. Several youth work programs rely on food donations to provide food to children and young people. Whilst this enables them to provide food, the food they provide through this is whatever they are given, which may not be healthy food [194] and would not enable them to provide food reliably that met nutritional standards. In addition, reliance on donated food may undermine food literacy messages. To enable youth workers to contribute more fully requires development and trial of integrated programs to address systemic poverty that young people face and to help youth services integrate nutrition and food education programs into their existing work of crisis support, and of long-term informal education and support for young people's social development and well-being.

Recommendations:

- **Partner with ECU to undertake the funded statewide scoping study on Food Policy Councils in regional WA. This initiative would foster the development of coordinated and focused workplans to address the pillars of food security, which supports a community led and place-based response.**

- **Develop a framework, in consultation with leading national representative of Early Childhood (NNN-ECEC), which requires ECEC to provide food to children in care, which is monitored by existing assessment and rating mechanisms, in a collaborative way with the Department of Communities and identify potential implementation and monitoring strategies. For the youth sectors, the Youth Affairs Council of Western Australia and/or WA Council of Social Services could be approached to manage similar consultations with the youth sector including the youth homelessness sector and local government.**
- **Advocate for updating the national 'Get up and Grow' resource in alignment with Western Australia's developed framework.**
- **Support Youth Work services to contribute to crisis support and educational initiatives for food literacy.**

Term of Reference 7: Western Australia's obligations and responsibilities to monitor and address food insecurity as an aspect of child wellbeing.

Problem:

Foodbank reported **1.2 million children are living in a household affected by food insecurity** (2021). Furthermore, almost half the parents defined as severely food insecure in this report stated their children did not eat fresh fruit and vegetables daily and may not eat any at all during a given week. One in two young First Nations families were likely to experience food insecurity, as were one in three families and single parents living in urban areas and relying on government assistance [32].

Australia lacks a comprehensive understanding of the nature of food insecurity, given that the issue is not measured as a matter of course in this country by governments. Yet, existing evidence indicates that food insecurity is a significant issue, particularly among priority populations. Food insecurity prevalence has been estimated to be as high as 20-70% among 'at risk' population groups (including children and young people) when more nuanced multi-item measurement tools were used, in contrast to the single item tool most used to periodically measure food insecurity in Australia. However, as several measurement tools have been used, comparing results between studies is challenging. Such challenges in measuring the true extent of food insecurity in Australia highlights the need for a consistently used national food insecurity measure.

The existing, yet scant, evidence suggests that the primary cause of food insecurity in Australia is poverty, cited as: "*material hardship and inadequate financial resources*" [177]. In WA, more than 160,000 households were reported as experiencing poverty, affecting almost 86,000 children, of whom 3.4% experience severe poverty [195]. Aside from the increased chances of experiencing food insecurity and hunger as a direct result of living in a household experiencing poverty, children also face significant negative impact to their future education and employment outcomes, physical, mental, and psychological health and social connectedness [195]. The number of individuals and families living with poverty decreased in 2021, partly due to additional allowances and subsidies paid by the government considering the COVID-19 pandemic, illustrating the impact of providing a sufficient income. Many people who experience food insecurity are reliant on government allowances and live on or below the poverty line. Therefore, increasing government allowances and providing opportunities for secure employment and a fair wage are paramount to support human rights.

There are several international declarations to which Australia has committed, that outline the rights of the citizen to a decent standard of living, including access to sufficient and nutritious food. Firstly, the **Universal Declaration of Human Rights** states that *"everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food*" and "*children have the right to good quality health care, clean water, nutritious food and a clean environment so that they will stay healthy…*". Further, **Australia ratified and committed to the International Covenant on Economic, Social and Cultural Rights** (ICESCR) **in 1975** [196]. Article 7 stated: "*just and favourable conditions of work which ensure….a decent living for themselves and their families"* Article 11: "*the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing".* The Food and Agriculture Organization (FAO) published 19

Voluntary Guidelines which provided member states with guidance on implementing policies that protect, respect and fulfil the human right to food, achieving food security as the outcome of the realisation of these human rights [197]. In addition, the United Nations Sustainable Developmental Goals (SGDs) outline a blueprint for a global partnership to achieve peace and prosperity worldwide. While Perez-Escamilla argues that all SDGs relate to food insecurity [78], Goal 2 specifically aims to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture" [198].

Other countries have made progress towards achievement of a rights-based approach to food security. Exemplar strategies, or policy windows, include government leadership to facilitate access to nutritious food for all (20 countries worldwide) [199], publicly monitoring food insecurity using reduction and prevention targets (USA) [200], giving those with lived experience of food insecurity a voice in advocacy and action (Brazil) [200], ongoing resourcing as core business (Brazil) [201] and incorporating rights-based policies in food system strengthening (Norway) [197, 202].

A recent Australian study interviewed public health experts to understand how a human-rights based approach to food security could be realised in Australia. The respondents asserted that government should reduce income inequality (i.e. through a Universal Basic Income) and protect vulnerable families through adequate social security benefits, and an increased minimum wage [203]. Non-government actors (i.e. the not-for-profit sector) were viewed as *"connectors",* and therefore should be used to bridge the gap between community and government. Civil society organisations were viewed as an opportunity to leverage, such as through formation of a collective group of advocates. An additional approach is linking action to the Sustainable Development Goals [203]. The research suggested six domains for action to achieve a rights-based approach to food security in Australia. These included 'government leadership'; 'accountability and monitoring'; participation and empowerment'; 'non-government actors'; 'resourcing'; and 'healthy and sustainable food systems' [197]. The WA government should support required actions through leadership, incorporating human rights language into existing policies and plans; and adequate resourcing of policies and programs to support food security [197]. Given one of the **functions** through the **Commissioner for Children and Young People Act 2006 (WA)** is to ***"promote and monitor the wellbeing of children and young people generally"*** *[81],* the **Commissioner should monitor food insecurity among WA children**.

The 100 Families WA report concluded that it *"is clear that* ***family members are concerned about fulfilling their most basic needs*** *such as food, shelter, clothing, and health"* [33]. The WA government has an obligation to support all WA families to do so. This submission calls on the state government to facilitate opportunities for individuals and families to live above the poverty line with dignity and assure the best outcomes for future generations of Australians.

Recommendations:

- **WA government should view food security as a basic human right and fulfil the binding International Covenant on Economic, Social and Cultural Rights commitments.**

- **Advocate for the incorporation of human rights language into existing WA policies and plans, across government departments.**
- **Commit to annual food insecurity monitoring in WA, including in remote WA, via the Wellbeing Monitoring Framework (WMF).**
    - **The 18-item United States 'Household Food Security Survey Module' should be explored for use, as is or adapted for the Australian context, with adult respondents.**
    - **For children and young people's perspectives, the 'Self-Administered Food Security Survey Module for Youth Ages 12 and Older' should be used. This tool has been shown to be valid and reliable, when used with children as young as nine years, across regional and remote WA [30].**

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