



**BUILDING RESILIENT LOCAL
FOOD ECOSYSTEMS IN A GROWTH
CORRIDOR: A FOCUS ON THE CITY
OF LOGAN**

FINAL REPORT | JULY 2023

GRIFFITH CENTRE FOR SYSTEMS INNOVATION, CITIES RESEARCH INSTITUTE
AND GRIFFITH DISASTER MANAGEMENT NETWORK, GRIFFITH UNIVERSITY.

Acknowledgement of Country

Griffith University acknowledges the people who are the traditional custodians of the land, pays respect to the Elders, past and present, and extends that respect to other Aboriginal and Torres Strait Islander Peoples. We acknowledge the Traditional Owners: the Yuggera, Turrbal, Yugarabul, Jagera and Yugambeh peoples, on whose lands are the places of study in this report.



Figure 1: First Peoples art by Sid Domic

Acknowledgements

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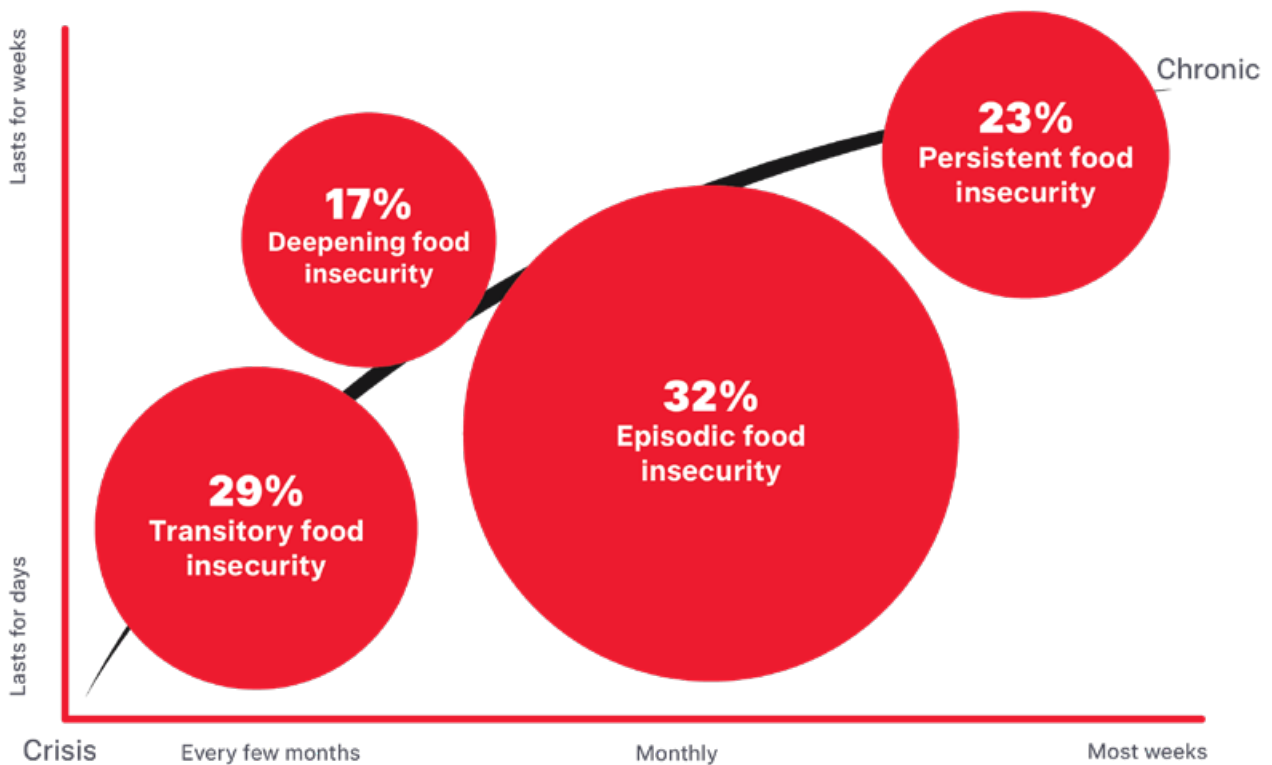
1 Introduction

The experience of food insecurity for many people is transitory, such as short-term and sudden drops in ability to access food due to shocks, fluctuations in the food supply system and rising cost of food (Reis, Desha & Burton 2020). According to the FoodBank Hunger Report 2022, over the past year, approximately 29% of food-insecure Australians experienced transitory food insecurity but were able to recover in a short time period.

The time taken to bounce-back is reported to take longer for 17% of the population when they are impacted by repeated interruptions to food access. With those repeated interruptions, the experience of episodic and more entrenched impacts occur for 32% of the food-insecure population (FoodBank 2022). Chronic food insecurity is marked by the persistent inability to meet minimum food requirements over a sustained period of time which are typically driven by lack of financial resources (FAO 2008). The FoodBank study reports 23% of food-insecure Australians experiencing persistent levels over the past year (FoodBank 2022).

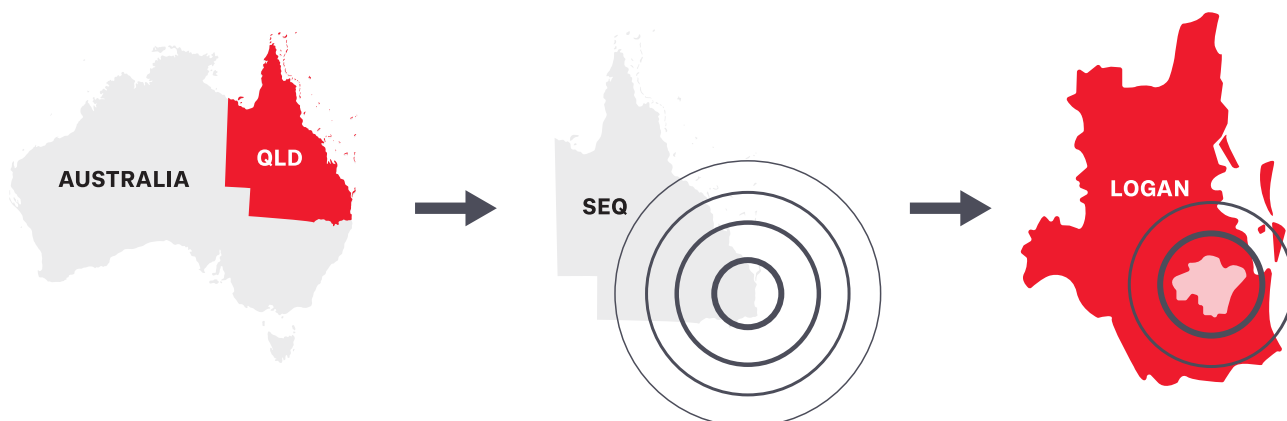
For the City of Logan, the socio-economic profiles demonstrate the prevalent experience of disadvantage over time (Zapflia & Cheshire 2014; .idcommunity 2016b 2021; James 2019) with subsequent vulnerabilities to these experiences of food insecurities. The City of Logan hosts a major population growth corridor that presents challenges for interrupted supply of food as food demand increases and cost of food rises. The Logan City Council jurisdiction is situated within the greater South-East Queensland (SEQ) region. The land area is 959.4 km² with an approximate population of 350,740 as of 2021 (.idcommunity 2021).

Figure 2: Australian experience of food insecurity



Source: Foodbank 2022

Figure 3: City of Logan situated in South East Queensland (SEQ)



Source: Adapted from the Queensland Government 2017

There are multiple factors impacting the food supply chain for Logan. Due to the steady growth in population with reduction in local farms and progressive loss of the rural food industries within the City of Logan, reliance is required on longer food supply chains that source food from elsewhere. There are compounding pressures on food systems within the SEQ region that deeply impact Logan as a major population growth corridor. De-linking population growth and land development from the loss of arable land in the time of climate changes is a key challenge. Those living with chronic food insecurity are likely to experience health conditions that exacerbate COVID-19 symptoms (Klassen & Murphy 2020). Furthermore, chronic reliance on food relief for daily and ongoing food supplies is a food system under stress that requires planned action for local food contingencies (Reis et al., 2021; Reis, Desha & Rifai 2019).

1.1 Snapshot of policy enablers in SEQ and Logan

The South East Queensland Regional Plan (SEQRP) envisions that the SEQ region's food supply systems into the next 25 years will be "flexible, reliable and secure" (Queensland Government 2017, p. 31). Planning for food ecosystems are increasingly recognised as a key part of building resilience locally (Reis, Desha & Burton 2020). Specifically, the SEQRP calls for the support of "small-scale urban food production by residents". This will require the provision of "facilities to enable communities to be more resilient and self-sufficient by embedding opportunities for food to be homegrown and... locally sourced" and promoting "an ethos of place-making that unlocks the creativity and potential of local communities to become part of making these places great" (Queensland Government 2017, p. 94-95).

With the advent of COVID-19, a key objective in the City of Logan Recovery Report for COVID-19 is to strengthen and re-establish local food markets and supply chains (City of Logan 2021a). Council's Food Tourism Development Plan

2020-2025 aims to reflect Logan's multicultural vibrancy and is committed to promoting the region's multicultural food cultures to spark vibrant and enabled local food cultures (Regionality 2020). Logan City Council's Urban Design Framework sets out aspirations to integrate local food systems within the design of Logan City and for those guiding principles to inform the *LoganPlan 2025*, the next Logan planning scheme, and guide future investment decisions. Selected aspirations in the Urban Design Framework to move toward engaged, self-sufficient communities that embrace nature, include: 1) Design to embrace nature and urban green coverage by exploring opportunities for urban forests, green roofs, green walls and community gardens; 2) Integrate green assets into everyday life by increasing the utilisation of land for edible landscapes and thus reducing demand for external food supplies; 3) Encourage the development of community gardens and allotments within public spaces by exploring opportunities for community groups to lease and manage green areas and assets; and 4) Foster social cohesion and community resilience by incentivising local food production, urban horticulture and edible landscapes to reduce demand for external goods (City of Logan 2022).

1.2 Griffith University collaborative research agenda

This report builds on work undertaken by the Griffith Centre for Systems Innovation with the Cities Research Institute and the Griffith Disaster Management Network. Our Griffith University research is focussed on understanding the need for building local resilience and opening prospects for social innovation and entrepreneurship as we both recover from the pandemic, more fully experience the effects of climate change over the next decade and deal with the rising costs of food. In conjunction with several teams in the Logan City Council, we work with Griffith researchers, the Logan Campus, and a number of key partner organisations in the Logan region. Our Griffith University collaboration commenced in 2020 between these three partners:

1. Griffith Centre for Systems Innovation

Initial seed-funding of \$20,000 was provided to conduct stakeholder liaison for setting an exciting vision for civic creativity and action in local food within Logan, a short documents and first-stage local food map (Yunus Centre 2020). Led by Professor Ingrid Burkett, see the food agenda in the civic innovation research and development mission: <https://www.griffith.edu.au/griffith-business-school/centre-for-systems-innovation/mission-led-innovation/civic-innovation-research-and-development-mission/food> Born from this initial collaboration, the Griffith Centre for Systems Innovation, with the Griffith School of Business (GSB), created the 'Loganly Grown' initiative that has made significant strides in growing social innovation and entrepreneurship in local food through mapping and supporting the vibrant and multiculturally diverse identity of this major growth corridor

2. Cities Research Institute

Under the seed-funding arrangement, the Cities Research Institute (CRI) facilitated the production of this report. In partnership with the Queensland Government's Office of the Inspector General, Emergency Management (IGEM), the CRI delivers expert knowledge in enabling local supply networks for building disaster resilience and contingency planning with business, community groups and local governments. See the broader 'Local Food Resilience and Contingency' research project website led by Dr. Kimberley Reis: <https://www.griffith.edu.au/cities-research-institute/research/digital-earth-and-resilient-infrastructure/food-contingency> The IGEM's progress report in 2020 to the Queensland Government outlines our collaborative work to seek new opportunities to reduce disaster risk by building capacities for local food-related disaster resilience (QRA 2020, p. 14, 58).

3. Griffith Disaster Management Network

The partnership efforts outlined above informs food-related recovery efforts within Griffith University's Disaster Management Network (Griffith University 2023). See webpages on the network's decision support for disaster resilience: <https://www.griffith.edu.au/research/disaster-network> led by Professor

Cheryl Desha this includes capabilities provided by the Disaster Resilience Management Facility (DRMF) that enables communities to build disaster resilience through research that leads to practical solutions. For more information, see the website:

<https://www.griffith.edu.au/research/disaster-network/about-us>. The Griffith School of Engineering and Built Environment has also been instrumental under the leadership of Dr. Reis, to drive a 'Logan Local Food Plan' agenda that connects the CRI research in food resilience with teaching of Planning students and industry engagement. The Planning Degree that sits within the School of Engineering and Built Environment, includes a local food planning curriculum for the first-Environmental Planning Studio, where the next generation of Planners will know how to embed food systems within the urban fabric. This integration of research with teaching and engagement provides a model of University-Community partnerships with the Logan City Council's CityStudio initiative for embedding urban agriculture in Logan to support youth-based solutions to food issues in Logan. To date, this has included collaboration with the Loganlea State High School and the Mini Farm Project to form a demonstration site for urban farming and Indigenous food forestry to the Logan community.

1.3 Contents of this report

This report aims to support local and regional decision-makers regarding food initiatives and food production in Logan growth corridor. Food provides an important enabler of community resilience to disruptions such as weather extremes, pandemic and other disaster related response and recovery. Without food-system knowledge, we are missing opportunities to nurture and build upon local leadership in food-related community endeavours.

The next section of this report will provide context on Logan's growth corridor and examine the drivers, pressures and impacts inherent with supply chain vulnerabilities. Second, a set of key socio-economic indicators for the experience of food disadvantage in Logan are discussed. Finally, we elaborate on the emergent innovation of our research collaboration showing pathways for building resilient and adaptive local food systems in the City of Logan.



2 Growth corridor context & food supply chain challenges

Food supply chain vulnerabilities entail an appreciation of how population growth drives demand for food supplies. Climate change and environmental pressures such as a progressively drying environment with droughts, heat waves and bushfires and their impacts on food production are compounded by punctuated floods events that interrupt normal supply lines. Some issues with land pollution contextualise fears around urban food systems but we are caused to reassess what can be creatively done to work with these concerns given the rising reliance of food relief due to pandemic conditions and severe weather events.

2.1 Population growth management

South-east Queensland is considered “the fastest growing region in Australia, with a rapidly increasing population, residential and industrial development; increasing demand for water and power, and intensifying patterns of land use” (Ross et al., 2015, p. 29). Populations are expected to increase significantly, from approximately 320,000 currently to 500,000 by 2041 (Queensland Government 2017). The expected demand for dwellings in the City of Logan can be compared to neighbouring Councils shows the significance of Logan as a major contributor to the management of population growth in SEQ.

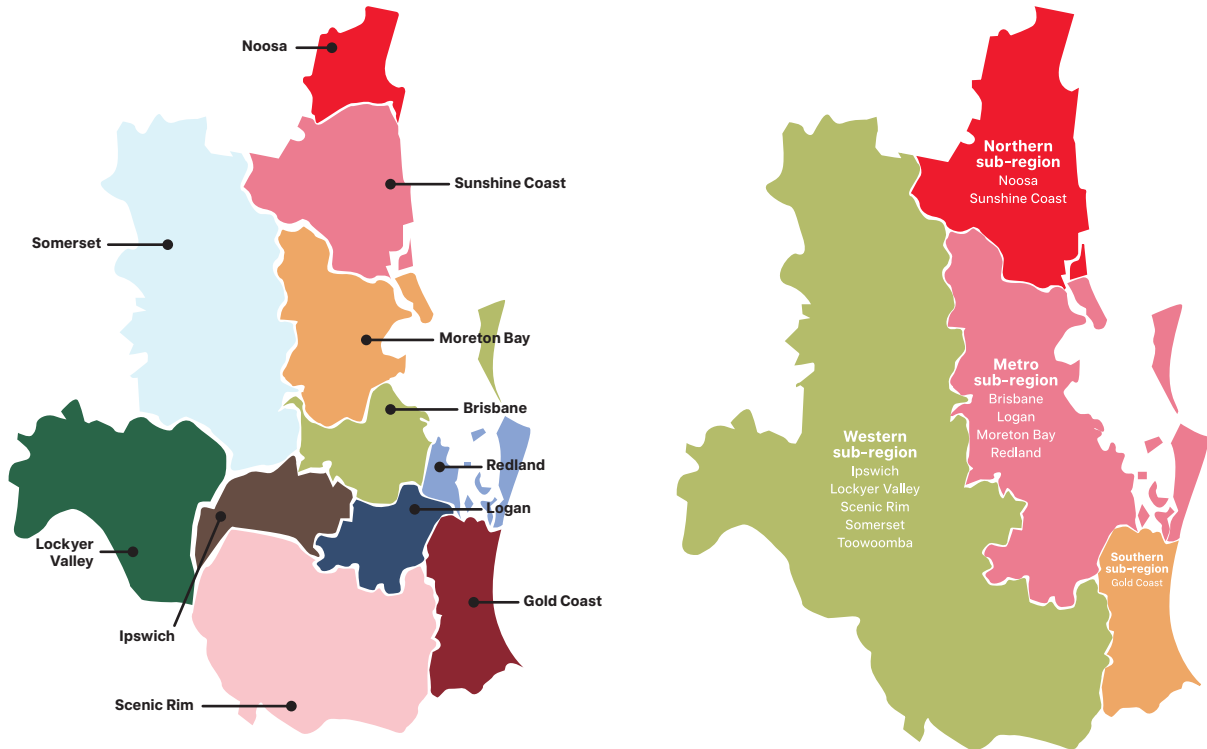
Table 1: Expected population growth & dwelling supply benchmarks for the metro sub-region

	Local government areas			
	Brisbane	Logan	Moreton Bay	Redland
Population	1,184,200	313,800	438,300	152,000
Expected population growth 2016-2041	386,800	272,200	217,700	36,000
Dwellings 2016	458,550	108,770	164,559	58,958
Additional dwellings projected for Consolidation 2016-2041	176,800	19,900	48,200	12,500
Additional dwellings projected for Expansion 2016-2041	11,400	70,000	40,100	4,700

Source: Adapted from the Queensland Government 2017, p. 108.

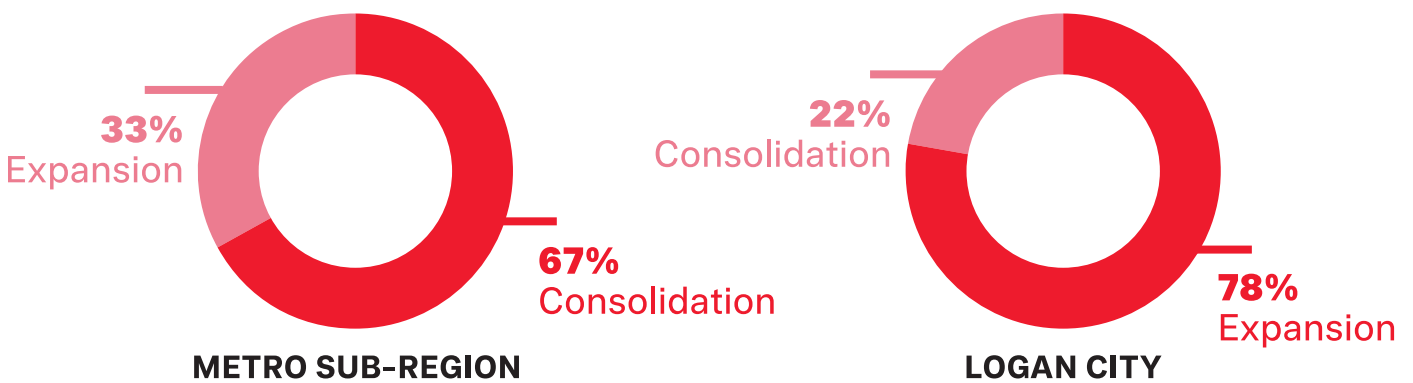
The City of Logan sits alongside Moreton Bay, Redlands and Brisbane to constitute the metro-subregion of SEQ. This region has the largest concentration of people with higher urbanised areas, employment and services than the other SEQ sub-regions.

Figure 4: SEQ Local government areas compared to future SEQ sub-regions



Source: Adapted from the Queensland Government 2017. SEQ local government areas (left) and SEQ sub-regions (right).

Figure 5: Comparison of consolidation vs expansion ratio between the metro sub-region and Logan City 2016-2041



Source: Adapted from the Queensland Government 2017

The term, 'consolidation' refers to the development that occurs on land within the urban footprint. The 'urban footprint' consists primarily of established urban areas and land that is identified with potential for new urban developments for the purpose of promoting compact settlements. The term, 'expansion' indicates development on land outside the urban footprint (Queensland Government 2017). To allow for this increasing population growth, Priority Development Areas (PDAs) such as Yarrabilba, 20km south of Logan Central, and Greater Flagstone, are major development initiatives.

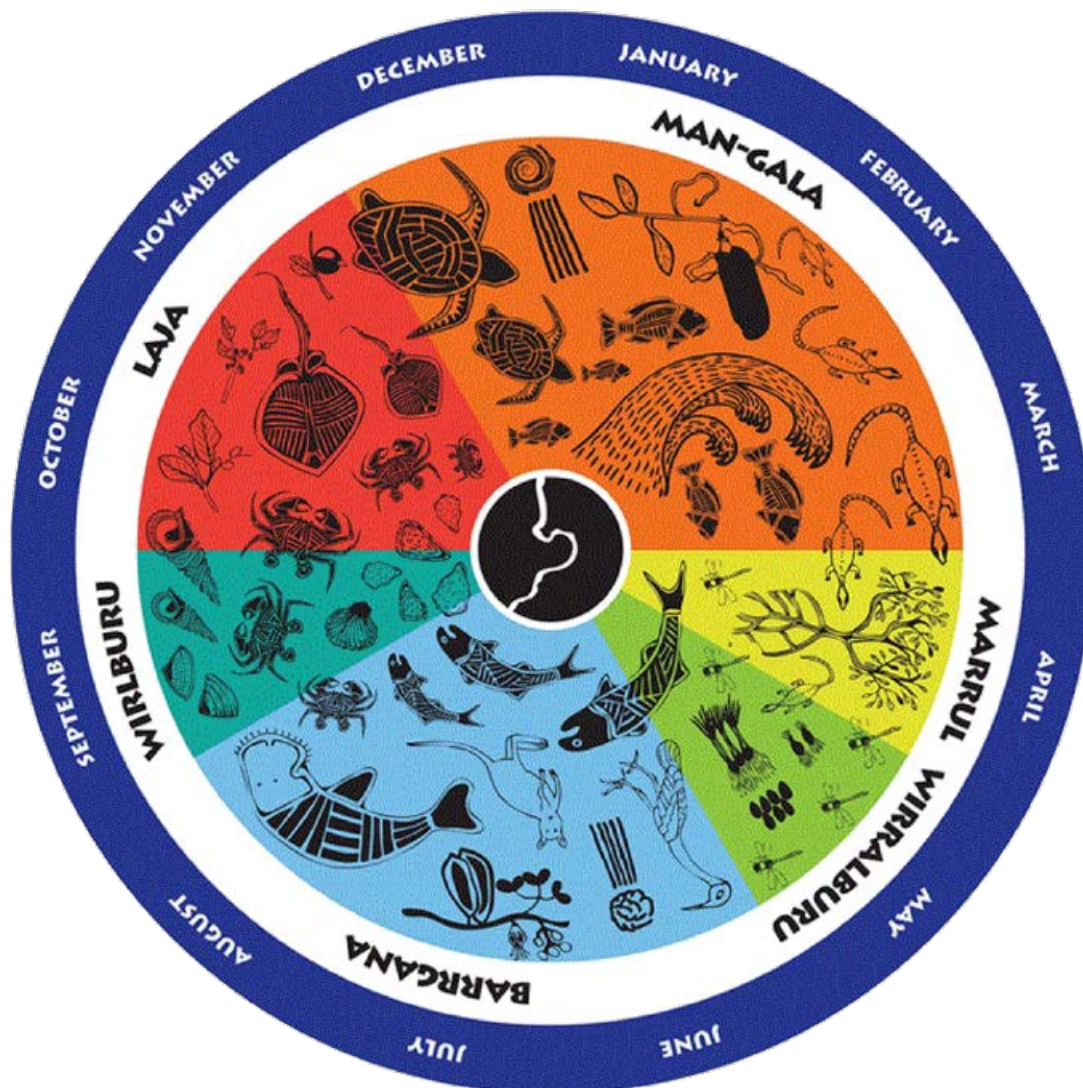
2.2 Loss of food producing systems

Land historically used for local food production changes is re-zoned and re-purposed to urban development and conservation spaces and at times used as a form of carbon and environmental offsetting by developers. Urban encroachment into greenfield sites is associated with prospects for loss of farmland ecosystems (Australian Government 2021; Morteja and Yigitcanlar 2020; Harman & Low Choy 2011).

2.2.1 Deep time wisdom of Indigenous food knowledges

The self-sufficient Aboriginal people from the Yagara and Yugambah language groups originally inhabited Logan with strong connections to their land and how the changing seasons ushered different food sources. The Logan River was an important resource for accessing food and plants. A variety of Indigenous seasonal calendars show deep appreciation of ecological changes that respond to Country, rather than the model of four European sequential seasons (CSIRO 2023). The subsequent loss of food knowledges is being regained (Australian Government 2009).

Figure 6: Example of Aboriginal Seasonal Calendar



Source: Sovereign Union, Facebook post 12.07.22 (CSIRO 2023).

2.2.2 Colonial expansion in the 1800s

In the 1850s, the first land leases were issued with small cropping and livestock to follow (Buchanan, n.d). From 1859 to 1860, Agriculture Reserves were established to encourage immigrants to use 'vacant' land to increase population and food production. These areas were surveyed into small blocks for sale with the Land Act 1860 requiring land to be cultivated within 6 months (Buchanan, n.d). From 1866 to 1874, the revised Land Act 1868 lowered land prices allowing land leases beyond the reserves. Activities were primarily land-clearing, but farmers started cultivating potatoes, maize, oats, arrowroot, and some sugarcane. Immigrants built stockyards for producing milk and butter (Buchanan, n.d). Sugar crops, milling, cotton and timber became staple industries (Logan City Council 2021). Toward the end of the century from the 1880s to 1907, local farmers started commercial dairying with small cream depots established throughout the district. Travelling dairies toured Queensland. In 1906-1907, farmers from the Logan Farming and Industrial Association established a co-operative butter factory for the Logan and Albert region. The Southern Queensland Co-operative Dairy Company butter factory produced seven tons of butter, mostly for export (Logan City Council 2021).

2.2.3 Food production capacity in the 1900s

Built on the banks of the Albert River, the Beenleigh Rum Distillery was licenced in 1884 and utilised molasses from sugar grown and crushed locally in Eagleby. Eagleby was originally settled as a farming community established as part of the early German settlement of the region.

Images 1 & 2: Sugar farming and production



Sources: (Left) ca 1912. The Beenleigh Rum Distillery (Source: State Library of Qld cited in Lost Logan, Facebook post 12.02.22). (Right) 1927. Eagleby Sugar Mill (Source: Lost Logan, Facebook post 18.10.22).

Dairying was the key industry through the first half of the 1900s. The Kingston Butter Factory was essential to the economic growth of the area. Later it supported a nearby piggery, which used the surplus buttermilk (Logan City Council 2021). Butter from the factory was shipped across the world.

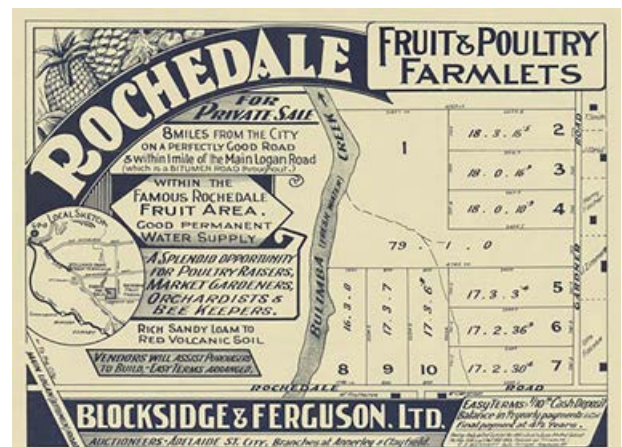
Images 3 & 4: Dairy farming and production



Sources: (Left) Stainless steel introduced in 1956 (Source: Logan City Historical Museum Facebook post 21.10.22). (Right) Butter box (Source: Logan City Historical Museum Facebook post 01.10.21).

Figure 7: Rochedale fruit and poultry farmlets for sale, 1930

Small crop farming continued, and a poultry industry followed after World War 2. Space for small cropping became increasingly competitive due to the generation of development to meet growing housing needs in the region (Logan City Council 2021).



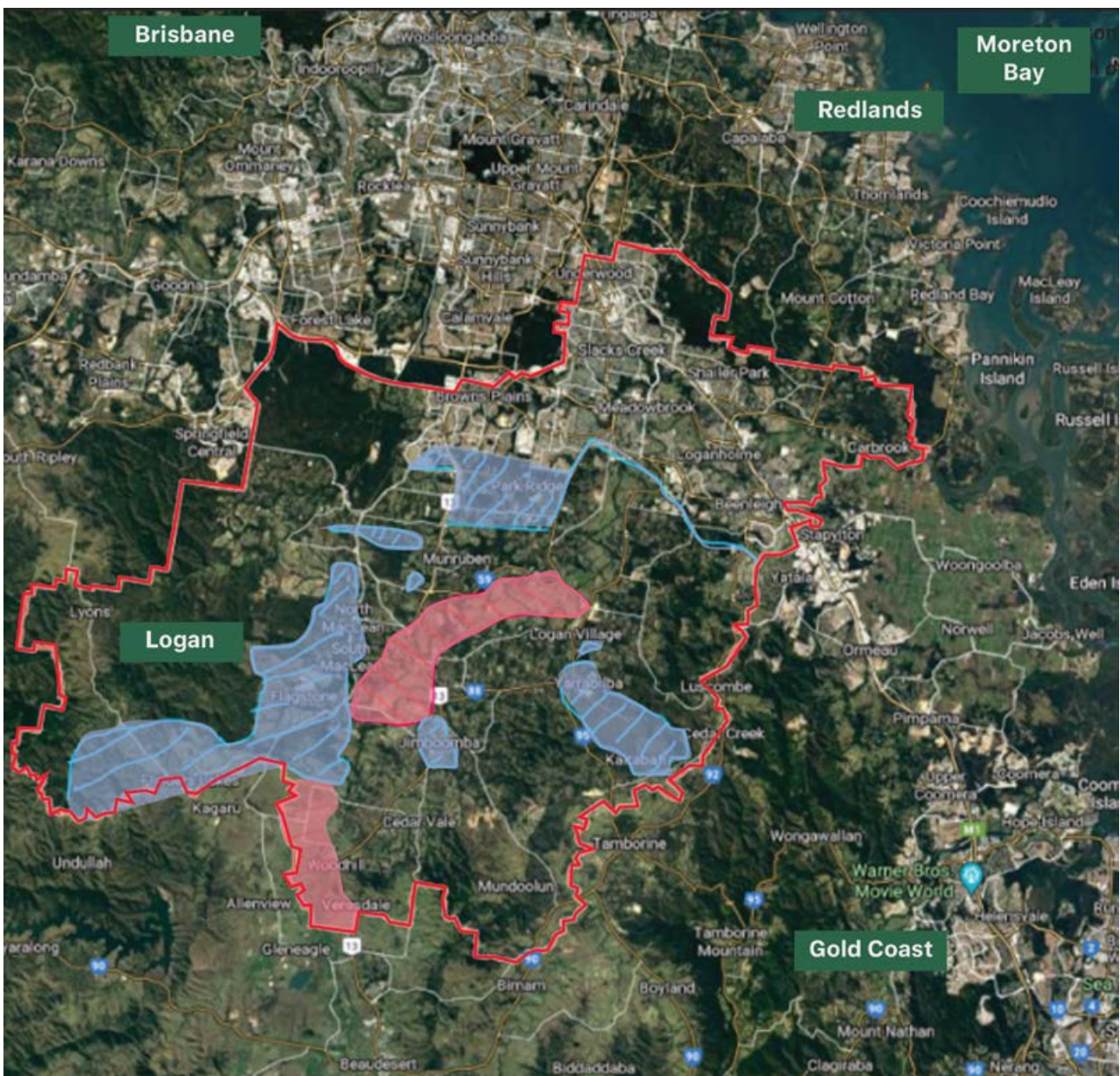
Source: SuburbMaps.com

2.2.4 Housing development in the 2000s

Rural land uses in Logan continue to include growing sugarcane and dairy farming with some cattle grazing (idcommunity 2021). With much of Logan City prioritised for managing population growth, the trend of small farm cropping and dairying reduces due to infrastructure requirements for housing and economic development. The Queensland Government (2017, p. 21) identifies that, "SEQ is... one of Australia's premium food bowls generating \$1.16 billion annually... SEQ's rural lands are a long-term strategic asset", the Lockyer Valley, in particular. While much of the Lockyer

Valley is prioritised for agricultural purposes, much of Logan is prioritised for development for sustainable population growth. For Logan, the loss of agriculturally productive land, such as the rich alluvial soils that previously supported horticulture and poultry farming, is a consequence of land clearing to meet the needs of residential development. Due to profitability, farmers increasingly sell arable land at high prices for Property Development despite the Queensland Government's (2017) acknowledgement to protect Logan's rural industries from further land fragmentation. A more recent example is the resumption of the Wendt dairy farm in Chambers Flats for building a wastewater treatment plant (McLennan 2021).

Figure 8: Logan growth corridor



Source: Adapted from Google Maps 2020 and Queensland Government, Department of Infrastructure, Local Government and Planning (2017, p. 109).

2.3 Compounding food supply chain challenges

South-East Queensland is a 'hot spot' for climate change impacts due to its continued and fast-paced population growth (Burton 2010). Severe weather events interrupt the smooth running of the food supply chain in multiple ways. Heatwaves and subsequent bushfires interrupt agricultural production and have a history of requiring national subsidisation of the agricultural sector to keep growing food (Reis 2019; DAFF 2023). The 2019-2020 'Black Summer' bushfire event across the Australian eastern coast resulted in the loss of Australian farms across the eastern seaboard, with farming losses at approximately 8% of agricultural GDP (Bishop et al., 2021). As reported in Australia's Royal Commission into National Natural Disaster Arrangements Report, such events also resulted in loss of essential services such as communication networks to access funds in bank accounts for purchasing food with people having to rely on food relief (Commonwealth of Australia 2020a).

Severe weather events such as floods and cyclones also have a long history of impacting our access to those longer food supplies across the nation, upon which we are obliged to depend. These weather impacts challenge the need for uninterrupted movement of supplies via road and rail (Reis 2019). More severe weather events are expected to occur with great frequency and intensity in Australia (CSIRO 2022). The South-East Queensland and Northern NSW Floods of 2022 impacted extensively on farming communities and normal supply chains (Carey et al., 2022) with subsidies provided for primary industries in the food supply chain (DAFF 2022). The Queensland Government states that more than 2,250 primary producers were affected by the floods with an estimated loss of \$253M to agricultural production (QRA 2022). More than 1,700km of state-controlled roads were either closed or under restricted access (QRA 2022, p18). The Lockyer Valley is known as the food bowl of SEQ (QRA 2022). The impacts upon Lockyer Valley dramatically drove up the price of lettuce highlighting the close relationship between severe weather events and affordability of basic food items (Thiessen 2020; Lane 2022).

The affordability of basic food supplies in Australia, among other countries, has been challenged by the war in Ukraine (IFPRI 2022). This is compounded by real wages and Jobseeker income support payments not keeping up with the cost of living (Lane 2022; ACOSS 2022). The initial waves of the COVID-19 pandemic are book-ended by the 2019-2020 'Black Summer' bushfires and the 2022 Floods. The cost of basic food items has only grown in this time (FoodBank 2023). Restrictions on migrant workers to travel to Australia and harvest produce has also contribute to price hikes (National Farmers Federation 2022).

Spiked shortages and raiding of supermarket shelves due to COVID-19 lockdowns has been observed globally with widespread loss of job security. With COVID-19, the experience of food disadvantage has become more prevalent across Queensland (FoodBank 2020; Tuffield 2020). Queensland charities report that since COVID-19, the demand for food relief has increased by an average of 47% with 28% of food insecure Queenslanders going 1 day a week without eating. Furthermore, the barriers to seeking food relief by food insecure Queenslanders included 38% experiencing embarrassment about what others will think of them and 37% feeling shame for needing help (FoodBank 2020).

The Logan Climate Change Resilience Strategy 2021-2031 identifies that food production will be impacted by increased drought and hotter temperatures, posing a risk to food security (City of Logan 2021b). Logan City, along with other SEQ councils have seen increased domestic migration during the pandemic (QRA 2022). Population growth and its management presents one of the biggest challenges for the SEQ region (Roiko et al., 2012; Burton 2010). Logan's population growth is increasing entailing intensified demand for regular and uninterrupted supply of food via longer supply lines. It is prudent and practical to find ways to gain access to shorter food supplies within the Logan area to meet the needs of vulnerable groups and the general public (Reis, Desha & Burton 2020). The "increasingly fragile food and grocery supply chains" requires better planning to respond to ongoing disruptions (FoodBank 2023, p. 21).



3 Key socio-economic indicators of food disadvantage

Food security is widely viewed as a condition that occurs when “all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO 2008). This common definition may overlook systemic and chronic conditions that are indicators for food disadvantage, such as food affordability.

This entails questions about where food can be reasonably produced, who produces that food, how it can be distributed. Furthermore, questions about access to culturally appropriate foods, and capturing food that is wasted across the entire supply-chain become important (Holt-Giménez 2017; Kaiser 2017; FAO 2017; Farmar-Bowers 2015; Richards et al., 2016; Ventura et al., 2017). This section outlines that key socio-economic indicators that are predictors for the experience of food disadvantage.

3.1 Relative socio-economic disadvantage

The Index of Relative Socio-Economic Disadvantage (IRSD) indicates relative disadvantage such as unemployment, unskilled jobs generating lower income, and lower education levels. The IRSD is useful to distinguish between disadvantaged areas for building a case for advocacy and the allocation of funding. The Queensland Government’s 2021-2022 budget for Logan includes \$190.8M for school education improvements and \$9.1M for increasing workforce participation (Queensland Government 2021). The latest dataset for the IRSD is the year of 2016. This Table identifies that the lower IRSD score of 959 for Logan shows the greater disadvantage of Logan compared to the other local government areas within the South-East Queensland ‘Metro Sub-Region’ and across the State of Queensland.

Table 2: Index of Relative Socio-Economic Disadvantage (IRSD) 2016

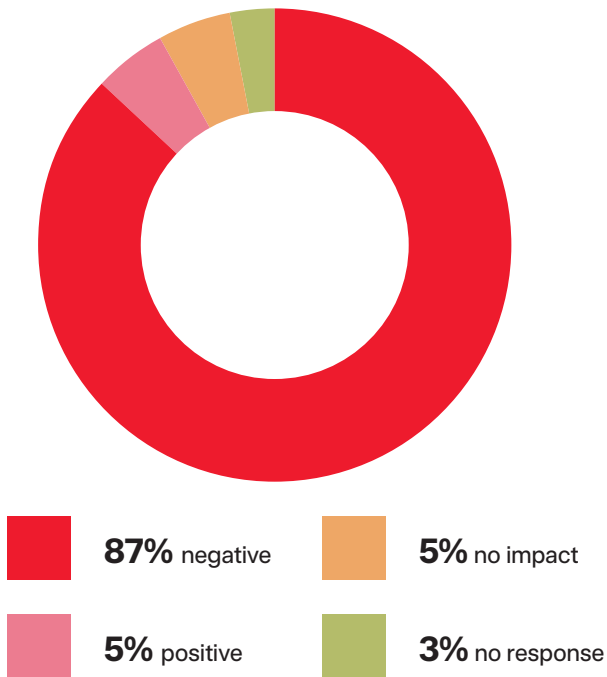
South-East Queensland ‘Metro Sub-Region’ Local Government Areas				State of Queensland
Brisbane 1,048	Redland 1,027	Moreton Bay 996	Logan 959	996

Source: .idcommunity 2016b.

Rates of unemployment is a key feature of the IRSD score. The population of Logan was estimated at 341,985 people in 2020 with 64.3% of the population in the working age range of 15 to 64 years (ABS 2020). During the 2016 Census, 8.9% of the working age population were documented as unemployed, which was above the Queensland unemployment rate of 7.3% for the same year (ABS 2020). It took the economic impacts from the global pandemic in July 2020 for the rest of Queensland to reach a comparable rate of 8.7% unemployment. Indeed throughout the pandemic, unemployment rates have maintained a notably higher trajectory in Logan compared to Brisbane and the rest of Queensland with the 2021 September quarter reaching an unemployment rate of 9.2% (.idcommunity 2022). The 2021 Census data shows an improvement to 7.0% unemployment but still above the Queensland rate of 5.3% for the same year (.idcommunity 2021).

The median weekly personal income for Logan people aged 15 years and over was \$736 during the 2021 Census, below the Queensland average (ABS 2021). Of employed people in Logan in 2021, the most prevalent types of employment included technicians and trades workers, professionals, clerical and administrative workers followed by labourers and service workers (ABS 2021). The impacts of COVID-19 on Logan’s local businesses showed that 87% of businesses experienced negative effects on job security (City of Logan 2021a).

Figure 9: Impact of COVID-19 on Logan businesses



Source: City of Logan 2021a.

An emergent group of chronically food insecure people are those working within the casualised workforce (Reis et al., 2021). In 2020, almost 45% of food insecure Queenslanders did not know how they would cope with the withdrawal of government wage support (FoodBank 2020). The Logan City COVID-19 Economic Outlook Tool provides some data on these impacts that should be viewed in conjunction with unemployment and JobSeeker data (.ID Consulting 2021).



3.2 Homelessness

Homelessness is more nuanced “than just being without a house” (Johnstone et al., 2015, p. 412). Key features of homelessness identified by the Australian Institute of Health and Welfare (2022) include:

1. **Primary homelessness:** Characterised by a form of ‘rooflessness’ including ‘sleeping rough’ on the street or in improvised dwellings such as a motor vehicle;
2. **Secondary homelessness:** The requirement for emergency accommodation such as refuges and shelters and can include short-term and temporary accommodation such as ‘couch surfing’. Those who have no usual dwelling to call home may be required to frequently move from place to place; and
3. **Tertiary homelessness:** Residing in dwellings that fall below minimum standards such as boarding houses, caravan parks and tents.

The Australian Bureau of Statistics further explains that homelessness occurs where there is inadequacy of the dwelling, insecurity of tenure, and where living arrangements do not allow for “control of, and access to space for social relations” (Cited in AIHW 2022, p. 3).

Drawn from the 2016 Census data, the table below identifies the greatest number of homeless people in Queensland local government areas with the City of Logan among the greatest. The Queensland Housing and Homeless Action Plan 2021-2025 identifies Logan as one of nine priority locations to establish integrated service deliveries that will aim to work with local communities to adopt “place-based and person-centred solutions” (Department of Communities, Housing and Digital Economy 2021, p. 4).

Table 3: Queensland Local Government Areas with greatest number of homeless people

Brisbane	5,813
Gold Coast	1,708
Cairns	1,357
Logan	1,205
Moreton Bay	1,166

Source: Law and Justice Foundation NSW 2018.

3.3 Disadvantaged and troubled youth

The 2021 Census data identified the number of people aged 15 to 24 years in Logan City in 2021 was 46,025. Of this, 14.1% were disengaged from participation with employment and education, compared to 9.0% across South-East Queensland (.idcommunity 2021). Multiple factors can cause disengagement. Growing up in an environment of “chronic adversity disrupts development, undermines coping skills, and increases the risk of violence, poverty, and homelessness in adulthood” (McDonald and Testro 2021, p. 20). Walsh and Fitzgerald’s (2020, p. 6) research in Logan identified that “young adults aged less than 27 years accounted for over one third of all lower-end penalty cases in all five courts”. Strengthening the youth citizenship approach with rights-based and socially-inclusive practices at its core, is essential for working productively with marginalised youth (Wearing 2011; O’Toole et al., 2010).

3.4 Single-parent and young families

Single parent households comprised the largest social housing demand for the Logan area in 2012 (Zappia & Cheshire 2014). Consistent with the Queensland-wide profile, the family composition in Logan in 2016 consisted primarily of couples with or without children with one-parent families constituting 16%. Overwhelmingly, 80.6% of single parents were female (ABS 2016). The instance of one-parent families rose to 20.7% in the 2021 Census with female single parents constituting 81.1% (ABS 2021). Although not always the case, single parenthood has been one of the “clearest pathways through which disadvantage is being passed from Australian parents to their children” as those children often inherited the parents’ socio-economic status (Cobb-Clark et al., 2017, p. ii, 4). Young parent families have posed similar challenges (Ermisch & Pevalin 2004; Boden et al., 2008).

Reliance on government support can become intergenerationally entrenched (Beaulieu et al., 2005). Building relationships of trust, facilitating learning, and connecting that learning with the broader support systems is crucial for single and young parents (Mills et al., 2012; Logan Together 2017) and for the development of their children (Jackson & Cartmel 2010; Logan Together 2017). The young mothers in the Thriving Families Project review reported improved food security, confidence and self-esteem, parenting skills, housing and financial stability, and social connections from participation in the program (McDonald & Testro 2021).

3.5 Citizens with disabilities

For employment purposes, the Australian Public Service Commission (2020, para 1), defines 'disability' as those people who "have a limitation, restriction or impairment, which has lasted, or is likely to last, for at least six months and restricts everyday activities". The disability may include sensory, intellectual, physical, psychosocial, or injury-based impairment. The United Nations Convention on the Rights of Persons with Disabilities (UN 2022, para 2) extends the definition of disability to, "those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others".

Almost 1 in 5 Australians have a disability with 40% of them having one or more chronic impairment. The incidence of disability increases with age and more than doubles after 65 years of age (Australian Human Rights Commission 2021). In the 2016 Census data, 17,051 people (or 5.6% of the population) in Logan reported that they needed assistance in their daily lives due to disability. In the 2021 Census date, 22,933 people or 6.6% of the population reported the same need (.idcommunity 2021). Two of the major differences for Logan between 2011 and 2016 in the age groups reporting a need for assistance were the ages 20 to 59 (an increase of 1,478 persons) and ages 85 and over (an increase of 720 persons), well above the South East Queensland increases (.idcommunity 2016a). In 2018, 16.3% of people in Logan identified as persons with a disability (ABS 2020). Furthermore, 14.2% of Indigenous peoples provided unpaid assistance to a person with a disability (ABS 2020). One in every nine Australians will provide unpaid care for a person with disability or an older person (Australian Human Rights Commission 2021).

Australia's Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (Commonwealth of Australia 2020b) adopts the UNs rights-based approach to respect, protect and fulfil the rights of those with a disability. Australians with a disability are less likely to be employed and with fewer options for career advancement than non-disabled peers (Thoresen, Cocks & Parsons 2021). Cohorts with a disability who are at greater risk of violence and various forms of abuse include: Australian women generally; First Nations people, but women in particular; children, but girls in particular; culturally and linguistically diverse people; and older people (Commonwealth of Australia 2020b).

3.6 Ageing citizens

The largest numbers of older Queenslanders reside in South-East Queensland with the Logan local government area among the higher concentrations (Queensland Government 2020). The notion of 'ageing' and what is considered as 'elderly' or 'old' is variable according to cultural ways of seeing (Australian Institute of Family Studies 2018). For statistical purposes, older Queenslanders are defined as persons aged 65 years and over. The proportion of the older population aged 85 years and over in Queensland almost doubled from 6.5% in 1974 to 11.5% in 2019. Population ageing is driven by the lowering of fertility rates and the increasing of life expectancy (Queensland Government 2020). Similar trends are noted in the 2016 Census data for Logan which identified that the largest changes in age structure between the years of 2011 and 2016 were in the age group of 65 to 69 years of age with an increase of 4,037 persons (.idcommunity 2016a). The 2021 Census data reports that from 2016 to 2021 the ages of 70 to 74 are among the largest population increases of 3,893 people (.idcommunity 2021). The Queensland Government advises that, "Over the next 30 years the number of older Queenslanders aged 65 years and over is projected to more than double, reaching around 1.7 million persons by 2049. The number of Queenslanders aged 85 years and over is projected to reach more than 350,000 persons by 2049" (2020, p. 2).

The incidence of one or more disability increases with older people requiring increased care and assistance needs (Commonwealth of Australia 2020b). The ageing population is at risk of 'elder abuse' which takes place in relationships with invested trust that results in harm to the older person. That harm can be psychological, emotional, physical, financial or by neglect (Community Legal Centres Queensland 2021; Australian Institute of Family Studies 2018; Brownell 2010). Australians aged 55 years or more, represented almost 20% of Australia's homeless population in 2016 with a larger unknown number of older people at risk of homelessness (Queensland Government, 2016). For those in Aged Care settings, Australia's Royal Commission into Aged Care Quality and Safety raised systemic concerns about negligence in access to healthy and culturally appropriate food of residents including low standards of nutritional quality and sufficiency (Commonwealth of Australia 2019).

3.7 First Nations citizens

The Yugambah language people are the Traditional Custodians of lands administered across a number of Council Shires in South-East Queensland and Northern New South Wales, including the Logan local government area (Kombumerri Aboriginal Corporation for Culture 2023). The Aboriginal and Torres Strait Islander population of Logan in 2016 was 11,794 people (ABS 2020) rising to 14,520 people in the 2021 Census (ABS 2021). The vast majority of the region's Indigenous people (92 per cent) reside in Logan City" (Walsh & Fitzgerald 2020, p. 5). The proportion of Queensland's Aboriginal and Torres Strait Islander persons aged 50 years and over was significantly lower compared with non-Indigenous people in 2016 (Queensland Government 2020). The Queensland Government advises that, "the lower proportion of older persons reflects the higher fertility and mortality rates and lower life expectancy of Aboriginal and Torres Strait Islander Queenslanders" (2020, p. 5).

The Queensland Government's South East Queensland Regional Plan (SEQRP) seeks to "identify and conserve local landscape, heritage and cultural assets, including Indigenous landscape values" (Queensland Government 2017, p.94). To this end, Traditional Custodians should be engaged to ensure that their cultural knowledge of food and connection to Country is included in planning (Queensland Government 2017, pp. 89, 116).

3.8 Culturally and linguistically diverse (CALD) communities

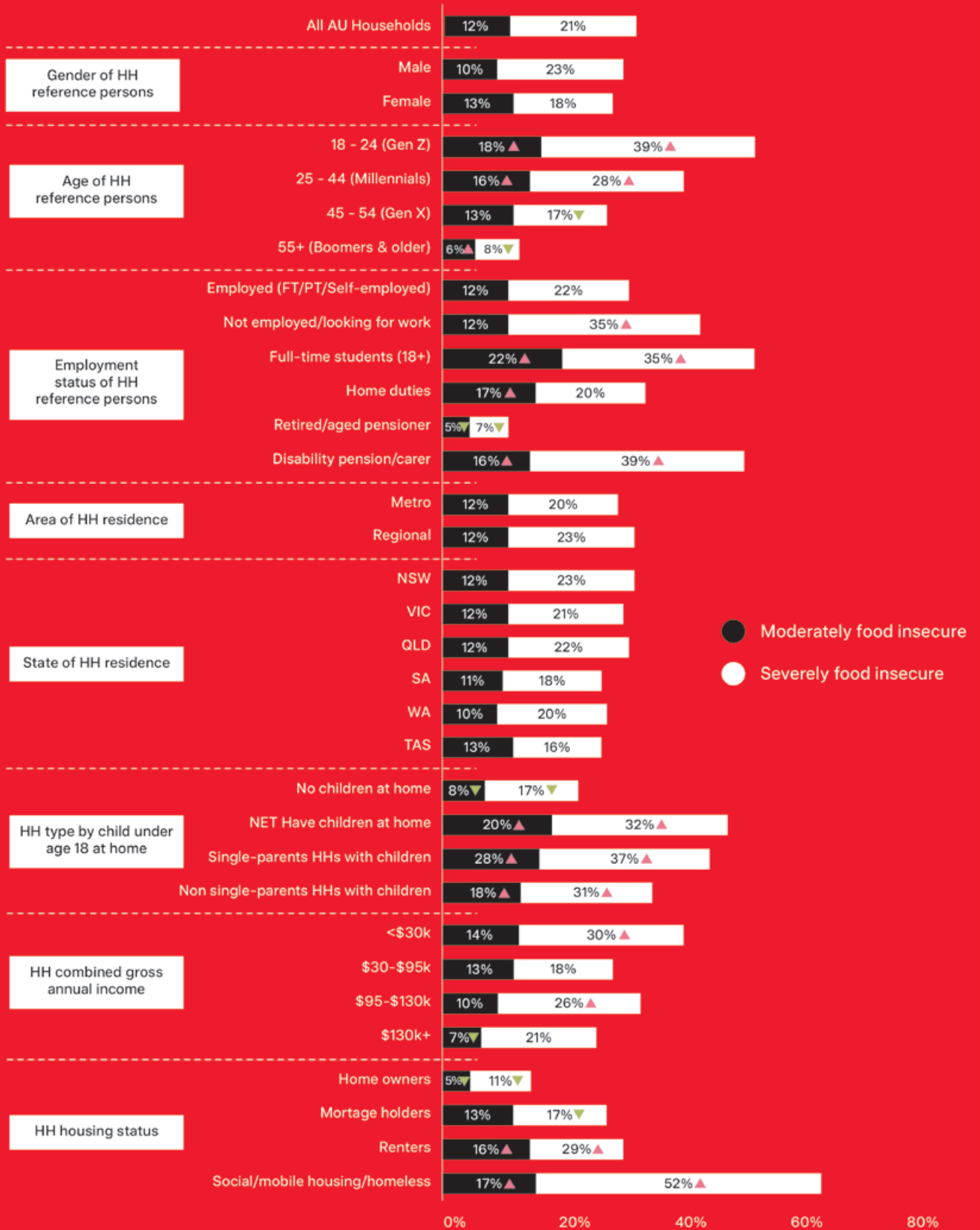
According to the 2016 Census, 15.9% of people in Logan speak a language other than English at home (ABS 2020) with a rise to 21.1% in the 2021 Census (ABS 2021). The Queensland Government identifies that, "Queensland's older population is made up of people from many different cultural and linguistic backgrounds. Between 2006 and 2012, "almost 900 refugees were resettled in Logan City. Of all local government areas in Australia, Logan is ranked 8th for receiving the most number of humanitarian migrants" (Harris, Minniss & Somerset 2014, p. 9204). The authors further note that "approximately 40% of all Humanitarian Migrants living in Queensland reside in homes with between 5-7 people" (2014, p. 9203).

3.9 Demographic indicators for food insecurity

This section outlined the key socio-economic indicators that are predictors for the experience of food disadvantage. Logan community indicators discussed are congruent with the findings from the FoodBank Hunger Report 2022, that shows the Australian demographic profiles vulnerable to moderate levels of food insecurity (where food is unaffordable and the size of meals are reduced) to severe levels of food insecurity (where there is no money for food and meals are skipped).



Figure 10: Level of Australian household food insecurity by demographics



▼▲ Significantly higher / lower than total food insecure households at 95% confidence interval

Base: Food insecure households within each demographic as shown

Q40 In the last 12 months, which of the following do you think have contributed to the situation(s) where you and/or your household could not afford enough food

Source: foodbank Hunger Report 2022

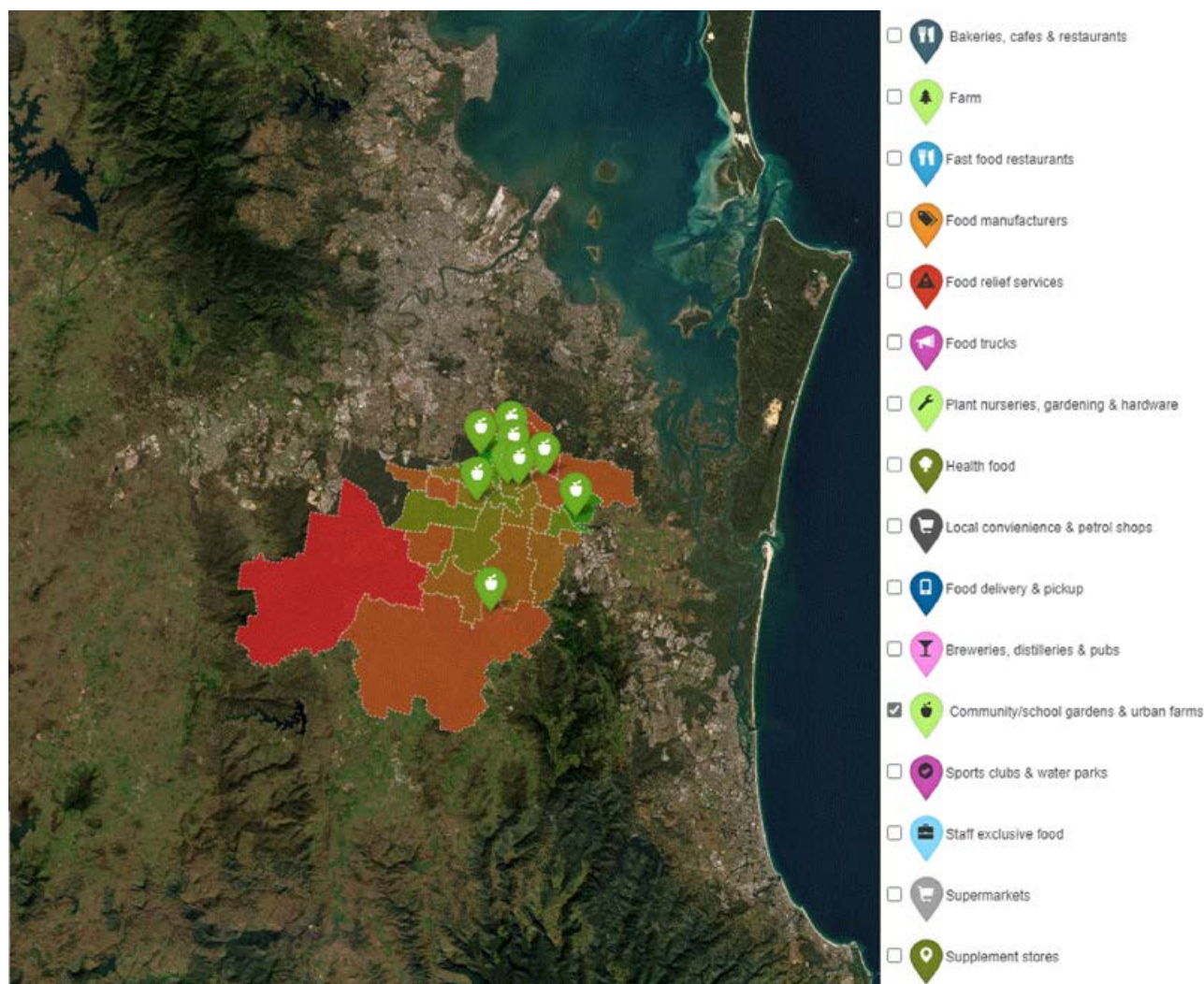
4 Emergent local food initiatives

4.1 Logan as a local food ecosystem and actions

This section outlines prospects for developing greater food resilience through supporting innovation and impact entrepreneurship, and that provide precedents of what can be achieved in local food systems in Logan City. The Griffith Centre for Systems Innovation, in conjunction with the Cities Research Institute developed a short film entitled 'Building a Resilient Food Ecosystem in Logan, Queensland' that explores the current status and future of food resilience in the Logan region as it grows over the coming decade that can be used for educational purposes and leveraging awareness about the issues. See the 9:30-minute video: <https://www.youtube.com/watch?v=mBNrFtjaZaA&t=1s>

The collaboration partnered with the Regional Innovation Data Lab (RIDL), at Griffith University to develop a Stage 1 online 'Logan Local Food Map' detailing key aspects of the local food bowl in the Logan Region. The map is overlaid with Socio-Economic Indexes for Areas (SEIFA) data of socio-economic disadvantage, locations of food outlets and enterprises, land use and future development data. The map aims to identify patterns and trends to support decision-making for accessing food locally. See webpage: https://regionalinnovationdatalab.shinyapps.io/Logan_Food_Mapping/

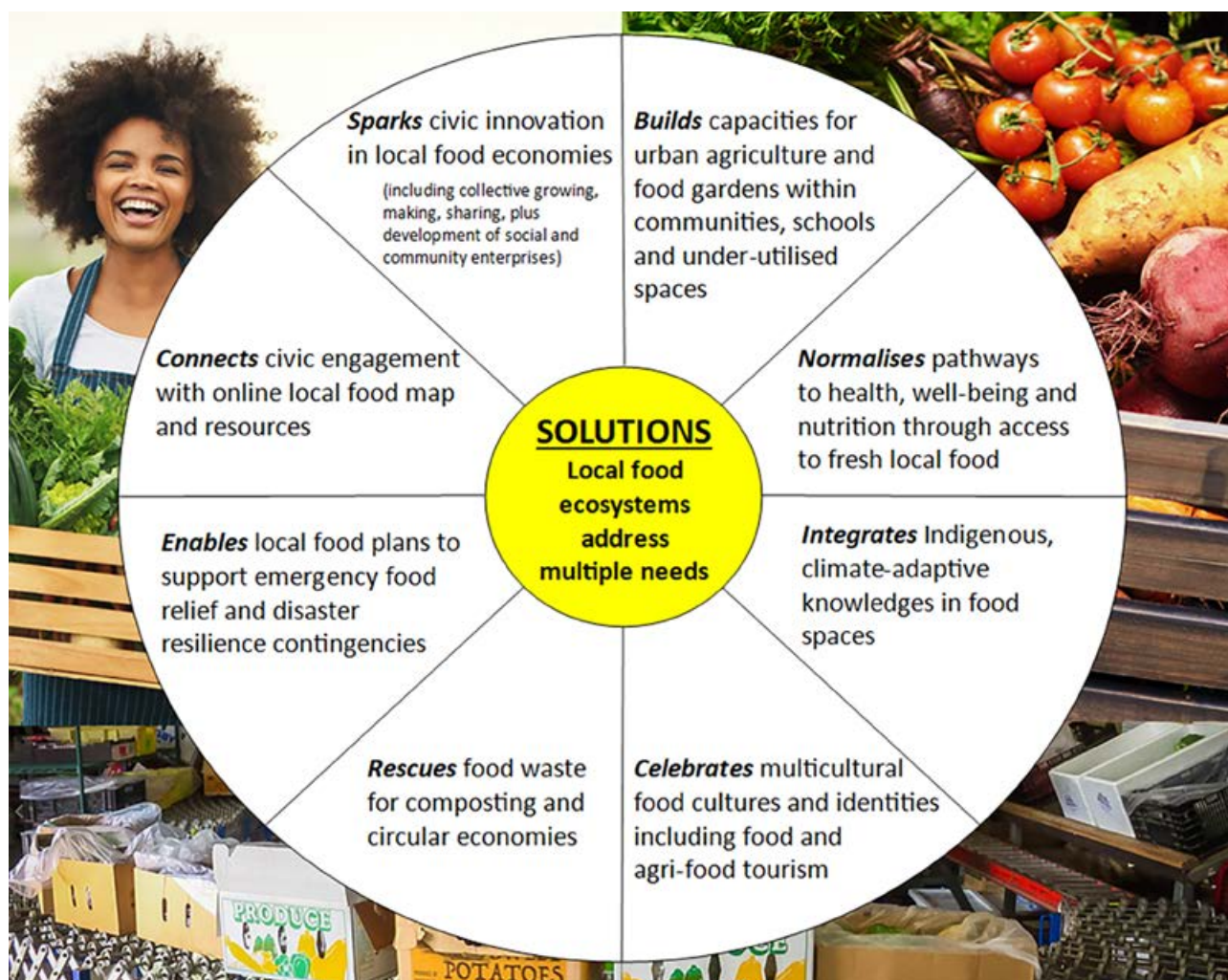
Figure 11: Logan local food ecosystem map



Source: Regional Innovation Data Lab, Griffith University

We conducted two (2) workshops to initially scope the areas of importance. Our workshops consisted of 25 participants ranging across food relief agencies, community organisations, Queensland Government, the Regional Development Authority, Logan City Council and researchers. The participants revealed eight (8) main actions whereby local food ecosystems may cultivate local food resilience as outlined in the Figure below.

Figure 12: Emergent workshop actions



4.1.1 Normalise local access to fresh local food

Lack of access to fresh and nutritionally dense food has strong links to the lived experiences of poverty. It is associated with higher rates of chronic illness and increased utilisation and of health services (FAO 2002, 2008; Holmes et al., 2018). Given Logan's socio-economic challenges the populations discussed in section 3 are particularly susceptible to food disadvantage (City of Logan 2021c; ABS 2016; Zappia & Cheshire 2014). A core action from the initial

workshops is to normalise pathways to health, well-being and nutrition through access to fresh local food. With the advent of COVID-19, this is relevant to all communities that have experienced episodic disruptions to the food supply chain globally (Lal 2020; Carducci et al., 2021). The following local food initiatives outline emergent responses driven by Griffith University's Cities Research Institute and the Griffith Centre for Systems Innovation, to make local food systems a part of everyday life.

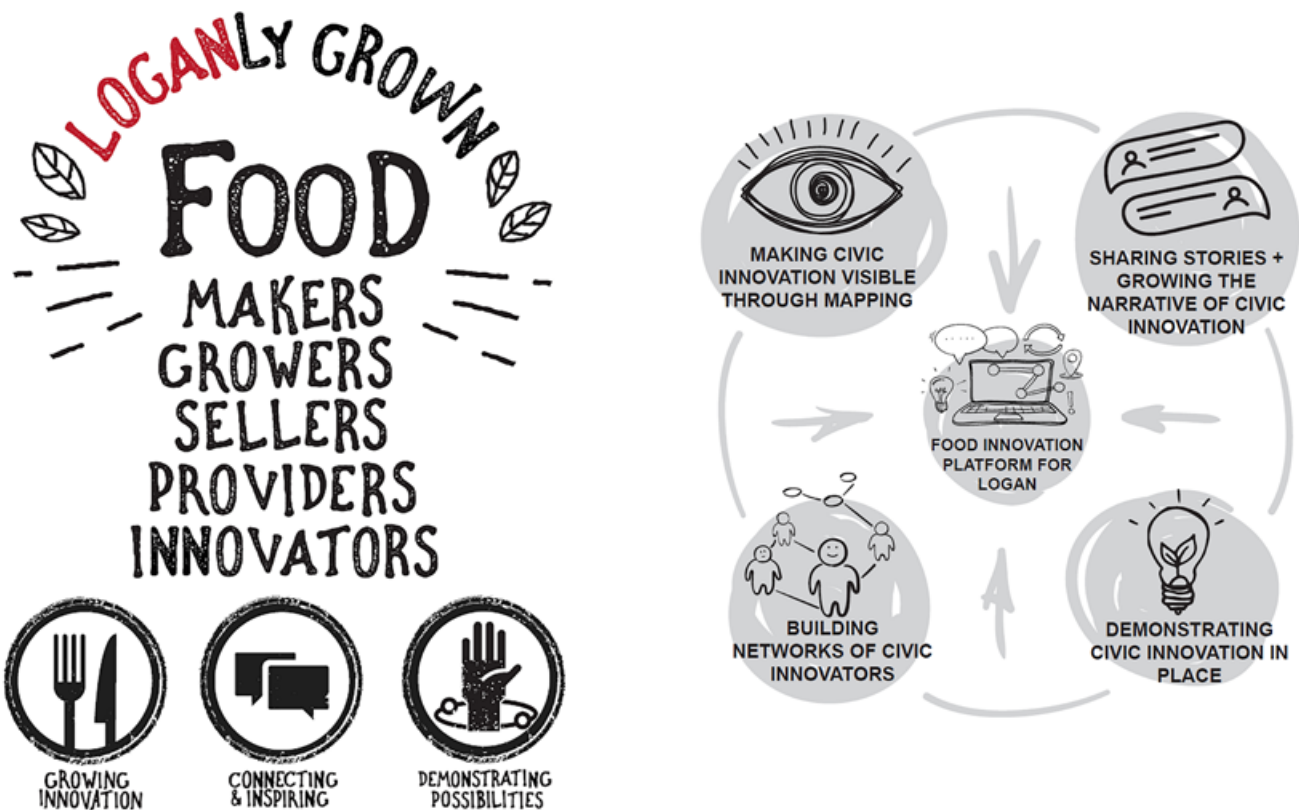
4.2 Loganly Grown

4.2.1 Spark civic innovation in local food economies

The Loganly Grown food initiative is part of the 'Civic Innovation' research and development program at the Griffith Centre for Systems Innovation. Civic innovation can be a "powerful agent of change" (Manzini 2015, p. 12) to address particularly "intractable social problems" faced by communities (Murray, Caulier-Grace & Mulgan 2010, p. 3). This initiative explores how communities, cities and regions can tap into the extraordinary innovation powers of their citizens to grow opportunities and projects that could help us to transition to economies that are more sustainable, more just and more participatory. The food-focussed work in the civic innovation mission integrates four elements of civic innovation that we have a hunch can help to grow a culture of action and innovation in place.

Griffith University and Logan City Council partnered to bring the Homebase initiative to life with the aim to grow inclusive and impact-led organisations that reflect the diversity of Logan City (Home Base 2023). The Elevate+ program, in partnership with Impact Boom, supported sixteen business in 2021 to grow and learn more about becoming successful social enterprises. A large portion of these were food-centred enterprises including: Bee All Natural (Bee-Keeping), Ediblescapes (improved soil fertilisation), My Storehouse (storage and delivery of essential food living packs), Urban Edible (improving access to underutilised land for growing food) and the Logan Local Food Network (improving local food access options to support local food innovation and emergency food relief). See Impact Boom website for more details: <https://www.impactboom.org/blog/2021/8/19/high-potential-impact-enterprises-join-the-elevate-plus-accelerator-program-at-homebase-logan>.

Figure 13: Loganly Grown initiative and civic innovation mission



Source: Griffith Centre for Systems Innovation 2023.

4.2.2 Connect civic engagement with online local food mapping and resources

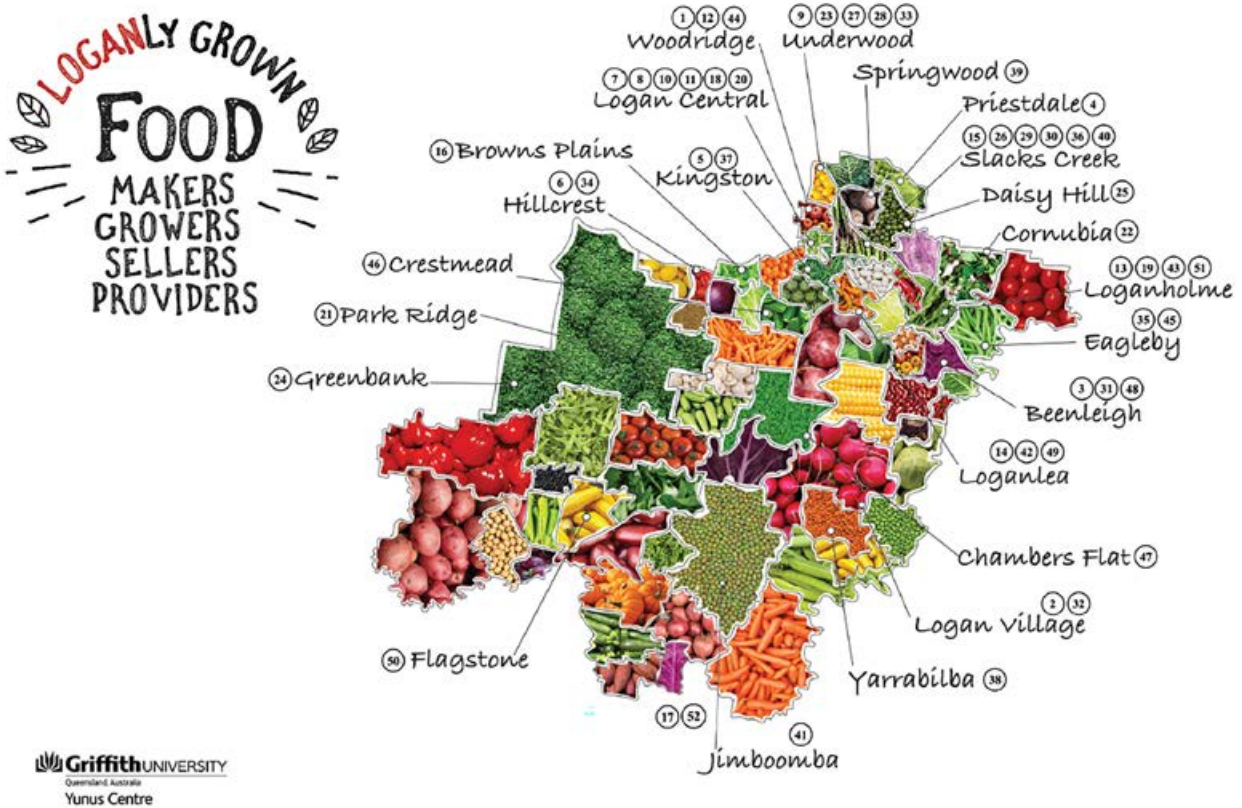
Online food maps including social media platforms and resources can improve the capacity of existing food networks and create new forms of food exchange (Bos & Owen 2016; Choi et al., 2014; Manzini 2015). While some platforms create spaces for local food producers to sell online, others enable wholesalers to manage buying groups and supply through networks of food hubs and shops (Oncini et al., 2020; Open Food Network 2021), and some allow for online sharing (Aigrain 2012; Davies & Legg 2018; Michelini et al., 2018). The Loganly Grown food map identifies food initiatives across Logan and aims to inspire new conversations and opportunities to engage with and grow these initiatives. Engagement for the food map was held at the Logan Eco-Action Festival (LEAF) on Griffith University's Logan campus in 2021.

Image 5: Food mapping at LEAF 2021



Source: Griffith Centre for Systems Innovation 2023.

Figure 14: Loganly Grown food map



Source: Griffith Centre for Systems Innovation 2023. See map in pdf: https://www.griffith.edu.au/_data/assets/pdf_file/0021/1335270/Logan-ly-Grown-Food-MapV1-May21.pdf

Image 6 & 7: Loganly Grown engagement event.



Source: Griffith Centre for Systems Innovation 2023.



4.2.3 Celebrate multicultural food cultures and identities

Logan City has many strengths and assets when it comes to growing, providing and producing food, and in the huge diversity of food cultures that have their roots in the region. There are over 216 cultures in Logan and an equal number of food traditions. A core action from the initial workshops is to celebrate multicultural food cultures and identities, including agri-food tourism. Cultural identity and background are highly beneficial in order explain a person's relationship to their food and community (Egerer et al., 2019). Furthermore, food growing and trading spaces are important sites of 'place-making' and 'place-attachment', bringing together opportunities to socialise and preserve culture, particularly those communities that are vulnerable to food disadvantage (Egerer et al., 2019; Campbell Page 2014; McDonald & Testro 2021; Department of Communities 2010).

The Loganly Grown initiative explores how the narratives of a place can shift through highlighting positive stories and create positive feedback loops that grow the future innovative potential of an area. Loganly Grown brought together 'Logan foodies' from growers, suppliers, makers, sellers, providers, and innovators to share their ideas to grow a thriving Logan food network. This is a collective that's positive and functioning, that connects growers and makers with commercial partners and end-users. Logan's Gold Circle map below showcases the diversity of food makers and sellers across Logan. An engagement event at Extraction Café brought together community priorities for local food innovation in Logan.

Figure 15: Golden Circle map of food innovators



Source: Griffith Centre for Systems Innovation 2023. See Golden Circle map in pdf: https://www.griffith.edu.au/_data/assets/pdf_file/0024/1443642/Golden-Circle-Draft-2.pdf

There are increasing efforts to celebrate and improve access to culturally appropriate food in the region, demonstrated through the Global Food Markets each weekend in Logan Central, the Food Tourism Development Plan 2020–2025 (Regionality 2020). By adopting a tourism angle to promote locally grown foods, the plan details how Logan’s diverse food and agricultural production is undertaken on small-scale market gardens, protected agriculture and urban farms and backyards by its ethnic communities, rather than larger-scale broad acre farming (Regionality, 2020). Aiming to focus efforts to support innovation and build the capacity of micro and small enterprises, via the Logan Office of Economic Development, the Council’s key objectives through this Plan is to: 1) Nurture the development of a local food culture that

brings the community together through a celebration of local, seasonal and culturally diverse food; and 2) Develop Logan to become Queensland’s Multicultural Food Capital (Regionality 2020, p. 13).

The Griffith Centre for Systems Innovation developed and hosted an entry-level course for migrants and refugees with community partner Multilink. From there we supported a group of participants from ‘Growing a Food Business’ initiative to launch their social enterprise with connections from City of Logan, Griffith University and the migrant business accelerator, Catalyst.

Image 8: Participants and partners in the Multilink ‘Growing a Food Business’ initiative



Source: Griffith Centre for Systems Innovation 2023.

4.3 Logan Local Food Planning Agenda

Griffith University's Cities Research Institute leads a broader project that connects community, business and government to build capacity for accessing local food and to thrive in uncertain times. See our research website: <https://www.griffith.edu.au/cities-research-institute/research/digital-earth-and-resilient-infrastructure/food-contingency>. The research focus is on community-led decision-making that empowers communities to share responsibility for their food resilience in times of need. The Logan region is one pilot study with the aim to expand the capacity of Logan's community groups and schools to grow and trade food locally.

4.3.1 Build capacities for urban agriculture and food gardens within communities, schools and under-utilised spaces

Investing in urban agriculture projects and food gardens provide numerous environmental benefits (Muriuki et al., 2017; Holt-Giménez 2017). These include, but are not limited to, the re-use and recycling of organic waste, lowering of food miles, shortening supply-chains, and reducing use of chemical fertilisers and pesticides. There are many overarching social and economic goals that improve food security through access to locally produced and culturally appropriate food to people who have limited financial resources. These can include additional benefits such as employment, job training and skills, work experience and leadership development. Improved social connectedness within communities, bringing

a sense of belonging and social well-being are also reported along with improved mental health and psychological well-being associated with spending time in nature (Daftary-Steel et al., 2015; Harris, Minniss & Somerset 2014). The urban farm at Loganlea State High School is one example of what can be achieved to utilise otherwise unused spaces for urban farming. Our partnership plans for urban agriculture opportunities within the urban fabric and reduce the experience of hunger in Logan. Key partners include:

- CityStudio Logan initiative in Logan City Council that brings university and school students together with Council staff and the community to deliver solutions to city challenges: <https://www.logan.qld.gov.au/citystudiologan>
- Loganlea State High School's provision of the urban farm site and opportunities for student learning within the school's Agribusiness Program: <https://loganleashs.eq.edu.au/curriculum/excellence-programs/agribusiness>
- The Mini Farm Project, that utilises a network of urban farms for food education and charity purposes and employs a farmer to manage the site: <https://mfp.org.au/>
- Griffith University's first-year Environmental Planning students, who learn about planning for urban food systems to address food disadvantages and reduce hunger: <https://sdg.griffith.edu.au/stories/environmental-planning-studio-1511env/> and https://www.griffith.edu.au/__data/assets/pdf_file/0038/1663967/Griffith-SDG-Impact-Report-2022-web.pdf



Images 9 & 10: Loganlea State High School urban farm and student participation

Sources: (Left) Mini Farm at Loganlea SHS Facebook post 14.03.23. (Right) Loganlea SHS students participating in farm engagement activities. Catapult and CityStudio Logan Facebook post 26.07.22.

Images 11 & 12: Mini Farm fund-raising events at Extraction Café



Sources: Fundraising at Extraction Café. (Left) Catapult and CityStudio Logan Facebook post 28.07.22. (Right) Mini Farm at Loganlea SHS Facebook post 29.07.22.

School-based food and garden programs have a key role to play within local food systems to address issues of food disadvantage (Izumi et al., 2009; Rains et al., 2019; Moore et al., 2015; Oaken et al., 2017). Urban farming within schools can harness outdoor learning opportunities and provide a focus on education and empowerment of young people and their families through task-oriented and incidental learning. These spaces encourage the building of knowledge and practical skills around food systems, food production, cooking and composting and food self-sufficiency (Moore et al., 2015; Gibbs et al., 2013; Izumi et al., 2009; Rains et al., 2019;

Morgan & Sonnino 2008). This message is well-received within the Logan community with funds raised to employ a farmer to manage the 1-acre block on the school grounds.

A desirable outcome of this initiative has been for students to also learn about rescuing food waste for composting and the importance of designing for circular economies. The Australia Government states that "wasted food has significant impacts on the environment through the use of resources such as land, water, energy and fuel used in producing, manufacturing, packaging, distributing and preparing food" (Commonwealth of Australia 2017, p. 6)

Images 13 & 14: Mini Farm fund-raising event at Devon Pixies and food box deliveries to Logan City Council



Sources: (Above) Fundraising at Devon Pixies. Mini Farm at Loganlea SHS Facebook post 28.08.22 (Right) Delivery of produce to Logan City Council. Mini Farm at Loganlea SHS Facebook post 09.02.22.

4.3.2 Integrate Indigenous, climate-adaptive knowledge in food spaces

Australian diets, consisting of primarily European food preferences are water intensive to grow and can be challenging to sustain in our hotter and drier Australian climates with relatively poorer nutrient soils (Earle 2020). Australian Indigenous communities cultivated and gathered diverse food crops that are adapted and resilient to local climatic conditions (FAO 2017; Pascoe 2014). By deepening our appreciation of the practices of Indigenous food systems, we can also explore changing relationships with land and Country that are climate adaptive (Kuhnlein et al., 2019; Yunkaporta 2020).

Indigenous knowledge of local food systems is vital for climate adaptive food futures. Environmental Planning students at Griffith University, in conjunction with the CityStudio Logan initiative, conducted engagement in 2022 with Logan's First Nations people to define an overall scope of a 'Peoples' Local Food Plan for Logan' and to consider key elements such as: a) exploring opportunities for growing climate-adaptive Indigenous food in urban contexts; b) mapping key food initiatives that are based in and have been developed in and around Logan that can reflect its unique Indigenous culture; and c) identifying how access to Indigenous food spaces can build resilience in youth and their communities. Local food plans can be utilised by local governments to enable their community's ability to procure, produce and distribute local food, experiment with civic and agricultural innovations and to build capacities for resilience in times of food hardship (Kurtsal et al., 2020; Reis 2019; AFSA 2013; Koski et al., 2018; Seyfang & Smith 2007). Loganlea State High School students also commenced their planting of their Indigenous Food Forest in 2022.

Images 15 & 16: Participants gauging Indigenous values for local food planning



Sources: Griffith University.

Image 17 & 18: Students planting Indigenous Food Forest at Loganlea SHS



Sources: Catapult and CityStudio Logan Facebook post 20.12.22.



4.3.3 Enable local food plans to support disaster risk reduction

Prioritising and planning for local food systems is important for creating food access options during challenging times such as pandemic conditions, severe weather events and a longer-term changing climate (Reis 2019; Reis et al., 2019). Local food systems enable a variety of choices for accessing food when normal supply lines are interrupted. They also provide a way of accessing fresh food in times of emergency and for those who rely on food relief on a day-to-day basis (Reis et al., 2019). The Mini Farm Project donates fresh produce from the Loganlea State High School urban farm to local charities to help families in Logan that may skip meals or going days without eating (Mini Farm Project 2023).

From Griffith University research undertaken with the Disaster Management Unit of Cairns Regional Council, we know from interviews with food relief agencies that normalising access to freshly produced local food is important for alleviating reliance on emergency supplies and building longer-term food resilience (Reis et al., 2021; Cairns Regional Council 2023). Codeveloped by the Disaster Management Unit and Griffith University a 'Local Food Resilience Hub' was devised as a Stage 1 online directory to help the Cairns community to grow, access and manage food supplies within their own localities (Cairns Regional Council 2023). See the 'Local Food Resilience Hub' website: <https://www.cairns.qld.gov.au/community-environment/sustainability/local-food-resilience-hub>

Images 19 & 20: The Mini Farm Project working with food relief agencies

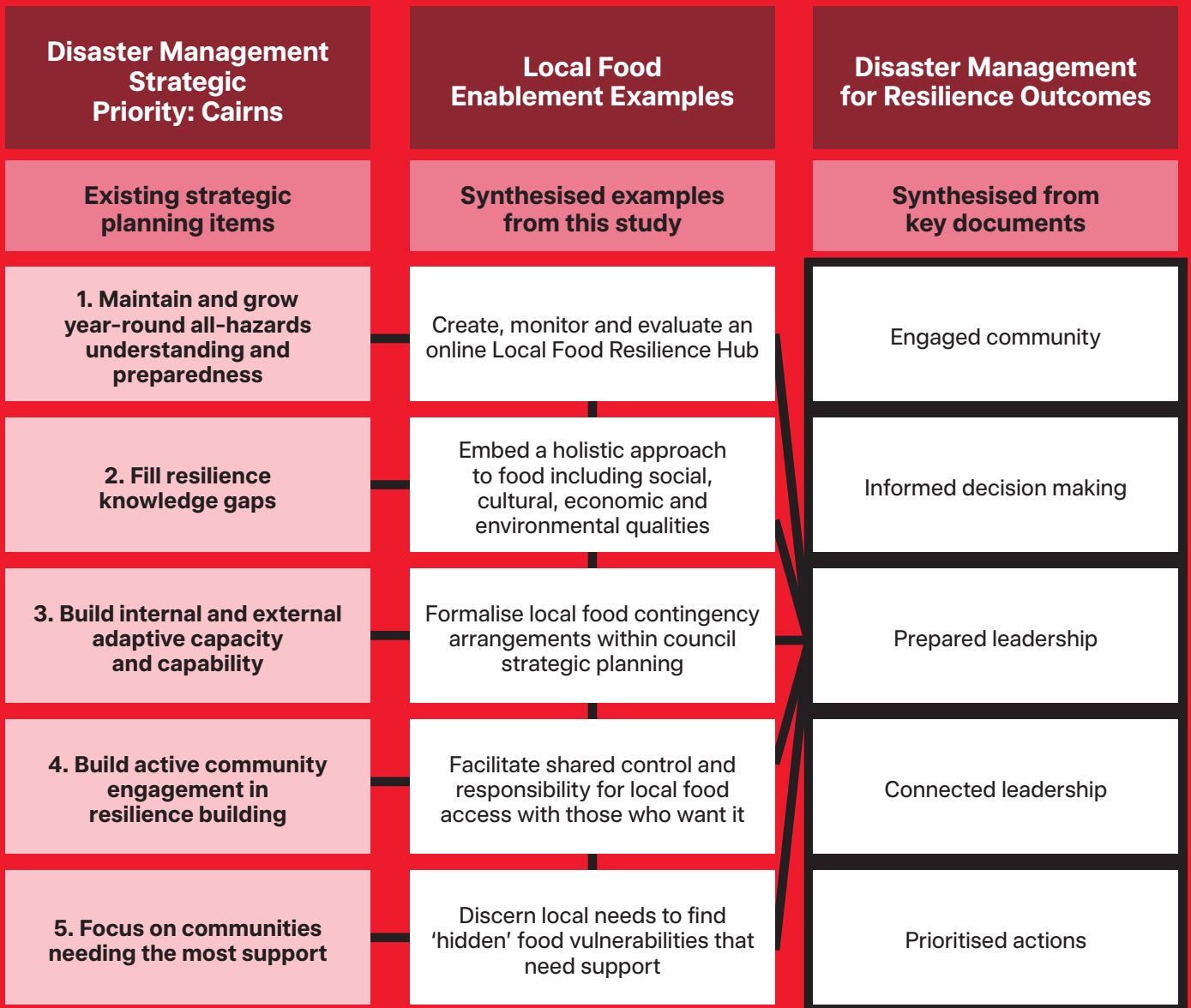


Food-related disaster resilience also requires contingency planning whereby we have access to a range of local food choices when times are tough (Reis et al., 2022; Reis et al., 2019). Contingency planning is about asking the 'what if' questions so we can be clear about our Plan B or Plan C (Reis, Desha & Burton 2020). The Figure below shows examples of local food enablement with disaster management resilience outcomes applied to Cairns-based strategic priorities in disaster management.



Sources: (Above) Catapult and CityStudio Logan Facebook post 28.07.22. (Left) Mini Farm at Loganlea SHS Facebook post 28.02.22.

Figure 16: Local food access model for decision support, applied to Cairns Regional Council



Source: Reis et al., 2022.

This model is an example of strategically embedding local food access options that can be applied to the diverse community needs resident within different local government contexts, indeed, "one of the basic premises that we understand as disaster risk management researchers and practitioners is that a one size solutions does not fit all circumstances. It's another fantastic enabler and in disaster management we move to place-based approaches and work with the solutions that fit that context" (Reis cited in Ewart 2023, para. 20). The Griffith Disaster Management Network, in conjunction with the Queensland Government, Office of the Inspector General Emergency Management (IGEM) calls for action to encourage and build community self-reliance around food provision (Reis, Desha & Rifai 2019).

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