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Developing a Systems View of the Wellbeing SA – Department of Human Services Food Security Initiative: Project Report

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Background

Wellbeing SA's mandate is to promote the health and wellbeing of the South Australian population. A major threat to this is food insecurity. Consequently, this project was funded by Wellbeing SA (WBSA) to investigate a cross-sectoral initiative between themselves and the Department of Human Services (DHS) to promote food security in South Australia (SA).

Food security has been defined as a situation where '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' (1). Food insecurity exists 'whenever the availability of nutritionally adequate and safe foods, or the ability to acquire acceptable food in socially acceptable ways is limited or uncertain' (2). Thus, food security is about more than merely having access to a sufficient quantity of food. It requires reliable, affordable access to nutritious and safe food adequate to good health, appropriate to one's culture, and sourced in a socially acceptable manner (3). The High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security has defined six dimensions of food security (1):

Table 1: The Six Dimensions of Food Security, reproduced from High Level Panel of Experts on Food Security and Nutrition, 2020 (1)

Availability	Having a quantity and quality of food sufficient to satisfy the dietary needs of individuals, free from adverse substances and acceptable within a given culture, supplied through domestic production or imports.
Access (economic, social and physical)	Having personal or household financial means to acquire food for an adequate diet at a level to ensure that satisfaction of other basic needs are not threatened or compromised; and that adequate food is accessible to everyone, including vulnerable individuals and groups.
Utilization	Having an adequate diet, clean water, sanitation, and health care to reach a state of nutritional well-being where all physiological needs are met.
Stability	Having the ability to ensure food security in the event of sudden shocks (e.g. an economic, health, conflict or climatic crisis) or cyclical events (e.g. seasonal food insecurity).
Agency	Individuals or groups having the capacity to act independently to make choices about what they eat, the foods they produce, how that food is produced, processed, and distributed, and to engage in policy processes that shape food systems. The protection of agency requires socio-political systems that uphold governance structures that enable the achievement of FSN for all.
Sustainability	Food system practices that contribute to long-term regeneration of natural, social and economic systems, ensuring the food needs of the present generations are met without compromising the food needs of future generations.

In Australia it has been estimated that 'between 4% and 13% of the general population are food insecure; and 22% to 32% of the Indigenous population, depending on location' (4). In SA, survey data estimates approximately 11% of the population is food insecure (5). Furthermore, rates of food insecurity are likely to have increased significantly during 2022-2023 due to increases in cost of living, including in key areas such as food and housing costs. Food insecurity is inequitable distributed in Australia being more prevalent among: people living on low incomes,

Aboriginal and Torres Strait Islander peoples, single parent households, people living in regional and remote areas, people experiencing homelessness, children or adolescents from low-income households, and people from Culturally and Linguistically Diverse backgrounds, especially refugees and those seeking asylum (4). Food insecurity can have adverse effects on both mental and physical health outcomes for adults, adolescents, and children (6). A notable and widespread response to food insecurity in Australia has been the development of a charitable food relief sector, consisting of organisations who source food supplies and make it available to people subject to food insecurity at low or no cost (7).

The SA Government has recognised food insecurity as a significant problem affecting SA individuals, households and families (8). In 2015, a Public Health Partnership Authority (PHPA), the *Food Security Initiative* (FSI), was formed between WBSA and DHS to address food insecurity in SA, with a particular focus on engaging with and strengthening the charitable food relief sector. Since its inception, the FSI has sought to engage with the food relief sector to foster best practice, improve a focus on nutrition, encourage collaboration, and add value to food relief services through opportunities for service users to develop new skills or access other support services. Over time, the FSI has also engaged with SA Local Governments, which also provide food relief services within their respective communities and worked towards a comprehensive SA food systems view moving beyond a sole focus on the food relief sector. Food security and food systems have also been a focus of policy attention in other State or Territory jurisdictions, and nationally in Australia (9-12).

The PHPA underpinning the *Food Security Initiative* in SA extends on that State's history of work on adopting and implementing a *Health in All Policies* approach whereby the State health agency works in partnerships to foster development and implementation of policies in 'non-health' policy sectors that are conducive to public health, including through action on social determinants of health (13).

Accumulated evidence (14) shows that the largest drivers of population health, wellbeing, and equity are the social determinants of health – that is, people's living circumstances, such as their housing, employment, education and neighbourhood. Thus, improving population health, wellbeing and equity is seen to require equitable access to health services coupled with intersectoral initiatives across the whole of government. One key strategy for achieving this is 'Health in All Policies' (HiAP). The World Health Organization defines HiAP as a 'cross-sectoral policy approach that facilitates intersectoral relationships and policy development to address health, wellbeing and equity issues while also contributing to other sectors' policy goals'. Many countries have established HiAP approaches, including Australia, Wales, Finland, New Zealand, Denmark, and Canada. Over the last 15 years, SA has implemented HiAP strategies to strengthen participation of all policy sectors in policy for health and wellbeing (15, 16). HiAP in recent years has been led by Wellbeing SA. PHPAs have been implemented by Wellbeing SA as a mechanism to facilitate HiAP activities.

Stretton Health Equity is a research unit at the Stretton Institute, University of Adelaide with world leading expertise in evaluating HiAP (17). The team have a long-

standing relationship with Wellbeing SA. Stretton Health Equity is partnering with Wellbeing SA to develop a large-scale evaluative program of research on HiAP that will inform Wellbeing SA's work. In this report we report on preliminary qualitative research to develop a systems view of the WBSE-DHS PHPA *Food Security Initiative*. This research was funded by Wellbeing SA. This work is intended to complement research work undertaken on food security by the Centre for Social Impact (CSI) at Flinders University (18, 19).

Research Methods

In social science, a systems approach to research examines complex social phenomena as systems of multiple, interconnected elements, which may interact in unpredictable ways to influence system behaviour (20). To undertake the research, we reviewed selected literature on food security including publications arising from the SA *Food Security Initiative*. We then conducted 10 semi-structured interviews with key stakeholders active within the FSI. Participants included staff active in the FSI within the two lead government agencies (5 interviews), people with knowledge and experience in food relief service delivery (2 interviews), local government food relief practices (2 interviews), and research on food security in an SA context (1 interview). Given this sample size, and the potential risk of identifying interviewees, no identity descriptors are linked to quotes in this report.

Prospective participants were contacted by email with a request to participate in the research, including an attached Participant Information Sheet. Interviews were conducted online or face-to-face and generally lasted between 45 and 60 minutes. Audio recordings were deidentified and transcribed into text. Deidentified transcripts were stored in a password-protected file in a University of Adelaide server accessible only by members of the research team. The research was approved by the University of Adelaide Human Research Ethics Committee. The interview schedule was designed to elicit participants' views on: their role in the *Food Security Initiative*; the development and conduct of the FSI and its achievements over time; problems or limitations affecting the FSI; the role of the two lead agencies; social determinants of food security in an SA context; and opportunities for further development or expansion of the FSI in the future.

Interview transcripts were analysed by members of the research team to identify common themes, and a summary of the key points from each interview was prepared. We then drew on results from the interview analysis, team members knowledge of systems research in a public health context (21), extensive knowledge of social determinants of health (22, 23) and Australian public policy (22, 24), together with analysis on dimensions of food security (1), to prepare several figures theorising and describing the current FSI positioned within a larger food in/security *system*, incorporating elements across the 'paddock to plate' chain from primary production, processing, distribution and retail sales to consumer utilisation.

Final draft versions of these figures were presented to two online workshops. The first workshop was held on 14th November 2023 with 7 participants, including staff of Wellbeing SA, DHS, and other stakeholders involved in the *Food Security Initiative*. A

second workshop was held on December 2023 with 5 DHS staff to gather further input from DHS. The figures were revised and refined based on feedback from these two events.

In our results section below we report on key themes from the participant interviews and present the final version of the figures developed.

Results

Findings from the interviews

Some interviewees had been part of the *Food Security Initiative* since inception, citing Wellbeing SA and DHS working in partnership since 2015 on critical overlapping food security, health, and equity goals. While generally not perceived as an extension of SA's history of work on 'Health in All Policies', the partnership, underpinned by a Public Health Partners Authority agreement, was seen as a successful, durable, and on-going example of cross sector collaboration. Transparency, shared goals, and an equal partnership were cited as positive characteristics, and were credited with the sustainability of the partnership, which has survived changes in leadership and staff in both departments. The work also continued because of actors' success in "keeping our decision makers informed and aligned, because they've got multiple other things that they need to attend to." This partnership was also reported to form a strong foundation for further networking and bringing in additional actors to the FSI. While Wellbeing SA and DHS were recognised as main players, the FSI in practice was understood to include a range of stakeholders such as CSI, food relief organisations, local governments, and other government agencies.

Interviewees described two related, primary aims of the FSI:

1. To bring the food relief sector (involving many disparate and sometimes competing actors) together to improve collaboration, coordination between organisations, and shared understanding of healthy food needs.
2. While continuing to support access to food relief services for those in need, to 'go beyond' the short-term and crisis-focused nature of food relief to address a wider range of issues related to and underlying the experience of food insecurity – considered as a *food security system* – in order to improve food security in SA:

"We've got a system that doesn't really work, and our system focuses on one element of the food system chain, and that main focus point is around emergency relief."

"We both felt that there was a sector out there that was not coordinated or linked together and maybe sometimes even in competition with each other for those grants that might exist really broadly."

The work done prior to and through the FSI with the development of Nutritional Guidelines and the Food Relief Charter, and establishment of a growing Community of Practice, along with research work with the CSI, were seen as contributing to aim 1 above and leading to a "gradual accumulation of shared purpose." The development and uptake of the Charter along with trial of a 'social supermarket'

model working in collaboration with *The Food Centre* at Gepps Cross, and some of the local government work linked to the FSI were seen as contributing to aim 2. An upcoming report from CSI about future directions for the FSI is also expected to provide proposals relevant to further advancing both aims.

Interviewees described the need for the FSI to have both a strong evidence base (“I honestly believe that this PHPA is the standout for evidence-informed decision making”) and long-term plan, and also to take advantage of the political opportunity of a supportive and engaged Minister, and the high-profile issue of cost-of-living pressures. This cost-of-living increase was reported to have seen the demand for food relief rise dramatically:

“So, 2022 – '23, we've got a massive affordability problem out here – and I mean, it is huge. Our numbers year on year last year were up over 50%. Our numbers this year, in the first quarter are already up another 40% on top of the previous year; that's how dramatic it is.”

As noted, the FSI was reported to have achieved a number of wins in regard to the food relief sector, including the development of nutritional guidelines for food relief, the Food Relief Charter, the establishment of the Community of Practice, and the piloting of the social supermarket model.

The social supermarket trial at *The Food Centre* was assessed by the CSI team and shown to be successful in improving nutritional quality of foods made available and reducing stigma associated with accepting food relief by providing clients with greater dignity and choice in food selection. It was also seen to produce a range of benefits in addition to access to nutritious food such as social inclusion, community building, opportunities for learning and skill building (e.g. cooking, food growing), and access to other services:

“It really made quite an impression on me, about [how] a good food system has scenarios where there's some dignity for those people, and choice is a big piece of that dignity.”

“What they [the CSI research team] discovered was with the Food Centre, it wasn't just about food insecurity, there was this whole thing around the response to food insecurity: respectability; treating clients with dignity and respect as well; providing choice for clients ... And we also found that Food Centre front area had become a community centre, where people were actually gathering socially. So, we were actually breaking that whole problem with I guess loneliness, and social inclusion.”

“I think about the Social Supermarket as a useful example because ... it says that there are better ways of doing food relief ... we can offer something for people to buy their food with dignity within their economic means and at the same time they can volunteer, or they can have a chat over a coffee ... be part of the community garden ... do a cooking workshop, or share their skills.”

Interviewees also talked about the processes which took place within the FSI to recognise and define the limitations of food relief, establish recognition of the need to

shift to a whole food security system approach, and define feasible strategies to put that into practice:

“We needed to work through what our next steps were. So, between DHS and Wellbeing SA, we had a planning session ... looking at the data ... [we realised] ... that food relief is only part of the system and there's much more around secure food than just that.”

“In terms of goals between CSI, Wellbeing SA and DHS as a collective, I think what we've got our heads around is some of the evidence ... that food insecurity is simply a symptom of poverty and inequality, so unless we address those things we're going to go nowhere.”

“We have to address poverty. We have to address our government subsidies and payments. We can't really – the outcomes may be supportive of the charter and the charter model, but we've got to address those underlying fundamental issues.”

“We still have an interest in food security. We've got a strong demand ... it's almost overwhelming out there. And there is a strong tendency to ...[just] give more money to food security...[but] the evidence is there that if we ... don't do anything to respond to the underlying issues that have caused that food insecurity [the problem will continue]. And how much is it to emergency response or crisis response? And how much can we put towards preventative measures? That's the thing that I was thinking about.”

The research partnership with CSI was viewed very positively in facilitating this broader view, including through gathering evidence on populations most at risk of food insecurity. It was also clear, however, how the key drivers of food insecurity were often outside of the control of the departments, including poor investment in housing, low wage growth, insufficient level of welfare payments, and food pricing, particularly by the major supermarkets:

“Obviously, we don't have responsibility for income support or whatever. But anything that we can do to alleviate poverty, to connect people to community, to do with food insecurity, economic insecurity, those kinds of things, are things that we're keen to do.”

“I'm a little sceptical of our influence on Coles and Woolworths, but it doesn't mean that we can't try.”

Nevertheless, moving towards a social determinants model focused on prevention was seen as crucial to moving beyond a short-term crisis focus on food relief only. The broader view also led to the identification of a wider range of stakeholders, including in the food production and retail systems, whom the partnership had begun to approach, or had identified as important stakeholders to involve. The aim of the five models developed in this research, presented below, is to inform this broader systems-thinking approach, together with identification of potential stakeholders and points of intervention in the food security system.

Models of the food security system and initiative

Five models were developed in the course of the research that participants reported were valuable for different purposes. These are presented in turn below.

Figure 1:

Figure 1 categorises key factors affecting food security relevant to the South Australian (SA) context according to the six dimensions of food security shown in Table 1.

Within the figure we aim to identify those factors we assessed as somewhat affected by the FSI, shown in the coloured sections. These are not indicating comprehensive actions to address all these drivers. Instead, they indicate the *potential* for the FSI to have some influence on these drivers. For example, the social supermarket model was seen as providing opportunities for support and referrals for users of food relief, which may include referrals to improve *Access to primary health care or social services / health promotion*.

In summary, the figure presents a view of the FSI positioned within a wider view of a food security system, defined according to an accepted, contemporary definition of food security. This form of analysis indicates that the FSI appears to be addressing factors across all six dimensions of food security, as these pertain to SA. However, it also indicates that the FSI in its current form is having relatively little impact in the *Availability* and the *Sustainability* dimensions of food security. Factors shown under *Availability* suggest a need to link SA actions on food security with a broader national approach, and to take account of global food supply issues such as the health impacts of ultra-processed foods (25) and vulnerabilities of global supply chains (26). Factors shown under the *Sustainability* dimension indicates potential to strengthen the FSI through collaboration with Departments of Primary Industries and Regions, and Environment and Water. A number of interviewees also spoke to a need for such enhanced collaboration.

Figure 1. Factors affecting food in/security Factors addressed by SA Food Security Initiative:

Availability	Access	Utilisation	Stability	Agency	Sustainability	ENVIRONMENTAL IMPACTS
Food production, processing, packaging distribution, and retail sale	Individual or household income; financial in/security	Nutritional qualities of food	Effects of adverse life events on individual/household food security	Engagement in food production Community gardens, backyard growing	Longer-term impacts of climate change on food production/distribution systems	
SA food production & processing system	Food costs; relative costs of different forms of food	Ultra-processed foods; energy dense-nutrient poor	Effects of unforeseen costs on individuals/households, e.g., medical bills	Food knowledge, food choices, cultural preferences; dignity	Energy demands of food production, distribution, e.g., fertilizers	
National food production & processing system	Access to food outlets; quality and cost of foods available	Obesity/poor nutrition and other food-related health conditions	Effects of social or economic 'shocks' on population food security	Food preparation/safety knowledge and skills	Environmental impacts of food production/distribution practices	
Global food production & processing; food imports/ exports /trade	Cost of living/other household costs	Supply chain food storage; home food storage	Impacts of extreme weather/disaster events on food production	Food as social activity; social connection	Food packaging/ recycling, plastics pollution	
Supply chains & workforce	Socioeconomic inequality	Access to primary health care or social services / health promotion	Other societal/ industrial 'shock' impacts on food production	Stressors on food producers/ mental health issues	Food waste/diversion /recycling/reuse/ Biomass energy	
Food marketing & labelling	Location / food deserts/remote areas	Clean water supply/ sanitation		Participation/voice in food policy	Greenhouse gas emissions / storage	
Economic viability of producers	Food transport system; Individual or household access to transport	Food safety policy and practice		Food grower cooperatives	Regenerative/ sustainable agriculture	
Diversified food production systems	School food programs	Breastfeeding			Ecosystem services Biodiversity e.g., insects, soils Circular economy	
Food relief agencies/programs; Procurement approaches						
MAJOR TRANSNATIONAL & NATIONAL FOOD CORPORATIONS; REPRESENTATIVE ORGANISATIONS						
GOVERNMENT POLICIES & PROGRAMS						

Figure 2:

Figure 2 adapts the 'rainbow' form of representing determinants of health developed by Dahlgren and Whitehead (27), which positions individuals and their attributes (e.g., age) and behaviours (e.g., diet) related to health in a centre circle, surrounded by concentric arcs representing increasingly distal social, economic, environmental or political determinants of population health.

In Figure 2, we adapt this format to represent individual, local (SA), national (Australia) and global determinants of food security. The three arrows represent our view of major global factors acting 'inward' to significantly affect current and future food security within SA. Again, we have coloured those determinants seen as affected by the SA FSI in its current form. Some factors in the outer circles are positioned as bridging across global and national, or national and local, domains. Among other things, the figure highlights a number of national policy settings relating, for example, to income and employment, the welfare system, and the health system likely to affect inequities in food security and the health sequelae of these effects in the SA context. Most interviewees noted the limited capacity of the current FSI to address national policies affecting income inequality, seen as a basic, underlying determinant of inequities in food security.

Figure 2. Determinants of Food Security in South Australia

Factors addressed by SA food security initiative =

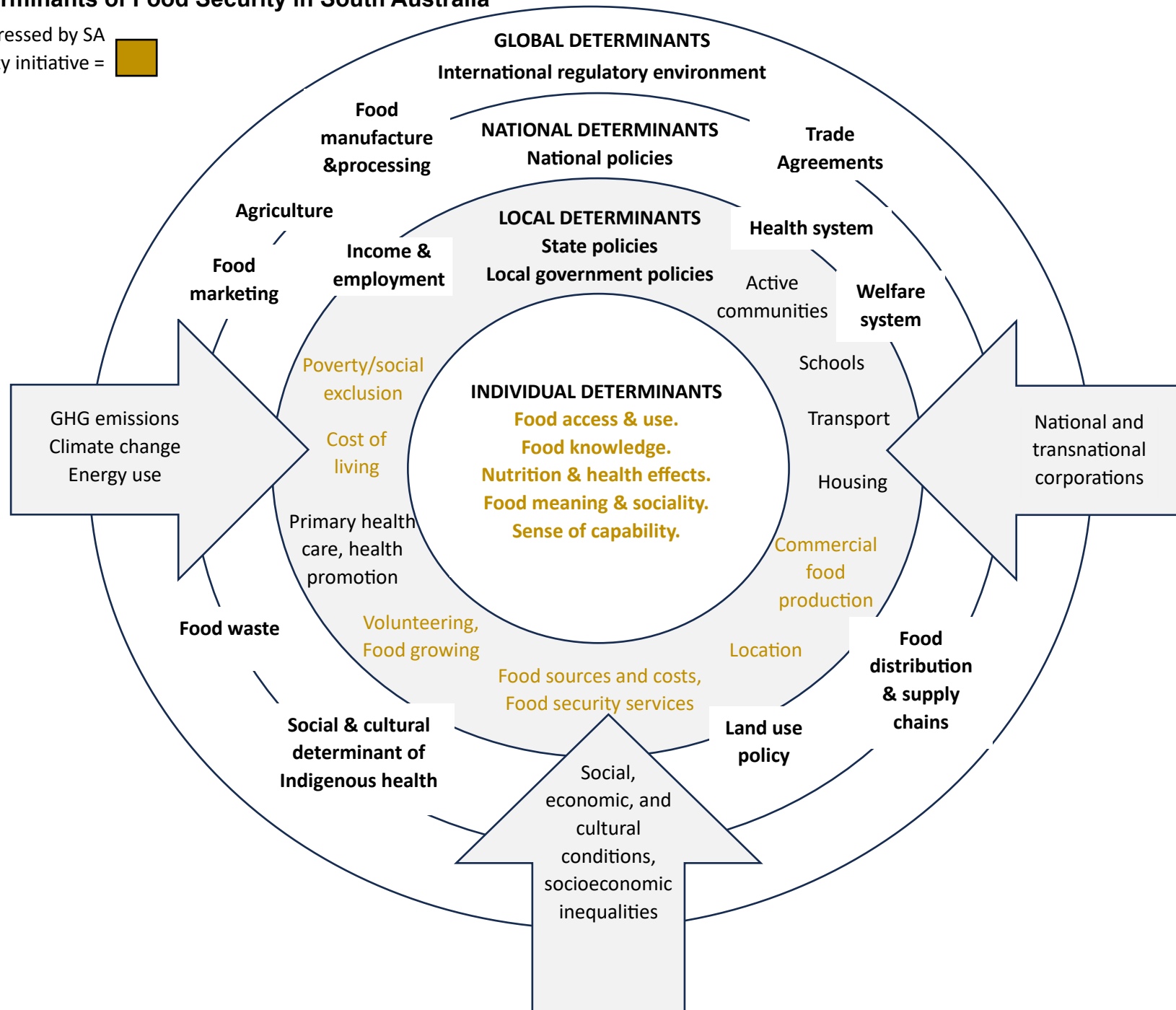


Figure 3:

Figure 3 draws on our analysis of FSI-related publications and data from interviews to chart the operational structure of the current FSI and position it within a broader South Australia 'policy system'. The figure consists firstly in all those government and non-government organisations understood to be directly involved in one form or another in the FSI as currently configured, shown in the coloured boxes. Secondly, (in the non-coloured boxes) the figure shows a range of 'other' government, non-government, private sector or community-based organisations or groupings seen as having immediate potential to become active players in the FSI, to augment and strengthen food security and associated health, social or environmental benefits in SA. The arrows indicate relationships between these various entities. Dotted arrows indicate potential for strengthening relationships.

Figure 3 is not intended as a comprehensive analysis, but to indicate the potential for strengthening the FSI and food security outcomes through involvement of more organisational and community actors. This approach recognises that the food security system (e.g., as per Figure 1) is tied to and shaped by a policy system. The reader will see later how the 'other' organisations and groupings shown in Figure 3 may relate to one or other of the coloured elements of food security shown in Figure 5.

(NILS = No Interest Loan Scheme. LGASA = Local Government Association of South Australia. PHNs = Primary Health Networks. PHC = Primary Health Care)

Figure 3. SA Food Security Policy System

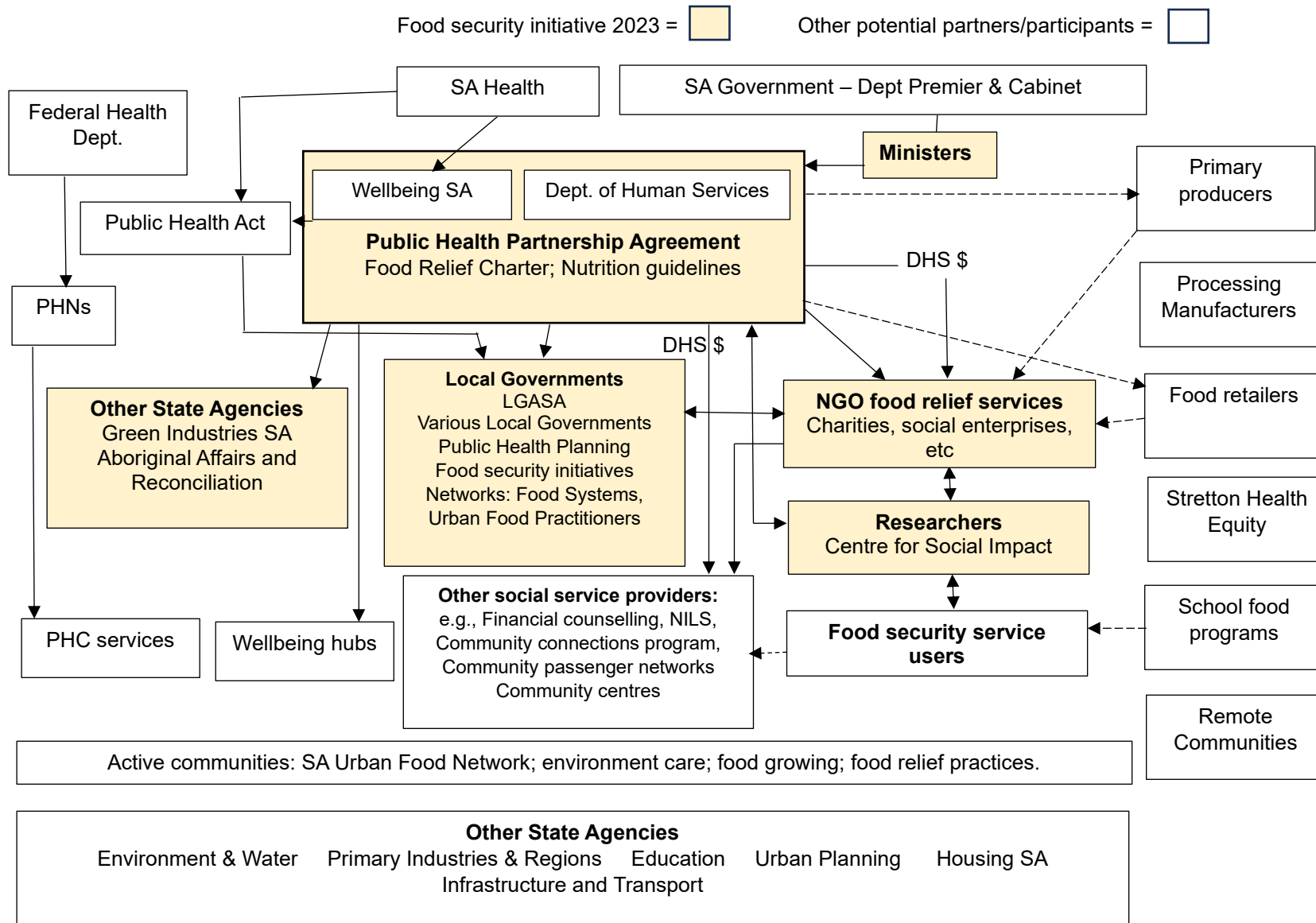


Figure 4:

Figure 4 presents findings on the activities, intended outcomes, goals, and barriers to the *Food Security Initiative* in the form of a policy logic model (28). The three main areas of activity identified in the interviews were: 1) the community of practice with food relief organisations and other partners, 2) the development of the food relief charter that outlined best practice on food relief, and food relief nutrition guidelines, and the evaluation of the social supermarket model that examined how these best practice guidelines could be operationalised in practice, and 3) the generation of new knowledge on the food system in SA through partnership with the Centre for Social Impact, and other research work.

Figure 4 lists the intended outcomes of these activities and illustrates how they all contribute to the overarching goals of increasing people's agency, dignity, social inclusion, and access to food, and increasing food security in the state. The reference to 'As per systems model' refers to Figure 5, which indicates how the *Food Security Initiative* work may be able to influence these outcomes, using a stock and flow diagram.

The figure also captures some of the barriers highlighted by interviewees as making it more difficult for the partnership to achieve these goals, including key drivers of poverty and food security, such as welfare payments, being outside of the partnership's capacity to influence. The figure is intended to inform the basis of a future evaluation of the impacts of the *Food Security Initiative*.

Figure 4. Policy logic model

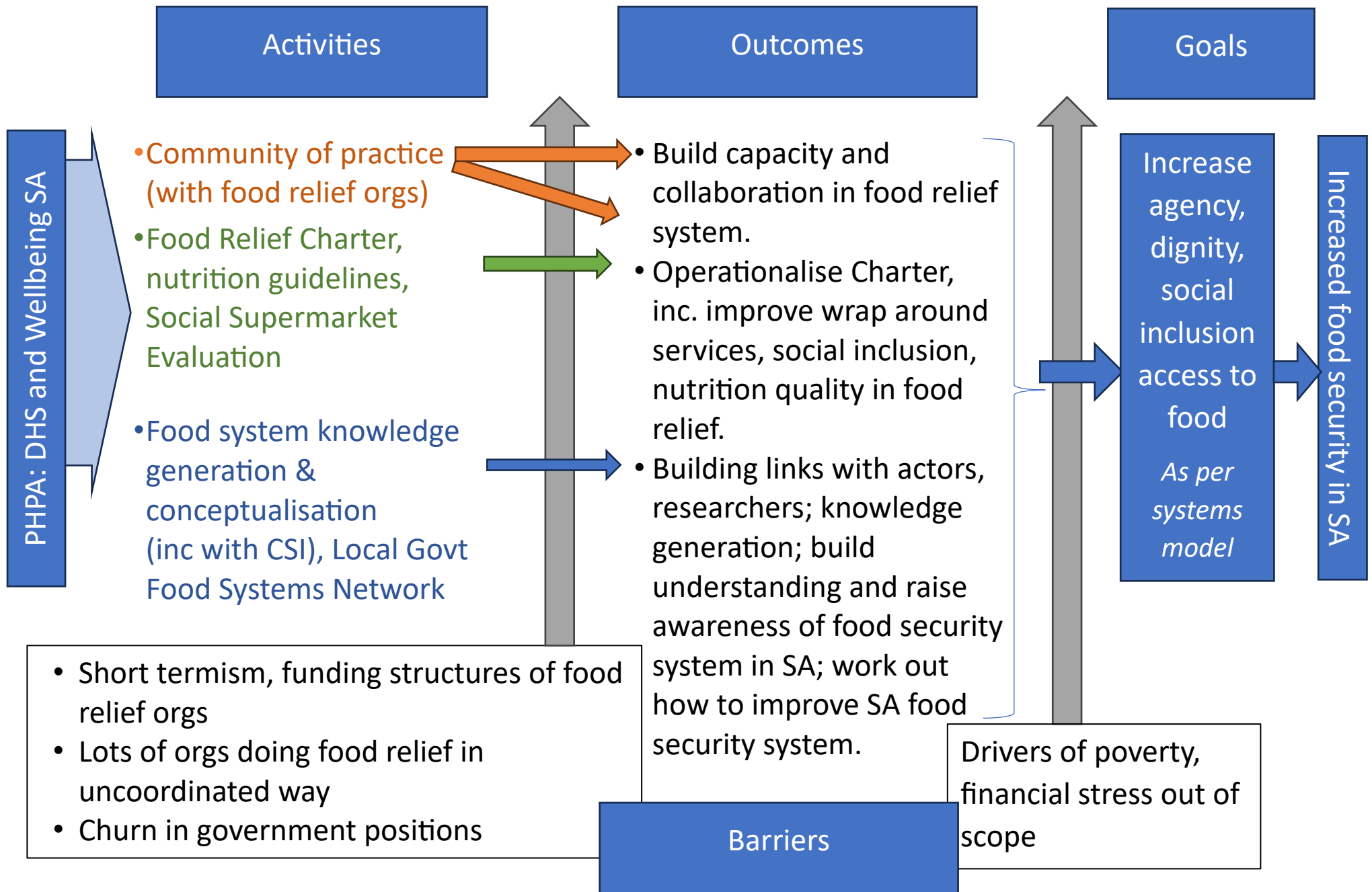


Figure 5:

To consider the contributions systems thinking can make to policy initiative planning, implementation, and evaluation, we developed a stock and flow diagram of the *Food Security Initiative* (see Figure 5). Systems thinking aims to broaden our understanding of initiatives beyond a linear, isolated cause and effect model, to understand relationships within a particular system, and how interactions between elements of a system combine to determine the behaviour and outcomes of a system, sometimes in unintuitive and/or complex ways (29). Systems thinking emphasises that policy initiatives are acting on complex systems, with feedback loops and interconnections, and allows development a more sophisticated theory of how policy actions generate change in social determinants compared to previous, more linear policy logic models (21, 30).

A stock and flow diagram is one type of systems diagram to capture elements and interactions (29). The stock and flow diagram in Figure 5 was built using established group model building principles (31), including validated scripts from Scriptopedia (<https://en.wikibooks.org/wiki/Scriptopedia>) to generate a “shared mental model” (32, p. 2) of the stakeholders for the FSI. A core metaphor in stock and flow diagrams is the bathtub (29), where the level of water in the bathtub represents the level of a stock of interest – in this case, food security. The level of this stock rises or falls over time, dependent on 1) the flow into the stock (the water filling up the bathtub) and 2) the flow out of the stock (the water leaving the bathtub through the drain). Thus, when seeking a high, stable level of a valued stock such as food security, a stock and flow diagram seeks to identify and strengthen key factors that may increase the level of stock over time, and identify and reduce or mitigate factors that may decrease the stock over time.

Figure 5 shows a stock and flow diagram of the *Food Security Initiative* in South Australia. The cascading ‘bathtubs’ at the centre of the diagram reflect four of the six pillars of food security (Availability, Access, Utilisation, and Agency – see Table 1, p.1). Figure 5 presents these as a series of dependencies – first, it is critical that there is food that is *Available* to people, then, people need to be able to *Access* that food (which includes being able to source appropriate food, and afford it). *Utilisation* is achieved when that food is prepared and consumed, which also depends on people having the *Agency* to utilise accessible, appropriate food. If these ‘stocks’ are maintained well over time, then *Stability* is achieved (as indicated by the notation at the top right of the diagram).

The green boxes (top left) capture the food production, trade, distribution, and retail system that shapes availability and access. *Sustainability* is pictured here as being influenced by food production practices, and in turn shaping future food production through climate and environmental impacts.

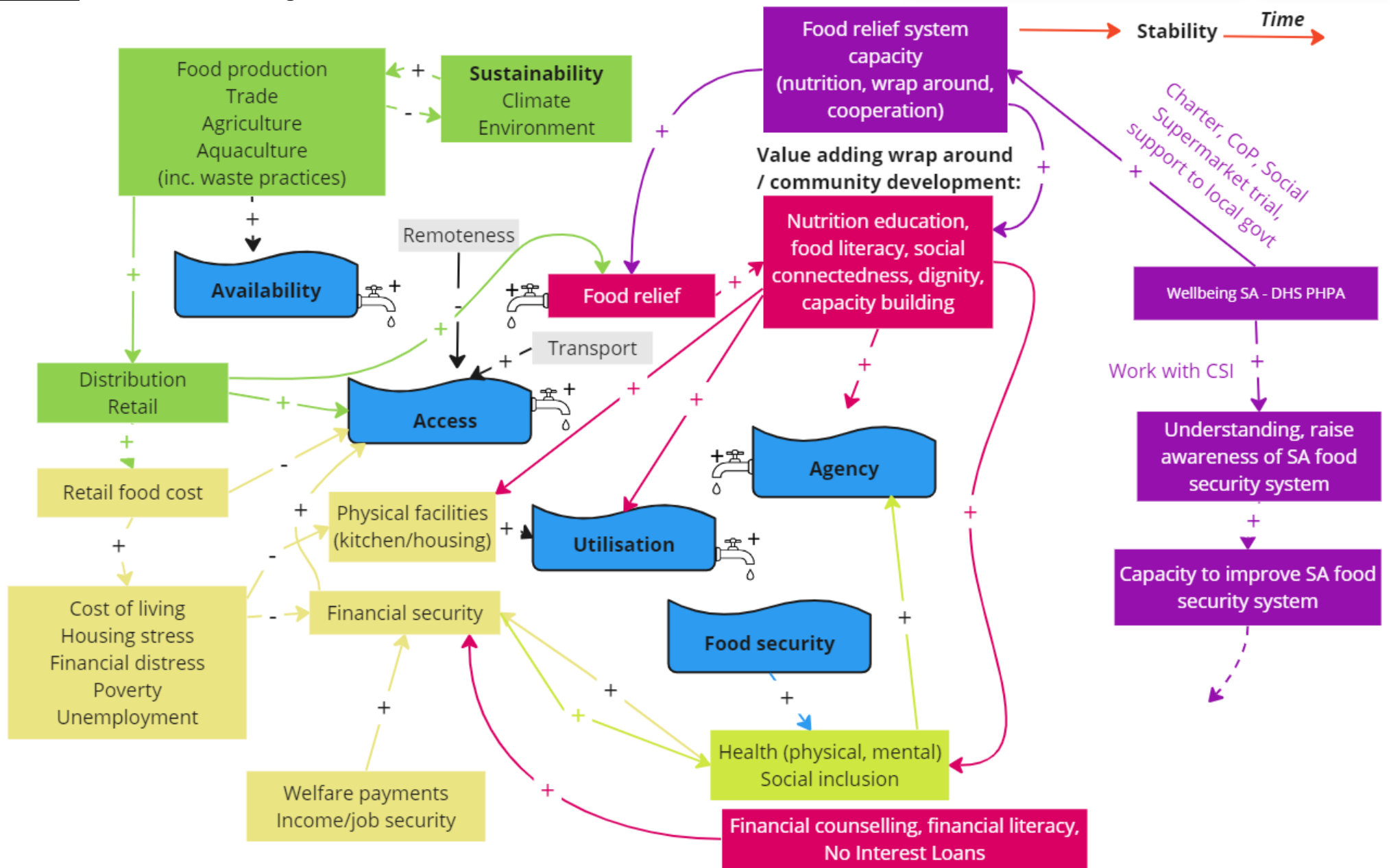
The yellow boxes (bottom left) capture key drivers of food security, some of which are largely out of scope of state government intervention. These include retail food cost, cost of living, housing stress, financial distress, poverty, unemployment, welfare payments, and income and job security, which all affect *Access* to food (particularly affordability), highlighting financial security as a critical prerequisite for food security. Access is also affected by remoteness and transport. Access to physical facilities (such as a house with a kitchen) is also central to utilisation. With financial security, the other central factor to food security in the model is physical and mental health, and social inclusion. Food security is critical to good health, and good health is critical to individual agency and access to food, and thus food security.

The red boxes highlight how government and non-government initiatives can influence this food security system. Food relief is a vital short-term mechanism for ‘topping up’ access to food when it

is too low. Wrap around and complementary services, such as nutrition education, food literacy, social connectedness, dignity, capacity building, financial counselling, financial literacy, and no interest loans can complement food relief to address some of the drivers of food security to reduce future food insecurity and demand for food relief. This reflects the value interviewees placed on models of food relief such as the social supermarket, and the supportive actions of local government food security community development work.

Lastly, the purple boxes (top right) indicate how the Wellbeing SA – DHS *Food Security Initiative* is seeking to influence food relief and wrap around / community development practice to strengthen the capacity of this work to improve food security, and how the partnership's current work exploring the food system (with the Centre for Social Impact) is working towards understanding opportunities to influence drivers of food security in the wider system.

Figure 5. Stock and flow diagram of the FSI



Discussion and conclusion

The interview findings highlighted a range of achievements of the *Food Security Initiative* pursued under the umbrella of the Wellbeing SA and DHS Public Health Partner Authority agreement. The gains indicated in supporting the food relief sector with nutrition guidelines, a Food Relief Charter, a community of practice, and a social supermarket pilot are likely to have led to greater dignity, social inclusion, skills, and food security in the South Australian population facing food insecurity challenges. This suggests that the PHPAs may be a valuable vehicle for pursuing Health in All Policies type intersectoral collaboration to improve population health and wellbeing, and equity.

The recent work, including collaboration with the Centre for Social Impact on understanding and conceptualising the food security system in South Australia is valuable in developing a systems approach which works towards longer term solutions to food insecurity, improving collaboration and coordination of key actors in the food security system, and addressing the drivers of food insecurity. It is this goal that the current research aims to support through shared conceptualisations of the food security system, which can lead to a potential future evaluation of the FSI, as well as identification of further stakeholders, goals, and strategies.

Future directions

Analysis of the interviews, along with the review of literature and discussion in the systems workshops indicated a range of potential future directions for policy initiatives to improve food security in South Australia:

- Expand use of ‘social supermarket’ model:
 - Longer-term, sustainable funding.
 - Strengthen social inclusion/community development/health promotion elements.
 - Possible collaboration with local governments.
 - Possible integration with Wellbeing Hubs.
 - Partnering with researchers to provide evidence of impacts.
- Clarify role of local governments:
 - Support and facilitate food security providers in their areas.
 - Coordinate/co-locate community development and food security strategies.
 - Increase development of community gardens – co-design with community.
- Increase reach of food security initiatives:
 - From those subject to poverty / homelessness to wider population subject to food insecurity
 - Develop and implement strategy for remote communities – community-controlled solutions.
 - Consider the food security issues raised by the changing climate
- Engage with food producers:
 - Improve mechanisms/strategies for product to be directed to food security services; reduce wastage.
 - Increase local production/processing/marketing of food types that are currently imported.
 - Support producer empowerment/bargaining power through mechanisms such as cooperatives (e.g., Fleurieu Milk)
 - Increase regenerative farming practices.
- Engage with food retailers:
 - Mechanisms to improve affordability of essential foods.
 - Mechanisms to ensure fair prices for producers.
- Engage with other State agencies:
 - Housing SA
 - Education
 - Environment

Systems diagrams

The presented diagrams have been developed in collaboration with key agencies and stakeholders involved in the *Food Security Initiative* in South Australia stemming from the PHPA between Wellbeing SA and DHS. They demonstrate how collaborations across government sectors can work fruitfully towards goals of improving population health and health equity. They also demonstrate the complex system that government departments aim to influence to achieve population health and other goals, and the plethora of actors that are involved in or have influence on issues such as food security.

The diagrams can be freely used for any purpose and are intended to underpin future evaluations of the food security work conducted under the auspices of the Wellbeing SA and DHS PHPA, and inform evaluations of other Health in All Policies initiatives. The stocks and flows diagram (Figure 5) in particular demonstrates the potential benefits of combining policy or program logic model approaches (Figure 4) with systems thinking approaches to generate more nuanced understandings of how policy actors may be able to influence complex systems to pursue population health goals, moving beyond the linear focus in more traditional logic models.

The ultimate aim of introducing systems thinking into policy initiative evaluation is to better understand the points in the system that may be amenable to effective and feasible policy interventions, and how policy interventions may influence outcomes in intended and unintended ways. The world is facing 'polycrises' (33) where major, intertwined crises of climate change, worsening health inequities, increased wars and conflicts threatening supply chains and the COVID-19 pandemic (with increased risk of future pandemics) are threatening global health, and knowledge of how to maximise the positive benefits of public policy on population health is more crucial than ever.

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