

## RESEARCH ARTICLE

# Narrative explorations of the role of the informal food sector in food flows and sustainable transitions during the COVID-19 lockdown

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## Abstract

Globally, the informal food sector has been the recipient of exclusionary urban policies, despite its dominant role in urban life. This study examined the contributions of the informal food sector to food flows during the COVID-19 lockdown in Cape Town, South Africa. An ethnographic research method consisting of in-depth interviews and participant observations was used to gather data between April and November 2020. The data were thematically analysed. Corporate retailers and informal vendors managed food flows through the city prior to COVID-19. Due to the lockdown regulations, food flows through the informal sector ceased. The situation resulted in job loss and increased food insecurity. During this challenging period, the informal sector transformed food flows by facilitating sustainable urban agriculture, food aid programmes, and community change. Although the sector can hinder urban modernisation, the current study findings showed that the informal food sector is a buffer for meeting urban sustainability needs. Regulatory frameworks that embrace inclusive governance approaches are highly recommended.

## Author summary

This paper demonstrates that the informal food sector contributes to food distribution, access, and sustainability transformations. This contribution was highlighted during the COVID-19 lockdown period when lockdown regulations severely disrupted the sector and limited food access for several households. Through informal food vendors (such as spaza shops, truck sellers, home gardeners, community soup kitchens, and street food vendors), food aid, urban gardens, and seed sharing were initiated in several communities in Cape Town during the lockdown. A food movement was created among people of different racial and economic backgrounds through dedicated volunteers and individuals seeking a transformed food distribution system. These groups demonstrate the resilience of the informal sector and its ability to overcome barriers and connect people to food. The

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findings of this paper are based on an ethnographic study conducted in Cape Town in 2020.

## 1. Introduction

Population projections indicate that urban dwellers will represent two-thirds of the global population by 2050 [1]. Urban areas have become the main sites of production and consumption, as cities account for about 80% of gross domestic production [1]. Sustainably achieving food and nutrition security remains a core challenge for cities [2–4]. Indeed, food and nutrition insecurity has risen in urban areas, especially among poor and vulnerable groups, due to failing food systems [4–6]. Yet, food systems cannot address the malnutrition problem and simultaneously contribute to aggravating key social-ecological challenges such as climate change, waste, and environmental degradation [7].

Food systems are the sum of actors and interactions across the food value chain [8]. Food system actors include input suppliers, food producers, processors, transporters, and distributors [9]. In urban areas, the key failure of the food system is food distribution or food flows, defined as the movement of food through complex distribution systems [10]. Globally, urban food flows are facilitated by a combination of formal and informal traders [11–14]

Informal traders include hawkers/street vendors, spaza shops, traditional markets, neighbourhood traders, and small-scale and subsistence farmers [15]. The informal food sector employs about 74% of women in sub-Saharan Africa [16]. The informal sector is a significant component of South Africa's gross domestic product (5–10%) as it employs around 2–3 million individuals [14,17]. About 50% of the informal economy businesses are food and beverage companies, which confirms that the informal food sector plays a vital role in ensuring food security for many [17]. However, the informal food sector has received exclusionary policies from national and city governments [18–20].

During this research (January–November 2020), the COVID-19 pandemic and subsequent government responses had disrupted cities worldwide. Various lockdown measures adopted by cities to contain the spread of the virus had dramatically disrupted peoples' agency, freedom of movement, employment, and livelihoods [21,22]. The COVID-19 shock constituted an additional layer to the global urbanisation challenge in the form of a worldwide health crisis and economic depression [23]. The COVID-19 pandemic and the associated economic depression had rendered more than 20 million people food insecure in South Africa, constituting a hunger crisis [21]. Given the social and ecological challenges that contemporary food and urban systems face, there is a need to fundamentally transform these systems for improved social inclusion and environmental well-being [24–26]. This can help to advance the Sustainable Development Goals, particularly ending hunger and achieving sustainable cities.

African and Asian cities will disproportionately experience the contemporary and future challenges of urbanisation. Most projected population growth and additional demands for resources are expected to be situated in these regions [27]. In the South African context, it is estimated that by 2050, more than 80% of the country's population will live in urban areas [28]. Therefore, this study examined food flows through the informal sector during the COVID-19 lockdown in Cape Town, South Africa. An ethnographic research that included in-depth interviews and participant observations in Cape Town, South Africa, was designed to achieve this goal.

## 2. Results

The results are presented in two sections: (1) themes generated about food flows in Cape Town and (2) themes generated about urban agriculture experiments in Cape Town. In each section, dominant and consensual themes are first presented, followed by minor themes. The themes are supported with quotes that best capture the ideas for illustration.

### 2.1 Food flows to households in Cape Town before COVID-19

Food distribution in Cape Town was mainly through formal channels (such as supermarkets and restaurants) and informal vendors. The formal distributors mentioned by the participants include Shoprite, Game, Spar, Pick n Pay, and Food Lovers Market. The informal vendors include spaza shops, truck sellers, home gardeners, community soup kitchens, and street food vendors. The formal and informal food distributors in Cape Town are inextricably linked. The informal food vendors stock their produce from supermarkets and Cape Town Fresh Produce Market (CTFPM). According to the CTFPM representative, informal food vendors account for a substantial portion of CTFPM's customers.

### 2.2 Impact of COVID-19 on food flows in Cape Town

**2.2.1 Food blockades and food insecurity.** COVID-19 disrupted food systems on both the supply and demand sides in multiple ways. The strict lockdown regulations and social distancing measures adopted to curb the spread of the virus curtailed economic activity across all parts of the food value chain. The disruptions in the food system extended from the cultivation of food crops to retail. Due to the lockdown, farmers could not buy seedlings and other farming essentials. On the supply side, farmers lost income because transportation of goods to cities or even local markets ceased, leaving food crops to rot on farms. Buyers could not trade directly with farmers since there was a general restriction on movement. As a result, many were left unemployed, with little to no income for food. Informal food vendors were forced to shut down. One respondent commented that their sales had decreased by about 60% due to the closure of restaurants and hotels:

*"Well, 60% of our business was with restaurants and hotels. So that just disappeared"* (R4)

The food security of various school systems was not spared, as evident by the destruction of school gardens and the suspension of the National School Nutrition Programme. Due to the lockdown, school gardens were not attended to, and children who received at least one meal per day were deprived of this benefit. A school principal noted that children who depended on the food from the school feeding programme probably went hungry since their parents could not care properly for them at home. The impact of the closure of schools on food security was described as follows by a respondent:

*"Before the COVID-19 lockdown, the number of children receiving a meal on any given day was about 200 learners. During the peak of the COVID-19 lockdown (April 2020), the school was closed, no meals were served, and no child or staff was allowed on the premises to look after the plants. As a result, many of the plants and fish died. In terms of meals lost during this time, we estimate around 2 000 meals were forfeited."* (R15)

**2.2.2 The emergence of community change action networks and rekindled food flows.** The food blockade sparked a broad-based political and economic response to improve food security among the informal food system actors. First, some community groups started food

relief activities during the lockdown by distributing food parcels and instituting soup kitchens. The food parcels consisted of dry foods (such as maize flour), canned foods (tinned beans and fish, salt, and sugar), and fresh vegetables. Some organisations involved included the FoodForward South Africa, Siya Kolisi Foundation, PEDI, and Ladles of Love. Below are the comments from two respondents on how feeding schemes and kitchens were established to feed those in need:

*"I started the Community Action Network in Sir Lowry's Pass and Somerset West. We are feeding over 4 000 people a day in 40 different soup kitchens." (R6)*

*"Ladles of Love, which run soup kitchens and feeding schemes, was a low-key initiative, but it has blown up now. They have been given a massive industrial kitchen within the Cape Town Convention Centre to produce food during the lockdown." (R4)*

Although the food relief systems were in place, there was a struggle to distribute food parcels due to the increasing rates of disease transmission. Hence, most people observed the stay-home protocol and feared going out. The quote below from one participant illustrates how logistics was a constraint to building inclusive food flows:

*"The beneficiaries still call me to ask about when I will visit them? I can't because I don't have a bakkie to go and distribute the food items." (R4)*

Some participants, therefore, feared that these systems were unsustainable. They believed that people who had lost their means of survival due to the pandemic and were relying on food parcels would be subjected to future poverty and hunger once the pandemic was over. This fear led to the second innovation: new vendor start-ups and online trading. For example, Philippi Economic Development Initiative (PEDI) UCOOK launched new online services with home delivery as reported by their representative:

*"The online business is currently going to be an important market opportunity for farmers. UCOOK launched a new farmers' box as well, which is an online ordering service. So I think the online e-commerce system will have a much larger share than in-person store." (R11)*

The CTFPM representative also added that the number of informal traders buying food from the CTFPM increased post lockdown. According to these vendors, vending required less capital, and people who had lost their jobs could quickly start such a business.

### 2.3 Urban agriculture experiments through Cape Town Together Food Growers Initiative

The Cape Town Together Food Growers Initiative (CTTFGI) is an emergent, self-organising, diverse, and eco-friendly network of Capetonians who are working towards reshaping food flows for improved access and ecological regeneration. The CTTFGI was created during the peak of the pandemic. The network shows how the persistent and wicked challenges of the food system can be confronted using nature-based and community-led solutions. The group consists of existing farms in Cape Town and individuals. The members are from mixed-income backgrounds, and as of August 2020, there were approximately 1 500 members. The group is composed of nine subgroups, including administration, seed-banks, and seedling nursery. The contribution of the CTTFGI to food flows is summarised in [Table 1](#).

**Table 1. Contribution of the CTTFGI to food flows in Cape Town.**

Contribution	Activities
Food production	<ul style="list-style-type: none"> <li>• Sustainable food production lessons</li> <li>• Resource exchange (e.g. seed sharing)</li> <li>• Starting of new food gardens</li> </ul>
Food distribution	<ul style="list-style-type: none"> <li>• Food flows to community feeding schemes (e.g. soup kitchens and food parcels)</li> </ul>
Community change	<ul style="list-style-type: none"> <li>• Community solidarity through shared food experience</li> <li>• Raising of socio-ecological change agents</li> </ul>

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The CTTFGI provided lessons for its members on sustainable crop and livestock production. The classes included seed production, mix cropping, soil preparation and regeneration, and water saving. The participants were also given lessons on piggery and poultry production. They were taught feed preparation, coup construction, and biosecurity. These lessons were delivered virtually (through their Facebook and WhatsApp platforms) and in person (usually community members in a block). There was interest in wild foods. These products were posted on the group's Facebook page to introduce the wild food items to the members and how it can be used.

As a result of the lessons and seed-sharing activities, new farms were started during the pandemic at community and household level (Fig 1). Observations of the CTTFGI group by SA recorded 54 new gardens across 20 different communities created by participants between 15 May and 1 August 2020 (77 days). Some of the farms were created in Elsie's River, Dunoon, Gugulethu, Mitchells Plain, Nyanga, and Simon's Town. Community gardens that facilitated this expansion are listed in Table 2. The farming methods used were holistic and incorporate sustainable farming methods. The farms occupied less space and used less water and nutrients. Some of the gardens were created in underutilised urban areas such as vacant/non-developed plots, street curbs, educational facilities, and unofficial dumping sites. This was a conscious effort to reclaim urban spaces as shared by the CTTFGI administrator:

**Fig 1. Vegetable seeds packaged for exchange by a CTTFGI representative.**

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**Table 2. Community gardens associated with the CTFGL.**

Name of garden	Community	Type of community
AfriOceans Food Garden	Simon's Town	White suburb
Bonteheuwel Community Care Centre Garden	Bonteheuwel	Coloured township
Cissie Gool Food Garden	Woodstock	
Die Plaas	Mannenberg	Coloured township
Eden Garden	Parow	
Facreton Primary School	Windermere	Coloured township
Feed the Future	Elsie's River	
Gugulethu Urban Farming Initiative	Gugulethu	Black township
Kipling Street Garden	Salt River	Coloured township
Laerskool Vegetables Garden Project	Wellington	
Mama Hazels Food Garden	Mfuleni	Black township
Ocean View Organics Farms	Ocean View	Coloured township
Retreat Community Garden	Retreat	Coloured township
Sinako High School Food Garden	Khayelitsha	Black township

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*"We turn unused spaces, especially verges into food gardens." (R1)*

Another participant reflected on unused and neglected land that could be used for urban agriculture:

*"As a community, we want to take pride in the space we live in. We hope to reach as many Nyanga parts and educate the community on keeping Nyanga clean." (R4)*

A food garden was established at Facreton Primary School by the study team. The school principal revealed that no form of growing was excluded as they used soil, hydroponics, and aquaponics. Some of the systems used included a GroPro and a vertical upcycled farming system made out of a recycled paint drum with pockets that could house 30 or more plants (Fig 2). The GroPro uses less water and provides onsite waste treatment for food scraps. Further, these units are inexpensive, low technology, nature based, and made out of recycled car tires.

Besides the holistic educational benefits, the Facreton Primary School garden also contributed towards feeding the school children. In May 2020, the school, whose feeding programme is part of the National School Nutrition Programme, was invited to help with community feeding initiatives in the Facreton area. The school provided community meals three days a week



**Fig 2. School garden at Facreton using a GroPro and an upcycled vertical farm.**

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and meals to students two days a week. The school was able to feed about 400–600 children and community members each week. The beneficiaries were provided with fresh fruit and vegetables, rice, porridge soya, and canned fish.

Through the activities of the CTTFGI, community solidarity was built. In each community, individuals of varying ages and socio-economic backgrounds were involved in the initiative. People were drawn together by the shared goal to respect and honour their cultural heritage, for example. This solidarity became an avenue for change. Farmers were able to advertise their services on the CTTFGI's social media platforms. In addition, the group also announced government grants for smallholder farmers. A sense of community was nurtured by sharing success stories among members. Most importantly, the solidarity also resulted in changing existing negative images associated with farming, as expressed by one participant:

*"I love that the word garden boy is being used as a point of liberation and is being celebrated and acknowledged."* (CTTFGI Facebook page June 2021).

The CTTFGI also contributed to raising sustainability change agents and social entrepreneurs. Through a reward system established by Zlto Digital Systems, individuals were invited to volunteer for community services such as establishing or maintaining food gardens. These volunteers used their talents, skills, and energy to solve local challenges. In addition to serving their communities, the volunteers developed teambuilding, networking, communication, tolerance, and interpersonal skills. These skills were vital in shaping youth volunteers who received awards (sponsored by an external funder) and became an inspiration for others. Therefore, the Zlto system includes youth volunteers in community development projects and compensates them for their time with food and airtime, data, and electricity vouchers. This motivates volunteers to become involved in community projects, such as food gardens, and teaches them new skills that they can use to generate an income for themselves.

### 3. Discussion

This study examined food flows in the City of Cape Town during the peak of the COVID-19 pandemic among informal food system actors. Monopolistic corporate retailers and agribusinesses manage the city's food flow. However, the findings of this study showed that informal suppliers contributed to food flows through informal networks. The study results revealed that food flows through the informal sector ceased during the peak of the lockdown period due to lockdown measures as vendors lost jobs and small-scale farmers could not transport their produce to markets. During this closure period, community action networks also transformed food flows by facilitating sustainable urban agriculture and food aid programmes. It was found that these community action networks and informal food system actors were better positioned to respond to contextual food demands in a more socially inclusive, culturally appropriate, and ecologically regenerative way.

Several studies have reported the effects of COVID-19 on food insecurity [21,22,29–31]. In most cases, food flows through own production or markets were cut off due to the pre-existing inefficiencies of the food system [29]. Most households that used to get by were pushed into precarious positions due to loss of income and food insecurity [23]. Furthermore, the situation was exaggerated because limited state fiscal or business aid was provided when traders were forced to shut down [32–34].

Globally, cities are caught between multiple socio-ecological trends such as rapid urbanisation, rising social inequalities, biodiversity loss, and food insecurity [35–37]. This study observed that informal food actors played an essential role in food flows during a food crisis.

This role was crucial at a time when people had lost jobs and the opportunity to access food. The informal food movement created solidarity among people of different racial and economic backgrounds. Informal food networks were supported by dedicated volunteers and funders seeking to support alternate food networks. These groups demonstrated the resilience of the informal sector and its ability to overcome barriers and connect people to food. Such success stories have previously been reported in Cape Town [38] and in London, New York City, Philadelphia, Seattle, and Toronto [39]. Therefore, the informal food system is a major part of urban systems and is well positioned to address social justice issues, environmental restoration, and economic inclusion [25,40]. These alternative economies seek to promote more significant social interaction within communities.

In a state of crisis and at regular times, the informal food sector has been an essential component of urban food security and livelihoods [41,42]. The sector is unregulated and suffers from poor food handling, limited nutrition knowledge, and high food safety challenges [43–46]. Furthermore, there are reports of the sector creating problems for public authorities, formal retailers and pedestrians [47]. Yet, the sector is a buffer and provides the opportunity for meeting sustainability challenges due to the multiple sustainability challenges that cities face, as shown by the current study findings. Therefore, city governments can reconsider their development plans by providing regulatory frameworks that enable the sector to thrive.

## 4. Conclusion

This paper contributes to understanding the contributions of informal food actors to food security during the COVID-19 lockdown period. The findings included the loss of jobs and food insecurity created by the pandemic and lockdown regulations. It was noted by this study that during this crisis, the informal food actors facilitated food distribution through food aid and the initiation of urban farms. They also contributed to community solidarity and regenerative environmental practices. The activities of the sector contributed to urban agriculture and increased access to food. As part of the City of Cape Town's resilience approaches, it is recommended that these networks are used and supported to provide services to communities.

## 5. Materials and methods

### 5.1 Study area

Cape Town's food system is characterised by export-oriented supply chains, supermarkets, and commercial farmers using high-external-input agriculture [48]. Almost all Capetonians rely on supermarkets for some of their food [49]. The frequency with which stores are used varies among households. About 80% of households from lower-income quintiles are highly dependent on the informal food sector for their food, such as small shops called 'spaza shops' and street sellers [50]. Such households only shop at supermarkets once a month for staples such as maize flour, while informal stores are used several times a week for fresh produce. Very few lower-income Capetonians participate in urban agriculture, which is attributed to a lack of necessary inputs such as land, water, seedlings, compost, and time [49]. However, the existing policy framework to address food security fails to acknowledge the role of the informal sector in ensuring food security for the urban poor [51]. The food system has resulted in food insecurities, dietary transitions, and associated increases in nutrition-related noncommunicable diseases [52].

The City of Cape Town Government is very particular about addressing food insecurity and improving the resilience of its society. In 2013, the city initiated a comprehensive food security study to identify innovative food system governance approaches [50]. The findings from this study informed food actions and programmes in the city's resilience policy of 2019.



The goal of this policy is to improve access to affordable and nutritious food for residents while protecting the environment. The present study focused on a coalition of informal food system actors involved in food system transformation in the city [53]. This study examined their activities and contributions to the city's food flows during the COVID-19 lockdown period. The findings are relevant for tracking innovative food system approaches for the city and provide an exemplar in this area of growing importance for global cities.

Ethical clearance for this study was provided by the Stellenbosch University Department of Ethical Screening and Clearance, reference number 14990. The administrator of the CTTFGI also provided a letter of consent. Where particular individuals from the CTTFGI were engaged, separate written consent letters were requested for their participation in this study.

## 5.2 Study design

This study forms part of the inclusive metabolism project. The project is a transdisciplinary research endeavour into African food systems. The project draws upon chemical and economic analysis of food and storytelling through photography to reveal food flows [54]. This study utilised in-depth interviews and ethnography to understand food flows in Cape Town. The conceptual evolution of food security and the recent formalisation of 'agency' and 'sustainability' as essential dimensions of food security further motivated this study towards adopting a qualitative approach. The study used in-depth interviews, participant observation, and the construction of an experimental upcycled vertical garden (UVG). Making meaning from the interviews, participant observations, and UVG, field notes were taken and connected to narratives/themes produced from the in-depth interviews. The data were gathered between April and November 2020.

## 5.3 In-depth interviews with food system actors

Food system actors are individuals, including volunteers, who engage within a food system in such a way that their actions contribute towards improved socially inclusive and/or environmental restoratives. Fourteen participants were contacted and requested to participate in this study. The participants included academics, informal traders, farmers, retailers, food aggregators, and activists (Table 3). These actors were purposefully selected from an existing coalition of food system actors [53]. Each participant was asked to respond to three questions: (1) What is your engagement with the food system? (2) How have your engagements with the food system changed since the COVID-19 pandemic outbreak? and (3) What are your reflections on the challenges and possibilities for future food systems? More specific questions were asked after the open-ended questions to gain deeper insights into participants.

The in-depth interviews were conducted via Zoom by study author SA. At the time of the interview, SA had a Bachelor of Arts degree in Entrepreneurship and Innovation and was studying full time for his Master's degree in Sustainable Development, Management and Planning. He was trained by study author SBK, a population scientist, in qualitative interviewing before the data collection. SA had also passed a research method class taught at the Sustainability Institute, Stellenbosch University, Stellenbosch, South Africa. Each interview was audio recorded and lasted for about one hour. Only the participant and researcher were present during the interview. No repeated interviews were conducted.

## 5.4 Participant observation: Cape Town Together Food Growers Initiative

Participant observation is one way of understanding a community's structure, culture, and social processes [55]. A unique characteristic of the COVID-19 pandemic in Cape Town was the emergence of community action networks (CANs). These self-organising community

**Table 3. Research participants and their occupations.**

Respondent number	Sex	Food system-related occupation
R1	F	Cape Town Fresh Produce Market (CTFPM) administrator
R2	F	Urban farmer
R2	F	Urban farmer
R3	M	Urban farmer
R4	F	Urban farmer
R5	M	Urban farmer
R6	F	Urban farmer
R7	F	Commercial farmer
R8	M	Researcher
R9	M	Researcher
R10	M	Researcher
R11	F	Formal retailer
R12	M	Informal food trader's representative
R13	M	Small-scale farmers agri-hub operations manager
R14	M	Commercial agri-hub operations manager
R15	M	School principal

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groups connect wealthier areas with less well-resourced communities to tackle challenges surrounding food insecurity. The CTTFGI is an example of one CAN that is particularly interesting and relevant to this study. The CTTFGI started with one WhatsApp group, which SA joined on 15 May 2020. SA's participation in the CTTFGI was not merely observational but was also immersive and highly engaging. Apart from simply gaining an understanding of how the group operated and subsequently reporting on this, he deeply embedded himself in the group's daily activities. He volunteered for various CTTFGI task teams, recording meeting minutes, contributing to the seed bank, helping to build community school gardens (CTTFGI Seed Bank), and growing the groups' social network (CTTFGI Media Task Team). These engagements enabled him to shift from frontstage to backstage, allowing access to information that was otherwise only available to insiders. He kept notes of the meetings of the group, groups origins, objectives, evolution, struggles, and successes.

## 5.5 Data analysis

The audio files of the interviews were transcribed verbatim. The transcripts were not returned to the participants for their comments. The transcripts were analysed using thematic analysis. Thematic analysis is advantageous in qualitative studies as it provides a theoretically flexible and accessible approach to data analysis [56]. The coding was guided by a set of inductive and deductive codes. The deductive codes included food production and consumption activities. The inductive codes were developed from paragraphs and sentences without any theory, constructs, or concepts guiding the process. For example, "*We are now shifting to other projects besides the feeding schemes and gardening is one of them*" was coded as food system transformation.

Study author SBK checked the initial codes and themes developed by SA. Disagreements regarding codes and themes were discussed and addressed before finalisation. Fig 3 provides the coding tree which depicts the relationship between statements of the participants, codes and themes. The field notes from the participant observations and the garden experiment were also analysed using the codes and themes developed from the in-depth interviews. The data was analysed using Atlas TI 8.0. The complete dataset of transcripts and field notes has been deposited in SunScholarData.

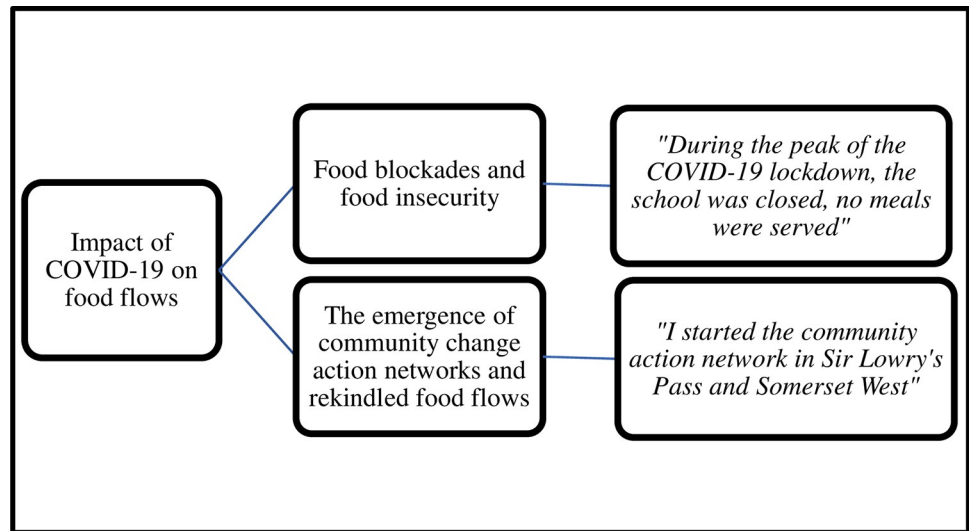


Fig 3. Coding tree of the impact of COVID-19 on food flows.

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## Author Contributions

**Conceptualization:** Sandra Boatemaa Kushitor, Paul Currie.

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**Funding acquisition:** Sandra Boatemaa Kushitor, Shawn Alimohammadi, Paul Currie.

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**Validation:** Sandra Boatemaa Kushitor.

**Writing – original draft:** Sandra Boatemaa Kushitor, Shawn Alimohammadi, Paul Currie.

**Writing – review & editing:** Sandra Boatemaa Kushitor, Shawn Alimohammadi, Paul Currie.

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