ENHANCING THE RESILIENCE OF LONDON'S FOOD SYSTEMS

Food Systems Transformation Group | February 2022

ACKNOWLEDGEMENTS

The research team at the Food Systems Transformation Group, Environmental Change Institute, University of Oxford designed and delivered this research project for the GLA. The team consisted of Dr John Ingram, Leader Food Systems Transformation Group; Dr Monika Zurek, Senior Researcher; Dr Saher Hasnain, Researcher; with project support from Roger Sykes, Food Systems Programme Manager.

The team would like to acknowledge the valued contributions to this report made by Liam Weeks, Senior Policy Officer, GLA; Helen Moore, Senior Research Officer, GLA; Simon Shaw, Head of Food Poverty Programme, Sustain; and Sarah Williams, Programmes Director, Sustain.

We would also like to thank all the stakeholders who contributed their time, ideas and insights to the project.

This report should be referenced as:

Food Systems Transformation Group. 2022. Enhancing the resilience of London's food system. Environmental Change Institute, University of Oxford.
ISBN: 978-1-874370-86-4

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EXECUTIVE SUMMARY

This report provides learnings from a series of workshops and interviews with the 'Greater London Authority's (GLA) Food Resilience Champions Group', established by the GLA's food team across GLA departments, and the 'London Food Resilience Advisory Panel', constituted of a set of external food system stakeholders, to discuss how to make London's food system more resilient. Under the guidance of the Food System Transformation Group of the Environmental Change Institute (ECI), University of Oxford, the participants developed a basic understanding of the current London food system and decided to focus on groups at greater risk of disruption within the food system and in particular their access to fresh produce, including fruit and vegetables, as the foundation of healthy and culturally appropriate diets.

The Food System Transformation Group used the following four key resilience questions in the context of the Greater London area to frame discussions and address three resilience strategies and what these would mean for London, providing a clear context for the discussions and recommendations:

Resilience of what? i.e., where we need to increase resilience in the food system. This can be explored in the context of food system activities, the outcomes of these activities, or both.

Resilience from whose perspective? i.e., who benefits from increased resilience. This is critical for exploring what in a system needs to be preserved and what can be improved for different stakeholders.

Resilience to what? i.e., what we need to build resilience against. For this question, the nature of shocks and stresses affecting the food system, and how they may interact must be examined.

Resilience over what time frame? i.e., the time period over which we need to build resilience, in order to distinguish between short term interruptions and long-term stresses.

Having set these parameters, the discussions then led to the co-creation of the following resilience strategies using the 3 R's framework on resilience building:

Robustness: Resisting disruptions by planning for actor and context-specific interventions such as installing storage units or redeploying workforces or adapting food strategies to be sensitive and responsive to transformation.

Recovery: Returning to existing priorities and outcomes by improving links, communications and flow of money and other necessary resources within food systems and enabling faster mobilisation across supply chains.

Re-orientation: Achieving alternative food system outcomes before or after disruptions by developing physical and human infrastructure for varied supply, reaching diverse communities and adjusting system incentives and policies for various stakeholders to deliver alternative outcomes.

This project has demonstrated that a range of potential intervention pathways exist for enhancing the resilience of London's food system, with particular focus on specific groups and communities at greater risk from any disruptions. The project workshops have also demonstrated that the framework can be used to help stakeholders develop shared priority responses to food resilience. For example, expanding the eligibility criteria for free school meals and investing in community food growing projects.

Enhancing levels of food security, diet-related health outcomes, environmental sustainability, and the socio-economic well-being of the actors within London's food system requires a coordinated response by the GLA that builds upon previous structures and relationships with stakeholders in the capital (such as regional and local food networks, local authorities, civil society organisations, frontline practitioners, volunteers and campaigners). The coordinated strategy and response would also benefit from clarification of the type of resilience strategy (i.e., robustness, recovery, or re-orientation) being prioritised for the system as the overarching objective and the balance of food system outcomes to strive for.

Many specific recommendations related to individual resilience strategies were suggested by interviewed stakeholders and workshop participants, all in the context of three overarching recommendations:

- Strategies to enhance food system resilience need to be developed in a participatory process designed and underpinned by food systems thinking. This requires leadership working with relevant stakeholders to develop a joint way forward.
- The GLA needs to take a leadership and coordination role to bring together stakeholders, using a clear process to derive strategic, implementable recommendations.
- The GLA's food system strategies need to recognise the overlap with other aspects of policy development including sectors related to the environment, health, and wellbeing.

SECTION 1: INTRODUCTION AND RESILIENCE CONCEPTS

Background and context

London's food system is complex, diverse, dynamic, and potentially fragile. It draws on fresh and processed foods from across the globe and every day, over 30 million meals are eaten in London. 'London's food footprint', a material flow analysis conducted in 2021, established that 6,347,000 tonnes of food are produced to supply London's food system each year whilst 99% of London's food is brought in from outside the city. This means the capital relies upon complex 'just-in-time' supply chains and at any one time, there is only 72 hours' worth of food in the city. Further information on London's food system can be found in the recent report by ReLondon (2021).

To many, the obvious principal purpose of a well-functioning food system is to provide diverse and sufficient food for the for the >9 million population within London, which is forecast to reach between 9.9 million and 10.3 million by 2041 (GLA, 2020). It also provides livelihoods for many millions more working across food supply chains. It is influenced by multiple cultures, known for its diversity and differing degrees of access to food (largely driven by income and affordability[1]) and needs to adhere to a wide range of safety standards. It is thus highly complex. Establishing answers to the linked questions 'what is London's food system?', 'what is its purpose?' and 'how can it be made more resilient?' is hence challenged by the diversity of viewpoints and the spatial and temporal dimensions that need to be considered.

From a population health perspective and based on proportional national averages, approximately 1.5 million adult Londoners experience low or very low food security (ReLondon, 2021), and 3.8 million are overweight or obese (Healthy London Partnership, 2021), the latter of which is itself a symptom of malnutrition and linked to adverse health outcomes.

1 The term 'affordability' here does not simply imply that food should be cheaper, which might also make the food system less resilient, but also considers that people should have enough money to afford decent and healthy food.

The GLA Survey of Londoners indicated 1.5 million adults and 400,000 children experienced food insecurity before Covid-19 (GLA, 2019) whilst the Food Foundation's analysis revealed the poorest fifth of UK households would need to spend 40% of their disposable income on food to meet the Eatwell Guide costs for a healthy diet compared to just 7% for the richest fifth of UK households (Food Foundation, 2021b). These findings show a food system under stress before the pandemic.

In 2018, the UK Government commented that "the UK food sector has a highly effective and resilient food supply chain, owing to the size, geographic diversity and competitive nature of the industry" (Cabinet Office, 2010).

However, the UK Government typically measures food security only in terms of security of supply and how much food is available to the people and businesses who have adequate resources to buy it. It does not routinely assess how many people are unable to access the food that is available, and what barriers people face in trying to do so, such as income, transport, or physical ability. National household food insecurity data published by the Department for Work and Pensions showed that 8% of the British population (5.4 million people) did not have enough food in the financial year 2019 to 2020 – half of these having "very low food security" (2.7 million people) (DWP, 2020). These figures represent the situation before Covid-19. The pandemic has accentuated what was already a difficult situation for many households in London as in the UK more generally by exacerbating levels of poverty, food insecurity and diet-related health inequalities, disrupting many of the services that might have helped people in need, whilst placing unsustainable demands on the emergency food aid sector.[2] Research conducted during the pandemic also confirmed these impacts disproportionately affected specific groups including no- and low- income households, people with health problems, disabled and older people, extremely clinically vulnerable people, Black, Asian and minority ethnic Londoners, households with children and workers in the food sector (Defra, 2021).

Covid-19 highlighted pre-existing structural inequalities and exacerbated a lack of resilience and household food security in many urban food systems, including London. The Mayor of London, GLA and members of the Mayor's London Food Board have been working to address the challenges and realise the opportunities presented by London's food system for over a decade and in 2018, the Mayor published a new London Food Strategy to address key food system issues (GLA, 2018). The strategy adopted a whole system, 'food in all policies' approach and contains a series of flagship commitments that have been implemented in collaboration with other teams across the GLA and external partners.

The GLA has played an important role bringing people together to address food system issues. The GLA was one of the first places in the UK to achieve a Sustainable Food Places Silver Award (Sustainable Food Places). Initiatives to move towards a more equitable and sustainable food system in London include Procurement Across London, the Healthy Schools London programme, the Healthy Catering Commitment and Beyond the Food Bank, measuring London councils on actions to address household food security – all supported and promoted by the Mayor of London.

2 90% of foodbanks in the IFAN network experienced increased need in December 2021, as reported by the Food Foundation (2022).

For the past decade, the GLA has also convened organisations and boroughs to exchange good practice in many such initiatives, foster collaboration and celebrate success. For example, the GLA food team has convened the London Boroughs Food Group on a regular basis, which has been very well-attended and valued over many years. Notably, during the national lockdowns of 2020 and 2021, this group is reported by those involved as having been instrumental in bringing together London's local authorities and organisations responding to the impact of the pandemic on the food system on a regular basis to share the response happening across London. This helped avoid duplication whilst sharing and fast-tracking cost-effective solutions, resources, and good practice.

The GLA has piloted multiple initiatives and flagship policies that have been replicated on a local, regional, and national level. For example, the Mayor of London proposed restrictions to the advertising of foods and soft drinks that are high in fat, sugar and salt (HFSS) in the London Food Strategy, which was published in December 2018. Subsequently, in 2019, Transport for London (TfL) introduced the Healthier Food Advertising Policy across its advertising estate. The policy has been since replicated across several London boroughs and by Bristol City Council and is gaining interest across many other local authorities across the UK and internationally. The Government also recently announced its own proposals to restrict advertising of HFSS food and drink on TV and online before the 9pm watershed, which will come into force later this year. These proposals use the same Public Health England nutrient profile model used by TfL. This example illustrates how the GLA has helped pilot and drive food policies for health, resilience, and equality as well as to draw down benefits for Londoners.

Meanwhile, Sustain's Good Food for London report has tracked councils' action on food across the capital since 2011 (Sustain, 2011–2019) and Sustain's sister report Beyond the Food Bank has measured councils' action on food insecurity in London since 2015 (Sustain, 2015–2019). A combined report **Response, resilience and recovery** assessed council action on food before and during the pandemic (Sustain, 2020b) and the forthcoming **Good food for all Londoners** combined report will present data on current council action on food (Sustain, 2021a). These have all been supported by the GLA, Mayor of London and London Food Board as key mechanisms for measuring progress on action in support of food resilience indicators, and incentivising progress year on year through an awards process, scores and a league table. Over the years, the awards ceremony held at City Hall is reported as having become a much-appreciated celebration of London boroughs taking up the reins of practical action to improve food for health, sustainability, equalities, and resilience.

Despite the achievements and progress made in London, the pandemic compounded the challenges many Londoners already faced in accessing healthy, sustainable, and culturally appropriate diets; placed unsustainable demands on the voluntary and community sector (VCS); exposed an over-reliance on complex, 'just-in-time' supply chains; and increased inequalities in food security and nutrition (Food Foundation, 2021a). It also provided new insights into the food system's flaws and strengthened the case for further research on how to make the food system work better, particularly for Londoners experiencing household food insecurity.

Prior to this, in early 2019 Brexit scenario planning, the London Resilience Partnership's Food sub-group worked with partners using the 'Any town' model to investigate the impact and consequences over time of disruptions to London's fresh food supply from Europe. This provided context for the London Resilience Partnership, regardless of Brexit, to review and understand potential impacts of food disruption on different components of the food supply chain. It convened a series of workshops to map food supply chains, their interdependencies and their vulnerabilities from port or producer to plate. Partners also analysed the impact and consequences of food disruption throughout the distribution system and the effects on retailers, markets, and households.

This work demonstrated the complexity of London's food network, in the context of an equally complicated national food supply system that has developed to its status over many decades through international (predominantly European) free trade and market forces – to rely on rapid cross-border delivery to manage supply and demand through just in time delivery. The UK's reliance on 'Just in Time' delivery and long, opaque supply chains have also been identified as challenges to food resilience, health outcomes and to tackling climate change (POST, 2020). At the same time, London was selected to join the 100 Resilient Cities network and the Deputy Mayor for Fire and Resilience commissioned consultants Arup to produce a literature review of London's food system.

The London Resilience Partnership's work and London Resilience Strategy (published in February 2020, with a chapter dedicated to food insecurity) both recommended further work to increase understanding of London's food resilience and identify interventions to increase resilience to disruption to food supplies.

Aims and objectives

Acting upon the London Resilience Strategy's recommendation, the GLA food team commissioned further research into the resilience of London's food system and supply chains. Officers consulted colleagues and members of the Mayor of London's Food Board, who represent sectors spanning the breadth of the food system, to design the research specification. Their feedback identified the following research objectives:

- To further collective understanding of how and where London's food system is vulnerable to shocks and stresses by identifying interdependencies, values (economic, physical, social and environmental) and vulnerabilities across London's food supply network;
- To establish the current and future key risks to London's food supplies (particularly to vulnerable groups), methods of reporting against these risks and current actions that are being taken to mitigate these risks;
- To identify which groups are disproportionately vulnerable to disruptions to food supplies and the barriers they face, including groups that did not ask for, were not offered or could not access support during Covid-19;

- To identify a practical number of clear, implementable interventions to increase food resilience in London, which align with the London Recovery Programme and can be implemented at the local or metropolitan level by the GLA, London Food Board, local authorities, the community and voluntary sector, and/or other partners; also with consideration for the national context and what might need to be in place to enable London to take effective action, with the Mayor of London as an influential voice in national fiscal, welfare and supply chain policy.

It was determined that achieving these objectives would enable a risk and evidence-based approach to decision making, with interventions prioritised to address the greatest challenges to London's food resilience, as well as appropriate attention to calling on money, resources, policy, and guidance from national government to facilitate effective action at scale. At the same time, the London Recovery Board agreed upon using a missions-based approach through the London Recovery Programme to:

- Reverse the pattern of rising unemployment and lost economic growth caused by the economic scarring of Covid-19;
- Support communities, including those mos t impacted by the virus;
- Help young people to flourish with access to support and opportunities;
- Narrow social, economic and health inequalities;
- Accelerate delivery of a cleaner, greener London.

In April 2021, the GLA commissioned the University of Oxford's Environmental Change Institute (ECI), which has overseen the five-year Resilience of the UK Food System in a Global Context Programme, to lead the research. The GLA also awarded funding to food and farming charity Sustain to produce the Response, Resilience and Recovery report assessing action by London's councils during Covid-19 to address household food security; as well as to provide support, additional expertise, and access to relevant networks in London through the Food Roots Incubator programme (2021), working with Food Matters and supporting several London-based food poverty alliances involving local authorities and VCS groups. Jointly with the GLA and Sustain, ECI undertook to lead research on discussing and clarifying four key questions and three resilience approaches, together with the GLA officers working across the London Recovery Programme and relevant food system actors (e.g., members of the London Food Board, local government officers and VCS representatives). ECI Food Systems Transformation Group also informed a discussion guide for a series of stakeholder interviews undertaken by the GLA's opinion research team to solicit views on the resilience of the London food system.

In addition, the GLA food team undertook to develop an iterative mapping tool that documents initiatives and activities being delivered by the GLA and external partners that directly or indirectly contribute to the research objectives.

Once finalised, this tool will be used by the GLA to inform, identify, and assess possible interventions and policies under the London Recovery Programme to enhance the resilience of London's food system, based on the answers to the Resilience questions and the identified aim of Resilience Building.

Alongside the key research objectives, the GLA, ECI and Sustain identified opportunities to re-examine what the food system provided to Londoners before the pandemic, re-assess whether London's food system can achieve improved food system outcomes and examine the key shocks and stresses to the food system. The project did not intend to deliver a detailed analysis of London's food system and supply chains as these are complex, dynamic, and influenced by a multitude of external factors that can soon render such analysis obsolete.

Resilience concepts: four framing questions

Food system resilience can be defined as the system's capacity to maintain a desired state of food security when exposed to stresses and shocks (Zurek et al, 2021). Thinking about resilience in the context of a food system needs to be framed within a set of questions:

1. Where do we need to increase resilience? (Resilience of what?)

We can consider the food system activities (the functioning), the outcomes of these activities (the function), or both. While given individuals may have a particular interest in specific activities (e.g., farmers in farming, caterers in catering), from a societal-level viewpoint, the interest lies in the overall food system outcomes rather than in the individual activities per se.

2. What do we need to build resilience against? (Resilience to what?)

We need to understand the nature of the individual shocks and stresses that affect the food system and how they may interact to amplify the overall impact. Resilience depends largely on the severity and frequency of the shock or stress the system is exposed to in the first place.

3. Who will benefit from increased resilience? (Resilience for whom?)

We need to know which features of the system need to be preserved, which can change, and what constitutes desirable change (improvement) for whom, or from whose perspective? This question is important for understanding power, justice and equity, as well as trade-offs, relative to different system actors in resilience.

4. Over what time period do we need to build resilience? (Resilience for how long?)

It is important to distinguish short-term interruptions due to shocks (e.g., disruption of 'just-in-time' fresh grocery deliveries due to bad weather or an IT malfunction) from disruptions due to stresses that affect the longer term (e.g., drought, shifting cropping regions, loss of soil and biodiversity). In the context of dynamically shifting risk environments, strategies to enhance resilience over a shorter timescale may deplete resilience over the longer term, necessitating specification of the time frame over which resilience is being considered.

Approaches to resilience building

Our food systems are highly vulnerable to disruption from environmental, socio-economic, and geopolitical shocks and stresses. The challenge is in achieving desirable food system outcomes in relation to food security, environmental sustainability, and socio-economic well-being and equity while being resilient to these disrupting forces.

One framework for thinking about food system resilience, is through the following three concepts (the '3 Rs') (Zurek et al, 2021):

ROBUSTNESS

Based on the ability of the food system actors to adapt their activities to resist disruptions to desired outcomes (i.e. maintenance of the status quo).

RECOVERY

Is based on the ability of food system actors to adapt their activities to return to desired outcomes following disruption (i.e. bounce back to the status quo).

REORIENTATION

This involves accepting alternative food system outcomes before or after disruption (i.e., bounce forward). This is based on the premise that changing societal expectations/demands of system outcomes can enhance food system resilience by making it inherently less vulnerable to shocks and stresses.

This '3 Rs' framing was applied to the workshops to help participants think about different approaches to resilience building.

SECTION 2: METHODS

Research participants and stakeholder mechanisms

To maximise opportunities to embed food resilience across the London Recovery Programme, the GLA food team established a GLA Food Resilience Champions Group to engage colleagues working in different policy areas.

At the same time, Sustain and the GLA invited a range of external stakeholders representing different parts of London's food system to join a 'London Food Resilience Advisory Panel'.

Both groups received invitations to an initial briefing session in May 2021, during which the research team presented the project's aims and objectives and used a series of breakout sessions to explore the concept of food resilience in more detail. The GLA food team consolidated feedback from these discussions in a document and shared it with attendees (summary included in Annex 2).

The groups were sent Terms of Reference and invited to four research workshops to:

- Inform and advise on the research project's approach;
- Advise on who else to involve, consult and invite to the stakeholder interviews undertaken by the GLA's opinion research team;
- Review and comment on written outputs, including recommendations.

Approach, workshops and outputs

In collaboration with the GLA food team and Sustain, the ECI planned a series of workshops to explore food system resilience in the Greater London Area. The engagements began with the initial briefing session (summary included in Annex 2) to familiarise the participants with the concept of food resilience. The feedback and output from this session contributed to the framing and content of the workshops.

In July 2021, the GLA's opinion research team also conducted nine 45-minute phone interviews with 11 stakeholders to supplement findings and insights from the four workshops. The interviews sought to understand how different organisations in London define food resilience; discuss the activities currently enhancing food resilience in London (and understand where 'gaps' exist); and to explore the extent to which London's food system is perceived as resilient by those working in different sectors.

Workshop 1: Food system concepts

27 May 2021: Microsoft Teams

The first workshop introduced and explored key food system concepts (i.e. food system actors, activities, outcomes, and feedbacks). The session involved facilitated, interactive discussions using the Google Jamboards tool to identify issues in London's food system, across a range of activities and aimed to create shared understanding across the group.

Workshop 2: Setting the boundaries

15 June 2021: Microsoft Teams

The second workshop explored the four resilience questions in discussion with the participants (resilience of what, to what, from whose perspective, and over what time period). After exploring the issues of concern, a set of 'priority' areas were selected in plenary discussion for a more comprehensive analysis of key drivers, perspectives, and potential strategies.

Workshop 3: Food system actors and risks to the fresh food supply chain

20 July 2021: Microsoft Teams

The third workshop focused on the risks to the fresh food supply chain for London, given the vulnerability of the fresh food supply chain and the interest from the participants. A presentation from Professor Michael Bourlakis (Cranfield University) set the stage for vulnerabilities in food distribution systems. Interactive discussions then explored key actors and risks within the fresh cold chain food supply network and ambient food supply networks.

Workshop 4: Shocks and stresses for the London food system

21 September 2021: Microsoft Teams

The final workshop focused on the key shocks and stresses identified for the London food system and appropriate interventions and policy responses that can be used to enhance expected outcomes. The workshop was supported by insights from the qualitative interviews conducted by the GLA's opinion research team, which are set out in detail later in this report.

The participants were asked to consider and prioritise the stresses and shocks, accounting for the levers available to the Mayor, GLA and partners to tackle them, and policies and interventions that could support outcomes representing 'robustness', 'recovery' and 'reorientation' in the food system.

The insights from all four workshops and the qualitative interviews conducted in July informed key project outputs:

1. This report summarising answers to the 4 Key Questions (section 2), aims for resilience building (section 3) and possible interventions and policies to achieve this (section 4).
2. A **GLA food system activities map**, which can be used as an iterative mapping tool that documents initiatives and activities being delivered by the GLA and external partners under the London Recovery Programme that directly or indirectly contribute to the research objectives.

SECTION 3: RESULTS OF 4 QUESTIONS FRAMING THE RESILIENCE OF LONDON'S FOOD SYSTEM

The four framing questions for resilience were investigated over the course of the workshops. The section below reports on the discussions and feedback by the workshop participants, captured on the Jamboards[3].

Resilience of what?

The workshops considered which aspects of the food system must become more resilient, in terms of activities (i.e. food production, distribution and storage, etc.), and outcomes (i.e., food security, improved health, wellbeing, and environmental sustainability, which result from food system activities).

Food system activities: The discussions during the workshop explored food system activities around providing food for groups at greater risk of food insecurity in London,[4] community assets (e.g., growing spaces) and networks, and the notions of food quality. The importance of the core infrastructure, governance, and regulatory systems supporting the food sector were highlighted. Resilience of food suppliers to economic shocks, public markets, social enterprises, and SMEs were noted as critical. These factors were evaluated in the context of sustainable food production, high quality food provision, and sector employment supporting higher and stable incomes. Mechanisms such as referral pathways (e.g. to financial support) and transformation strategies geared to specific local needs were examined to strengthen resilience of urban communities to shocks and stresses.

3 The Jamboards have been recreated faithfully to the best of the author's ability below with minor edits for clarification.

4 Food system activities and supporting structures and institutions are place and context-specific, which has an impact on their resilience.

Food system outcomes: Prioritisation of healthy and affordable food produced through sustainable and local systems for Londoners in all neighbourhoods is a key objective. Achieving these goals will necessitate the resilience of multiple local food systems and ensuring ready supplies of fresh food. The risks of affordability potentially leading to reliance on ultra-processed food was discussed, as well as the relationship to household income.

Resilience from whose perspective?

Resilience was discussed by the workshop participants from the perspective of actors and organisations involved in food systems (e.g., hospitality and retail) and Londoners most at risk from shocks and stresses, such as households with infants and children, disabled Londoners, those in low income groups, and those excluded from the welfare system such as people with no recourse to public funds.

Food supply chain actors such as farmers and other food producers, HGV drivers, local authorities, market traders, warehousing and distribution organisations, waste management, and SMEs are essential from their roles in producing and supplying food.

Social enterprises, community organisations, health and social care institutions, hospitality and food services, environmental organisations, food partnerships, and resilience forums provide essential scaffolding and governance functions for society and the environment.

Actors working within institutions with large procurement procedures and settings providing food (e.g. hospitals, schools, and prisons) also perform vital roles within the food system and cater to the needs of a large proportion of the population. Participants also noted the value of acknowledging the perspective of other countries implicated in supply systems, future generations, and the natural world (e.g. natural ecosystems and soil biosphere) in conversations of food system resilience.

Those involved in the research were interested particularly in those people at high risk to shocks and stresses because of low coping mechanisms that need particular attention. These include but are not limited to:

- Asylum seekers, older people, low-income groups, those reliant on the welfare system, those experiencing difficulties but excluded from welfare systems (such as those with the immigration condition of no recourse to public funds), those experiencing high food insecurity and socio-economic and health inequalities, and Young People not in Employment, Education, or Training (NEET).
- Households with infants and children, low- and no-income households, single parents or those with caring responsibilities, those reliant on culturally specific foods, and those with limited food storage space.
- Actors such as food businesses, policymakers, those advocating for lower income groups, school and early years settings, large caterers and wholesalers, all who can be impacted by shocks to their supply networks and breakdowns in supporting infrastructures.

Resilience of the fresh ambient supply chain

Given the focus of the workshops, a key area of interest is the resilience of London's fresh ambient supply chain. This was explored in terms of the actors within the supply chain and their risks. Fresh ambient supply chain actors, institutions, and programmes include but are not limited to (as identified during the workshop):

- Producers: Large scale UK farmers and growers as well as allotment owners/producers, small urban and peri-urban farmers, and those involved in local community growing schemes and gardens.
- Wholesalers and retailers: Market traders and wholesale markets (e.g. New Covent Garden Market), those employed in veg box schemes, convenience stores, local markets, street stalls and major supermarkets.
- Community food projects, free school meals and Healthy Start vouchers.
- Surplus food, food waste handlers and compost sites.

Food system risks to ambient food supply chain covered in the workshops included:

- Shocks, such as global logistics disruptions to culturally appropriate foods, energy price fluctuations, sudden losses in incomes, HGV driver shortages, pandemics, and lockdowns.
- Stresses, such as interruptions in or price changes in fossil fuels affecting supply chain dependence, shortages in production inputs for farmers, demographic change, changes in farming practices, new trade deals, and labour shortages.
- The necessity of addressing the negative externalities associated with processed, and highly processed foods, the UK's dependence on food imports, and the need for investing in awareness raising strategies for healthy consumption in consumers were also discussed as long-term strategies for addressing system change.

Resilience to what?

Resilience to different types of shocks and stresses were discussed by workshop participants in the context of various activities within the food system. These were explored in the context of their severity and duration, and the community groups most affected by their impacts.

Shocks refer to short-term interruptions such as extreme weather events and pandemics and stresses refer to pressures undermining resilience over a longer time such as climate change.

These shocks and stresses were categorised by priority in the workshops within the context of levers available to the London Mayor, the GLA, and partners to affect or influence change.

- Resilience to shocks and stresses within the natural systems such as climate change, sudden changes in weather, and extreme weather events. Shortages in minerals and other natural resources, particularly those used in fertilisers and agro-chemicals.
- Threats of disease and antimicrobial resistance arising from industrialised production systems, particularly in intensively reared pigs, chickens, and salmon.
- Infrastructure disruptions (e.g., loss of electricity, flooding, transport shutdowns), shipping disruptions, changes in transportation patterns and vehicle use (e.g., extension of Ultra Low Emission Zone), terror attacks, future pandemics, and increases in fuel costs.
- Labour shortages, unavailability of seasonal workforce, reduction in eligible HGV drivers, industrial action by workers including gig economy delivery workers.
- Domination by supermarkets, influence of the food industry over food standards, potentially weaker food standards.
- Impact of trade deals, trade wars, wars, Brexit, grace period ending for full customs checks in October, food shortages of culturally appropriate fresh foods from other countries and within the country.
- Changing and/or increasing consumer preferences and demands, social media scares, misinformation, pressure from marketing of processed and unhealthy foods.
- Demographic changes, changes to local social and food infrastructure, recessions, funding changes to local networks, food prices increasing at a faster rate than inflation, and shifts in policy priority.

Resilience of the fresh cold supply chain

Given the focus of the workshops, a key area of interest is the resilience of London's fresh cold supply chain. This was explored in terms of the actors within the supply chain and their risks. Cold supply chain actors include but are not limited to (as identified during the workshop):

- Producers: Horticultural producers in and out of London.
- Distributors and Storage: Road Haulage Authority, Federation of Wholesale Distributors
- Processors and Packagers: Arla, meat packing and processing industry, sandwich, and precooked processors.
- Wholesalers and Retailers: Veg box schemes with chilled offerings, Bidfood, public procurement actors, markets, Smithfield, New Spitalfields, and Billingsgate markets, retailers specialising in chilled and frozen foods.
- Caterers: Restaurants, delis, and cafes, schools, hospitals, and prison caterers, Hello Fresh.
- Surplus food handlers and re-distributors: FareShare, the Felix Project, City Harvest, Too Good To Go, Olio, pantries, community fridges and other community food projects.

Food system risks to fresh cold food supply chain:

- Shocks, such as diseases (crops and livestock), extreme weather events, cyber-attacks on logistic networks, power cuts, worker strikes, telecom disruption affecting point-of-sale technology, product recalls, and insufficient supply to meet sudden changes in demand.
- Stresses such as trade deals undermining food standards and safety, carbon tax on chilling, energy price fluctuations, declining fish stocks, climate change, lack of delivery vans with chiller capabilities, insufficient chilled storage, lack of resources for buying chilling equipment, water shortages, labour shortages, and fluctuations in petrol and energy prices.

Low priority: declining international trading standards, tariffs, lack of support of human rights of most vulnerable (infants, children, refugees, etc.), lack of volunteers to support community projects, sustainable and healthy food not viewed as a priority, lack of knowledge of available food for local communities, lack of knowledge for preparing fresh foods and lack of storage and chilling appliances, and taxes on supermarkets.

Medium priority: extreme weather events, limited approaches to building food system resilience, increasing fuel and energy costs, border regulations on imports, drought in countries where food is imported from, increased financial pressure, end of furlough schemes, high cost of healthier foods, change in global commodity prices, changes to welfare benefit systems, changing economies and dietary habits, planning policies restrictive to local growing, cyber-attacks, lack of funding for local food networks, changes in consumer preferences, constant commercial pressures undermining healthy and sustainable decision-making.

High priority: Covid-19 pandemic, climate change impacts on crops and food production, poverty and impacts of the pandemic and lack of adequate safety net, lack of transport drivers, high property prices, labour shortages, land access for developing London's fresh food system, aggressive marketing reinforcing bottle feeding culture, failure of 'just in time' food system, disruptions to transport system.

Resilience over what time frame

Although the time frame of the various resilience concerns and interventions was not explicitly explored during the workshops, it can be noted that the risks, shocks, and areas of concern were discussed in the short term (e.g. food spoilage over the period of a few days) and the longer term (e.g. diversifying the supply chains coming into London). The idea of time frames can be observed particularly in the discussion of shocks and stresses, with shocks taking place in short time frames from a few days to over a few weeks, and stresses over a few years to a few decades. Time frames are critical again to the exploration of urgency and importance of resilience interventions, discussed in the next section.

SECTION 4: INTERVENTIONS FOR ENHANCING RESILIENCE

Participants in the workshops identified several potential interventions and policy responses, including many that already exist.[5] Overall, suggestions centred on creating a fairer and more diverse food system for London, tackling the domination of large retailers and other businesses with a just-in-time model, low wages and high waste. Overall, it was considered essential that interventions tackle the concentration of power in the food system which affects resilience, by allowing communities to have greater ownership of activities.

Access to fresh fruit and vegetables was identified as a core area of concern to brainstorm appropriate interventions and policy responses. Interventions that diversify supply chains for fresh fruit and vegetable (FFV) supply chains were proposed and concerns of labour shortages in the London food system in relation to each of the 3Rs were discussed. These are presented in the 'importance and urgency' matrices (with the 'owners' of the interventions).

Interventions for alternatives in fresh fruit and vegetable supply chains in London food systems:

The Jamboards below explore existing and potential interventions and responsible stakeholders to diversify London's fresh fruit and vegetable supply chains.[6] **Figure 1** explores interventions focused on returning to current outcomes, where participants accorded high urgency and importance to the provision of chillers for retailers, unlocking land for peri-urban farming, and increasing the number of community food growing sites. Whilst all interventions noted below were understood by the participants to be essential in a recovery strategy, it was determined that the priority matrix would help prioritise essential actions given the remit of the stakeholders in London's food system. Similarly, **Figure 2** explored interventions

5 The Jamboards have been recreated faithfully to the best of the author's ability below with minor edits for clarification.

6 These interventions have been analysed with other project outcomes (workshop content and interviews) and discussed in the report's conclusions and recommendations.

in relation to resisting disruptions, with a focus on the government developing dietary guidelines that incorporate sustainability, and at the less urgent and more important side, establishing cold stores at points of origin, and developing shorter supply chains for more efficient mobilisation. **Figure 3** considered interventions on achieving alternative outcomes before disruptions. Consumer focused campaigns and education were considered to be the most urgent and important, with school food procurement, promoting other retailers, and influencing consumer demand considered to be highly important but less urgent. All matrices include actions and interventions in the less urgent and lower priority portions of the grid that will support and complement the most urgent actions, but these were considered to be less essential in beginning an intervention plan. For example, the improving the supply of delivery trucks is an important intervention for recovery, particularly given the more important and urgent interventions of alternative suppliers.

Figure 1 Recovery (returning to existing outcomes)

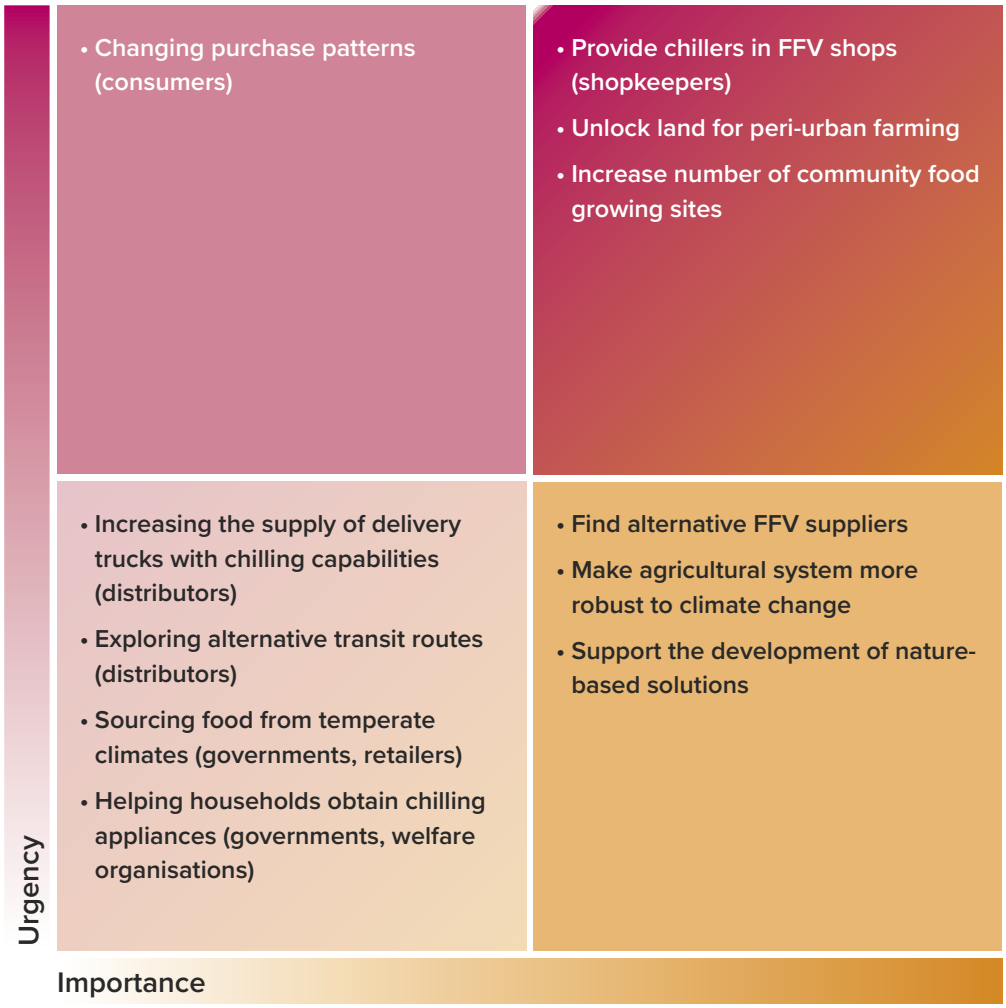


Figure 2 Robustness (resisting disruptions)

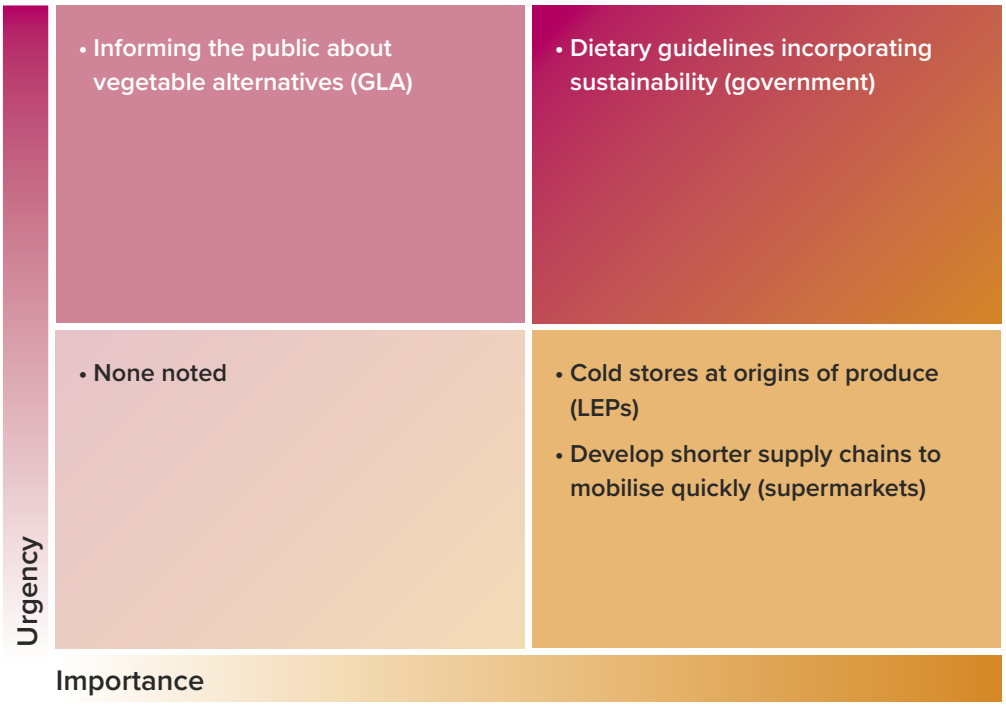
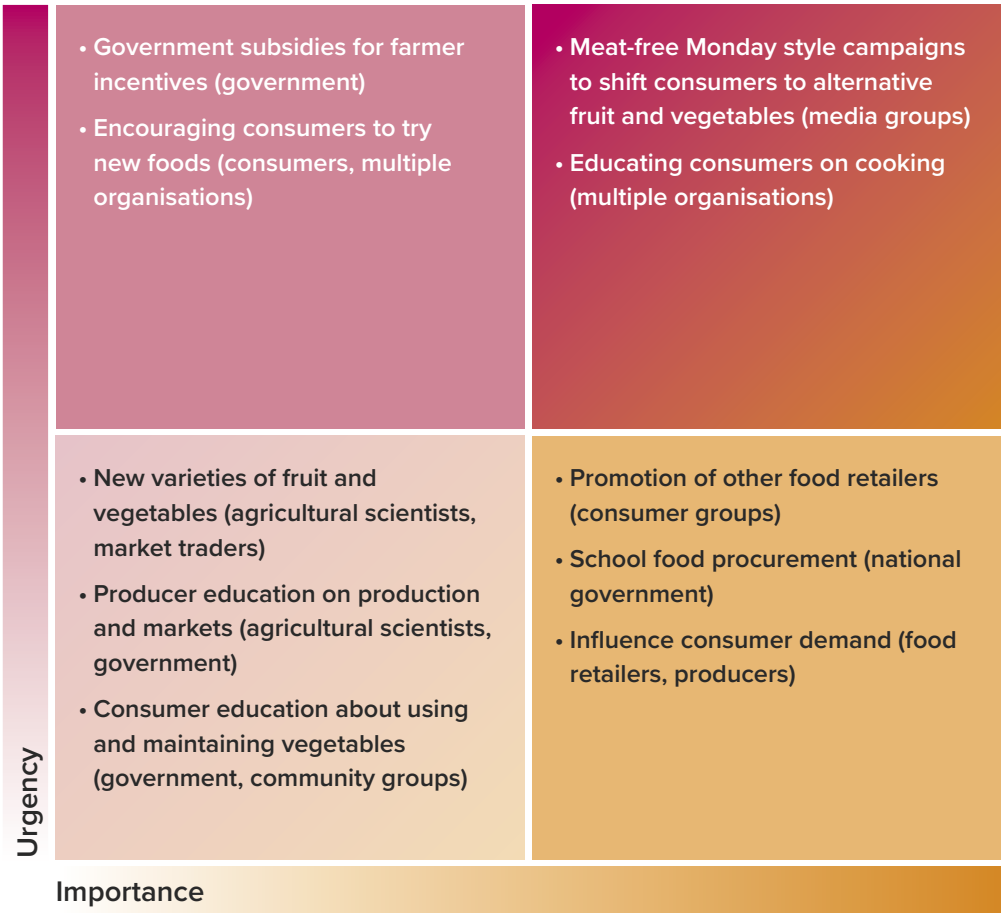


Figure 3 Re-orientation (achieving alternative outcomes before disruption)



Interventions for addressing impacts of labour shortages on London food systems:

The Jamboards below emerged from breakout sessions in the project's workshops exploring interventions for addressing the impacts of labour shortages on London's food systems, and the responsible stakeholders. **Figure 4** explores interventions in relation to returning to existing outcomes, with early warning systems on labour shortages, better communication, and information for consumers. This matrix demonstrates that some potential interventions for change already exist but might need better uptake and dissemination among the necessary groups. The outputs also demonstrate that certain interventions can have benefits over multiple resilience strategies, e.g. growing different varieties of food, noted as a robustness and a recovery strategy. **Figure 5** examined interventions focused on resisting disruptions to labour shortages and considered a broad range of suggestions that include a redeployment of the workforce, adding seasonal workforce shortage occupation list by the Home Office, and fostering cooperative food buying groups. The experience of food sector workers was noted as quite critical, but traditionally receiving low wages, insecurity, and lack of sick pay. **Figure 6** considered alternative outcomes before disruptions and presented wage improvements in food sector workers, embedding human rights and climate impact in policies, establishing discussion spaces for stakeholders, and improving food access at a local level. The successful implementation of these interventions necessitates effective collaborative across a range of stakeholders and institutions, with the GLA in particular, playing a key coordinating role.

Figure 4 Recovery (returning to existing outcomes)

Figure 5 Robustness (resisting disruptions)

Figure 6 Re-orientation (achieving alternative outcomes before disruption)

SECTION 4: INTERVIEW INSIGHTS

Background, sample, and methodology

Given the aims and objectives of this project, it was important for the GLA, Sustain and the University of Oxford's Food Systems Research Group to understand how food resilience in London is currently being tackled by different organisations in the city. Therefore, the GLA food team commissioned the GLA's opinion research team to carry out a series of stakeholder interviews with those working in public sector and charity roles within London's food sector. The objectives of these interviews were to understand how organisations in London define food resilience; to paint a picture of the activities currently addressing food resilience in London (and understand where 'gaps' exist); and to explore the extent to which London's food system is perceived as resilient by those working in the public and third sectors.

The GLA's opinion research team conducted nine 45-minute phone interviews with stakeholders during July 2021. In total, 11 stakeholders were interviewed (two interviews contained two stakeholders each). The sample consisted of a mix of those working in the public and third sectors. One respondent worked in the private sector.

The following section explores the findings from these interviews. Please note, the purpose of this research was not to quantify perspectives on food resilience, but to provide an in-depth look at the views of a small number of stakeholders. The sample size is small, and therefore results should be viewed as indicative and a starting point for further research, rather than conclusive.

Defining food resilience

Stakeholders agree on the definition of 'food resilience', and that food security and food resilience are distinct issues. The former is defined as having food immediately accessible and available; the latter as everyone being able to access sufficient, healthy food, even in the case of shocks. Some stakeholders mentioned that, within the political landscape, there is a general shift from food access thinking, to food systems thinking: that is, moving away from a food secure approach, which focuses on getting food to those who need it in the short-term; and towards a food resilient approach, identifying and strengthening those elements of the food supply chain that are susceptible to shocks to enable long-term food security.

> **A lot of food access work in the past was a sticking plaster, and a distraction from tackling some of the root causes, whereas now we're thinking about a wider awareness of the whole food system – production and distribution.**
>
> **Third sector organisation**

Broadly speaking, stakeholders spoke about food resilience from two perspectives. Firstly, there are those shocks which threaten the food supply chain: extreme weather that destroys crops; price fluctuation; infrastructure issues preventing delivery. All these damage supply and prevent food from getting from farms onto our plates. To some extent, these are national and global issues which need to be tackled in tandem with other countries. However, solving these issues alone would not enable London to achieve food resilience. This brings us to the second perspective: those issues of poverty and marginalisation which prevent the right food (as opposed to any food) getting to the people that need it. Most stakeholders interviewed focused on this second perspective, likely due to their work with low-income Londoners.

Stakeholders agreed that Brexit and Covid-19 have exposed weaknesses in both the UK and London's food systems. Brexit has caused labour shortages and confusion over permits at borders, resulting in disruption to transport carrying food supplies meaning food was (and is) unable to reach retailers or consumers (Merrick and Bancroft, 2021). Covid-19, meanwhile, demonstrated reliance on the supermarket model is not sufficient – supermarkets cannot pivot quickly enough to respond to changes in consumer demand, leading to empty shelves during the early days of the pandemic. In addition, pandemic-induced unemployment (especially amongst those working in insecure employment and/or in the 'gig economy'), and furloughing exposed just how tenuous access to food is for low-income Londoners. Too many in the city live hand-to-mouth – when employment is taken away, even for a short time, they have no safety net. For Londoners in this situation, Covid-19 meant they suddenly lacked sufficient income to afford food. The work of agencies and voluntary groups became necessary to ensure that people had enough food for themselves and their families.

There is also growing recognition among VCS organisations, and, to some extent, within local and national government, that the surplus food aid model is completely unsustainable and does not prevent hunger, malnutrition, or poverty. (Despite this, it is worth noting the number of schemes using surplus food is increasing.) Perhaps the most obvious examples of this type of food aid are food banks, whose available resources are based on charitable donations, rather than the needs of beneficiaries, and can often result in culturally or nutritionally inappropriate responses to need. In addition to the shared understanding that these are not a sustainable way of tackling food insecurity, there is increasing awareness, too, of the lack of dignity, choice, and in some cases dietary suitability and nutritional quality such models afford their beneficiaries.

Stakeholders stress that it is important for any work addressing food resilience to recognise that it does not exist in a vacuum: food resilience is a systemic issue. For example, food resilience is both affected by, and affects, the economy. At its most basic level, food resilience can be summarised as people having consistent access to food. But, as above, many stakeholders also talk about 'choice' – that a resilient food system is one in which people can choose and buy the food they want, and the food that is accessible and available should meet their nutritional and cultural needs. The pertinence of individual choice means that food resilience is often intrinsically linked to (or reliant upon) household income/wages and a resilient benefit system – that is, the means by which people have the ability to buy the food they want. Some stakeholders said they prefer not to talk about food resilience in terms of 'shocks', because many of the things that undermine food resilience (such as low income, social isolation or poor transport limiting access to shops) are actually constants within society and need to be alleviated (by governments at all levels) in order to enhance food resilience.

A food resilient London, therefore, needs to be one which seeks to tackle the root causes of food insecurity by seeking economic fairness within and outside of the food system, with decentralisation and equitable distribution of power, resources and wealth. It must prioritise the most at-risk groups, and highlight issues of income and food affordability. Groups identified by stakeholders as being at-risk were refugees; those who are socially isolated; those who are disabled; low-income households (including insecure workers); people with no recourse to public funds (NRPF); children; and older people. Whilst some of these groups have more nuanced reasons for not being able to access food (or access the food that they want or need) – for example, a lack of mobility in the case of some older or disabled people; a lack of agency in the case of children – low income underpins much of the food insecurity and resilience in London.

If you can't afford food, there is no safety net.

Private Sector organisation

There's only so much from a food system perspective that we can do – our lowest priced veg box costs £3.10 – and there are people who can't even afford that. It's a social welfare issue and an income issue.

Third sector organisation

Aside from affordability, choice is also about access and awareness. Food resilience should incorporate the ability to access healthy food (not just 'food'), such as fresh fruits and vegetables – a challenge, as lower income groups are more likely to live in unhealthy food environments (that is, areas with a higher fast food outlet density and further away from large or discount supermarkets) (Camden and Islington Councils, 2018), and have limited resources to access food outside of this environment (lower rates of car ownership; unable to afford public transport fares; a lack of access to public transport services) (House of Lords, 2020). Individuals also need to be empowered with the knowledge to make healthy dietary choices. Key to acting on this knowledge is the availability of equipment to prepare and store food correctly (again, there is an overlap with income: fuel poverty and a lack of cooking equipment and/or white goods means that low-income households may lack this) (ibid).

Individuals also need to be able to access culturally appropriate food (and be able to so in a dignified manner). One stakeholder highlighted the large overlap between household food insecurity and Black Asian and minority ethnic (BAME) households – nearly half of BAME UK households live in poverty – twice the proportion of their white counterparts (Social Metrics Commission, 2020). Particularly for Black Afro-Caribbean people, the cost of culturally appropriate food may render it inaccessible, especially when coupled with the higher rates of poverty amongst this group and lack of infrastructure compromising access to shops. Access is complicated by the fact that there are no food standards for most of these culturally appropriate foods (only bananas and plantains are covered by marketing standards). Consequently, most of the produce is not properly stored or displayed in shops and may be inedible. For consumers, this is not a dignified way to buy food.

Covid-19 exposed the fact that, in some instances, the supply of culturally appropriate food relied on people bringing this over from other countries in suitcases and sharing it out amongst their communities. Travel-bans during the pandemic halted this informal system, and, with food banks only able to offer a limited choice based on donations, subsequently people lost access to culturally appropriate foods. Whilst the pandemic was a (hopefully) unique situation, the overriding point remains that any research into food resilience should identify all food supply chains, however informal, and ensure they are sufficiently robust and/or alternative supply chains exist.

Finally, resilience is not a one-way street: all stakeholders argued that increasing food resilience will increase resilience more generally (and vice versa) – and that the additional benefits of activities addressing food resilience should be emphasised. In Sustain's words food should be thought of as 'more than a meal'. Community food growing projects, for example, increase food resilience (to some extent) but also: educate participants on nutrition and where their food comes from; can improve mental and physical health and access to productive green spaces; can link people experiencing multiple disadvantage to appropriate services and support via trusted intermediaries; upskill individuals; and increase people's feelings of belonging and of influence over the environment in which they live. Meals on wheels, similarly, has social benefits that extend beyond the provision of food (providing conversation and company for individuals who might otherwise be isolated) (Sustain, 2020a).

Food provides the initial conduit through which individuals can be brought together, but such programmes can subsequently improve how people interact and live with one another; thereby contributing to communities that are more resilient to shocks in general, not just in terms of food access. It is not just about improving behaviours either – most food resilience activities will provide employment, thereby strengthening the local economy. One organisation interviewed currently has eight part-time jobs, all of which pay the London Living Wage (including food growers, those who manage a 'veg box' scheme, and community engagement workers). The organisation is hoping to expand its operations to become the fresh produce provider to local restaurants.

Meals on wheels is so much more than food, it is about socialising and routine. We shouldn't think of this just in terms of calories in the mouth.

Third sector organisation

What does London need in order to achieve food resilience?

Stakeholders spoke from a range of different perspectives. Some focused more on general needs (e.g. strategies for the provision of food in case of power disruption). Others, on more London-specific issues (e.g. lack of localised food production; an economy dependent on the supply of fresh food). Both are discussed below.

Stakeholders agreed that London needs a resilient fresh food supply chain. The city can rely on frozen and dried food solely in terms of calories and nutrients, but fresh food is important, not only for public health, but also for the economy. Many jobs rely on the fresh food supply chain – whether this be in the picking, packaging, or transportation of fresh produce, or, particularly for London, jobs in the restaurant industry. Relatedly, London also needs available labour to work within the food industry (labour availability has recently been disrupted by Brexit and the pandemic).

To achieve a resilient fresh food supply chain, **London needs food growing spaces**. Currently the capital is at the mercy of supermarkets for fresh food supply. Whilst the urbanised landscape and climate means that London is unlikely to ever grow everything its population needs, food growing spaces – including peri-urban farms and market gardens – will allow communities within the city some degree of independence from the supermarket monopoly over food supply and price hikes associated with this (as well as increasing resilience more generally by changing behaviours of participants, as discussed above). Localised food growing spaces also means **shorter food supply chains** where food – distributed through values-driven trading and distribution initiatives – can be made more affordable and accessible, as well as less wasteful. Shorter, more transparent supply chains also enable planners to understand risk or supply disruption, and plan accordingly.

Less specific to London is the need for cities in general to be able to store food in the case of a large-scale power shock. Power disruption is one of the biggest threats to food resilience in the UK. Currently, the London Resilience Partnership plans for a worst-case scenario of 5–7 days loss of power (London Resilience Partnership, 2018) – but the average household freezer is only able to safely store food for 12 hours without power. **London needs to develop a full strategy for the provision of food in the case of serious power disruption**.

The food system is the single biggest global source of global greenhouse gas emissions. The climate and nature emergency is one of the key risks for future food availability and prices, with those on lower incomes disproportionately affected. It is therefore vital that **all climate change mitigation strategies across London – at GLA and borough level – explicitly include food and farming**. They should specify actions to ensure that all food purchased and served or sold meets priority climate and nature-friendly standards, using less and better meat and dairy, and ensuring that purchasing supports inherently resilient and less wasteful farmers and supply chains. Council land can be used for agroecological food production and market gardening, as well as the GLA and local authorities influencing the land-use policies of other major players. This can also be supported by policies that ensure dietary messaging, promotion and advertising reinforce climate-friendly diets.

All stakeholders agreed that London needs the means by which to influence food resilience. Currently, London government has limited power to affect the root causes of failures in the food system; instead, many of the powers to enact fundamental changes to how food is grown and supplied to the capital lie with central, not local, government. The significant money and other resources needed to transform food systems, invest in local food infrastructure, set living wages and provide an adequate social security safety net – all critically important to improving food resilience – are channelled by the HMRC and other government departments. Yet we know food resilience can be an intensely local issue, concerned with the nutritional and cultural needs of specific groups. It therefore requires a localised (even hyper-localised, e.g. borough-level) response which local councils need to be empowered to deliver. The Mayor of London has a convening, leadership role, and a high-profile influencing role on the national stage, which can be utilised to help address issues of common concern for the benefit of Londoners.

Ultimately, however, resilience will not be achieved without an **understanding in both central and local governments of where the vulnerabilities lie in the food supply chain, specifically in terms of food access**. We need wider recognition that London's food systems are composed of multiple channels, rather than a myopic focus on the 'farm to supermarket' supply chain: in short, people access food in many ways, not just via supermarkets. Markets, for example, provide an affordable source of fresh food for many people, especially those on a low income, and often benefit from a diversity of culturally appropriate produce imported through both mass wholesale and more specialist and less formal means. The disruption of fresh food supply caused by Brexit meant that supermarkets outbid other providers, curtailing the supply of fresh food to markets and thereby to diverse and lower income consumers. **Achieving resilience relies on identifying and supporting the multiple channels through which people access food**.

Challenges

Some of the challenges faced when tackling food resilience in London are the same as when tackling food resilience on a national or global level (e.g. climatic or political instability affecting food supply); other challenges are more London specific (e.g. poverty levels within the capital; the prevalence of 'unhealthy food environments') which prevent the right food from getting to those who need it, and in an affordable and accessible way.

One of the major challenges to food resilience within both London and the UK as a whole is that, to some extent, food will always be brought in from elsewhere or imported from overseas. We need to be realistic about the limits of London-based food production. National and local governments must recognise that **our food supply is therefore inextricable from the events of other regions or other countries** (i.e. those events which constitute shocks to the supply chain). It is easy to think that, as an affluent country, Britain will be able to buy its way out of a food shortage – but this depends on there being food available to buy.

Food growing, in turn, depends on stable climatic (and political) conditions: extreme weather conditions and war both pose persistent threats to our food supply, as do ongoing challenges with transport, farm labour, and customs controls associated with the UK's exit from the European Union. Because of climate change, wheat yields in 2020 were 17% below average. The Government's latest Food Security report predicts that climate change will see the deterioration of three quarters of the UK's best arable farmland (Defra, 2021). As touched on above, labour shortages in agriculture, veterinary staff, transportation, and food processing, especially due to Brexit and the pandemic, also pose a challenge to food resilience in London (and elsewhere).

The government considers the UK food system to be resilient because we can pay for food from elsewhere. But that is dependent on food being available. If there is no wheat to make bread, we can't pay for it.

Public sector organisation

It is important to avoid suggesting any tension between the hyperlocal, sustainable vision of food production, central to much of the discussion around food resilience, and the provision of culturally appropriate foods, even if they are grown in different climates and imported. As considered in this report already, some food importation into the UK will always be needed to meet our food requirements and preferences, and the most important principle for growing food sustainably is 'right crop, right place'. Cutting the climate impact of foods should focus on shifting to diets with more plant-based food (vegetables, fruit, pulses and wholegrain food) and less meat and dairy – with the much smaller amount of livestock products consumed coming from climate – and nature-friendly production systems. One stakeholder recognised this issue, and, rather than avoiding foods grown abroad, preferred instead to engage in mutually beneficial relationships with foreign producers, importing from small-scale operations and sharing knowledge on sustainable growing techniques.

> **Instead [of avoiding foods not grown locally], I try to get people to understand that we're trading in a way that helps other communities to grow for themselves and then we get their surplus. It's about placing producers at the centre of the model, not consumers, and helping them to grow in a sustainable way. It benefits those communities, not just us.**
>
> Third sector organisation

Related to the need for shorter supply chains is that the current **food supply chain infrastructure is not readily able to deal with changes in demand**. Stakeholders highlighted cases in the first lockdown of milk being thrown down drains when farmers lost hospitality clients – despite supermarket shelves being empty and customers experiencing shortages – as the infrastructure was not in place to get the produce to where it was needed (Chapman, 2020). The supermarket-dominated supply chain lacks flexibility and resilience to shocks. It creates extreme food waste in normal times and even more shocking and evident waste in times of crisis (Feedback, 2019) and therefore poses a significant challenge to achieving food resilience and tackling the climate and nature emergency.

A challenge more specific to London is that **local government lacks the powers and ready access to money and resources needed to implement the changes required to achieve food resilience in the capital – and that central government is either unwilling or unable to implement these changes**. In theory, everybody in the UK has a right to food (the extent to which the government fulfils this obligation is debated, as exemplified by the recent debate over the government provision of Free School Meals in the summer holidays) (Just Fair, 2021). When this obligation is fulfilled, or at least discussed, it tends to be done so in terms of food security and downstream fixes, rather than food resilience and upstream solutions. This poses a major challenge to food resilience, as the investment required to implement it is often redirected to tackling food insecurity, and temporary fixes such as emergency food aid.

Another challenge specific to London is that **land is not being made available to grow food**, both for community growing schemes and for larger-scale production such as peri-urban market gardens. There is significant availability of land, especially in the outer London boroughs, including grassland, unused farmland and privatised spaces like golf courses. Making this land available to grow food sustainably would create nature-rich jobs, and agroforestry and community orchard projects could increase London's tree cover and biodiversity as well as positive citizen engagement.

Finally, when developing **community food growing schemes, we must recognise that they can bring multiple benefits, both socially and in terms of food production**. The challenge, therefore, is to ensure all potential benefits are considered in the conception of the scheme and that schemes are provided with the time and resources to exploit such benefits to the fullest.

SECTION 5: CONCLUSIONS, AND RECOMMENDATIONS

London's food system is complex, heterogeneous, and faces multiple challenges. It draws on fresh and processed foods from across the United Kingdom, and many countries across the world. This project sought to explore and clarify resilience aims for London, map the current issues of concern, and identify and assess potential interventions for the GLA and London Food Board, local authorities, the community, and voluntary sector, and/or other partners.

Insights from the workshops and interviews demonstrate that securing safe, healthy, and culturally appropriate food, and adequate incomes for Londoners at risk of food insecurity, and the resilience of the fresh food supply chains, are key areas of interest for the GLA. The mapping exercise undertaken by the GLA and the exploration of the '3 Rs' identified which actors and programmes within the GLA are the best positioned to respond to the concerns raised.

The project has highlighted that securing food and nutrition security, environmental sustainability, and the socio-economic well-being of the actors within London's food system requires i) a response by GLA across its various departments and in coordination with boroughs and relevant NGOs ii) an approach that tackles the root causes of insecurity and redistributes power and wealth, and iii) significant forward planning to ensure an appropriate action is taken in time, rather than reacting. The strategy and coordinated response need to start with a clarification on the type of resilience strategy (i.e. robustness, recovery, or re-orientation) being sought for the system as the overarching management objective and what balance of food system outcomes to strive for.

Conclusions

When it comes to enhancing resilience in London's food system, it is critical to first recognise that London's food system does not, overall, have the characteristics of a resilient system which also helps tackle ill-health, address inequalities due to ethnic origin or other background, and tackle both climate change and nature decline. Interventions are needed to help prevent hunger and malnutrition now, and in the face of future shocks, and must be integrated with social, economic, climate and nature policies.

Next, a joint understanding of the aspects of the food system that are most vulnerable, using the four resilience questions, is critical to the process, particularly if policy makers are going to harness the experience and knowledge of a range of stakeholders. Otherwise, it will be difficult to find an effective way forward via a shared vision and priorities for all relevant and necessary stakeholders. Helpful for this clarification is a collective acknowledgement, across the policymaking process, of the basic factors that affect food resilience in London, and the relationships between the actors.

It is also important to recognise that focusing on enhancing the resilience of one actor or aspect of the food system will not necessarily enhance the resilience of the whole system. This is particularly important when considering systemic innovation and intervention which need a cross-system and multi-stakeholder view of impacts and consequences. Resilience planning requires attention to the temporal scale too. While it is expected that resilience must be enhanced over the long term, actions need to be taken on the short and medium-term to contribute to long-term objectives.

The collated insights from the workshops and interviews conducted as part of this research indicate that stakeholders in London's food system have diverse perspectives, objectives, and practices, yet were able to come to some common and shared understanding about the focus for resilience building. The fresh food supply (i.e. fruit, vegetables and chilled foods such as dairy) were seen as of critical interest to workshop participants, also because these foods are especially important for a healthy diet. The participants identified several key issues leading to vulnerabilities in the London Food System that can be summarised as follows:

- **Reliance on food supply from the outside of the city**: The city cannot feed itself and imports almost all its food supply from areas around the city, the UK, and the globe. For several food items this also means that there might only be few sources or suppliers.
- **Vulnerable food infrastructure**: The current built infrastructure around roads, supermarket locations, cold chains etc. is vulnerable to many types of disruptions. Also, the 'human' infrastructure, including labour availability, training for food system's workers, etc., needs to be improved upon, while also many households might not have the proper storage facilities for fresh foods. The city has made great progress over the last 12 years to support access to community food growing spaces such as peri-urban farms and community assets, to supplement fresh fruit and vegetable supply. Yet land is under pressure and demand continues to grow, while access to land to grow at scale in the urban fringe is proving hard to access. Wider supporting services for the food system, such as food education, could be improved. With respect to culturally appropriate foods the existing infrastructure could be updated.
- **Lack of clarity of food system governance infrastructure**: Currently, it is often unclear at what level decisions concerning food system change need to be taken and who is responsible for implementing different types of decision making and monitoring the impact of these decisions. This can inhibit the involvement of citizens using the food system, especially people with lived experience of household food insecurity.

- **Overlap of the food system with other systems**: Food insecurity and hunger cannot be addressed by charities alone, but the food system overlaps here with the wider economic system which dictates income structures. Currently the gap between the cost of living and income is growing in the city leading to increasingly vulnerable populations.

All these issues apply especially to the fresh food sub-system, which nevertheless also bring in some additional challenges:

- The need for specific infrastructure such as specialist cold chains
- Short shelf life for delivery and consumptions
- High food waste potential
- High food safety risks

While there is no single solution to the complex issues in London's food system, there are multiple pathways that can transform food supply and that must be investigated and co-created by the stakeholders responsible for their implementation, including the Mayor. This is an area where the GLA can take a role of leadership and coordination in the absence of another agency with the remit and influence.

Recommendations

A wide range of recommendations were suggested by workshop participants and interviewees and are presented as 'Overarching', 'General' and 'Specific'.

Overarching recommendations:

1. **Strategies to enhance food system resilience need to be developed in a participatory process designed and underpinned by food systems thinking. This requires leadership working with relevant stakeholders to develop a joint way forward.**

A starting point is creating a **joint understanding of the system of concern** by relevant stakeholders in a collaborative and co-creative set of activities. This creates an effective foundation for discussing the resilience questions to clarify the focus and boundaries of the effort. This also ensures that there is a **common framework and language** informing the discussions around a **resilience strategy** to pursue by the necessary stakeholders (the 3 R's). With that clarity of strategy, the potential interventions can be proposed and discussed with the relevant food system actors. A process for incorporating **monitoring and reflection** will ensure potential course-corrections as needed. This approach benefits from a convener and **coordinator**, to provide the necessary structure and potential to follow through.

2. **The GLA needs to take a leadership and coordination role to bring together stakeholders, using a clear process to derive strategic, implementable recommendations.**

The GLA can take a key leadership and coordination role in the absence of another agency in this regard. Resilience oriented, stakeholder driven and managed processes such as these outlined in this report can help in navigating the complexity of food system transformation towards being prepared to deal with short term shocks as well as long term stresses.

3. **Any GLA food system strategies, policies and initiatives need to harness cross-cutting opportunities to ensure food resilience is successfully embedded in other agendas.**

The GLA needs to understand and maximise the opportunities that exist to embed food resilience in other agendas that are important within the London Recovery Programme, including environment and climate, planning and health and wellbeing. It must then establish mechanisms to take into account and integrate the respective mandates of the different parts of the organisation. This is to optimise the opportunities for mitigating the risks to food security from a range of shocks and stresses. .

General recommendations:

- To create a robust food system for London:
  - protect basic food systems physical infrastructure, e.g. against serious power disruptions.
  - address labour infrastructure issues.
- To create a food system for London that can recover quickly:
  - diversify food supply routes (local, regional, global).
  - enhance cooperation across suppliers to maintain food availability.
  - create enough green spaces, e.g. council land for Londoners to supplement fresh food production.
- To reorient the London food system to be resilient and deliver better outcomes:
  - develop appropriate governance structure of food system resilience (role for boroughs, GLA, national government).
  - develop a coordination mechanism across food system actors to discuss goals for resilience building and food system transformation and develop a joint plan.
  - address the overlap of the food system with other systems
    - income and therefore access to food
    - agree who deals with hunger as a structural problem (role of charities vs government)
  - develop a monitoring framework to track food system outcomes of concern for key stakeholders.

Specific recommendations are listed in Table 1. Some thematic clustering has been done for conciseness and clarity so exact wording has not necessarily been captured for each point

Table 1: Actions and associated ideas suggested by workshop participants and interviewees for creating a more resilient London food system

Issues	Robustness	Recovery	Re-orientation
• **Reliance for food supply from the outside of the city:** • City cannot be food self-sufficient by itself • Reliance to few sources/ supply chains • Many cultural appropriate foods need to be brought in	• Diversify suppliers • Foster more localised supply chains • Foster cooperative buying groups for individuals and organisations • Unlock land for more peri-urban agriculture • Source more foods closer to city • Have a plan to ensure nurseries, schools, colleges etc. Have access to reliable fresh food supply • Introduce an early warning system for key food system risks	• Foster more localised supply chains • Create better links between suppliers and retailers • Foster cooperative buying groups for individuals and organisations	• Develop relationships with producers around the city to support climate smart farming and nature-based solutions • Foster cooperative buying groups for individuals and organisations • Improved access to food at a local level
• **Food infrastructure:** • Built infrastructure such as road network, delivery network, supermarket locations, cold chains • Human infrastructure: labour availability, training availability and access • Social enterprises, smes and cics (community interest companies) • Household infrastructure: refrigeration, proper storage spaces • Growing space: allotments, community assets • Availability of/spaces for growing and selling culturally appropriate foods • Supporting services for the food system	• Provide chillers for fresh fruit and vegetables in shops • Increase number of trucks with cooling capacity • Explore alternative transit routes • Help household obtain chilling appliances • Redeploy workers toward food systems if needed • Add seasonal workers to the shortage occupation list • Offer higher wages for workers	• Introduce cold stores at origins of produce • Accept alternative food choices, and • Offer higher wages to attract people to food sector	• Implement local dynamic procurement systems • Develop full strategy for provision of food in case of infrastructure disruptions (e.G. Power) • Restrict advertisement on unhealthy foods and corporate influence • Improve food education for consumers and producers • Fiscal changes and subsidies • Campaigns to shift consumers to seasonal fruit and vegetables, • Educate consumers on cooking practices with unfamiliar foods and seasonal foods • Promote different types of food retailers • Increase procurement of locally produced food and ensure public sector food exemplifies a sustainable and healthy diet

Issues	Robustness	Recovery	Re-orientation
• **Food system governance infrastructure:** • Level/scale at which decisions need to be taken • Who decides on what issues? • Local areas lack power to change local food system	• Unlock land for peri-urban agriculture • Foster cooperative food buying groups, and • Build food system concerns into resilience planning	• Ensure better communication between statutory services and local third sector • Informing public about alternatives	• Create a discussion space for stakeholders to discuss food system outcomes and key vulnerabilities • Ensuring value chain actors are part of conversations of change • Create coordination mechanisms between key decision-making bodies, and • Create a monitoring framework to track relevant food system variables • Call for more power for local governments over the food system • Improve means for london's government and institutions by which to influence food resilience
• **Overlap of food system with other systems:** • Hunger cannot be addressed by charities alone any more • Cost of living versus income gap growing • Knowledge on proper nutrition becoming scarce	• Strengthen income support for groups at greater risk of food insecurity • Maximise use of healthy start vouchers, including for newly eligible people with no recourse to public funds • Champion the london living wage • Provide fridges/ freezers to low income households to help them store food • Support meals on wheels provision and lunch clubs across london • Ensure a reliable emergency food supply to respond to immediate crisis where available financial support is insufficient • Develop sustainable ways to ensure nutritious food supply for local markets and community food projects	• Improve national and local social safety nets for vulnerable consumers • Sustain local markets and community food projects which offer affordable access to nutritious food • Maximise use of healthy start vouchers, including for newly eligible people with no recourse to public funds • Champion the london living wage	• Provide universal school meals to all school children • Widen eligibility of healthy start • Make london a living wage city • Adopt a right to food approach that permeates through policies and programs • Adopt a community wealth building approach to gla, local government, and other anchor institution decisions, to address power imbalances and inequality in the food system

Given the wide range of factors involved, deciding actions to enhance the resilience of London's food system is not straightforward with potentially competing priorities. The project helped address the challenge by bringing together diverse perspectives to set clear boundaries, resulting in a set of high-level and more specific recommendations for different food system actors to consider.

Building on this project, a clear plan to coordinate the multitude of actors involved could support a common strategy to resilience building goals and plans to achieve them. These recommendations can also help support a transition towards better food system outcomes overall.

ANNEX 1

The Greater London Authority (GLA)

The GLA is the regional authority responsible for the strategic administration of Greater London. It consists of one Mayor (currently Sadiq Khan) and 25 London Assembly members elected every four years by Londoners. With the support of the GLA's staff, they work to make London the best big city in the world. Also referred to as City Hall, it was created after a referendum in 1998, when Londoners voted in favour of a directly elected mayor to represent London's interests and a London Assembly to scrutinise their work.

The Mayor is responsible for making London a better place for everyone who visits, lives, or works in the city by providing citywide leadership, setting an overall vision for London, and creating plans and policies to achieve this. The GLA has powers and interests in a range of policy areas, including transport, economic development, and emergency planning.

The Mayor published his London Food Strategy in 2018.

The GLA is also working with partners to support London's economic and social recovery post-pandemic and officers are scoping and delivering a range of other proposals under the London Recovery Board's 'Robust Safety' Net mission. The mission aims to ensure 'by 2025, every Londoner can access the support they need to avoid or alleviate financial hardship', which includes food insecurity.

Food System Transformation Group, Environmental Change Institute (ECI)

The Food System Transformation Group at the Environmental Change Institute (ECI), University of Oxford has an internationally-recognised track record in food systems research, with special emphasis on the interactions with environmental change.

Key strengths include using a food systems lens for research and training on food security issues, and developing research partnerships with a wide range of stakeholders including business, policy, development agencies, NGOs and academia at large. The Group use a food systems lens for research and training on food security issues and its two-way links with environmental change. Core activities are underpinned by the valuable partnerships we build with national and international organisations, including businesses, policymakers, development agencies, NGOs and academia at large.

The Group's aim is to help a wide range of stakeholders develop and implement enhanced food system policy and practice that improve food security and health outcomes with less environmental impact. We also recognise the need to maintain vibrant commercial and livelihood opportunities. Innovative methods and tools based on an integrated food system approach are used.

Sustain: the alliance for better food and farming

Sustain is a powerful alliance of organisations and communities working together for a better system of food, farming and fishing, and cultivating the movement for change. Together, we advocate food and agriculture policies and practices that enhance the health and welfare of people and animals, improve the working and living environment, enrich society and culture, and promote equity.

ANNEX 2

London Food Resilience research – briefing sessions feedback

What does the concept of 'resilience' mean within your work?

- Being able to 'weather the storm' – a robust emergency response with consistent referral pathways enabling people to request and access support when necessary.
- A system that is able to adapt to change without excluding or marginalising people who may have additional barriers accessing it in the first place e.g. disabled Londoners.
- Protection from political and economic shocks.
- A stronger and more sustainable civic system, where civil society organisations are well resourced and connected, empowered to respond effectively to crises and support Londoners.
- Methods of food production that minimise negative externalities. Minimal impact on the environment with lower levels of food waste and scope 3 emissions.
- In research terms, the ability to continue collecting robust data in a consistent fashion in order to accurately evaluate programme outcomes and successes.
- All children being able to access nutritious food in school and through the holidays all year round. Schools and early years have local resilience planning in place.
- Feelings of inclusion/belonging increased and social isolation decreased.
- Supporting food social enterprises and entrepreneurs to recover from food system shocks easily and quickly.
- The ability of residents to achieve a healthy diet, considering the 5 'A's – availability, accessibility, affordability, awareness and acceptance.

- Supporting Londoners to get the skills and support they need for life and work. In doing so, boosting incomes and the resilience of individuals, households and communities.
- It has different meanings at an individual, household, community, regional and national level.

Does the concept of resilience feature prominently within the discussions you have with colleagues, partners and funders? If so, how?

- Building capacity and capability into grassroots organisations.
- Post-pandemic recovery, will London be better prepared and equipped to deal with a different but equally disruptive event?
- Learning lessons from the pandemic and achieving a newfound level of cooperation.
- Upskilling via food and nutritious education.
- Climate and community resilience through food growing programmes.
- A support system that is not reliant on food banks, donations and good will.
- In research, the ability to 'trust' results through representative samples and robust methodologies/evaluation.
- Refer to 'breaking the cycles of destitution' as opposed to 'resilience'.
- Assessing the impact of policies or funding on resilience in communities.
- Starting to feature more but only in the context that communities and individuals have to rely less on Government or others to provide support.
- Resilience at a personal and community level.
- Support the financial resilience of social enterprises and mental resilience of business-owners/entrepreneurs.
- Food Flagship initiative with the EMF, supporting a circular food system in London which increases resilience.
- Features as part of current and planned GLA programmes, including those linked to various recovery missions.

What would a more resilient food system look like to you?

- A 'right to food' that is inclusive of all residents regardless of immigration status. An end to immigration rules that foster food insecurity and other forms of destitution.
- High levels of food security at all levels, including supply. A food industry and retail chain that doesn't contribute to household food insecurity but pays the London Living Wage and promotes high working standards.
- Dignity at the centre of any approach involving food provision with the ability to afford and choose healthy, sustainable and culturally appropriate options.

- Diversity and plurality in food supply chains, which would provide sustainable food to all (not just those who can afford it) and increase resilience to shocks and disruptions.
- Local food hubs and community led decision making.
- More sustainable, long-term funding opportunities for civil society, enabling a more strategic and less reactive approach.
- A new definition of access that includes access to food retail, education, production (including growing), community through food and skills.
- No one working in silos – more partnership working with shared aims and values focusing on ensuring Londoners have the agency to make healthy food choices.
- Cash-first principles embedded in any emergency food responses and support.
- The universal provision of nutritious school meals.
- All communities have Unicef UK Baby Friendly accreditation as well as maternity services. Local third sector and qualified independent sectors are mapped out and shared.
- More food social enterprises and greater diversity in the food sector. A food system that promotes meaningful, sustainable employment.
- Healthier food environments including fewer unhealthy food adverts and a lower concentration of hot food takeaways in low income communities.
- Increased physical access to healthy, sustainable and culturally appropriate food.
- A granular understanding of local vulnerabilities.
- Food resilience incorporated into other council and VCS strategies

How might increasing levels of food resilience in London address the issues you are trying to tackle?

- Create capacity to move away from crisis responses to food insecurity and focus on long-term, upstream interventions that will contribute to recovery.
- Enable services to shift resources from direct food provision to other pressing issues.
- Provide opportunities to address the wider impacts of poverty and promote healthier lifestyles, improving overall life outcomes and levelling up across communities.
- Increased wellbeing for individuals and families. Food used to reduce levels of social isolation and loneliness. Increased social capital.
- Increasing the number of skilled peer and specialist breastfeeding support across London (via Unicef UK Baby Friendly accreditation in communities) would address ‘First Food Desert’ communities where generations of infants have been bottle-fed (Salmon, 2015).

- Create more London Living Wage job opportunities for people from low income communities within the food sector.
- Reducing the carbon footprint of the food system in London.
- A more resilient food system can support multiple agendas, including healthy weight; an inclusive economy; community wealth building; addressing inequalities in education and action on climate.

Which other stakeholders should be consulted as part of a wider network during the course of the research?

- Service users with lived experience, neighbourhoods and community networks.
- Food partnerships and alliances.
- Citizens Advice and benefit support teams in councils.
- Unicef UK Baby Friendly Initiative, Breastfeeding Alliance, Royal College of Paediatrics and Child Health, Institute for Health Visiting, “Royal College of Midwives” (RCM) and “First Steps Nutrition Trust”.
- Street and wholesale markets, food SMEs, Co-operatives UK, food growing networks.
- Faith groups and independent food aid providers.
- Grantham Institute
- Businesses via Resilience First
- Young people via Lynk Up Crew and Peer Outreach Workers at the GLA.
- Other UK and international cities via the Resilient Cities Network and C40 Food Systems Network.[7]
- London Plus.

7 A suggested example is Lyon’s Build Back Better plan.

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THE FOOD SYSTEMS TRANSFORMATION GROUP

About

The Food Systems Transformation Group is based in the Environmental Change Institute, University of Oxford. Taking an integrated food systems approach and using innovative methods and tools, the Group helps a wide range of stakeholders develop and implement enhanced food system policy and practice. Research is aimed at delivering outcomes that are better balanced across food security, livelihoods and enterprise, and environmental goals.

The collaborative projects and initiatives that the Food Systems Transformation Group undertakes aim to:

- Shape the future of food
- Create food systems thinkers
- Build food systems resilience

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