Department
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Food & Rural Affairs

Sustainable food procurement

Summary report

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We work closely with our 33 agencies and arm's length bodies on our ambition to make our air purer, our water cleaner, our land greener and our food more sustainable. Our mission is to restore and enhance the environment for the next generation, and to leave the environment in a better state than we found it.

This project was commissioned by Defra and delivered by WRAP, in collaboration with City, University of London.

WRAP is not-for-profit, working with governments, businesses and citizens to create a world in which we use resources sustainably. Our experts generate the evidence-based solutions we need to protect the environment, build stronger economies and support more sustainable societies. Our impact spans the entire life-cycle of the food we eat, the clothes we wear and the products we buy, from production to consumption and beyond.

The **Centre for Food Policy, City, University of London** is an interdisciplinary centre dedicated to improving food policy worldwide. We explore how the food system really works in practice. We exist to shape a food system that improves the health of people, society, the environment and the economy. What we eat, why we eat it and at what cost are questions of growing importance.

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Abstract

This report is part of the 'Sustainable Food Procurement' (SFP) project. This project aimed to examine the evidence for positive sustainability outcomes – defined broadly as reductions in carbon emissions and other improved environmental outcomes, economic benefits and health benefits – driven by changes to public-sector food services. The project involved a literature review of published evidence relating to sustainable food procurement, focusing on outcomes arising from implementation of public food service reform, wider food-system synergies and lessons learnt from around the world. Building upon the literature review, initial exploratory modelling was undertaken to understand the scale of possible impact which could be achieved by more widespread sustainable food procurement in England. In doing so, it presents original analysis of the scale of public food services, an important update to understanding the size of the opportunity which may have been previously under-recognised.

The rapid evidence assessment identifies the *potential* for food procurement schemes to deliver transformational impacts across both their institutions and the wider food system across multiple sustainability outcomes. In order to achieve this potential, new procurement policies must be successfully implemented and change what food is available and consumed in the institution. How to do this was well evidenced and synthesised into specific recommendations. Evidence of wider food system transformation across the three pillars of sustainability was more limited. Some encouraging positive evidence was identified regarding all three factors with opportunities for synergies, particularly in procurement from smaller producers and serving a menu which has a high share of fruits and vegetables, which has opportunities to provide healthy food with a lower GHG footprint whilst supporting local businesses. However, more work is needed to robustly measure, evaluate and understand how and in which situations and for which outcomes sustainable food procurement schemes can leverage transformational change.

This document is the **summary report**. It summarises the findings of the evidence assessment. For full findings from the literature and details on methodologies, please consult the **main report.**

For policymakers: Boxes like this at the start of each section further synthesise the findings into key insights useful for policymakers. Readers short on time should start with these sections.

1.0 Objective

This research project aims to understand the role of public procurement in improving sustainability outcomes, based on three pillars of sustainability: environmental, economic, and social, which encompasses health. The focus is on *outcomes*, looking at the evidence of impacts recorded by real-life 'sustainable food procurement' (SFP) and related schemes.

There are two main parts to this project and report. Firstly, a Rapid Evidence Assessment (REA) was conducted to review published literature for insights on sustainability outcomes and lessons on implementation of schemes from empirical examples. The final dataset included 206 publications which informed this research. The results are in section 2.0. This includes the development of new frameworks to understand what SFP is and how it can deliver sustainability outcomes across the food system (section 2.8). Secondly, original modelling of the scale of public sector food service in England was conducted, with initial exploratory assessment of the impacts of changing what is procured and from whom. The outcomes are presented in section 3.0.

2.0 What impacts can sustainable food procurement schemes have?

2.1 Greenhouse gas emissions

Key takeaway for policymakers: Changing procurement policy can be associated with reduced greenhouse gas emissions from food service. The clearest mechanisms by which this happens is through changing menu composition, and by sourcing from improved production practices. Procuring 'local' food is not of itself a driver of GHG reduction: transport represents a small part of food emissions and is not necessarily improved by procuring 'locally' due to inefficient logistics. However, procuring 'local' food in some cases correlates with providing more seasonal menus with higher fruit and vegetable content, which *are* associated with lower GHGs. Therefore, 'local' procurement can indirectly reduce GHGs. Vegetable-heavy menus are also associated with healthier diets, suggesting an indirect opportunity for synergies with health objectives.

- Audits of the carbon footprint of meals is the main approach to measuring GHGs in public food service settings. Most audits of meals were conducted in schools and point to between 1-2 $kgCO_2e$ per meal. This may vary for adult meals. Of that footprint, **food production is consistently the largest share**, broadly accounting for 70% of total impact across studies.

- Where institutional food service interventions have been modelled for GHG savings, **changing menu composition** and **buying food from improved production practices** emerge clearly as the two largest opportunities for emissions reduction. These often include purchasing and serving less meat, and purchasing food produced by organic or agroecological modes of production.
- **Reducing food waste** presents a clear opportunity for emissions reduction, particularly where there is substantial wastage. Where food waste is not recycled – such as through landfill disposal – the disposal-related emissions can also be significant, so **improved waste management** presents another emissions reducing opportunity.
- Switching to **local food** to reduce 'food miles' is a commonly cited strategy to reduce GHGs, but has a **limited impact**. Generally, transport represents a small share of food service emissions (around 10%). Local suppliers do not necessarily guarantee lower transport emissions: the efficiency of transport logistics is an important mediator, and many deliveries by small suppliers may in fact *increase* distance travelled and associated emissions.
- However, **local food** in some cases was seen to **correlate with GHG benefits** through the procurement of seasonal food, and designing healthier menus with more vegetables and less meat. **Procuring local food may therefore indirectly lead to GHG savings, even though being 'local' was not the driver for those savings** (since seasonal food and vegetable-heavy menus can also be procured through national and international supply chains).
- Much of the evidence around SFP schemes relies on opaque methodologies or generalised statements about their GHG benefit which may overlook nuances such as those regarding local supply chains.

2.2 Other environmental impacts

Key takeaway for policymakers: A small amount of encouraging evidence suggests that procurement rules *can* encourage changes in how farmers manage land. These include increased adoption of environmental management practices such as organic, or measured increases in on-farm agrobiodiversity. More research which explores the relationship between procurement incentives and food production practices is needed. There is otherwise a lack of robust evidence on other environmental impacts and more is needed.

- Much of the **evidence for environmental impacts other than GHGs - such as water use, eutrophication and toxicity - was weak**. Many of the identified quantifications of non-GHG environmental impacts had opaque methodology. The variety and inconsistency of environmental indicators makes comparisons between studies difficult. In many cases, no quantifications were attempted and there was a reliance on 'common knowledge' and generalised statements. This was often the case in grey literature promotional case studies, and may therefore reflect their purpose as promotion rather than evaluation.

- Many procurement schemes target the purchase of seasonal produce, or foods adhering to specific certifications due to their perceived benefits. There was a **lack of evidence** on the outcomes associated with such procurement. Evidence for the impacts of seasonal or certified production will exist outside of the procurement-focused literature, but few have yet made an explicit connection between institutional purchases and those outcomes.
- A very small number of studies were identified which robustly measure how procurement policies have impacted environmental decision-making on farms. Importantly, these pieces of evidence suggest that procurement policies do lead producers to **change their production practices.** These include increases in organic land cover and measured on-farm improvements in farm agrobiodiversity. More evidence which investigates this dynamic would be very beneficial.

2.3 Health outcomes

Key takeaway for policymakers: Procurement policies can encourage the consumption of healthy food in institutions. This is highly dependent on the design and implementation of the policy. Holistic 'multi-component' approaches which consider how food is prepared, served and communicated about are important to ensure healthier food provision leads to healthier food consumption. Some limited evidence suggests metrics including pupil attainment and patient rehabilitation could be improved by food procurement interventions, a promising finding which should be further explored.
What is eaten in institutions interacts with what is available outside of them. If these are contradictory (i.e. healthy food is served in institutions but an many cheap, unhealthy options are available outside of them), public procurement alone may be insufficient to counteract the tendencies of the wider food system, reducing the change of long-lasting change.

- Procurement schemes can contribute to **improved fruit and vegetable availability and consumption**. Multi-component interventions which improve both availability and demand have a stronger impact. However, very little evidence was identified which examined the relationship between the availability and consumption of fruits and vegetables in institutions and intermediate or final health outcomes. More evaluation examining these to identify possible rebound effects is important.
- Procurement schemes can **improve uptake of meals** in institutions. As with fruits and vegetables, whole-settings interventions which consider preparation, serving and communication appear to be more beneficial in achieving improved uptake.
- There is some evidence of wider cultural changes including improved food knowledge and attitudes and anecdotal claims of improved quality. The success may depend on whether food served **complements or contradicts wider food-system dynamics**. Improvements to private consumption appears more likely when the dynamics are complementary. Otherwise, there is a risk that the impacts of public procurement may be limited by access to unhealthy 'competitive' foods. In

some cases, consumers rejected ‘healthy’ changes to procurement, and this may reflect broader food-system preferences and dynamics.

- Some limited, encouraging evidence was found which mentioned improvements in metrics including pupil attainment, patient rehabilitation and care home resident mood associated with procurement policies. The relationship between food procurement and such **broader social outcomes** should be further explored.

2.4 Economic and social outcomes

Key takeaway for policymakers: The introduction of SFP schemes is widely reported to be associated with an increase in *ingredient* costs. Whether or not the *food service overall* increases costs, however, depends on policy design and operational decisions, with many examples of budgets being balanced through changing menu composition and reducing waste. These changes are aligned with lower GHG footprints, suggesting an opportunity for positive synergies.
Existing measurements of the economic impact of SFP schemes – like SROI and LM3 – are valuable, but often consider a scheme in isolation rather than comparing the impacts of the ‘sustainable’ scheme and the scheme they have replaced. As a result, the *net benefit* of changing procurement practice is not clear. Where they have been compared, ‘sustainable’ and ‘conventional low-cost’ schemes have had broadly comparable impacts on economic activity. The role of local *staff* for generating economic activity may have been underappreciated, with focus going primarily on local *ingredients*. More evaluation of the *net* impacts of changing procurement policy is needed.

- The evidence around **cost implications of procurement schemes** is mixed. Increased market costs associated with ingredients was widely reported both as an experience and a perception. However, many examples were also identified in which the costs of running the food service were stable or even decreased, often due to more ‘holistic’ approaches which involve menu redesign and the reduction of waste. Further evaluation and comparisons of specific outcomes such as food service running costs, revenues and profits across different institutions would be beneficial.
- There is **uncertainty on the impacts for upstream suppliers**: some studies suggest increased employment, financial security and opportunities to invest for small suppliers, whereas in other cases suppliers indicated that procurement contracts played a modest role in their security or income. The impact on displaced suppliers was not evaluated and is therefore unclear. Regardless of economic impacts, there appear to be **indirect benefits for suppliers** involved around visibility in the community and satisfaction with involvement in procurement schemes.
- Within the institution, some anecdotal evidence suggests they can contribute to improved **staff satisfaction and wellbeing**, though survey measurements are less conclusive, showing minor or no improvements (though no evidence suggested

they worsen staff wellbeing). It is likely that staff impacts will depend on specific programme design rather than the act of having procurement policies.

- The economic impacts of SFP can be assessed using measures such as Social Return on Investment (SROI) and Local Economic Multiplier (LM3). Analyses of SROI were identified primarily in the UK and in relation to the Food for Life scheme. Though some analyses have different scopes so are not directly comparable, they generally point towards **between £3 and £6 return in social benefits for each £1 invested**. These approaches poorly quantify environmental benefits so could understate the impacts: more research is needed to bring together monetised environmental impacts of food production and food procurement. However, SROI **analyses are often limited** by not robustly assessing displacement effects, i.e. the impact of the procurement scheme which has been replaced. Full SROI analyses of 'before' and 'after' would help quantify the impact of *changing* procurement.
- LM3 analyses suggest that SFP-related schemes return **approximately £0.8 - £1.50 in *additional* local economic activity** for each £1 invested. As with SROI, this is often calculated in isolation. Where the impact of SFP schemes and 'conventional' low-cost procurement have been compared, they were observed to have **broadly comparable economic impacts**. One possible reason is that 'local people' (i.e. staff wages) is as important as 'local food' for generating local economic activity.

2.5 General findings across the evidence

Key takeaway for policymakers: Defining what is being considered 'sustainable food' in the context of procurement is important and facilitates better evaluations of what is driving change.

- What 'sustainable food' is in the context of procurement policies is **not consistently defined**, which makes comparisons difficult. However, an **implicit, broad shared notion was identified** across the literature which recognises overlaps between the pillars of sustainability: fresh, seasonal, locally-procured, organically-grown with 'less but better' meat and healthy, vegetable-rich recipes were widely discussed.
- Potentially as a result of the lack of consistent definitions, much of the evidence – particularly around environmental impacts – relies on **general statements or 'common knowledge'** about what 'good' food is. This is unhelpful for understanding actual impacts and situations in which there are nuances. More clearly defining what a 'sustainable food' intervention is would be beneficial.

2.6 Synergies and trade-offs

Key takeaway for policymakers: There are opportunities for both synergies and trade-offs across the food system. Policy coherence is needed to maximise the opportunity for positive synergies and reducing trade-offs and barriers.

A high-level overview is presented of the evidence, exploring the wider implications of SFP-related schemes and its potential to lead to wider food system change. The wider food systems impact in the UK context is something which has begun to be explored further by Parsons and Barling [1]. These interlinked themes are summarised in Table 1.

Table 1: Number of pieces of evidence identified in the REA related to specific positive and negative food system synergies and trade-offs. Total body of evidence: 52 pieces

Positive food system synergies	Negative food-system trade-offs
Community building, inclusion, and trust (leading to improvements in communities self-defining) (n=12)	External factors impacting on the capacity to deliver quality products and services. The SFP related requirements becoming a barrier. (n=2)
Governance changes and need for policy support. This includes improved governance of different parts of the procurement and wider food system. E.g. public sector catering, farming etc(n=10)	Possible negative or unhealthy relationships with food develop due to changes. (n=2)
"farmers win" (including Improved prices for farmers and Improved living standards for farmers) (n=9)	Increased food waste (and leading to a "disposable" food culture) (n=2)
Increased knowledge of food and about foods on offer (in staff, and citizens) (n=9)	Negative interactions for farmers with other food system actors due to SFP requirements (n=1)
Education programmes and wider food literacy (n=8)	Disempowerment of communities and certain stakeholders (n=1)
Wider changes to consumer behaviour (spill over effects) (n=8)	
Improved overall quality of food (n=7)	
Jobs and Employment as well as skill development (n=6)	
Wider Changes to industry (n=6)	
Positive pleasure and enjoyment of food, satisfaction with service. (positive wellbeing impacts) (n=4)	
Leading to wider actions to promote Healthy and Sustainable food (n=4)	
Time saving and time use (n=4)	
Offering of wider services in the community (n=3)	
Local economic boosts (n=3)	
Food waste reductions (n=2)	

[1] Kelly Parsons and David Barling, 'Food Systems Transformation: What's in the Policy Toolbox?' (Transforming UK Food Systems, 2021), https://www.foodsecurity.ac.uk/research/foodsystems-spf/outputs/; Kelly Parsons and David Barling, 'Identifying the Policy Instrument Interactions to Enable the Public Procurement of Sustainable Food', *Agriculture* 12, no. 4 (2 April 2022): 506, https://doi.org/10.3390/agriculture12040506.

Hygiene and food safety (n=2)	
Food sovereignty and security (n=2)	
Food Citizenship (n=2)	
Food system and community resilience (including stable markets) (n=2)	
Diversified farming systems (agrobiodiversity and agro-ecological practices) (n=1)	
Changes to wider packaging (n=1)	
Empowerment (n=1)	

There are opportunities for both synergies and trade-offs. For substantial, positive food systems impact relating to food procurement and catering, transformational change is required. For this to be achieved, however, there needs to be **policy coherence**: mutually reinforcing policies that create synergies towards achieving agreed objectives and minimise negative outcomes in other policy areas.

2.7 Evidence on uptake and implementation

Key takeaway for policymakers: There is no 'one-size-fits-all' food procurement approach given the diversity in needs and constraints of different institutions. It is important to be mindful of these differences and existing regional inequalities as to not exacerbate them.

2.7.1 Structural constraints

- The feasibility of 'local' food procurement will depend on the productive and processing capacity of a 'local' area. Local procurement policies may therefore reflect **existing regional inequalities** in budgets, infrastructure and food availability.
- Different institutions have different constraints and **there is no 'one-size-fits-all'**. These include different physical infrastructure such as kitchen space, and management structures including where procurement decisions are taken. The built environment and day-to-day operations of a setting may also restrict the extent of changes in some settings, particularly healthcare.

2.7.2 Leadership and decision-making considerations

Key takeaway for policymakers: There is an important role for political leadership in establishing policy and personal leadership in institutions. One of the roles of leadership is to break down silos and avoid fragmentation. How centralised or decentralised decision-making is will depend on the policy objectives: support for local procurement from small suppliers seems to benefit from decentralised decisions.

- Leadership is important at a **political and personal level**. Political leadership includes designing enabling policy frameworks and setting clear, quantified and time-bound targets. Personal leadership includes the role of 'champions' within institutions, who are repeatedly found to play an important role. Over-reliance on individuals risks that procurement schemes are not fully embedded in the institutional culture, however.
- Generally, decentralising local decision-making can facilitate innovations in local food procurement. Decentralised procurement seems to benefit small producers. Procuring for other criteria, such as nutritional standards or national certifications, may benefit more from centralised economies of scale. **The suitable approach may therefore depend on the policy objectives.**
- Fragmentation of governance is a risk and barrier to successful implementation. **Strategic planning and leadership** is needed to break down organisational silos and ensure that sustainability is approaches in a holistic way which connects environmental, economic and social objectives.

2.7.3 Implementation factors

Key takeaway for policymakers: How procurement policies are designed and implemented matter for how well they are embedded. Generally, collaborative approaches appear to work best. This includes institutions collaborating with the market of suppliers to understand limitations and offer supportive contracts. It also includes collaboration and engagement within the institution, through participatory decision-making and supporting canteen staff through changes. Engaging canteen staff is particularly important where cost-balancing menu design and cooking practices are an objective.

- How contracts are designed can support particular objectives. Having long-term contracts with gradual progression, and dividing contracts into smaller, manageable lots can create a supportive environment for smaller suppliers to invest and develop.
- Passing on the information and administrative burden of policy implementation may hinder implementation of policies by institutions and reduce participation of small

suppliers. Instead, **training, guidance and support should be offered** to those implementing and participating in new procurement schemes to ease the transition. Collaboration and engagement with the market was a clearly identified mechanism to ensure institutions and suppliers are aware of each other's needs and limitations.

- There is a widespread perception of increased ingredient costs associated with SFP schemes. This does not necessarily need to translate into increased food service cost: **cost-balancing strategies** such as reducing food waste, improving efficiency and changing menus to have less meat and fish and more seasonal vegetables and less-used cuts of meat were all regularly highlighted. These menu changes have **synergies with economic, health and environmental goals**.
- Participatory engagement and cross-sector collaboration were often highlighted as enabling factors. Involving stakeholders within institutions, such as through specific bodies or committees, can increase buy-in and engagement. **Engagement of canteen staff is particularly importan**t, as they are crucial for successful implementation of SFP schemes. This can include involving them in decision-making and offering training and support to realise new standards or changed menus
- There is a need **for better evaluation of impacts**, including analysing effects before and after changes to procurement practices. This is hindered in cases where there is inadequate data, such as regarding the carbon footprint of locally-procured or foods certified to specific standards. Better data collection more generally will support better evaluation in procurement.

2.8 Frameworks to understand sustainable food procurement

2.8.1 The conceptual models

This research presents an original *theory of change* articulating 'how' and 'why' reformed institutional procurement could lead to enhanced sustainability outcomes. This was developed as an iterative process with the evidence assessment findings, and presents two frameworks to understand what 'sustainable food procurement' is and how it can have a system-wide impact.

Conceptual model: theory of change

Public food procurement is embedded in the wider food system. The conceptual model presented in Figure 1 illustrates how changes to *food* can relate to outcomes in the institution, for consumers of the food service and across the wider food system.

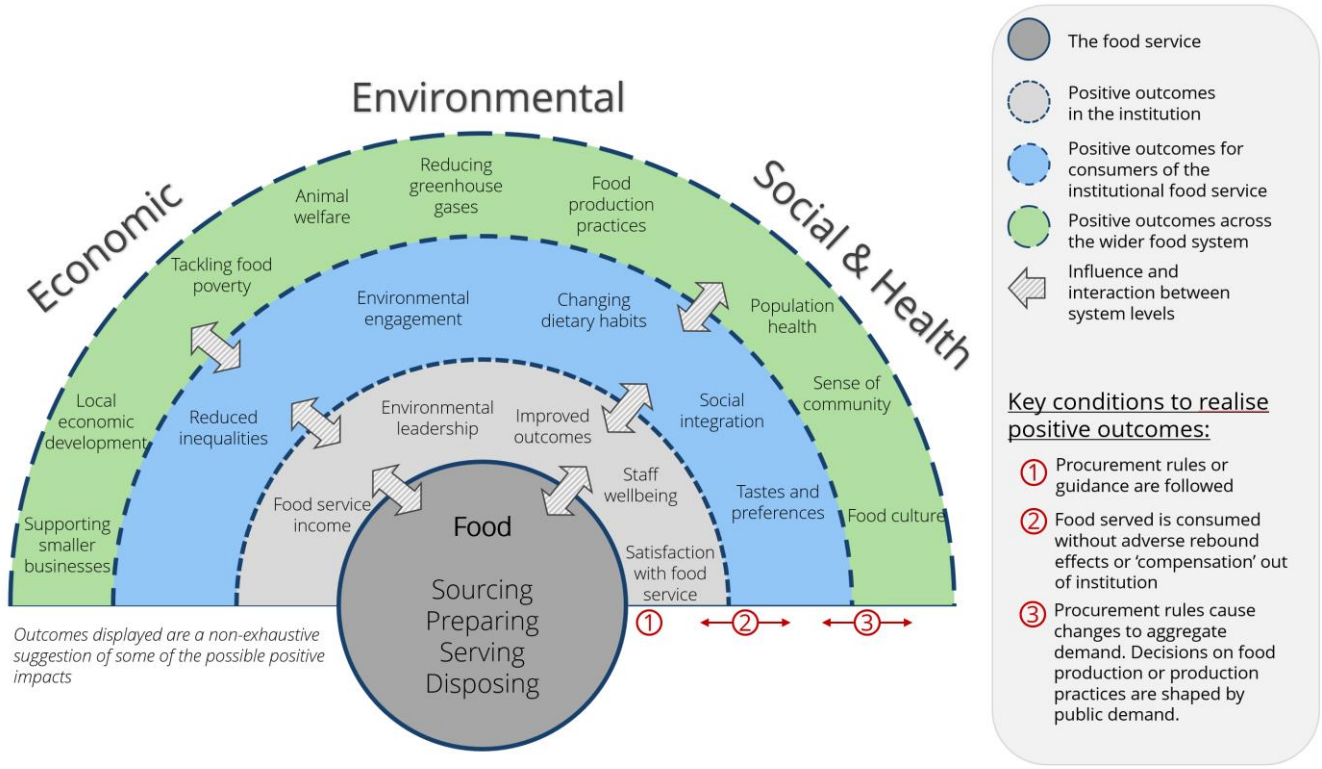

Figure 1: Conceptual model. Designed by authors. Inspired partly by South Lanarkshire Good Food Strategy 2020-2025.[2]

The central activity is sourcing, preparing, serving and disposing of food. These factors are all shaped by the food and procurement policy. These factors interact with outcomes for the institution, both of which interact with outcomes for the consumers of the institutional food service and across the wider food system. Outcomes can be across any of the three pillars of sustainability, or indeed all three at once. Whilst what is happening in food procurement can impact these wider aspects, the relationship goes both ways: the food system, the institutional consumers and the institution can all influence what is procured.

Crucially, three critical dependencies are highlighted in red on **Error! Reference source not found.**, which are necessary conditions for public procurement influencing the wider food system:

1. Firstly, the introduction of new rules or guidance must be translated into actual differences on the public plate. In other words, procurement guidance must be implemented and embedded.
2. Secondly, to realise improved outcomes for consumers of the food service, what happens in the institutional food service must impact the consumption patterns of its consumers. To realise positive effects, such as positive health outcomes, the food must be consumed without adverse rebound effects such as increased waste and/or 'compensating' with food choices outside of the public setting, e.g. eating

[2] https://www.southlanarkshire.gov.uk/info/200172/plans_and_policies/1793/food_strategy

less healthy food for dinner because it has been 'earned' by a healthier lunch in the institution.

3. Thirdly, there is a similar dynamic for effects across the wider food system, particularly around environmental outcomes, which impact those who are not consumers in public institutions. Redirecting the same amount of supply from existing markets to different buyers will have limited impact unless it leads to an *increase in supply* of that food (i.e. more fruits and vegetables, more production grown to a specific environmental standard). Consider organic food: rather than institutions buying organic food which would have otherwise gone to other markets, the aim would be to *increase the share* of food production which is grown organically. In other words, farmers' and caterers' decisions about what they produce and how they produce it need to be positively influenced by procurement rules. This would in theory then impact what food is available and at what price for consumers in other food markets, not just the public setting.

Framework for classifying sustainable food procurement interventions

The inconsistency in defining 'sustainability' in food hinders having a clear, well-defined idea of what a 'sustainable food procurement' measure actually is. To help address this, we present a classification framework based on four main possible avenues for intervention, displayed in **Error! Reference source not found.**: the *ingredients or food sourced*, the *non-food equipment and infrastructure* like kitchen appliances and transport, the *staff behaviour* and the *consumer behaviour*. An SFP intervention could target any one or multiple of these avenues.

Food service interventions which target multiple areas at once could be considered to be more holistic. These take a 'whole-settings' approach, seeking to change the culture around food in an institution rather than altering a single component, such as the ingredients.

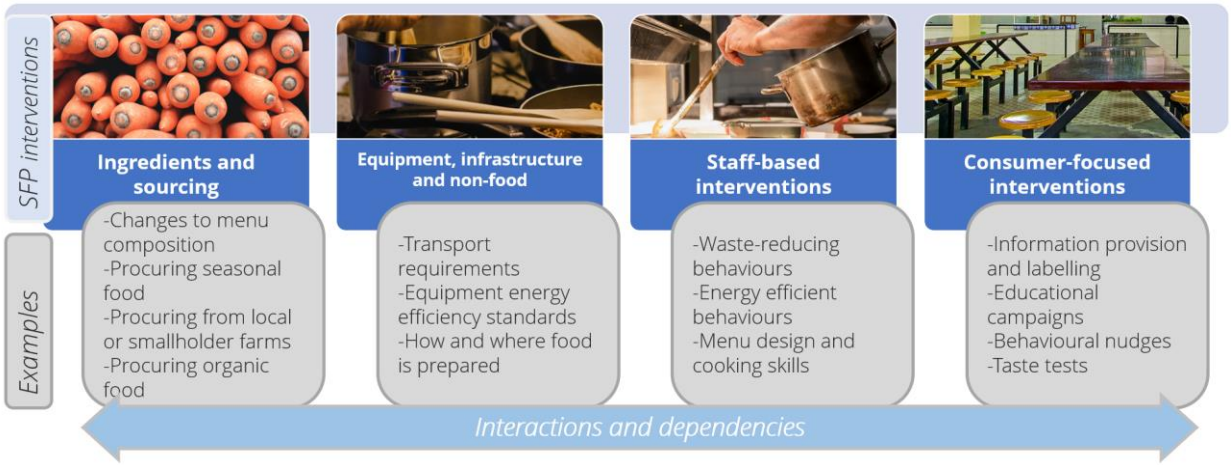

Figure 2: Framework for classification of sustainable food procurement measures. Designed by authors.

2.8.2 Discussion of impacts in relation to theory of change

Key takeaway for policymakers: How to embed sustainable procurement policies was clearly documented and specific recommendations are formed (throughout section 0). Enabling transformational change to realise sustainability outcomes across the three pillars was less robustly assessed in the literature. Some encouraging evidence, was identified which suggest there is a *potential* for transformation, and clear opportunities for synergies exist across the outcomes through procurement of healthier, lower GHG menus with large shares of fruits and vegetables which can be procured locally.

Where studies about sustainability outcomes tested the theory of change, they were generally consistent with the *belief* that SFP-related schemes could leverage wider change in the institution and food system. No evidence was found which directly contradicted the theory of 'sustainable food procurement' delivering benefits across the environment, health and economy. In some cases, clear opportunities for synergies exist: procuring fresh produce from local producers and serving a menu which has a high share of fruits and vegetables has opportunities to provide healthy food with a lower GHG footprint whilst supporting smaller suppliers. However, some cases – such as in the reduction of 'food miles' – have more nuance than the often-simplified claims would suggest..

The theory of change was not refuted, though not enthusiastically confirmed either. Considering the three dependencies highlighted in Figure 1, the **first dependency** – ensuring new procurement policies are successfully implemented – was the most conclusively answered. Firstly it is suggested that the perception of 'sustainable food procurement' must go beyond just *what* ingredients to consider *how* food is prepared, served and communicated about (see Figure 2). Cultural shifts around food appear to be better supported by 'whole settings' interventions, such as those in schemes like Food for Life. Whilst there is no single successful model, some key commonalities between successful schemes have been identified in the 'lessons for implementation' findings (0). These are condensed into suggested 'best practice' for policymakers and institutions looking to implement sustainable food procurement, presented in Figure 3.

The **second and third dependencies** – leveraging food service changes to enable systemic outcomes for consumers and across the food system – were less regularly investigated. Few studies observed impacts at the level of the food system, so how and when procurement schemes translate into meaningful change beyond the institution is still uncertain.

Some encouraging evidence was identified around food production practices being shaped by public demands and more research of this nature would be beneficial to understand **environmental** impacts.

For **health** impacts, whilst some positive findings around healthy food consumption were observed both in and out of public institutions, more research is needed to on how and

when the food consumed in institutions complements or contradicts the food on offer outside the institution, and what impact this has on consumers' diets overall.

For **economic** impacts, useful methodologies and studies help to quantify the benefit of procurement schemes, but more work is needed to embed these impacts in the context of the decision to replace an existing 'conventional' scheme; existing food service may generate more benefits for local businesses and workers than is often acknowledged. The *net* impacts of procurement schemes should be considered against their objectives to better understand possible systemic effects.

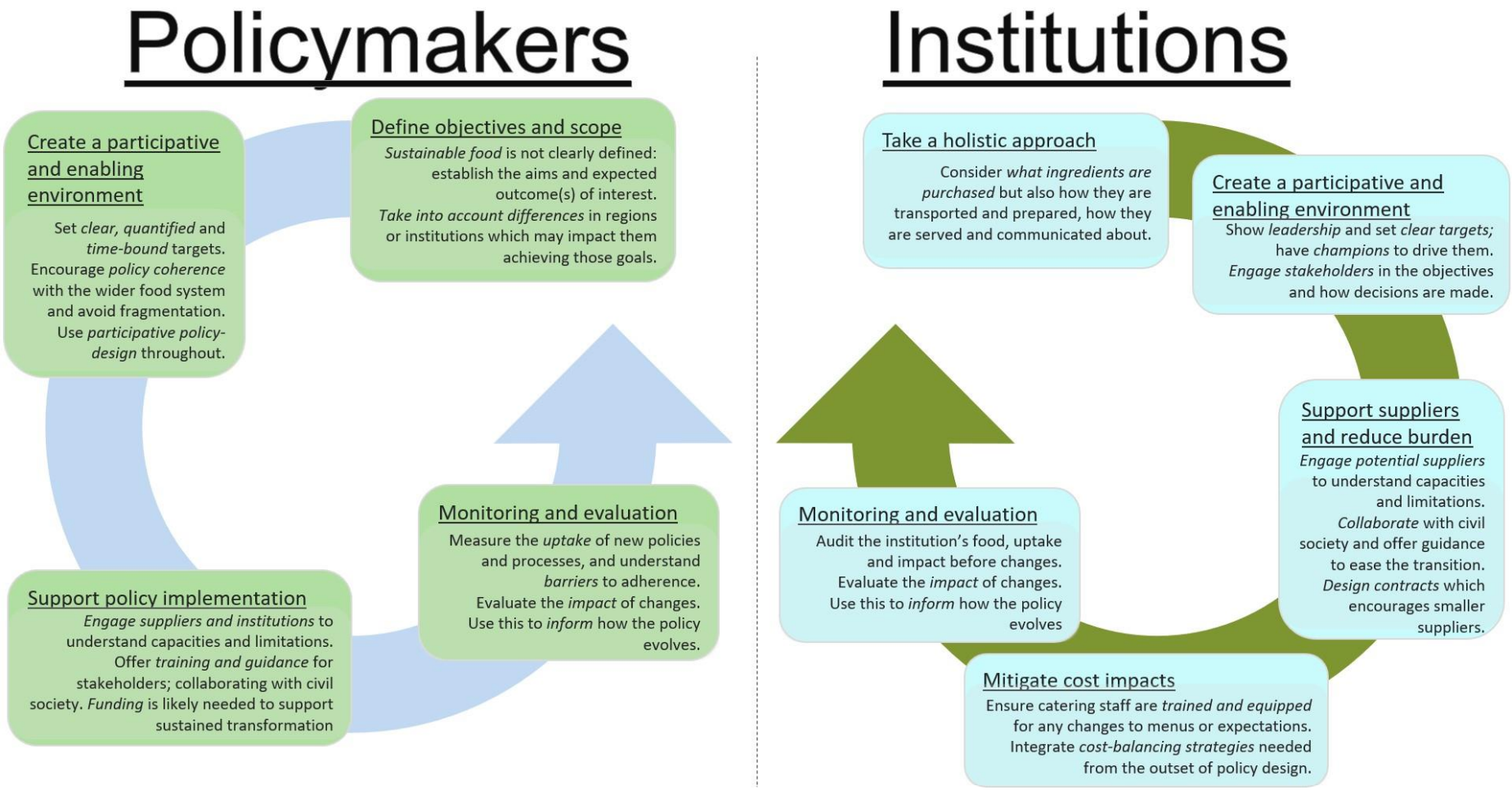

Figure 3: Suggested 'best practice' guide for policymakers and institutions. Designed by authors.

3.0 The scale of opportunity in England

A secondary objective to the evidence assessment was to form initial exploratory estimates of the scale of public sector food service in England and the possible level of impact which sustainable food procurement interventions could achieve. These estimates are intended to be initial approximations only and are limited by areas of data unavailability and simplified assumptions based on secondary data. Their purpose is to get an indication of the scale of opportunity in England. The calculation methodologies and data limitations are described in detail in the **main report.**

3.1 The scale of public sector food

Key takeaway for policymakers: Original estimates of the scale of public sector food service in England suggest that 1.9 billion meals are served per year, with more than 90% being in educational and healthcare institutions. An original estimate of expenditure suggests that £4.9 billion is spent on food and catering services, approximately double an older but much-cited estimate, suggesting that the economic impact of food procurement has been under-appreciated.

3.1.1 Meals served

We estimate that the public sector serves approximately 1.9 billion meals per year in England.[3] The figures, by sector included, are broken down in Table 2.

Table 2: Estimate of meals served through the public sector in England

Sectors	Subsectors	Estimated meals served (millions)	Subsector share of total meals served	Sector share of total meals served
Education	Schools	736	39%	52%
	Further and higher education	244	13%	
Healthcare	Patients	140	7%	42%
	Healthcare staff	219	12%	
	Care homes	429	23%	
Other	Prisons	82	4%	6%
	Military	23	1%	
	Civil service office workers	9	0.5%	
Total		**1,882**		

The majority of these meals are served in the *education* and *healthcare* sectors, with schools and care homes being particularly important. This is likely not surprising due to the

[3] The figure is not for a specific year, but broadly represents 2019-20: in general, data from the COVID-19 lockdowns of 2020 and 2021 were not used due to the disruptions to normal operation of food service.

large number of potential customers and those subsectors in some cases having limited alternative options.

These estimates have substantial uncertainty in some subsectors due to limited robust data identified. The data are particularly uncertain for further and higher education, healthcare staff and civil service office workers. Better data on the number and type of meals served in public settings could greatly improve our understanding of the scale and potential of public food procurement.

3.1.2 Expenditure on food and catering services

Building upon the estimate of meals, we estimate that approximately £4.9 billion is spent on public food and catering procurement in England. At present, education and care are not covered by Government Buying Standards for food and catering services, so only around £1.3 billion of this expenditure is directly influenced by standards set by the GBS.

Table 3: Estimate of expenditure on food and catering services in the public sector in England. Sectors with * denote being covered by the GBS for food and catering services.

Sectors	Areas included	Estimated expenditure (£ million)
Education	Schools	£1,746
	Further and higher education	£711
Healthcare	Patients	£632
	Healthcare staff	£550
	Care homes	£1,142
Other*	Prisons	£63
	Military	£42
	Civil service office workers	£19
Total		**£4,905**

Of this total expenditure, we estimate that around half (52%) is expenditure on ingredients or foodstuffs, about 41% on labour, with remaining costs elsewhere (energy, water, waste treatment, administration and so on).

This estimate comes to approximately double the previous estimate of £2.4 billion per year cited in 'A Plan for Public Procurement'[4] and elsewhere, including the independent

[4] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/332756/food-plan-july-2014.pdf

National Food Strategy.[5] The £2.4 billion figure is dated and opaque in how it was calculated, so a substantial divergence is to be expected. The limitations of data around meals and expenditure also mean there is considerable uncertainty in these approximate estimates. However, the scale of difference when compared to previous estimates suggests that the financial implications of public meal services have previously been under-recognised.

3.2 Indicative estimates of the possible impacts of sustainable food procurement schemes

Key takeaway for policymakers: Initial, indicative estimates were made of the impact of interventions in food procurement in England. These should be treated as approximations only due to insufficiently robust data. They suggest that institutional food service in England is responsible for around 2.5 million tonnes CO_2e, or 1.6% of the UK's total food system footprint. Changing menu composition could reduce this by 30-44% by eliminating the highest GHG meals and increasing the share of low-GHG meals.

If 50% of food was produced locally, this could have a social return on investment of about £3.95 billion in monetised social benefits. Localised procurement could generate around £5.6 billion in billion locally on top of initial expenditure. Much of these benefits may already be generated by food services: we estimate the *added value* from changing from 'conventional low-cost' procurement to localised procurement as an added £437 million - £1.09 billion in local economic activity.

The calculations on the scale of public sector food (3.1) was combined with quantitative findings identified through the evidence assessment (**Error! Reference source not found.**) in indicative modelling of the potential impacts of 'sustainable food procurement' in England.

Because of the inconsistency with which 'sustainable food procurement', and indeed 'sustainable food', is defined (**Error! Reference source not found.**), the interventions modelled from the literature may differ and are therefore not necessarily additive. The lack of robustly quantified interventions and data limitations around what is known of English food procurement means that the modelling used generalisations based on secondary literature. The results therefore have substantial limitations and should not be considered robust quantifications of the impacts of specific policy scenarios. They are, rather, initial and indicative estimates to contextualise the sort of scale which could potentially be achieved through widely-adopted SFP policies.

[5] https://www.nationalfoodstrategy.org/the-report/

3.2.1 Greenhouse gas emissions: lower GHG meals through changing menu composition, sourcing practices or reducing food waste

Using in-depth analysis of the types of meals served in school canteens and their greenhouse gas (GHG) footprint as a proxy for meals served in public institutions more generally, some approximate estimates of the carbon footprint of public-sector catering can be formed. This is suggested to be around **2.5 million tonnes of CO_2e.** Drawing from WRAP's previous estimates of the UK food system's emissions,[6] English public food procurement directly represents around 1.6% of the total UK food system footprint.

Scenario exploration was conducted based on evidence from the REA. Research from De Laurentiis (2017), on which the carbon footprint was based, was used to group meals into a 'traffic light' of 'green', 'amber' and 'red' based on their greenhouse gas footprint.[7] These could reflect theoretical targets for food service providers which could be met through a variety of avenues: primarily dietary change by redesigning menus around low-GHG ingredients, by sourcing the same products from producers with better management practices and lower GHG footprints for those foods or in some cases adopting more efficient cooking methods could all allow lower GHG meals to be served. Additional plate waste estimates were made to explore the possible impact of reducing food waste.

The results point to substantial opportunities for GHG emission reduction. Eliminating meals with the highest footprint ('red' meals, > c. 1.75 $kgCO_2e$ for adults) and increasing the share with lower footprints ('green' meals < c. 0.95 $kgCO_2e$ for adults) could save up to 30% – 44% of the food and catering service emissions, or 0.75 – 1.1 million tonnes CO_2e if replicated across the whole public food service. Reducing plate waste offers savings, but much lower: in fact, even in scenarios where 'green' meals lead to *higher* rates of plate waste, substantial GHG savings can still be achieved. This suggests that adopting healthy menus with large shares of fruits and vegetables can be an important mechanism to achieve GHG savings, even if it leads to higher wastage.

These results are **highly uncertain** due to the use of secondary data and average emission factors rather than supply-chain specific information: the default/baseline may not accurately reflect current practices, and variation between suppliers of the same product can be very substantial. It is also limited by the use of school meals as a proxy, as the menu composition could vary in other settings. However, these limitations are driven in large part by data availability, and the findings are useful to see that large savings could be achieved, primarily through menu changes.

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[6] https://wrap.org.uk/resources/report/uk-food-system-ghg-emissions

[7] de Laurentiis, 'Environmental Sustainability Assessment of the Primary School Catering Sector'.

3.2.2 Economic impacts: localised procurement could return billions in localised impacts

Using estimates on expenditure on food and catering services (3.1.2) and findings from the REA (**Error! Reference source not found.**), approximate estimates were formed of the socioeconomic impacts of localised procurement, such as those in line with the Food for Life programme, which require freshly prepared, seasonal food including local and organic ingredients.

The **Social Return on Investment** depends heavily based on what share of ingredients are sourced following 'sustainable procurement' guidance. If, for example, 50% of the ingredient budget (approximately £1.3 billion) was directed to procurement from more localised and smaller suppliers, this could lead to between £2.6 billion and £7.9 billion in monetised social returns, with a 'best estimate' of approximately **£3.95 billion.** The large range stems from differing boundaries of analysis and a small number of case studies from which there is substantial uncertainty, and will likely vary between different regions or institutions.

An analysis of **local economic activity** was also conducted based on evidence from the REA. Based on current expenditure, approximately **£5.6 billion** (£3.79 - £7.4bn) could be generated locally on top of the food service expenditure. However, one REA finding was the importance of comparisons with existing 'conventional' food services, which may already generate substantial local economic activity through food procurement and hiring local staff (see □). The *added value* generated by *changing* from existing 'conventional' or low-cost models to more localised procurement is estimated as an **added £437 million - £1.09 billion in local economic activity.** A regional breakdown of this added value is presented in Figure 4. This suggests that, though public food procurement can deliver substantial economic returns, many such returns could already be occurring, with smaller – but still substantial – economic benefits by adopting specific localised procurement policies.

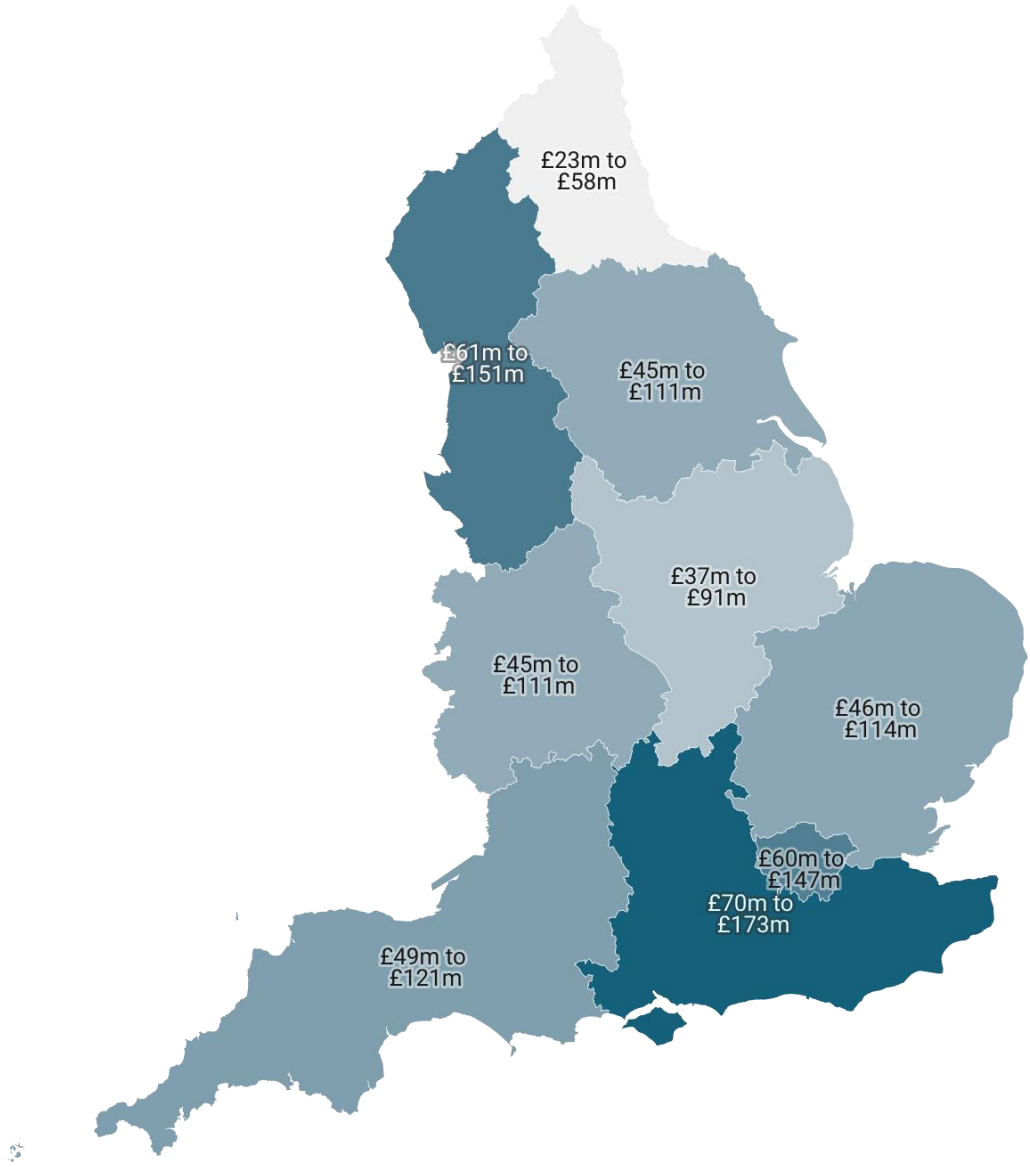

Figure 4: Approximate added economic activity associated with moving to SFP, by region

As with the GHG estimates, these economic impacts are **highly uncertain** and based on generalisations from a small number of case studies. Better data on current supply chain practices and more measured interventions would help enable more nuanced estimates to be formed.

4.0 Evidence gaps and areas for future research

Based on the findings of the REA and modelling exercises, a small number of recommendations are made for future research. These are summarised below and elaborated upon in the **main report:**

1. Establish a **greater consensus on defining 'sustainable food'** and 'sustainable food procurement' measures.

2. Research on SFP should demonstrate better **transparency of data and methods**, particularly for case-study-style evidence.
3. **Standardised data capture** about food procurement across different settings should be implemented. Where possible, datasets should be made accessible for researchers and analysts to further improve the evidence base on sustainable procurement.
4. More research should be undertaken which examines the theory of change of sustainable food procurement to better understand **how it interacts with the wider food system**. Understanding the complexity of how, when and with what supporting policies procurement schemes can leverage wider systemic effects for the environment, economy and consumer health is important for designing effective policy.

5. Proponents should **avoid de-contextualised statements** of SFP scheme impacts. Using comparisons of the same location pre- and post-intervention, or comparing SFP and so-called ‘conventional’ services is needed for fuller understanding of impacts. In particular, economic studies exploring **comparisons between food service types** would offer valuable insights.