Q&A from Strength2Food Webinar "The Impacts of Public Sector Food Procurement Strategies and Tools for Better Management"

Label colours for answers:

- **Prof Angela Tregear -** Public Sector Food Procurement for school meals in Europe: evaluation of the environmental, economic and social impacts
- **Mr Adam Wilkinson -** Meal Analyser Tool demonstration
- **Prof Steve Quarrie -** Menu and Procurement Planning Tool demonstration

Remaining Questions & Answers

1. **How many grams are an average meal? It would be interesting to see results in CO2/kg and CO2/euro.** The figures in the first bar chart of the presentation ("First, which foods were purchased by the schools?") show the total weight of procured food per average meal, as calculated from supplier invoices/info in each of the cases. From this data, we did estimate CO2eq/kg and although not included in the presentation, the results can be found on p.30 of the D6.3 Synthesis Report. We did not calculate CO2eq/euro in the research - although this could be interesting, it would be difficult to draw meaningful comparisons, because of cross-country differences in the cost of food items. We also measured the weight of served food as part of our plate waste study, and these averages are reported in the D6.2 Synthesis Report.

   Relative CO2/euro can be assessed from my Meal Planner by comparing the relative sizes of meal components in the left- and right-hand figures of the Charts and Tables spreadsheet. This shows for example that vegetables have relatively low CO2/euro, meat relatively high CO2/euro and dairy products roughly equal proportions. I have also got a measure of cost per calorie for different foods in the Meal Planner, which helps to adjust meal menus while keeping total meal costs low.

2. **What is the best thing a school meals service can do to reduce their carbon footprint? Other than not putting the waste in to landfill of course.** Our results indicate that after waste disposal method, the most impactful activities are: adjusting menus to increase the proportion of low carbon burden foods (e.g. fresh fruit and veg) while decreasing high burden foods (e.g. meat from ruminant livestock); improving transportation efficiencies (e.g. using distribution hubs, piggybacking, backhaul, and fuel efficient vehicles); reducing food waste (e.g. by adjusting portion sizes, improving canteen environment/supervision, adjusting food preparation/storage practices). In a school meals context (in particular), adjustments to menus do have to be made with reference to a nutritional standards framework.

   The Meal Analyser tool gives an indication of how certain actions impact on carbon emissions, echoing the results of the research above.

3. **Are these primary or secondary schools? In terms of the UK schools, was the school meals service provided by the Local Authority, in-house provided by the school or an external contracted commercial partner?** All the meals services studied were to primary schools. In the UK, one case was a meals service operated directly by the local authority, while in the second case, the service was operated by a private catering firm under contract to the local authority. In both cases, almost all meals were prepared and cooked on-site in schools' own kitchens.

4. **Are the nutritional standards those that are specified locally or to a common standard across the case studies?** The nutritional standards were national based standards. In countries where national standards did not exist at the time of data collection, i.e. Serbia and Greece, we used World Health Organisation standards (2006) as a proxy.

   The WHO standards are the ones used in the Meal Planner tool, for most nutrients. For a few nutrients (for example sodium content), EFSA recommendations are used in the Meal Planner.

5. **How can we reduce food waste in a school/office canteen with a variable number of attendees?** Even with pre-ordering systems in place, many of the schools in our cases experienced unexpected fluctuations in meal uptake. Our analysis indicates that improvements to canteen environment (e.g. giving children enough time and space to eat their meals) and supervision (e.g. lunchtime supervisors to encourage children to eat more) are important actions for reducing plate waste, in a school context.

6. **How is 'local' defined across the case studies?** For all cases, 'local' was determined as a radius area from a geographic centre point relevant for the meals service. For meals services organised at municipal level, this centre point was the location of the central kitchen or meals service HQ. For meals services organised by individual schools, the centre point was the schools themselves. In terms of the size of the radius area, rather than impose a single standard across all cases, the size was guided by country context and the perspective of stakeholders - so e.g. in UK cases a 40km radius was applied, while in Serbia a 15km radius was applied.

7. **Could you give more detail on the local economic indicator and how the added value is produced?** The basic premise is that monies that are spent within a local area (e.g. monies from a school meals budget being spent on catering staff and suppliers that reside within the local area) are more likely to be re-spent by those recipients in the local area. Whereas monies going to geographically distant recipients are less likely to be re-spent locally. It is this feature of local multiplier re-spending (e.g. on goods, services, taxes etc.) that generates the additional value locally.

8. **Did you only look at carbon footprint, or were other environmental indicators included as well?** We measured carbon footprint in terms of carbon dioxide equivalents (kgs CO2eq), which encompasses carbon dioxide, nitrous oxide and methane emissions. Unfortunately, we were not able to include other environmental indicators in our analysis for this project.

9. **How were the schools governed (e.g. by local govts or autonomous as in England) and what was the take-up rate of school meals (e.g. all children or for a percentage of children)? Because this is critical to the financial viability of the service.** The case meals services were subject to different types of governance. In the UK, Italy and Greece, the services were operated at municipal/local authority level, whereas in Serbia, individual schools were responsible for organising meals. Croatian cases exhibited a mix of both. Meal take up is a very interesting point, in practice there was variation across the cases, from an average of 47% in the Croatian case schools, to 81% in the Italian and Greek schools. In the UK, the average was 68%. The financial viability also depends on the price charged per meal, and we might expect that uptake falls as prices increase. However, the relationship is complex - e.g. per meal prices in the Italian cases were > €5.00, more than double the price in other countries, yet in spite of this, average uptake in the Italian cases was high.

10. **Did you include carbon emissions related to land use/indirect land use changes?** The emission coefficients that we used accounted for land use, in the sense that a particular production activity

(e.g. rearing beef cattle, growing potatoes) represents a specific land use, but we did not consider any additional emissions arising from any changes in land use (e.g. grassland being ploughed to plant crops) that may or may not have occurred in connection with a particular production activity. We made this choice because information on such land use changes was not available at the relevant scale for our calculations (*i.e.* we did not know the use history of each and every primary producer contributing to a supply-chain).

11. **Did you consider packaging as waste?** We only included food waste in our quantitative analysis of waste impacts of the meal's services. However, we did gather some qualitative information about plastic packaging use through our kitchen/canteen observations, and interviews with catering staff. These can be found in the relevant section of each D6.2 Country Report ("Waste management and plastics use").

12. **You speak only about the carbon footprint, but we know this is not enough to undertake the complexity of our impacts on environment. How do you manage this weakness? Do you discuss this issue? Maybe by argumenting that this is a tool to aid decision, but not really evaluate impacts?** Yes, the Meal Analyser tool seeks to aid decision making in relation to carbon emissions, but not other environmental impacts. This reflects a combination of factors. First, although all environmental impacts are of increasing policy interest, carbon emissions are most prominent and tend to have agreed, quantified reduction targets, whereas other environmental goals are expressed less precisely. Second, although food production systems are complex and varied, the estimation of carbon footprints is possible with a reasonable level of accuracy due to global efforts to establish reliable emission coefficients. Other environmental effects are typically less well understood and harder to quantify due to spatial interdependencies and/or time-lags (e.g. water pollution within a river catchment, or biodiversity within a landscape-scale habitat mosaic).

13. **I am interested in impact of different production systems re various food categories in the tool. Does it allow a comparison between, say, red meat produced in a local and entirely pasture based system and intensively reared and imported?** In its current form, the Meal Analyser tool does not differentiate between alternative production systems for a given item. It would be possible to add fields in the tool allowing the user to indicate the % of food procured in each category that is organic, as we captured organic and non-organic production systems in the research project, and could transfer those values to the tool. In principle, if more detailed emission coefficients were available to describe a broader range of production systems, and information on the prevalence of different systems within a supply-chain was known, the type of analysis you describe would be possible.

    For the Excel Meal Planner, the simple answer is No. *However*, if we are given CO2 emission data for different food production systems (not easy to come by, and probably specific to a given farm, breed of livestock, time of year, etc.), we can build that information into the tool, by modifying the emission factor in the database used to calculate meal CO2 emissions.

14. **Is this tool free to use?** Yes, the Meal Analyser tool is free to use.

    Thee Excel Meal Planner is also free, though the current version in English is based on converting the original data from Serbian and currently uses a Serbian database of foods and their nutritional contents, which may not be appropriate for other countries. Note, the Serbian food nutritional database is based on EuroFIR nutritional data for Serbian foods for which Newcastle University holds a user's licence for the duration of the Strength2Food project. Once the project is finished

(2021) it is not clear who would continue with the licence for this tool. Spreadsheets of reference data used by the Meal Planner are hidden and password protected to avoid licence infringement.

15. **About emissions, lifespan methane shorter than that of CO2, and considering other criteria footprint, picture red meat and others can be flawed.** The emission coefficients that we used express emissions in terms of carbon dioxide equivalents (CO2eq), and these account for differences in the longevity and potency of different greenhouse gases. Hence methane emissions have been treated appropriately, and in a manner consistent with IPCC guidelines. Although there is some scope for reduction (e.g. through higher calving or lambing rates, lower mortality and faster growth rates), CO2eq emissions per kg of meat are higher for ruminant meat than for non-ruminant meat. Hence, if the nutrition offered by ruminant meat can be obtained from other sources, the CO2eq burden can be reduced. However, it is true that the rearing of ruminant animals can potentially generate additional benefits such as maintenance of landscapes, semi-natural habitats and local cultural heritage. The extent to which such benefits should be taken into consideration (and/or supported by other means) is a matter for policy makers – the signals they send to school meal providers currently tend to emphasize reducing emissions.

16. **About contribution to the local economy: if there are winners (local producers and employment), there will be losers elsewhere in the economy ... How do you see this?** Thank you for raising this point, it is indeed an important one. Political commitments to promote economic development in a specific location generally involve such trade-offs (either implicitly or explicitly). Arguably, the interest in place-based economic development draws from the 'basket of goods' logic, in which it is proposed that the development stimulates a multiplicity of positive outcomes, more than the sum of its parts, and more impactful than a non-territorial approach. Place-based economic development can also be viewed as an attempt to 'correct' spatially unbalanced economies arising (at least in part) from previous policy environments, which took rather weak account of sustainability concerns. Nevertheless, the effect of local economic development strategies on non-local actors/stakeholders is often overlooked and deserves to feature more in economic impact analysis.

17. **Do you see any ways new technologies such as AI could help schools to reduce the environmental impact of their food procurement?** AI is not a dimension that we explored in this research. Possible applications could be in relation to digital management and monitoring systems, e.g. for logistics efficiency or menu optimisation tools to simultaneously address multiple goals (e.g. environmental, nutritional and cost). However, improvements to public procurement and catering services may be actioned with recourse to much simpler technologies. Also, many procurement and catering challenges require, or are most effectively tackled by, human and social resources - skill, judgement, trust, goodwill, collaboration, etc.

18. **Why do you define "red meat" different from the normal definition which includes pork? On what basis did you develop your definition?** Thank you for raising this point. The food category labels in the Meal Analyser tool were developed through interactions with stakeholders, and effort to select terms which made most sense to them. Hence, we chose 'red meat' and 'other meat', accompanied by clarifications of which species these categories referred to. In terms of emissions, the key distinction is indeed between ruminant and non-ruminant livestock. We will consider how best to address this point in future iterations of the tool.

19. **Are colleagues aware of the NIHR Public Health Research Programme Continuing priority research topics of interest - specifically Contractual levers in Local Government.** No, was not aware of this programme - thank you for bringing to our attention!

20. **Are all your underlying calculation factors, algorithms, factors openly available?** Yes, we aim to be as transparent as possible about our calculation methods. A short, but precise, explanation of the methods to calculate carbon footprint and economic impact can be found in the results pages of the Meal Analyser Tool (click on buttons "how are these impacts calculated?"). A full account can be found in the relevant section (pp.23-24) of the D6.3 Synthesis Report. The methods of the nutritional and plate waste analysis are described in the relevant sections of the D6.2 Synthesis Report.

    For the Excel Meal Planner, all the formulae used in every cell are visible in the Formula bar, so nothing is hidden there. Nevertheless, some support spreadsheets are hidden because they are not needed by the user, or because the licence agreement requires this. Apart from access to the nutritional database, all other calculation factors and algorithms are open source, and Steve can be contacted for further details. Note, different versions of Excel may not be able to cope with all the functions used in the Meal Planner. Newcastle University may develop a web-based version of this tool in the future - contact Prof Matthew Gorton for more information on this.

21. **How much has this been shared with the appropriate politicians and public servants in this field?** The research was completed, and the full deliverable reports formally submitted to the European Commission, in February 2019. Since then, we have engaged in a variety of knowledge exchange and dissemination activities, of which this Webinar is the latest example. Please let us know if there are any specific stakeholders/constituencies who you think we should share the work with.

    The Meal Analyser tool has been shared with a number of stakeholders in the UK.

    The Excel Meal Planner has been demonstrated to the Serbian Assistant Minister for Primary Education, and to a few primary schools, generating considerable interest. The COVID-19 pandemic prevents further demonstrations to schools as they are currently all closed.

22. **Are children's preferences, liking/disliking, and openness to new foods often a big barrier to making changes in school food?** Yes, this can be a challenge, not only from children but also from parents/families. For example, catering staff in interviews mentioned resistance from parents as well as children to 'meat free days' on the menu cycle. In these circumstances, staff sought to engage with families, explaining the reasons for the changes (sometimes linked to curriculum), offering samples and taste tests during parents' evenings, etc. So there are actions that can be taken to encourage acceptance/change.

    Yes! In Serbia (and our partner in Croatia) we have monitored children's food preferences. In Serbia, we have also monitored their parents' attitudes towards foods. Children whose parents like to do home cooking and get their children to eat at the same time as they do, typically have children who like more foods! Cooks in primary schools have tried to change menus following Ministry meal recommendations (such as more vegetables), but plate waste went up. This will need close working with schools and children's parents to change food habits. Some Serbian local authority health services are already working on this. Food preferences also vary according to the school's location (urban-rural), so a complex challenge to change meals - for another EU project!

23. **Are colleagues aware of the NIHR Public Health Research Programme Continuing priority research topics of interest - specifically Contractual levers in Local Government. I and other colleagues are interested in applying to this around school food catering - https://www.nihr.ac.uk/funding/2031-continuing-priority-research-topics-of-interest-to-the-phr-programme/24538.** Thank you for bringing this to our attention!

24. **The notion that more integrated preparation of school meals at schools (opposed to food service) seems to have multiple benefits and be very important. Could you elaborate on this?** When we speak, in our results, of the benefits of a more integrated role for school meals in school life, we are referring to meals services which contribute meaningfully to the school's approach to food, health and the environment in a holistic way, both on curricular and extracurricular levels. So e.g. where kitchens/canteens are open for cooking classes, food and social experiences (for children, families, local community...); where catering staff liaise with teachers to support specific curriculum topics (e.g. on waste, recycling, healthy eating); where school heads and catering managers work together to find ways to improve the meal experience, reduce waste, etc. Our research indicates that such integration may happen with either a directly delivered school/local authority service, or a private catering service - it is the quality of the motivation, goodwill and collaboration between the key people that makes the difference.

25. **Do you have any suggestion for 'smart' tenders, which do not lead to the cheapest offer, but to the 'best' offer against multiple criteria?** Yes, the way I have done it in the past using LM3 was to include the policy of the local government area within the core requirements of the procurement. It is important to link these directly to Strategy and policy documents. So, both economic regeneration/and or environmental policies are likely to have sections for example saying that the organisation wishes to build the local economy or minimise carbon impacts etc. These would then form the basis for the inclusion of social, economic, and environmental clauses which the tool could then measure. This is one of the key components that I had in mind when suggesting the development of the tool. The new European Procurement directive should help with this process, but obviously would only apply where the country is an EU member and the procurement was large enough to be using the OJEU process. But the principles should apply in any procurement exercise. However, I am not a lawyer so you should check this.

26. **Will there be a 'follow up' on the impact of (let's call it) 'sustainable food at school' with eventual positive changes in family food/diet practices at home?** We did not investigate this directly in our project, although we did uncover some anecdotal evidence for this effect (in the same way we found anecdotal evidence of the 'reverse' effect, highlighted in Q22). Arguably, the likelihood of this transfer is greater where there is good integration between the meals service and curricular learning on healthy eating/sustainability, as described previously.

27. **Why is (added/free) sugars not part of the nutrition criteria in the list shown on the screen?** In the presentation, I only had time to give a quick illustration of the nutrients analysed in the case menus - the full list is reported in the relevant section of D6.2 Synthesis report.

28. **Do you have any recommendation on how to formulate criteria in order to allow giving preference to regional/local products in public tenders for canteens of schools etc.?** Pursuit of local procurement strategies was not a specific goal of our research - rather, we sought to explore what were the sustainability impacts of those (and other) strategies. However, in the EU, procurement laws allow specification of PDO, PGI and TSG products in public procurement tenders (i.e. regional specialities carrying the EU quality certification marks), as they are linked, for example, to promotion of cultural heritage. Local sourcing can be encouraged by specifying requirements in tenders for freshness and seasonality of produce (linked to health and wellbeing goals), including specification of particular varieties, e.g. traditional apple or potato varieties, etc. Specification of certain animal welfare standards, and support for certain social/disadvantaged groups is also possible, and again this may align with local/regional supply strategies.

29. **Not a question but flagging a potentially useful resource that the European Commission's Joint Research Centre has produced: Public Procurement of Food for Health: technical report on the school setting. You can download it freely at https://op.europa.eu/en/publication-detail/-/publication/1a872554-5174-11e7-a5ca-01aa75ed71a1/language-en**. Thank you for flagging this report to the group - we found it an excellent resource which helped to inform our thinking about food procurement models during the design of our research.

30. **Where will the results be published, and when will that happen?** The results are already published in summary and full report form, and are freely available on the Strength2Food website. Members of the research team are also active in producing working papers, conference proceedings and journal articles, details of which are also available on the Strength2Food website.

31. **In Australia we don't have a procurement process at all for school canteens. Can you suggest some key points as to how to get started and avoid the problems that you have experienced to date?** One of the current tasks we are undertaking in Strength2Food is to convert the results of our research into a Strategic Guide for stakeholders/practitioners, which we hope will provide exactly the kind of pointers you refer to. In the immediate term though, key advice would be to think carefully which goals are the priority for the meals services (e.g. improving nutritional profile, reducing waste, lowering carbon footprint, etc...?), and then consider how to convert those into technical specifications for procurement tenders. Annexes 2 and 6 of the report mentioned in Q29 (above) give some insight into this (albeit in EU policy context, and with health emphasis). Creating a forum where different stakeholders in the service chain can engage with each other is also recommended (e.g. along the lines of Italian 'canteen commissions' and their equivalents in other countries). Finally, it's also helpful to have a means to establish 'where you are now' in terms of meeting goals - we would hope that tools such as the Meal Analyser/Menu and Procurement Planner might help stakeholders with that process.

32. **I am interested in using the food impact measurement program presented by Adam Wilkinson. Can it be used under what conditions?** Yes, anyone can use the tool at no cost. Once you register you can enter your data and the tool will calculate the results. If you change the input data, the tool will remember the last set of data input that you entered. You can log on again in the future and the tool will preload the previous data.

33. **More general comment: there is a risk if carbon footprints are taken to absolutely... they often are seen as 'hard' data, but there is a whole world behind it. This might lead to other conclusions. For example, some quantity red meat might be 'sustainable' if you think of meat from semi-natural grasslands, in spite of its high CF. There are a lot of these non-linearities in the agro-food system.** Thank you for raising this point. Yes, taken in isolation any single indicator can potentially be misleading. If progress can be made with systematically quantifying other relevant indicators, better account could be taken of these real-world complexities. In the meantime, the tool offers partial support to decision makers faced with increasingly binding obligations to reduce carbon footprints.

34. **How common were Community supported agriculture relationships in the study i.e. direct to school procurement/supply?** In the cases we studied, there were a few examples of direct supply of goods from individual producers to schools, but the more common relationship was using an intermediary, e.g. independent wholesaler/distributor, or via a cooperative. I am not aware of any supply of goods from CSA governance model, specifically, in our case studies. It is well documented that the key challenges of direct supply of goods from small independent producers

to schools/caterers are around assuring quantity and consistency of supply over an extended period. Intermediaries can play a positive role in overcoming these challenges.

35. **I would like to use the food impact in a city in South America, how could we start?** I would suggest that the easiest way to start would be to use the Meal Analyser tool. We have tried to make it as simple as possible. You would then need to gather very little information to give yourself some form of benchmark. It may be sensible to try with a quite small project to begin with, so you find out how easy or difficult it is to get the information the tool requires.