Resilience of the UK food system in a global context third call:
Transforming the food system for health, sustainability and resilience across production and demand

Sandpit for Early-Career Researchers at lecturer level or equivalent

4-6 July and 19-20 July 2018
Venue TBC
Closing date for applications: 16:00, 23 May 2018

1. Summary

We are inviting expressions of interest from early career researchers at lecturer level or equivalent to take part in a Sandpit (2.5 days on 4-6 July 2018 followed by 2 days on 19-20 July 2018) to address the following question:

How can we transform our food system so it is based on healthy and sustainable diets and how would this impact on sustainable and resilient food production and supply?

We welcome applications from early career researchers **at lecturer level or equivalent** with expertise in any research area covered by BBSRC, NERC or ESRC. The Sandpit will develop outline proposals, a number of which will be invited back to be developed into full proposals that are 2 years in duration. Successful proposals developed through the Sandpit process will be jointly funded by BBSRC, ESRC, NERC and the Scottish Government, and up to **£1.8M** (80% FEC) is available to support the proposals selected.

The research supported will identify interventions that might lead to improved outcomes for health, sustainability and resilience across the supply chain and help us to understand the dynamics, trade-offs and tensions between production, supply and demand that are crucial for the resilience of the UK food system.

The Sandpit will aim to develop proposals that answer:-

- How can we transform our food system so it is based on healthy and sustainable diets and how would this impact on sustainable and resilient food production and supply?
- What should we be eating, and producing sustainably, and where in the world would those crops be grown, those livestock reared, or those fish be caught to ensure UK food system resilience? What impact would this have on livelihoods?
- What level of demand change would be required to have a major impact on resilience and sustainability, and what would be the potential benefits/dis-benefits to nutrition and/or the environment of different scenarios?

We welcome applications from early career researchers **at lecturer level or equivalent** with expertise in any single remit or interdisciplinary research area covered by BBSRC, NERC or ESRC.

2. The Challenge

Background

The global population is increasing meaning more mouths to feed, and it is unlikely that this trend will have stabilised by the end of the century. At the same time, diets are changing as incomes grow through economic development, which can have positive impacts in helping to lift people out of poverty and improving nutritional outcomes.

However, increased income leads to greater food consumption[1], often of more resource intensive foods, impacting on limited resource availability (e.g. land, biodiversity, water, soil, and chemical inputs). In order to meet the terms of the Paris Agreement, limiting global warming to well below 2°C above pre-industrial levels, we need to make significant reductions to food-related greenhouse gas emissions. Agri-food is currently predicted to take up most of the annual global carbon budget by 2050, if we continue along the current trajectory. Unchecked climate change directly affects food production through an increasing frequency and intensity of extreme and unprecedented weather events, and can be a significant influence on the spread and occurrence of pests and diseases.

Building food system resilience in the face of intensifying risks is essential. The food security challenge is to meet the rising demand for food in ways that are resilient and environmentally, socially and economically sustainable, and provide an acceptable, safe and nutritious diet for all.

This global challenge has clear ramifications for the UK food system as just over half of the UK food supply (by farm-gate value of raw food) is imported.[2] Optimising food system resilience at a national and international level is complex with many interconnecting factors, requiring joined-up approaches across the food supply chain and strong engagement with end-users of research.

Growing demand can be met in part by 'Sustainable Intensification' (SI) [3], i.e. sustainably increasing production, whilst ensuring improved resource use efficiency and better environmental outcomes. The need however goes beyond sustainable intensification, to consider how we ensure sustainable, healthy and resilient food systems. In a global food system increasingly under pressure, consumer expectations of plentiful, cheap and year-round food do not always align with positive outcomes for health and environmental sustainability.

Understanding behaviours and practices across different actors including the food industry, government, retailers, households and communities is critical to building resilience. Innovations, policy interventions and better individual choices are required both in production and consumption in order to significantly relieve pressure on global food systems and to combat the rising incidence of non-communicable diet-related diseases such as obesity and diabetes.

Connecting production and demand for improved food system resilience

There is a growing disparity between what we produce in the world and what we should be eating for health (Figure 1). Fruits and vegetables make up just over 10% of global production, but should form around 50% of our diet. Similarly, while cereals and starches dominate global food production, they should form only around 20% of a healthy diet.

[1] Tilman D, Balzer C, Hill J and Befort BL (2011) 'Global food demand and the sustainable intensification of agriculture', *Proceedings of the National Academy of Sciences*, *108*(50), pp.20260-20264.
[2]https://www.gov.uk/government/publications/food-statistics-pocketbook-2017/food-statistics-in-your-pocket-2017-global-and-uk-supply
[3] Sustainable Intensification in Agriculture: Premises and Policies, Science Vol. 341 no. 6141 pp. 33- 34 (Garnett et al, 2013) http://www.sciencemag.org/content/341/6141/33.summary

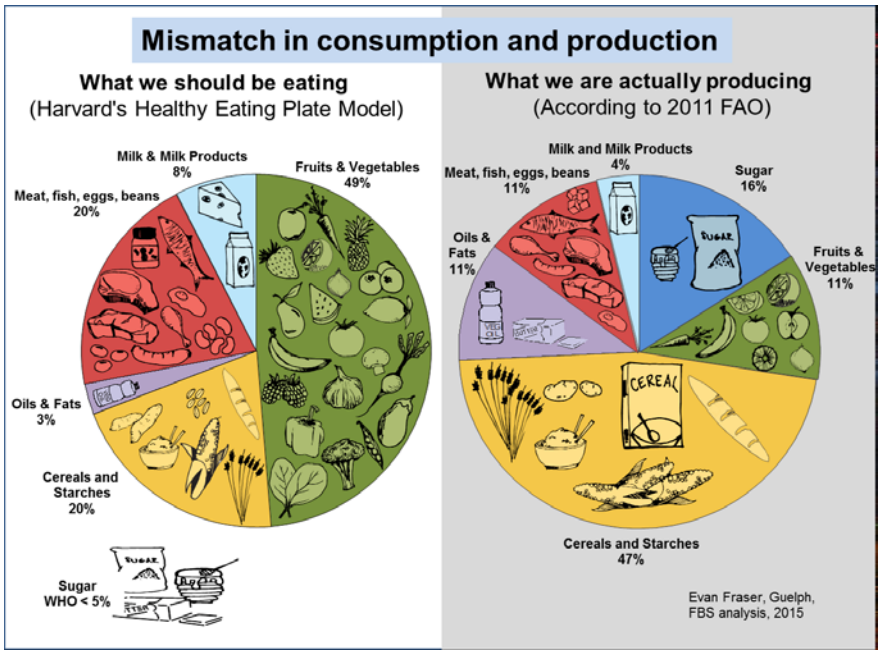

Figure 1. Mismatch between what we should be eating and what is produced globally for human nutrition.

At the same time, diets globally are becoming more homogenous – for example there is a greater reliance on a small number of commodity crops: out of 50,000 edible plants, just three provide two-thirds of the world's calories – rice, maize and wheat.[4] This includes the use of crops for animal feed and reinforces the need to consider the entire food system, including livestock, crops and fish.

This points to the need to think holistically about the food system and how the different components interact with and influence each other (Figure 2). If we are not producing sufficient quantities of the right things for health at a global level then there is a reduced chance that populations will adopt a healthy diet. Reliance on a small number of crops for the bulk of our calories minimises the wider nutritional benefits that might arise from a more diverse diet. The rise of monocultures based on a small number of crops is detrimental to biodiversity, reducing the potential benefits that a biodiverse landscape brings, such as natural enemies for crop pests. Diversification of food production and consumption will be essential for food security and requires consideration of food choices, the many factors that shape those choices, and the impact that eating differently would have on production and supply.

[4] http://www.fao.org/docrep/u8480e/u8480e07.htm

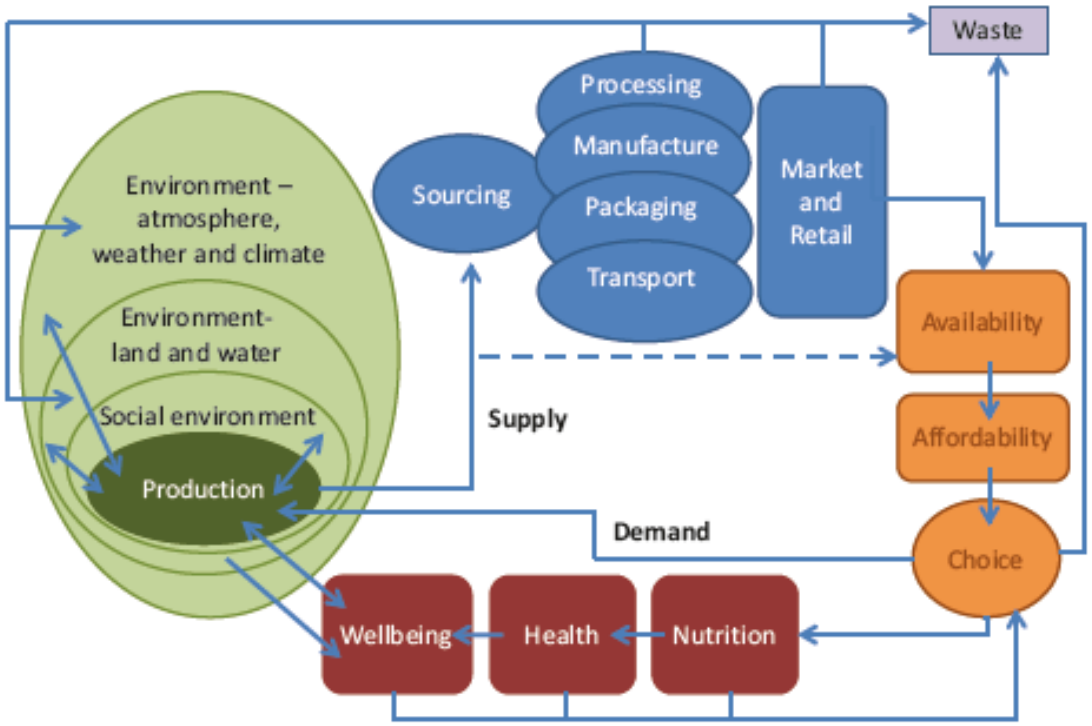

Figure 2. An indicative representation of the food system

Consumption patterns are increasingly moving towards diets that contain more sugar, salt and fat. Business as usual through the current food system is leading to a rapid rise in the incidence of non-communicable diet-related diseases such as obesity and diabetes, which now cost the world economy approximately £1.5 trillion (2.8% of global GDP)[5]. There is also evidence that the increasing demand for resource intensive foods such as meat and dairy products cannot be met without significant consequences for the environment (in particular land, water and GHG emissions) which directly affect the resilience of future food production.[6]

Taken together, it is clear that the food system is not resilient to projected global demands and a 'business unusual' approach is required that prioritises health, environment and resilience. The Sandpit will aim to address this by tackling the following broad questions:

- How can we transform our food system so it is based on healthy and sustainable diets and how would this impact on sustainable and resilient food production and supply?
- What should we be eating, and producing sustainably, and where in the world would those crops be grown, those livestock reared, or those fish be caught to ensure UK food system resilience? What impact would this have on livelihoods?
- What level of demand change would be required to have a major impact on resilience and sustainability, and what would be the potential benefits/dis-benefits to nutrition and/or the environment of different scenarios?

Interdisciplinary research which looks at the whole food system is needed to understand the interactions between drivers and impacts of food choices, how these affect sustainable, healthy and resilient food production and supply, and the trade-offs and tensions involved.

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[5] McKinsey Global Institute. Overcoming Obesity: An initial economic analysis. (2014)
[6] http://sbc.ucdavis.edu/files/202364.pdf

Interventions are required on both the demand and supply side, in order to significantly relieve pressure on global food systems. Business enterprises and their strategic choices, as well as policy interventions, play a central role in influencing demand, which needs to be met whilst ensuring the provision of nutritious, safe and sustainable food in more resilient and equitable ways. The role of different food system actors and the balance of responsibility between producers and consumers is relevant, in particular understanding what "business unusual" might look like and how this would work in practice.

3. Background to the Programme

The Global Food Security (GFS) Programme has launched a 5-year interdisciplinary programme of research, funded by BBSRC, ESRC, NERC, and the Scottish Government, to address a major food security challenge: 'Resilience of the UK food system in a global context'. The first two calls of this programme were launched in September 2015 and 2016. Ten collaborative, interdisciplinary research projects worth over £12M have been funded, and further details can be found here.

This is an invitation to applicants to participate in the third call of this programme – a Sandpit addressing the question 'How can we transform our food system so it is based on healthy and sustainable diets and how would this impact on sustainable and resilient food production and supply?' This Sandpit is targeted at early-career researchers at lecturer level or equivalent and we invite applications to participate from researchers with expertise in any of the research areas covered by BBSRC, ESRC and NERC. We anticipate funding interdisciplinary proposals that are 2 years in duration to pump-prime new research in this area.

4. The Sandpit

The Sandpit is an intensive, interactive and free-thinking workshop on a particular topic, involving a diverse group of up to 30 participants from a range of disciplines and backgrounds. It aims to stimulate thinking in promising new, or currently under-developed research areas relevant to food systems resilience, and to fund new collaborations between early career researchers at lecturer level or equivalent taking a whole system and interdisciplinary approach.

Participants will be expected to engage constructively in dialogue with each other, the facilitators, and the Director and Mentors to develop interdisciplinary research proposals. Collaboration will be encouraged, especially in bringing great minds together from across disciplines and the whole food system to embrace this challenge.

The Sandpit process can be broken down into several stages:

- Defining the scope of the challenge
- Evolving common languages and terminologies among people from a diverse range of backgrounds and disciplines
- Sharing understandings of the challenge, and the expertise brought by the participants to the sandpit
- Taking part in break-out sessions focused on the challenge, using creative thinking technologies
- Capturing the outputs in the form of highly innovative research projects
- A funding decision on those projects at the sandpit using 'real time' peer review (the decisions on funding will be communicated after the event).

The sandpit will be an intensive event. For the wellbeing of participants, there will be opportunities for relaxation and the timetable will include networking and other

activities to allow a break from the detailed technical discussions.
The sandpit will be led by a Chair, who will be supported by a team of mentors. We are pleased to announce that Professor Jennie Macdiarmid of the University of Aberdeen will be the Chair of this sandpit. The chair, mentors, and a small number of stakeholders will attend the sandpit but till not be eligible to receive research funding – instead, their role will be to assist participants in defining and exploring the challenge. Furthermore, the Chair and mentors will act as independent reviewers, making a funding recommendation on the projects emerging from the process through a 'real-time' peer review process.

The Sandpit will be run in two parts – an initial workshop on 4-6 July 2018 and a follow-up workshop on 19-20 July 2018. It is expected that new ideas will be created at the initial workshop and that participants will re-convene after a short period to elaborate on the project ideas. Submission of an expression of interest application will be taken to mean that the applicant is available to attend on all specified dates and will make a commitment to attend if selected. Attendance at both parts of the Sandpit is necessary in order to fully form proposals which could gain access to funding.

The Sandpit will take place at a central location in the UK on all dates. The environment will encourage the free and open-minded thinking which is vital for this event. Additional details of the venue, how to get there and the accommodation arrangements will be provided to the selected participants. It should be noted that all travel to the Sandpit, accommodation, refreshments, breakfast, lunch and dinner costs will be met by the funders. All incidental costs incurred whilst at the event must be met by the participant, except for incidental costs incurred due to caring responsibilities.

5. How to apply

This Sandpit is for early-career researchers **working at lecturer level or equivalent** (as defined in section 3 of the BBSRC Grants Guide, and including newly employed university lecturers, lecturer level equivalent fellows whose awards were secured in open competition and researchers in Research Council Institutes at the unified Research Council Band E or its equivalent), with expertise in any of the research areas covered by BBSRC, NERC or ESRC. For a summary of the research council science areas, please refer to the RCUK Research Areas.

Applications are invited from individual researchers who can contribute to the Sandpit and the resulting research projects. Up to **30 participants** will be identified to take part. Participants will be chosen to allow appropriate diversity and balanced representation from across the research areas supported by the funders. Applicants **must** be from a UK HEI that is eligible to apply for BBSRC funding (see the Grants Guide).

Participants in the Sandpit will be selected on the basis of information submitted in an expression of interest (EOI) form (see the next section for details). These will **not** be submitted through the JeS system but should be submitted via the Expression of Interest (EoI) form, which can be found here.

Your answers to these questions will be used to assess your application and convince the panel that you have the suitable skills and attitude to participate in this sandpit.

In order to participate, applicants must be available to attend for the full duration of the Sandpit from 4-6 and 19-20 July 2018.

The **deadline for applications** is 4:00 pm on 23 May 2018.

No further documentation will be accepted and late submissions will not be considered further. Funders decisions on eligibility and attendance are final. Applicants will be informed of their selection for the sandpit event in mid June 2018.

Selected applicants will need to submit a letter of support from the Head of Department confirming that their position is at lecturer level or equivalent. Selected applicants should inform their University Research Office, in advance of the event, that they are going to attend the sandpit. If they are part of a successful project their institution will be required to fund 20% of the FEC project costs (as standard).

BBSRC, ESRC, NERC and Scottish Government are committed to equality and diversity and have taken steps to increase the inclusivity of the Sandpit. The venue used is easily and centrally accessible, and has rooms and facilities available for dependents connected to participants to stay. We will also reimburse any costs incurred through the need to find additional care for dependents while attending the Sandpit and follow-up event.

Expressions of interest (maximum 2 sides)
Potential applicants should demonstrate in their applications how their expertise can address the challenge: How can we transform our food system so it is based on healthy and sustainable diets and how would this impact on sustainable and resilient food production and supply? It would be beneficial for applicants to have some understanding of the food security challenge, but more important is an enthusiasm for inter-disciplinary research and a whole-systems approach.

Your answers to the following questions will be used to assess your application and should demonstrate that you have the suitable skills and attitude to participate in this Sandpit. **Please note that your academic publication or research track record is relevant but not of primary interest. Of greater interest is evidence of how you might approach interdisciplinary problems in a novel area.**

Page one:

1. Provide a brief summary of your professional background (200 words max). *(Please note that if you are selected as a participant, information under this question will be made available to other participants to facilitate networking at the Sandpit).*

2. Explain how your expertise, alongside other disciplines is relevant to addressing the over-arching research challenge: How can we transform our food system so it is based on healthy and sustainable diets and how would this impact on sustainable and resilient food production and supply? (200 words max).

Page two:

Your responses in this section (no more than 150 words each) should demonstrate that you have suitable skills and aptitude to participate in the Sandpit event, unrelated to your research track record.

3. How have you previously approached working in teams? Please provide an example. (150 words max, font Arial 11pt)

4. Explain your research as you would to a non-expert. (150 words max, font Arial 11pt)

5. The Sandpit environment is especially suited to individuals who are willing to step outside of their particular area of expertise, who enjoy creativity in a collaborative environment, and who can think innovatively to develop original research ideas. Please describe an experience you have had in a comparable environment. (150 words max, font Arial 11pt)

6. What would you personally and professionally gain from participating in this Sandpit? (150 words max, font Arial 11pt)

6. Assessing applications

Applications to attend the Sandpit will be considered by a Selection Panel consisting of the Sandpit Director, Mentors and officials from the four funders. Final selection decisions regarding participation in the Sandpit will be made by the funders.

Overall, the Selection Panel will seek to ensure appropriate diversity and a balance of expertise is present at the Sandpit; and will take into account the criteria outlined below:

- Eligibility as an early career researcher at lecturer level or equivalent **(if selected this will need to be verified by a letter of support from your Head of Department)**
- The ability to develop new, adventurous and highly original research ideas;
- The potential to contribute to interdisciplinary research;
- The ability to work in a diverse team across academia;
- The ability to explain research to non-experts.

Please ensure you fully complete the EOI as described above, as this is the **only** information on which potential Sandpit attendees will be selected. Please note that because of the large number of applications expected, GFS will not be able to give individual feedback to unsuccessful applicants.

Outcomes will be made available to all applicants in mid-June 2018.

7. Equal Opportunities

The funders are committed to a policy of equal opportunities for applicants for funding. No eligible applicant should receive less favourable treatment on the grounds of disability, sex or gender re-assignment, marital status, sexual orientation, pregnancy, race, colour, nationality, ethnic or national origin, religion or belief, or contractual and work roles.
If anybody has any concerns regarding our equal opportunities policies or any other aspect of the sandpit application process then please contact us to voice these concerns. We make every attempt to remove barriers to inclusion at our sandpits. We have conducted a diversity and equality impact assessment for this sandpit which can be found here.

To help us achieve our aim of equality and fair treatment, an equal opportunities monitoring form is supplied at the end of the online Expression of Interest form. This form is **optional**, however it will help us to monitor the effectiveness of our policy. The form will be removed from your application and the information you provide will be used for statistical monitoring purposes **only**.

8. Contacts

For any questions relating to your application please email the following address: FoodSystemResilience@foodsecurity.ac.uk

Global Food Security Contacts
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