Transforming the UK food system for healthy people and a healthy environment
Outline proposals invited to full proposal stage

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The core goal of this project is to transform the existing unhealthy, unsustainable, and inequitable UK food system into a regenerative food system that can deliver healthy and accessible diets for all sections of the population, equitable economic benefits for commercial actors throughout the food chain, and dramatically reduce the negative impact of the food system on the environment. It is no longer sufficient to try to reduce harm: a radical new approach is needed to achieve healthy diets from carbon negative food systems. We view the food system not just as the food chain (farming to fork) but also its outcomes e.g. food security combined with the social, economic and environmental drivers and how they interact. By looking at food using this approach we are able to look at the interlinkages between the different parts of the food system, the trade-offs (i.e. winners-losers) and any unintended outcomes. This food systems approach is key to achieving coherent policy making. Our current food system is responsible for extensive negative social and environmental impacts particularly diet related disease and environmental degradation, which threaten the long-term wellbeing of society and the planet. Recent research suggests these impacts come from diverse lock-ins, including knowledge, economic and regulatory, sociocultural and biophysical constraints. This research programme has been co-designed with a range of food system stakeholders from industry, civil society and national and regional government, and co-design is a fundamental part of the transformative process that will be employed throughout the duration of the project. Pre-application activities with stakeholders identified a number of challenges including: a lack of affordable supply of healthy food into disadvantaged communities and their schools; invisible forms of food insecurity; unhealthy product choice in local convenience stores; and a lack of understanding by citizens on the linkages between climate change and diet. The assembly also identified pockets of regenerative food systems e.g. new local socially driven food hubs, low carbon farming groups, and the York, North Yorkshire and East Riding Local Enterprise Partnership's new carbon neutral economic policy. Our interdisciplinary research will have a strong focus on transformational change. The research will focus on the region of Yorkshire, which is of sufficient size to understand integrated and complex dynamics of food systems while also being sufficiently bounded. The region incorporates diverse components of food production, supply and consumption and has the highest concentration of food and drink businesses in the UK. Working with regional and national food system stakeholders our transformations will lead to the scale-up of a range of innovations including: new approaches to food retailing and farming e.g. peatland restoration and new store layouts for healthy diet; new tools and measurements to ensure the food system can achieve net cooling; the scale-up of hybrid food hubs to ensure healthy diets are the norm in disadvantaged communities; and interventions in early years that shift habits to healthy diets using the link to climate change as a transformative driver. We will co-produce action-oriented knowledge together with food system stakeholders to help stimulate transformations towards regenerative food systems and inform the development of supportive regional and national policies. We believe such an action-oriented, creative approach is the only way to deliver the depth and scale of transformation required. It represents a radical shift away from the paradigm of harm reduction currently typified by a focus on individual behaviour change and actions like product reformulation and product advertising bans.
Co-production of healthy, sustainable food systems for disadvantaged communities
Name of Grant Contact: Carol Wagstaff

Our preliminary work has shown that people living in disadvantaged communities have the desire to eat a healthier diet and are aware that good nutrition is closely linked to good physical and mental health. Citizens in disadvantaged communities often lead complex lives with many points of stress, caused by poor health, lack of money, lack of access, over-work, lack of time and, in some cases, lack of budgeting, shopping and cooking skills. Therefore, people tend to eat the same things out of habit, because they know that long shelf life foods do not perish and therefore money will not be wasted by purchasing food that has to be thrown away, and because in times of stress people do not try new things. People therefore want access to healthy food that has an element of freshness, but which is convenient, requires minimum preparation before consumption and which has sufficient shelf life to allow meal planning. People also identified a wish to use less food packaging because of the associated environmental benefits. This project will focus on sharing knowledge and learning from a variety of disadvantaged communities, small and large food businesses to co-develop solutions that can provide people living in disadvantaged communities with fresher food and a healthy balance of desirable, sustainable and affordable plant and animal-based foods that are beneficial to health. We will identify food that will become surplus food from 'mainstream' supply chains at an early stage, and where more primary food ingredients need to be sustainably produced, and then utilise a novel supply chain by brokering relationships between people and businesses that do not normally share experiences and knowledges with each other. This will enable more of the food that is harvested to be consumed and to prevent it from becoming waste food, and identify where additional food should be produced from more sustainable sources, thus improving the environmental footprint of the food system. The use of foodbanks or end of line reductions doesn't help people to plan their diet or to reduce the stress associated with food poverty. We need better supply chain logistics/planning, and different distribution networks so that people in disadvantaged communities have choice over their diet. Novel distribution networks will enable small enterprises to develop within communities, but these will be working with the mainstream suppliers and not outside of it. That way local enterprises still provide a sense of ownership, local loyalty, local economy etc, but they will lose the feeling of being disenfranchised from society. The novelty of this project is in (a) Clever supply chain logistics that can identify surplus food at an early stage and identify the need for additional food from sustainable sources. (b) Using the first outcome to innovate food that contains fresh ingredients, but which has a reasonable shelf life and which is still convenient. (c) Developing distribution networks that reach deeper into disadvantaged communities, but which originate from mainstream food sources, bridging the gap between gig economy delivery organisations, markets or independent corner shops and the major food networks that supply wealthier communities. (d) Reduce environmental burden of packaging by developing waste management streams through the use of local enterprises. (e) Developing a policy framework that enables and encourages these developments and enables healthy sustainable food to be consumer desirable and cheaper than foods that are less nutritious or have poor sustainability credentials. Long shelf life non-perishable food. (f) Promoting knowledge sharing and shared learning between disadvantaged communities, food suppliers and manufacturers. Developing research, analytical and advocacy skills of disadvantaged communities through shared experiential learning.
The New Scottish Diet - Disrupting and Transforming Scottish Food Systems
Name of Grant Contact: Christine Edwards

The approach proposed in this project focuses on radically re-imagining local diet culture to derive yet unmet direct benefits for people (producers, consumers) and the environment. We will design an evidence-informed New Scottish Diet, reflecting and inspired by traditional and evolving local food cultures, building on the food-identity nexus at the heart of the Scottish paradox. The aim of the New Scottish Diet is to positively impact the health of ALL the population while being sustainable and less damaging to the environment.

EXPERTISE & LEADERSHIP

This project brings together nutritionists, social scientists, medical professionals, business experts, agrifood experts, third sector organisations, food businesses and civil societies to develop, test and evaluate a range of approaches to disrupt and transform current food production and consumption, encouraging increased use of foods anchored in locality and tradition.

We propose PEOPLE-CENTRIC STRATEGIES to empower all sections of the population toward a shift in eating habits, making better use of local resources, promoting health and reducing waste and carbon footprint. The project builds on existing network links with the Glasgow Food Policy Partnership (GFPP), which is working with strategic partners to develop and implement a Glasgow City Food Plan. This is the first strategic approach to food at a city level in Scotland, seeking to improve health, equity and sustainability of the food system in a coherent way through six components: food insecurity, food economy, community food, children and young people, food and the environment, and catering and procurement. These are essential vectors which will enable rapid implementation of research outputs.

OUR APPROACH - RISK & REWARD

We will develop an evidence-based intervention portfolio, amplified by the voices of experts and key stakeholders from all parts of the food system, to drive a locally conscious strategy to depart from the currently damaging anthropocene. It will build on our leadership in the fields of community health and public nutrition, food reformulation and innovation, behaviour change, sustainable food production.

Developing the New Scottish Diet and transforming the nation's diet is an ambitious, high-risk, high-reward strategy, demanding a multidisciplinary approach for greater understanding of public opinions and behaviours in response to stimuli such as: guidance on nutrition and environmental concerns in relation to food behaviour, new diet trends, and new flavours/products but based on realistic grounds/assumptions.

Development will consider:

- consumers' knowledge, attitudes and beliefs across the population
- environmental impact and sustainability, in terms of climate change, biodiversity conservation, use of land, fresh water, fertilisers and pesticides
- the needs of the food industry internally and within the global market.
The project will take a pragmatic approach to maximise inclusivity for all people. It will build on the success of recent initiatives to reformulate common foods to achieve 'health by stealth' while retaining acceptability and affordability.

We propose four work packages to deliver the project:

1. Defining the issues, understanding the potential, designing the New Scottish Diet
2. Delivering the New Scottish Diet: facilitating uptake, establishing impact on health and the environment
3. Agrifood challenges related to providing a healthful diet built around local foods
4. Developing the branding and health promotion strategies to enhance uptake of the New Scottish Diet

The New Scottish Diet will be tested in the West of Scotland for feasibility, acceptability and impacts on health and environmental sustainability markers. We foresee the concept/approach (rather than the diet itself, which is local-specific) as a fully translational model for the rest of the UK - we will generate key data and evidence to support later roll-out.
Evidence for Food: An evidence-based transformation of UK food using an integrated health and environmental data platform

Name of Grant Contact: Eleanor Milner-Gulland

This project aims to deliver a step-change in how we estimate, track, communicate, and act on environmental and health information. Our interdisciplinary team will work at multiple levels - individual producers, specific products, diets, and the full food-system - with novel approaches to link between these levels. We will combine three types of evidence and deploy them in a project which will make actual changes to the UK food system, while simultaneously building the foundation for future impact:

i) a state-of-the-art data platform integrating and enhancing three data sources developed by our team members;

ii) evidence for the effectiveness of embedding these data into the food system by carrying out targeted interventions at the producer, processor, and UK consumer levels, centred around provision of information generated by the data platform;

iii) systems modelling, which will explore the system- and product-level changes required to reach the UK’s health and sustainability aspirations for the food system and for specific products, in the context of global environmental goals.
The UK’s food system is currently failing on several counts. One of the issues is low fruit and vegetable (F&V) consumption which is especially pronounced in less well-off inner-city wards. Food systems also have major impacts on the natural resource base that underpins our food security, as well as the delivery of ecosystem goods and services which affect human health and well-being. Novel pathways in all food system activities (agriculture, processing and packaging, logistics, retail and consuming) are needed to reduce their environmental impact. We could also come more accustomed to a higher proportion of UK-seasonal F&V to reduce impacts related to both production overseas and transport. Bringing about transformation in the UK food system will need an understanding of its dynamics and opportunities for positive intervention. The proposed project "Transforming the UK F&V System" (Transfav) aims to design, develop, implement and evaluate a systemic approach to help stakeholders improve food system outcomes for health, enterprise and environment. With a focus on the Midlands, the F&V system provides an ideal case study for this. It is a key subset of the whole food system, encompassing all the inherent properties of food system dynamics. Further, this case study will help increase consumption of F&V from a more environmentally sustainable and economically invigorated supply chain, and will thereby enhance environment, enterprise and health (addressing the worryingly persistent trend of inequalities in access to F&V). Led by the University of Oxford, and in close collaboration with colleagues from seven other universities, a diverse set of stakeholders have co-designed TransFAV by detailing the skills they/their communities can contribute in co-implementation, their potential roles as 'agents of change' and how they can help ensure research outputs align with their needs.
Consuming less but better meat and milk - Transforming Pasture-based Food systems in the UK

Name of Grant Contact: Lisa Norton

Consuming less but better meat and milk - Transforming Pasture-based Food systems in the UK is a multi-disciplinary food systems research project that seeks to design and deliver pasture-based food production in the UK to improve environmental and human health. The project recognises the need to increase the amount of plant-based food in the UK diet to address poor nutrition and obesity, but also acknowledges that pastures will play an essential role in a future transformed UK food system. Diet has a fundamental impact on food and farming systems, both with respect to what we eat, and the amount of processing between farm and consumption. This project will focus on transforming diets towards those that include less milk and meat, but higher quality nutrient dense products which come from systems that enhance the ecological condition of the land on which they are produced.

Farmers are leading the way in innovating pasture-based production and its role in a future transformed UK food system on both pasture and arable land. A transformed UK food system will integrate pasture-fed ruminants (cattle and sheep), fed primarily on permanent and ley pastures, into a supply chain delivering nutrient-dense dairy and meat at affordable prices. This project will engage with stakeholders from producers to consumers, along pasture-fed livestock food chains, identifying constraints to production and distribution and also levers for system change.

Innovative farmers and land managers provide the foundations for transforming food systems. Understanding their motivations and influences (e.g. agribusiness and policy) and the food system within which they operate will enable insights into potential mechanisms for transforming ruminant production in the UK. We will research the innovations that farmers are already implementing on their farms and conducts experiments to help us understand further the impacts of their innovations on climate change, soil quality, biodiversity, animal welfare, and product quality as well as on farmer profitability. We will carry out life cycle analysis ‘farm to fork and grass to glass’ to allow us to evaluate all these aspects together, and assess where there are trade-offs between them. We will work with the agribusinesses that supply farmers with products and machinery and with those that buy and process their products to produce business plans that make sense for them whilst supporting production of high quality product from pasture fed livestock. Retailers, consumers and consumer groups in UK cities will work with us to assess barriers to consumption of these products and develop strategies to improve accessibility, particularly for disadvantaged groups.

The project team has extensive experience of working on projects with farmers, consumers and businesses on research which includes research partners (stakeholders) from outside of academia. The approach will be centred around livestock products within a food system to ensure that all key players are included and that interactions between the different parts of the system are understood and taken account of. The project will be led by researchers at the Centre for Ecology and Hydrology and Newcastle University with Lancaster, Reading, Portsmouth and Aberdeen, the Royal Agricultural University and Scotland's Rural College all involved. Project partners already engaged include the Pasture Fed Livestock Association, the National Sheep Association, fertiliser and vet companies, the Agricultural Industries Confederation and the Soil Association. We hope to engage with many other organisations and businesses including food retailers and civil society organisations focused on food,
including Food Newcastle Partnership, Sustainable Food city Lancaster and Nourish Scotland.
In this proposal we set out our vision for five years of research that will help bring about important changes in the food system. The changes will aim to make food healthier, more affordable, less harmful to the environment, but still acceptable to businesses. The work will involve many different types of researcher, who do not usually work together, as well as commercial companies, a city council, and a civil society organisation. Our findings will influence local and national governments, food companies and other organisations that play important roles in bringing healthy, affordable and sustainable food to communities.

The research will focus on Birmingham and the West Midlands, a large English city and region with a diverse population. The work will be divided into six work packages that will be closely connected. The research team will work together on each of the work packages and closely share their findings. This will help to ensure that our work achieves effective food system change in Birmingham and the West Midlands and can be used by other places trying to make similar changes.

The first work package will work with communities and people from the local council and food businesses to create a map of the current food system. This will show the different types of businesses and other organisations involved, what they do and how they work together to deliver food to communities. We will explore how money and food flows through the system. We will have meetings with community members and people from the relevant organisations to ensure we properly understand the whole of the food system.

We will use our ‘system map’ to work out what information we can use to measure how the food system works. We will focus on information and data that is already collected and that we can use creatively and efficiently. We will look for ways to bring different types of data together so that it can be used to measure changes in the food system over time and in response to new policies or programmes. We will analyse the information to see what it tells us about how the food systems works.

Once we have a map of the food system, and an understanding of how it works, we will help Birmingham City Council develop plans to change the food system. The aim of changes will be to make food more healthy, more affordable and better for the environment without negatively impacting on businesses. The plans will include a range of actions that are practical, affordable, likely to achieve our aims and compatible with other national and local policies. Possible actions might include labelling food in shops and restaurants with symbols showing how health and sustainable it is; or developing online systems to help local businesses find and use more locally grown food.

The next stage of the research will be to implement the plans and explore which of the actions work best to achieve our aims - both individually and in combination.

Because the programme of work will only run for five years, we will not be able to study long term impacts of actions. Instead we will build a computer model to predict how the actions that are tested in real life are likely to affect health, the environment, the economy and food business in the future. The model will also provide a useful tool for local Councils and food businesses in other places to explore how different actions might impact differently on
health, the environment, the economy and businesses. This could be used to make plans and actions for changing the food system in other cities and regions.

Throughout the five years, we will talk regularly to other scientists and people in food businesses, the council and the community. We will share our thinking and findings and seek their views on how our work is evolving. We will develop a number of attractive ways to share this information, including films and blogs, newspaper articles and scientific papers.
Bridging the gap: overcoming behavioural and economic barriers between what we eat and what we should eat

Name of Grant Contact: Peter Alexander

‘Bridging the gap’ is a consortium bringing together academics from a wide range of disciplines, food industry partners and civil society organisation to define and deliver a UK food system that is healthier for people and the environment. The project focuses on how behaviours and economic incentives shape the current food system, and how understanding of individual and institutional behaviours could influence the creation of a more sustainable UK food system.

The project will provide a deeper understanding of how a wide range of stakeholders (e.g. farmers, processors, retailers and citizens) shapes the current food system. We will identify barriers and constraints to transformational change in the food system, and define pathways towards a healthier and environmentally sustainable future. These pathways will reflect the actions for policymakers, individuals, and businesses needed to transition from today's food system to a shared vision of the future. The project will catalyse implementation of actions to influence these behaviours towards these goals.

The project is structured around four work packages (WPs) that will be implemented iteratively throughout the project. These are:

1. Vision: Defining a healthy food system - What foods should we produce and eat in the UK considering health, environmental and cultural aspects?
2. Understanding: How behaviours shape the food system - Why do we produce and eat foods we do today, and what options exist to influence these behaviours?
3. Pathways: Developing action plans to achieve the vision - What levers can be applied to reorient behaviours for a healthier food system, and what are the potential consequences?
4. Implementation: Delivering the action plan - Catalysing actions through communication with individuals and organisations, and providing advice to decision makers.

A co-construction approach involving a broad range of stakeholders is core to the project. Having Nestle UK, Organic Farmers & Growers and Hodmedod as partners within the project team, will enable rapid transfer of key ideas into novel or disruptive products and interventions. Partnerships with the British Nutrition Foundation (BNF) and the World Resource Institute (WRI) and support from Which?, the Food, Farming & Countryside Commission & DEFRA will facilitate public engagement and education and inform policy. The project includes 8 academic partner institutions; University of Edinburgh; Chatham House, SRUC; CEH; University of Glasgow; UCL; JHI/BIOSS; and the University of Birmingham.
'Bridging the gap' combines social and behavioural sciences with natural sciences, and has people and their food related behaviours as the central project focus. While technological solutions to increase production efficiency and environmental sustainability have a role in achieving the goal of human and environmental health, they their effectiveness is largely contingent on behavioural change. Considerable research effort continues to be dedicated toward production technology improvements, but far less research has been focused on the behavioural aspects of individual and institutional decision-making. We seek to redress this imbalance by focusing on the role of behaviours using a food systems approach. The result will be a fuller understanding of the role of these behaviours in the food system and, therefore, a more effective basis for developing new health, food, agricultural and trade policies, as well as food and associated products and behavioural interventions. The scope of the consortium members and the proposed approach means that we are well placed to use the project insights and evidence to catalyse change in food choices that will lead to healthier people and environments.
Healthy soil, healthy environment, healthy people (H3)

Name of Grant Contact: Peter Jackson

Bringing together world-class researchers from Sheffield, Leeds, Bristol and Cambridge Universities, this proposal seeks to transform the UK food system ‘from the ground up’ via an integrated programme of interdisciplinary research on healthy soil, healthy environment and healthy people (H3). The H3 Consortium addresses the links between production and consumption and takes a whole systems approach to identify workable paths towards a transformed UK food system, delivered via a series of interventions: on farm, in food manufacturing, distribution and retail, and in terms of the health implications and inequalities associated with food consumption in UK homes and communities.

The proposed research addresses all of the UK government policy drivers outlined in the Call text from diet-related ill health to the reduction of greenhouse gas emissions, from biodiversity to soil health and water quality, rebuilding trust in the food system, promoting clean growth and supporting the translation of scientific research and new technologies for the benefit of the UK economy and society.

Our approach is thoroughly interdisciplinary, combining internationally renowned soil and plant scientists, health researchers and social scientists. The research team have many years' experience of working together, leading interdisciplinary research centres, co-supervising PhD students and collaborating on numerous research projects including the N8 agri-food programme.

We take an integrated approach to the agri-food system, recognizing its inherent complexity and addressing the governance challenges that arise from the rapidly changing regulatory landscape.

Our work involves eight interconnected work-packages, balancing the current emphasis in agri-food research on arable farming and cereal production with a focus on fruit and vegetables and wholegrain consumption, sectors that are characterised by relatively low environmental impacts and with great potential in terms of diet-related health benefits. Briefly, the work-packages will address the key public health challenges of micro-nutrient deficiency through the application of state of the art methods of biofortification; increasing access to health-promoting vegetables while reducing reliance on imported food via the integration of hydroponic vertical production systems within conventional soil-based farms; creating a linked network of hybrid demonstrator farms to encourage improvements in dietary health and environmental sustainability; increasing food system resilience to economic and environmental shocks through collaborative research with retailers and consumers; increasing the consumption of wholegrains with their attendant health and sustainability benefits; using LCA and scenario-building approaches as an integrative methodology to assess the environmental, social and economic impact of different interventions and policy options; and working closely with stakeholders to maximise the impact of our research on policy and practice. The work-packages are integrated through their focus on the entire food supply chain, through the use of common concepts and methods, through their overlapping membership and interdisciplinary approach, and through their consistent involvement of stakeholder groups from the inception of the research to the final dissemination phase.
The H3 Consortium is led by Professors Peter Jackson and Duncan Cameron who co-direct the Institute for Sustainable Food at the University of Sheffield. Both have extensive experience of managing large interdisciplinary research teams and delivering successful collaborative projects. They are joined by a core team, comprising the work-package leaders, a wider group of co-investigators and PDRAs, a diverse and dynamic group of stakeholders, and an experienced team of business managers and KE Fellows who are focused on maximizing the impact of our research.
Next generation food: creating a healthy and sustainable UK food system

Name of Grant Contact: Philip Calder

Much of the UK population has a poor diet, with consequences for ill health, poor life outcomes and premature death. Diet is particularly poor among adolescents, with consequences for both the adolescents themselves and for the next generation of children. There are many factors that influence food supply and our choice of foods; a shift towards a healthier diet therefore requires big changes in how food is produced and sold, how people behave towards food and the choices they make. Moreover, current UK food production is not sustainable and threatens the environment due to overuse of fertiliser and pesticides.

Our project brings together researchers with a range of expertise, representatives from agriculture and the food sector and from society to create options for a new system for producing and selling food that is healthy, palatable, affordable, sustainable and environmentally friendly. We will work with young people aged 11 to 19 years. This is because young people commonly consume an unhealthy diet but can be powerful agents for change if something is important to them. An improved diet for young people will result in better health for them now and as they get older, for their future families and for the wider population. Young people will be closely involved in co-designing and carrying out the research, learning new skills and developing new tools that allow them to shape the future food system. All the programme activities will be continuously integrated to ensure that the different components of our project feed off one another to maximise our progress and success.

We will learn new things about how to improve the diet and health of young people, and get information on how the environmental and health impacts of dietary choices can drive changes in food production, processing and purchasing, bringing these different types of information together. We will work out how a more sustainable diet can be made healthy for young people keeping in mind that it also needs to be affordable, tasty and acceptable. It is likely that such a diet will rely a lot on foods from plants. We will work out the effect of this diet on health and on the environment, the local and national economy and the benefits to the NHS. We will identify how new foods can be introduced to the market, finding ways of growing overlooked crops that once grew in the UK or ones that do not normally grow in the UK, making sure that these crops contain healthy nutrients and have positive environmental consequences. We will look at the effect of different growing conditions on nutrient content and impact on the environment. Some of these newly developed crops will be used to make new foods which we will design and test with adolescents to see if these foods are liked and desired, and if the nutrients from the foods can be used by the human body to improve health.

By putting young people at the centre of our research, we will explore together the reasons why they do not eat healthy diets and find ways to support them to develop healthier, sustainable diets. We will work with educationists to develop a new curriculum on healthy eating and a healthy planet, and connect young people to support change in the food system. We will work with plant growers, food producers and retailers to ensure that the new system we design works for all. Bringing the findings from the different strands of our research together, we will use computers to test different possible outcomes from the research. This will allow us to propose the best solution(s) to provide healthy, sustainable, affordable and desirable foods that are also good for the environment. The food industry, retailers, the Food Standards Agency and UK government policy-makers will be involved in
this research to ensure that suggested improvements across the food suggested are feasible and can be put into operation.
Today 8.5% (617 million) of people worldwide are aged 65 or over representing the fastest growing segment of the population rising at an unprecedented rate which is expected to reach 17% (1.6 billion) by 2050. Europe’s maturing population aged 65 and over has already reached 17% of the total rising to an expected 27% by 2050. Yet in the UK increase in life expectancy have stalled since 2011, this is an international trend but figures for life expectancy in the UK is lower than many other comparable countries. The causes of the slowdown will be complex with theories including austerity, health and care provision challenges and increased prevalence of noncommunicable diseases such as diabetes, obesity and cardiovascular disease.

A clustering of risk factors contribute to the burden of disease with advancing age; a lack of consumption of fruits and vegetables ranks alongside a lack of physical activity and excessive intake of alcohol and tobacco. The challenges of eating sufficient fresh fruit and vegetables in the older generations relates to reduced access, limited availability and choice of fresh fruit and vegetables, reduced spending power leading to a greater reliance on prepared foods. This project will aim to redress these challenges utilising good science to transform what we eat and how we eat it with specific reference to the fastest growing segment of the population.

Increasing the nutrient content of fresh produce has the anticipated advantage on reaching your target of 5 a day without the need to eat all 5 items. Selection of varieties naturally higher in antioxidants and production methods that further stimulate synthesis of health promoting compounds in the field will help to raise the nutrient density of fresh produce. Moreover, before produce reaches the shops, fruits and vegetables undergo harvesting, cooling and refrigerated storage before being packed, labelled and shipped to supermarkets and wholesale markets. Improving the management of the way produce is handled and stored affords the opportunity to retain a greater amount of the nutrients accumulated at harvest. While not all fruit and vegetables are considered to be of saleable quality, more of this second-class commodity needs to be processed into usable food items, understanding the economic viability of repurposing fresh produce in a way that retains the full complement of nutrients will be evaluated. Where, fresh produce is processed into ready meals we will develop novel processing methodologies that help to improve the nutrient retention during manufacture and reheating in the home.
SEAfoodCHANGE: Unlocking seafood’s potential for nutrient security and protecting sustainable supply

Name of Grant Contact: Sofia Franco

Seafood is an essential component of the global food system, which delivers unique nutritional and health benefits and has one of the lowest environmental footprints. However, in the UK, seafood supply is reliant on imports and consumption is concentrated within the ‘big five’, with UK production struggling to cope with the demand from export markets. This low and mis-matched internal consumption and acceptance prevents the seafood system from achieving its potential and contribute to a nutrient-secure and healthy population, which benefits from a resilient food supply and a sustainable seafood system which serves citizens and protects the environment.

SEAfoodCHANGE is an ambitious project which has seafood, health and environment at its core and works with stakeholders to test new approaches and deliver practical solutions to address current challenges of the UK’s seafood production, supply chain and consumption. The project explores pathways to increase the socio-ecological and economic sustainability of seafood value chains in the UK and to improve the contribution of seafood to healthy diets and nutrient security, identifying enablers for change in the food system and in citizens’ behaviour. Organised in five interlinked work packages (production, industry, society, health and markets), the project was co-designed with partners to provide evidence for change, inform policy and take steps towards a transformed system.

To transform seafood production, WP.1 will consider the species-methods with the highest potential for healthy and environmentally sustainable production, and (i) assess the potential to spatially expand UK aquaculture within carrying capacity and (ii) investigate the potential for balanced harvesting to improve the sustainability UK fisheries, evaluating the socio-economic trade-offs of reorienting production, to identify incentives to change and provide advice to marine managers. On the other-hand, WP.5 will collaborate with partner retailers and restaurants to investigate levers and approaches to reorient seafood purchase and consumption, by exploring interventions in the market-place and at home, and working with civil society partners to investigate the role of influencers in shaping seafood consumption and acceptability. SEAfoodCHANGE’s cross-cutting work packages on industry, society and health, cover production, processing, retail service, society and citizens’ behaviour. From a business model perspective, WP.2 will work with partners in retail and processing sector, to explore how to unlock innovation, map interactions, analyse incentives and approaches that merge health, sustainability and profitability, covering areas such as retailers’ responsible sourcing codes and pathways to increase circularity. WP.3 focuses on society and citizens, to build evidence on the acceptance of seafood and mechanisms of interactions between citizens and key agents, and explore how to apply engagement and communication as levers for change in perceptions and behaviour towards diversification of seafood production and consumption. The role of seafood for human nutrition and health will be considered in WP.4, by examining the potential of seafood products to address nutrient security challenges in the UK, through dietary and lifestyle interventions in key segments and clinical research to test the benefits of seafood to human health, as well as investigating nutritional choices and dietary switches.
The evidence, tools, collaborations and momentum created will allow the SEAfoodCHANGE consortium to create pathways to (i) increase UK seafood consumption and consolidate exports, (ii) mainstream ecosystem-based management and circularity, (iii) promote a seafood system that serves society and citizens’ well-being, and (iv) build trust and a shared purpose across food system actors, enabling the transition to a nutritive and sustainable 'seafood system'.
CIRCULAR FOOD: Designing and Delivering a Circular Regional Food System in the Southwest

Name of Grant Contact: Steffen Boehm

The Challenge

The UK food system is under pressure to supply affordable, nutritious and appealing products. To maximise production and drive down price, while maintaining profits, the food system has become both linear and extractive, resulting in harmful human and environmental health impacts, including: poor diets; preventable diseases; increase in greenhouse gas emissions; biodiversity loss; packaging and food waste; pollution of air, soil and water; soil erosion and land degradation; etc. Those employed in the food system often experience poor working conditions with jobs tending to be low-paid and precarious. Economic inequity is common, with farmers often receiving a very little share of end-product value.

The Solution

An alternative approach lies in the circular economy model which is restorative and regenerative by design, following the principles of closing waste loops, sharing of resources as well as value retention and enhancement. A circular food system is best approached from a regional perspective, addressing multiple economic, social and environmental challenges in a specific geography. By moving to regional diets, the UK food system could deliver measurable positives in terms of improving people's health, protecting and regenerating ecosystems, while creating a more resilient system in economic terms and offering better quality jobs. A transformed food system would retain and circulate within the region multiple forms of value leading to a healthier environment, people and economy.

We believe that a healthy and sustainable food system is best delivered:

- By a regionally scaled food economy, providing regional, sustainable diets;
- In a circular way, with 'nested' cycling of nutrients at farm and regional levels;
- Through locally owned, new models of food production and organisation, which directly enhance the well-being of workers, citizens and the system as a whole.

Co-design

There is no blueprint for a circular regional food system. Instead, we will need to draw on skills, experiences and perspectives from a broad range of experts to develop our vision. The research consortium is led by the University of Exeter, collaborating closely with Rothamsted Research, University of Bristol and the London School of Hygiene & Tropical Medicine. The interdisciplinary research team comprises academic experts in health and nutrition, sustainability, agriculture, food supply chains, nutrients, soil health, ecosystems and biodiversity, governance and business models. This project also brings together a range of stakeholders from business, local authorities and the NGO sector, namely: Feedback, South West Mutual, Bristol Health Partners, Elemental Digest, Offshore Shellfish, Soil
Association, Bristol City Council, Exeter City Futures, Torridge District Council, Cooperatives UK, Food Plymouth, Food Exeter and Bristol Food Network (see letters of support).

Research design and delivery

The project will model human health, environmental health, economic health and the overall food system's effectiveness and resilience. In parallel, there will be six delivery projects (DPs), aiming to transform food procurement, consumption and production in the southwest region, while radically improving human and environmental health.

Food system transformation

Many small-scale projects already contribute locally to improving food provisioning, human diets and environmental outcomes, but we now need to increase their scale and scope. We believe that a transformation of the food system is best modelled and delivered at a regional level. Hence, we focus on working with large public and private organisations, influential NGOs and food networks to test the circular food economy approach in the southwest of England. If successful, this project will provide vital impulses for a transformed food system - with much improved human and environmental health outcomes - which will be applicable to other UK regions.