



Public views and recommendations for RRI on food security



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Table of partners

No	Name	Short name	Country
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2	Universitaet Innsbruck	UIBK	Austria
3	University College London	UCL	United Kingdom
4	Agentschap Plantentuin Meise	APM	Belgium
5	Stichting Waag Society	WAAG	Netherlands
6	Comune Di Bergamo	BERG	Italy
7	Universiteit Leiden	UL	Netherlands
8	Uniwersytet Warszawski	UNIWARSAW	Poland
9	Universidade De Lisboa	ULISBOA	Portugal
10	Hellinikos Georgikos Organismos - Dimitra	HAO-BGGK	Greece
11	Sofiiski Universitet Sveti Kliment Ohridski	UBG	Bulgaria
12	Agencia Estatal Consejo Superior De Investigaciones Cientificas	CSIC	Spain
13	Universidad De Alcala	UAH	Spain
14	Landeshauptstadt Hannover	SBZH	Germany
15	Freie Universitaet Berlin	FUB-BGBM	Germany
16	Wissenschaftsladen Bonn Ev	WILABONN	Germany
17	Universitetet I Oslo	UiO	Norway
18	Tooro Botanical Gardens	TBG	Uganda
19	Royal Botanic Garden Edinburgh	RBGE	United Kingdom

Executive summary

BigPicnic is a three-year, EU funded project (2016-2019) that brings together the public, scientists, researchers, food and agriculture industries and NGOs to talk about food security. The definition of food security applied considers access to food, food safety and food sovereignty all underpinned by culture and heritage (see figure 1). The aim of BigPicnic is to generate public dialogue about food and food security to

support future Responsible Research and Innovation (RRI) related to these ideas. RRI describes a new approach to research and ethically acceptable and sustainable innovation that aims to align the outcomes of scientific and technological advances with the values and needs of society by involving diverse groups of people, including citizens, researchers, policy-makers and businesses, throughout the entire process.

Access Ensuring all people across the world have access to sufficient food to meet their dietary needs Food Security Sovereignty **Safety** Empowering people to Ensuring people have healthy, nutritious food make their own choices about the food they eat, that is free from where it has come from contamination or and how it has been degradation produced Heritage

BigPicnic botanic garden partners represent experienced informal science centres with research expertise in food and food plants. Each botanic garden involved in BigPicnic co-created exhibitions and science cafés with their local audiences, including groups of people they don't usually work with. Cocreation is an innovative and participatory process which aims to create shared ownership of a project between institutions and community partners. For BigPicnic this meant working with local stakeholders to develop the exhibitions and science cafés from scratch, where the themes and formats were decided on jointly by the partner and their co-creation participants. A total of 102 science cafés attracting a total number of 6,052 participants were organised across all partner countries and 103 exhibition activities were organised and attended by 178,261 people across a broad range of audience. This provided opportunities for debates between a broad range of stakeholders on food security issues. It enabled adults and young people across Europe and in Africa to discuss and articulate their views on RRI in this field to their peers, scientists and policy makers.

A special form of participatory evaluation called Team-Based Inquiry (TBI) was employed to ensure the activities were delivered to the highest possible standard and also helped to record and analyse the conversations that were sparked as a result of these exhibitions and events. The results of these conversations have been compiled and used to generate recommendations for policy makers and informal learning sites to support RRI in food and food security.

During the project, qualitative (and some quantitative) analysis, using observations, questionnaires, interviews and other methods was conducted. Qualitative aspects were recorded and analysed using specially designed TBI forms (see Annex 2). Through this work the cultural value of food, as well as the notion of food as a form of cultural heritage emerged distinctively. This is a parameter that is to a greater extent omitted by the prevalent European and global policies that deal with food and sustainable development, however, it is strongly linked with the growing awareness of the significance of cultural diversity and recognition of intangible cultural heritage by UNESCO (UNESCO, n.d.). The project findings strongly highlight the importance of cultural and social values attributed to food and that they impact both directly and indirectly issues of food security and protection. The analysis also identified some key issues that emerged from the data gathered by the botanic gardens and their alignment with the Sustainable Development Goals (SDGs) set out by the United Nations and the key Food and Nutrition Security priorities (Food 2030) identified by the European Union.

The recommendations drawn from the work carried out have been compiled into a set of policy briefs. There are seven BigPicnic policy briefs. Four aim to support policy makers to shape future food policies and funding frameworks and two seek to support informal learning sites to apply the learning that occurred throughout the project. A seventh policy brief specifically addresses issues applicable to the Ugandan project partner. To highlight where BigPicnic findings link to existing frameworks and illuminate gaps in current policy, each policy brief maps the BigPicnic recommendations to the most relevant United Nations Sustainable Development Goals (SDGs) and the European Union's Food 2030 Priorities.





Food and heritage: The cultural heritage dimension of food should be embedded in food policy.



Climate change: Increase the resilience of citizens, especially vulnerable groups, to climate change and increase climate neutrality of food systems.



Sustainable food production:

Future funding frameworks should address more efficient food loss and waste management, small scale food production and sustainable supply chains.



Education and food security:

Food and food security should be topics embedded throughout the formal and informal learning systems.



Using participatory **approaches:** Use participatory approaches to raise unheard voices and broaden our perception of expertise.



Organisational development through food security:

Organisations should embrace new approaches and draw on a broad spectrum of expertise as catalysts for change.



Uganda: Increase capacity in climate smart agricultural approaches to address challenges posed by climate change and the impact on livelihoods and nutrition.

Background

Food security, as defined by the United Nations' Food and Agriculture Organization "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 1996).

To simplify matters, throughout BigPicnic, partners used a working definition of food security that can be thought of as an umbrella term for four interconnected concepts: access, safety, sovereignty and heritage (see figure 1). The challenge, therefore, is not just producing enough food but ensuring it reaches those who need it, it is nutritious, and can be grown and distributed in a sustainable manner in the face of a changing climate.

Over the coming decades, a changing climate, growing global population, rising food prices, and environmental stressors will have significant yet uncertain impacts on food security. Adaptation strategies and policy responses to global change, including options for handling water allocation, land use patterns, food trade, postharvest food processing, and food prices and safety are urgently needed.

Food security is a concern not only at policy level but also for the general public. According to the Special Eurobarometer 389 (European Commission, 2012) EU citizens are concerned that sufficient food is produced to meet the needs of the world's population and suggest that the EU should help other countries to produce more food as well as produce more food itself to reduce dependence on imports and to meet the rising demand. Research and innovation can be part of the solution to the food security challenge and EU citizens should be given the opportunity to express their ideas and opinions on which direction these can be developed. BigPicnic has created this opportunity at a large scale across Europe.

About BigPicnic

BigPicnic is a three-year, EU funded project (2016-2019) that brings together the public, scientists, researchers, food and agriculture industries and NGOs to talk about food security. The term 'BigPicnic' is used as a metaphor throughout the project and reflects the importance of maintaining sustainable food production and distribution, as well as the social dimension of sharing food between friends and family with food as a cultural and social link. The BigPicnic partners, along with their stakeholders, have explored food security issues e.g. physical availability of food, economic and physical access to food, food utilization and stability.

In total the BigPicnic team involved nineteen partner organisations, including botanic gardens, universities, a Science Shop, an institute for art, science and technology, and an international NGO. BigPicnic partners span twelve countries across Europe and one in Africa. These partners used a range of travelling exhibitions, activities, science cafés and participatory events, co-created with local people, to generate dialogue and build greater understanding of food security issues.

The collaborative approach adopted gave a voice to adults and young people on Responsible Research and Innovation, communicating their views to policy makers, sharing ideas, and encouraging debate on the future of our food.

BigPicnic has seven objectives:

- 1. Improve the understanding and realization of RRI through the provision of best practice case studies for the RRI toolkit.
- 2. Increase engagement with local and global food security issues through outreach exhibitions and science cafés among diverse audiences.
- 3. Co-create with diverse audiences accessible and novel mechanisms to facilitate interaction and bridge the gap between the public, policy makers and researchers.
- 4. Utilise the findings of the EU funded INQUIRE, PLACES and VOICES projects.
- 5. Build the capacity of botanic gardens across Europe to develop and deliver cocreation approaches with their local and regional audiences.
- 6. Develop botanic gardens as centres that promote dialogue between public, researchers and policy makers.
- 7. Co-develop the tools for measuring the engagement of the consortium partnership and the members of the co-creation teams with RRI and the benefits of the co-creation participatory approach adopted in the project.

Responsible Research and Innovation (RRI)

The focus area 'Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy' in Horizon 2020 states: "A transition is needed towards an optimal and renewable use of biological resources and towards sustainable primary production and processing systems. These systems will need to produce more food, fibre and other bio-based products with minimised inputs, environmental impact and greenhouse gas emissions, and with enhanced ecosystem services, zero waste and adequate societal value" (European Commission, n.d.a).

RRI is an approach that anticipates and assesses potential implications and societal expectations with regard to research and innovation, with the aim to foster the design of inclusive and sustainable research and innovation (European Commission, n.d.b).

The European Commission's RRI framework consists of six policy agendas (Ethics, Open Access, Gender Equality, Public Engagement, Governance and Science Education) (RRI Tools, n.d.). By working towards and existing within these areas, research and innovation efforts can expect to proceed in a manner that is more responsive and adaptive, in terms of what society wants and needs.

When it comes to food security, resources, knowledge, cultures, and associated technologies effect people's lives daily, making science education and science literacy aspects of RRI critical to the collaborative development of visions for future sustainability. Supporting and creating food research and innovation landscapes which are system-wide, inclusive and open (i.e. Open to the World approaches and Open Science initiatives) will result in co-ordinated and collective effort and, as a result, can be expected to have a bigger impact than uncoordinated efforts (New Horizon n.d.).

Ouote

Education and food security



"I don't understand, fat connected with cholesterol, fat connected with sugar? It's all very complicated"

Participant in Edinburgh, Scotland

Finally, the need for local, regional, national and international action associated with food-resource and bio-based economy sustainability makes attention to governance vital for Food programming to meaningfully contribute to long-lived and effective transformation supported by research and innovation (ibid.).

Food security is a large-scale and multifaceted challenge facing the whole of society. As such there can be significant benefits achieved from adopting RRI practices. BigPicnic's ideology and approaches embody what the European Commission terms 'inclusive innovation' supported by 'multi-actor approaches' to 'ensure the necessary cross-fertilising interactions between researchers, businesses, farmers/producers, advisors and endusers' (ibid.) and, as such, support RRI in food security.

BigPicnic has been supporting RRI in food security by generating recommendations that are based on the knowledge, expertise and opinion of a broad range of stakeholders. In addition, it adds to a body of work related to how best to create open, equitable opportunities and approaches which can promote RRI in other topics and disciplines.



The knitting interviewer ©Hortus Botanicus Leiden

Food 2030

Food 2030 (European Commission, n.d.c) was launched after the 2015 Milan World Expo, when Commissioner for Research and Innovation, Carlos Moedas, announced his intention to launch a Food Research Area by World Food Day 2016. Food 2030 is an EU research and innovation policy response to recent international policy developments including the United Nations' Sustainable Development Goals (SDGs) and COP21 commitments. The dialogue generated through BigPicnic addressed all four of the Food and Nutrition Security (FNS) priorities outlined in the framework:





NUTRITION for sustainable and healthy diets: Ensuring that nutritious food and water is available, accessible and affordable for all. It involves reducing hunger and malnutrition, ensuring high levels of food safety and traceability, reducing the incidence of non-communicable diet-related diseases, and helping all citizens and consumers adopt sustainable and healthy diets for good health and wellbeing.







CLIMATE smart and environmentally **sustainable food systems:** Building climate smart food systems adaptive to climate change, conserving natural resources and contributing to climate change mitigation. It seeks to support healthy, productive and biodiverse ecosystems. Ensuring diversity in food systems (including production, processing, distribution and logistics) including in terms of cultural and environmental diversity. Natural resources (water, soil, land and sea) are used sustainably within the planetary boundaries and available to future generations.

INNOVATION and empowerment of communities: Boosting innovation and investment, while empowering communities. A broad innovation ecosystem leading to new business models and valueadded products, goods and services, meeting the needs, values and expectations of society in a responsible and ethical way. More and better jobs across the EU, fostering thriving urban, rural and coastal economies and communities. Through closer partnerships with industry and food producers, markets that function in a responsible manner thereby fostering fair trade and pricing, inclusiveness and sustainability. Scientific evidence and knowledge from a wide diversity of actors underpinning the development and implementation of

FNS relevant policies, at all geographical scales (Local to



Ouote

Sustainable food production -Urban gardening



"There is a need of quality education in relation to urban agriculture in different sectors of society: schools, high schools, universities and other education institutions"

Participant in Alcala de Henares, Spain



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Global). (ibid.)

Sustainable Development Goals (SDGs)

The SDGs were designed as a set of universal, interconnected goals that will support work towards tackling the major environmental, political and economic global challenges. They were launched in 2015 and sought to build upon what was achieved through the Millennium Development Goals and work towards "ending hunger, achieving full gender equality, improving health services and getting every child into school beyond primary" (UNDP, n.d.)

SDG 2 - Zero Hunger, seeks to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture" (UN, n.d.), and directly calls for collective, inclusive and multidisciplinary action to address the complex root-causes of hunger and malnutrition.

SDG 2 was just one of the SDGs that could be mapped against responses from BigPicnic's audiences and stakeholders. Connections between food security and other SDGs were also highlighted. Through the data collected recommendations that link to 15 of the 17 SDGs have been developed.

SDG 2 Zero hunger SDG 3 Good health and well-being SDG 4 Quality education Gender equality SDG 5 SDG 6 Clean water and sanitation SDG 8 Decent work and economic growth SDG 9 Industry, innovation and infrastructure **SDG 10** Reduced inequalities **SDG 11** Sustainable cities and communities **SDG 12** Consumption and production **SDG 13** Climate action **SDG 14** Life below water Diversity on land **SDG 15 SDG 16** Peace and justice Partnerships for the goals **SDG 17**



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Methodological approach

BigPicnic engaged multiple publics with food security issues by offering fun, interesting and relevant/targeted activities through co-created outreach exhibitions and science cafés. This also facilitated conversations between them and researchers, policy makers and the botanic gardens. The aim of this was to produce learning, organisational change and recommendations to contribute to the development of responsible actors and institutions.

Each garden partner worked with their own co-creation team to select the appropriate topics and activities that would best attract and engage local audiences as well as generate dialogue related to issues that groups thought to be of particular importance. Local co-creation teams comprised BigPicnic partner staff, community members and appropriate advisory individuals. The community members were selected based on the partners' individual audience development plans (BigPicnic, 2016). The community members included a wide range of audiences e.g. families, young people, elderly people, migrant communities, farmers, lawyers, adults, teachers and pupils, housing associations, people in low income bands, teenagers.

The project created bridges and dialogue between often disparate stakeholders and fostered a mutual understanding of the ways in which different people work and think and, as such, facilitated meaningful and open conversations and the development of new, sustainable relationships.

The Food Security Advisory Group (FSAG)

At the start of the project, an FSAG of experts related to food and food security was established in each country. The role of the FSAGs was to provide information about food, production, food security, food research and food plants at both the local and global levels. Therefore they comprised professionals from agriculture and farming, industry, academia, NGOs, retail, grassroots organisations, local authorities, governing bodies, etc. Partners researched local, regional and national experts to invite using criteria such as having a broad knowledge of food security issues (local/national/global), an interest in and understanding of RRI, food security, co-creation or the ability to support the broader dissemination and promotion of the BigPicnic project activities. FSAGs supported partners to identify key topic areas to focus on as well as providing a pool of expertise to draw upon throughout the project. Key Issues and food security related foci from the FSAGs are shown below.

Agriculture / Environment	Health and Food Production	Socio-economic Aspects	Education	Dissemination
 Climate change Biodiversity loss – Bees & food security Soil uses Biogeochemical cycles Pollution and pesticides Resources overexploitation Land abandonment Habitats degradation, erosion & deforestation Plagues Reductionist point of view about food security: change the concept to sovereignty 	 Food formulation (Toxic) compounds (simple sugars, fats, additives, anabolic substances, heavy metals, antibiotics, pesticides) Illnesses Lack of education on food security Food prohibitions and regulations Urban food production methods (from field to table) 	 Unsustainability of the current model of distribution Dominant economic model New distribution channels Food merchandising Economic down-turn Social and economic inequalities Vulnerable citizens Dependence on fossil fuels 	 Need of training and education in values Inseparable coupling: family and school Lack of time at schools and families (other priorities) Ignorance about the topic False myths and stereotypes Misleading advertising Abundance of food and food waste 	 Degradation of gastronomic culture Need of educating on responsible consumption Misleading advertising False myths Lack of truthful information Labelling Economic interests and economic power groups

Table 1: Key issues as expressed by Food Security Advisory Groups

The International Consolidation Group (ICG)

The ICG were an international advisory panel of experts established to support the BigPicnic Management Board. The ICG comprised experts from:

- European Commission, DG Research & Innovation, F3-Agri-Food Chain, Brussels, Belgium
- Fondation Charles Léopold Mayer, Lausanne, Switzerland
- · Institute of Asian Research, University of British Columbia, and the national and international advisory committees of the Laurier Centre for Sustainable Food Systems, Canada
- Plant Production and Protection Division, United Nations Food and Agriculture Organisation, Rome, Italy

With their in depth knowledge of global food security issues, the ICG were able to advise the BigPicnic Management Board and ensure all the work of the project was in line with current understanding and standards related to food security. The ICG helped to assure that project findings were understandable, relevant and high quality. Their expertise was drawn on throughout the project, but particularly during the development of the BigPicnic recommendations. ICG members helped to ensure that all policy briefs were fit for purpose in terms of content and their presentation.

Co-creation

Co-creation is an innovative and participatory process which aims to create shared ownership of a project between institutions and community partners. Co-creation enables professionals to co-operate with, and learn from, others to build a connection between groups that would not normally meet, to raise awareness and sensitivity towards important issues and to build relationships between groups and individuals that will last well beyond the scope of a project.

"Co-creation is not a one off event, like a referendum in which the community decides what should be done. [...] Nor is co-creation just a question of formal consultation in which professionals give users a chance to voice their views on a limited number of alternatives. It is a more creative and interactive process which challenges the views of all parties and seeks to combine professional and local expertise in new ways" (Cottam and Leadbeater, 2004).

The foundation of the co-creative method is that everyone brings their own unique expertise based upon their personal experience and interests. This expertise adds a new social or cultural perspective to the topic being discussed and helps to enhance understanding between the different worlds we inhabit. Cocreation is driven by exchange of diverse ideas and values. For this reason, co-creation places a strong emphasis on creating conditions of equity among participants, ensuring a level playing field where every degree and form of expertise is equally valued.

Ouote

Food and heritage – Cultural diversity in food use and food systems



"...visiting the Botanical Garden and seeing the African pear labelled as strange food, it was a bit weird...this is part of the things that remind me about my childhood and one of my favourite food memories"

Participant in Brussels, Belgium

This approach was employed by botanic garden partners and their audiences to design and develop outreach exhibitions in a variety of exciting forms. Through co-creation a movement was created to encourage people to care about food and making food security relevant to people's everyday lives. Waag Society—institute for art, science and technology — worked with each botanic garden partner to ensure they had the tools and the skills to implement the co-creation method within their organisation.

By practising co-creation, BigPicnic partners not only generated awareness of food security, but also created shared ownership on this subject, identifying more sustainable practices, and ultimately influencing the behaviour of their visitors.

Co-creation was central to BigPicnic as a strategy; it allowed botanic garden partners to engage with new and existing communities, develop new and innovative public engagement activities, raise awareness of food security and generate public dialogue. In addition, it supported BigPicnic partners to understand the topic of food security themselves and helped them to identify how botanic gardens can continue to contribute to the debate. The training gardens received as part of BigPicnic has empowered them to work in new ways, and will help to continually redefine their role in society, remaining relevant and dynamic in the face of a changing world.



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©Royal Botanic Garden Edinburgh

Food stories

Throughout the project, BigPicnic partners highlighted the importance of personal experience. The significance placed on sharing personal experiences and memories reinforces the inseparable nature of food and culture as well as providing a mode of engagement with the topic in general. For this reason, many of the partners found that sharing food stories and memories was an essential element of bringing people into discussions about food security. What is particularly successful about this approach is that eliciting from, recording and sharing food stories between primary audiences can act as a way of creating strong connections with these groups, can generate robust data about what motivates them and can be used as an engagement tool for secondary audiences e.g. through videos. This method of engagement was not prescribed through project activities, but evolved naturally through the work of many partners. The format in which this was achieved varied from traditional to digital approaches. Below are some examples:

Video

Several partners including UNIWARSAW, APM, UiO1, UNIVIE ignited engagement through gathering, recording and sharing videos of interviews, in which the subjects shared personal stories and ideas related to food.

Digital Storytelling

RBGE² and UIBK³ used what is known as 'digital storytelling' to get people thinking about how food has affected their lives. The approach involves combining audio with still images to create videos.

Oral Storytelling

Partners provided opportunities for people to share their food stories. For example, at their Picnic with Contemporary Witness', BGBM illustrated the contrasting issues facing people in times of hunger and abundance by encouraging young people and older people who witnessed the post war years to share their narratives.

Stop Motion

BGBM⁴ developed a travelling stop-motion studio and ran stop motion workshops with schools, supporting them to develop fun and informative videos that work as engagement tools and highlight the areas of food security that are of greatest concern to them.

Team-Based Inquiry (TBI)

TBI is a practical approach to data collection and evaluation, built on a cycle of questioning, investigating, reflecting and improving. While evaluation often focuses on the impact of a project, TBI gives professionals the opportunity to reflect on the process and practice that went into its development

The TBI approach was developed by the Nanoscale Informal Science Education Network (NISE Net). It empowers education professionals to gather the information they need, improve their products and practices and, ultimately, engage more effectively with their audiences. It provides an active learning space to carry out evaluation in collaboration with their audiences. The lessons learned not only help to improve future practice, but also have the potential to influence other projects and the workings of their organisation as a whole (Pattison et al, 2014).

As the diagram below shows, TBI is a cyclical process of inquiry. In the first phase, question, the organisation's TBI team work together to identify the type of information that they need to inform and develop their work, and convert those needs into a set of inquiry questions. In the second step, investigate, teams collect the relevant data using the most appropriate and practical methods for their situation. The next step, reflect, is for the team to discuss and analyse the information they have gathered and establish key findings. Finally, the improve phase uses these findings to develop educational practice or inform the organisation's broader work, as well as sharing the results with colleagues. Ideally, the team will incorporate TBI into their ongoing work, continuing this cycle of inquiry as new challenges and questions arise.

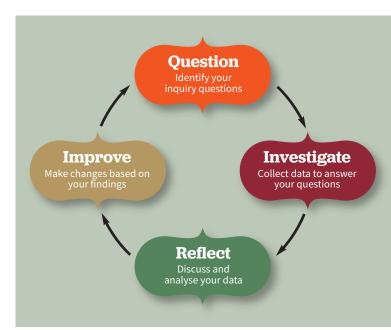


Figure 2: The TBI diagram is adapted from Pattison et al. (2014)

Quote

Sustainable food production -

Urban gardening



"Urban gardening also means climate protection (humidity, shade), harvesting without artificial fertiliser, no additional soil pollution, insect protection and gentle irrigation (water cycle)" "

Participant in Berlin, Germany

Qualitative analysis via TBI

In BigPicnic, the TBI approach represents the qualitative assessment carried out by botanic garden partners. TBI hinges on a more participatory way of designing and implementing evaluation. In BigPicnic, University College London (UCL) supported partners through training and monitoring to develop a reflective TBI practice approach. TBI helped partners to capture conversations between co-creators and visitors to their exhibitions and science cafés, as well as, their own reflections on the whole process. This occurred through observations, interviews, focus groups, ethnographic field notes, video and photographs and other methods. This enabled BigPicnic partners not just to 'do' but to reflect on their actions throughout the project and involve audiences in the continual improvement of their public engagement activities.

A total of 102 science cafés attracting a total number of 6,052 participants were organised across all partner countries to engage the public in this dialogue. In addition, 103 exhibition activities were organised and attended by 178,261 people across a broad range of audiences. The conversations which were captured through the TBI process were reported back to the Management Board using specially designed TBI forms (see Annex 2). Once collated and analysed, this data was used as the basis of the BigPicnic recommendations.

Quantitative analysis via questionnaires

The BigPicnic Management Board developed a standard questionnaire to support and complement the qualitative approaches being carried out by botanic gardens, which was, by its nature, context specific. The BigPicnic questionnaire (see Annex 3) addressed seven motives related to food choices. These were taken from a validated questionnaire from a study published by Renner and colleagues (2012):

- Traditional Eating (TE)
- Natural Concern (NC)
- Sociability (S)
- Social Norms (SN)
- Social Image (SI)
- Migration (M)
- · Weight control (W)

1189 people filled in the questionnaire after visiting a BigPicnic exhibition, workshop or science café in a particular partner country. Topics addressed in these learning experiences were related to food in a broad sense. In addition a sample size of 290 questionnaires was filled in by visitors of BGCI's International Congress on Education in Botanic Gardens in Warsaw 2018 or via an online questionnaire format offered on the BigPicnic website.

Topics covered

The exhibitions and science cafés developed through BigPicnic covered and generated debate of a broad range of subjects. These can be considered to be topics that are both relevant to the local communities and also important in current research and innovation related to food security, due to the input of the FSAGs. It is these topics that drove conversations that resulted in the BigPicnic recommendations.

Subjects covered by science cafés and exhibitions:

- Food waste
- The food demand gap
- Urban gardening and urban farming
- Erosion of knowledge of growing food
- Identity and eating habits/food choices
- Cultural aspects of food
- Insects as a protein source
- Pollination
- Climate change
- Crop wild relatives
- Household food security
- Agro-ecology
- Ending world hunger
- Gastronomy
- Mindful eating
- Securing food for the future
- The role of schools
- Food trends
- Increasing crop production and crop sustainability
- Local production
- **Nutrition and ethics**
- Healthy food
- Alternative supply chains
- **GMOs**



©University of Warsaw Botanic Garden

Findings

Questionnaire findings

Out of the seven food choice factors, Natural Concern appears to be the most agreed factor out of those who completed the survey (Fig.3.). Most people either agree or strongly agree with statements related to preferences for 'natural foods' from 'fair trade' or 'organic farming' or 'environmentally friendly food'. Sociability as well as Traditional Eating is also relevant. People agree that they 'Eat what they eat' because 'it makes social gatherings comfortable' and 'enjoyable' as well as 'it belongs to certain situations' and 'family traditions'. Social Norms and Weight Control appear to be less important factors.

The Social Image and Migration context is not considered important. Most participants either disagree or strongly disagree with Social Image statements such as 'because others like it' or 'it makes me look good in front of others'.

Most people disagree or strongly disagree with statements such as 'I cannot buy ingredients I need in the country I currently live' or 'my food habits changed since moving to the country I currently live'.

Key themes

Data gathered through the project activities was analysed and several key themes and sub-themes emerged (see Annex 4). These can be broadly classified into:

Quote

Food and heritage -

Migration



We arrived in Belgium in September 1998, and again we started looking for beans. We went to the supermarket, but they didn't have any dried beans. We looked for them in small shops but there were no beans, only the white beans in pots but not the real beans we knew"

Participant in Brussels, Belgium

- Food and heritage
 - Cultural diversity in food use and food systems
 - Traditional eating
 - Context of eating
 - Food stories/memories
 - Migration
- · Climate change
- Sustainable food production
 - Urban gardening
 - Supply chains
 - Food waste and circularity
- · Education and food security

These have been used to structure the BigPicnic Recommendations.

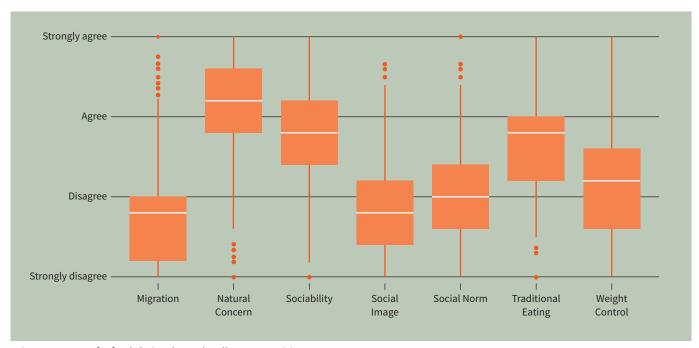


Figure 3. Factors for food choice chosen by all survey participants

The cultural dimension of food

Above all, it is important to highlight the key theme of food and heritage. The BigPicnic findings make a strong case for the cultural and social values attributed to food as the cultural value of food and the notion of food as cultural heritage emerged distinctively. This is a parameter that is to a greater extent omitted by the prevalent European and global policies that deal with food and sustainable development but is strongly linked with the growing awareness and recognition of intangible cultural heritage by UNESCO⁵. The activities undertaken by BigPicnic partners covered a wide range of themes surrounding food and food security. Cultural and social values attributed to food were identified both directly and indirectly by all partners.

At the start of the project, a working definition of food security was produced. This definition took into account the way in which food security is defined across partner countries and relevant policies. To begin with there were three components: Security, Sovereignty and Safety.

Preliminary findings related to the critical importance of heritage in food security were major drivers that resulted in the move from the initial definition towards one which was grounded in an appreciation of culture:

- Access: Ensuring all people across the world have access to sufficient food to meet their dietary needs
- **Sovereignty:** Empowering people to make their own choices about the food they eat, where it has come from and how it has been produced
- Safety: Ensuring people have healthy, nutritious food that is free from contamination or degradation
- Heritage: Supporting culinary traditions and acknowledging that they help to shape and are shaped by personal and collective identities

Ouote

Food and heritage -

Traditional eating



"I, at times, mix cassava flour with millet flour to make Kalo (food) which is eaten with ferinda (bean sauce) as a staple meal in the Tooro culture"

Participant in Brussels, Belgium



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5'The Convention for the Safeguarding of Intangible Cultural Heritage' was adopted by the UNESCO General Conference on October 2003 and entered into force on April 2006. Today the relevant Representative List of the Intangible Cultural Heritage of Humanity contains various elements ranging from the preparation and making of kimchi (Korea) or lavash bread (Armenia) to the Belgian beer culture, the French gastronomic meal, the Mediterranean diet and the Arabic or Turkish coffee traditions and many other examples.

Access

Ensuring all people across the world have access to sufficient food to meet their dietary needs

Food Security

Sovereignty

Empowering people to and how it has been produced

Safety

Ensuring people have healthy, nutritious food that is free from contamination or degradation

Figure 4. (Above) BigPicnic project definition of food security at the start of the project. Figure 5. (Right) BigPicnic project amended definition of food security

Access

Ensuring all people across the world have access to sufficient food to meet their dietary needs

Food Security

Sovereignty

Empowering people to

Safety

Ensuring people have healthy, nutritious food that is free from contamination or degradation

Heritage

Aligning key themes with European and global policies

To highlight how the BigPicnic findings complement existing policies and frameworks the key themes that emerged have been mapped to the United Nations Sustainable Development Goals (SDGs) and Food 2030 priorities identified by the European Union.

The table below summarises the occurrence of data aligned with Key Priorities of Food 2030 and the Sustainable Development Goals. Note that, although there were 101 occurrences of data related to the key theme of Food and heritage, these aspects are lacking in the existing European and global policies and therefore cannot be aligned with them.

Quote

Sustainable food production -Supply chains



"I buy only organic stuff. I know the production circle is not perfect but it is better than the conventional production"

Participant in Vienna, Austria

FOOD	Food 2030	Sustainable Development Goals	Frequency
	Key Priority 1: Nutrition for sustainable and healthy diets	SDG 2: Zero hunger SDG 3: Good health & well-being SDG 4: Quality education SDG 5: Gender equality	98 181 208 6
		SDG 6: Clean water and sanitation SDG 8: Decent work & economic growth SDG 11: Sustainable cities & communities	11 44 46
	Key Priority 2: Climate smart and environmentally sustainable food systems	SDG 13: Climate cction SDG 15: Life on land	49 62
	Key Priority 3: Circularity and resource efficiency of food systems	SDG 12: Responsible consumption and production	250
	Key Priority 4: Innovation and empowerment of communities	SDG 16: Peace, justice and strong institutions	39
	ency of occurrence of data aligned with Key Priorities TBI reports)	of Food 2030 and the Sustainable Development Goals	



Priority 1: Nutrition for sustainable and healthy diet

Sustainable Development Goals

Themes

Illustrative quotes



Several aspects that relate to the improvement of nutrition and hunger alleviation were identified. More specifically, the value of nutritious food (e.g. for children) and the longevity and nutritional value of specific types of food (e.g. insects **as protein-rich option**) were highlighted. Other aspects that were deemed important include the physiological value of food (e.g. as a source of energy), proper access to food (e.g. in the case of migrant communities) and dealing with insecurities in relation to food. The cost of food was of particular concern and the feedback given pointed towards the changes in food prices, how expensive certain types of food have become and the spending that proper eating requires. Urban gardens and their impact on the ability of people to handle their own consumption and achieve small scale production are also noteworthy in this context.

"Cooking with the kids is a good strategy to promote healthy habits" (Participant in Lisbon, Portugal)

"There is not enough food in the world to feed everybody. Maybe gardening on vertical surfaces is a solution" (Participant in Leiden, Netherlands)

"Organics are so expensive in Greece" (Participant in Thessaloniki, Greece)



Audiences acknowledged the importance of food that contains no harmful substances such as antibiotics, pesticides and pollutants.

"I buy mainly organic and mainly Norwegian if I can get hold of it" (Participant in Oslo, Norway)

People cited several factors that influence their choice of food and among these were food that they like to eat or are in the habit of eating as well as the availability of natural and organic products. In addition, the choice of food seems also to be affected by what the food looks like (for example, the colour and texture), affective reasons (to do with the emotions that a person is going through - for example feeling lonely) along with **financial reasons** and **individual choice**. What's more, audiences seemed to consider the significance of having a healthy and balanced diet, how important it is to feel well and the need to control weight. For the latter, awareness of the negative impact of obesity, eating

"If something tastes good and smells good, you can assume that it is good. Most of the time you can rely on your senses" (Participant in Berlin, Germany)

"Irish potatoes are nutritious and palatable. I have been feeding them to my 1-year old daughter who is being introduced to solid food" (Participant in Fort Portal, Uganda)



Audiences identified the provision of food education as very important. Points that were raised included the ability to know how to access information about food, the importance of food labels, the acquisition of food skills (i.e. how to prepare, cook and handle food), **knowing more** about where food comes from and what constitutes a balanced diet. Furthermore, knowing how to prepare healthy food and how to grow food plants were also considered important. In addition, the data also indicated that people value the raising of awareness about as well as the **development of habits** that would encompass such approaches.

disorders and the need for low carb diet featured strongly.

"Nutrition should be a compulsory subject in schools" (Participant in Hannover, Germany)

"When the kids where still young, we used to have chickens. We thought: 'nice, eggs for breakfast,' but the kids thought it was disgusting because the eggs came from the chickens' butts. They were so confused, they thought that eggs came from the supermarket, out of a machine" (Participant in Leiden, Netherlands)

"Education could improve healthy food habits and reduce the junk food consumption" (Participant in Bergamo, Italy)

Table 3: Themes and representative quotes aligned with Food 2030 Priority 1 and Sustainable Development Goals 2, 3, 4, 5, 6, 8 and 11



Priority 1: Nutrition for Sustainable and healthy diet (cont.)

A further aspect raised in the audience feedback that is worth considering is the recognition of the time spent on domestic (unpaid) work that is related to buying and preparing food and the importance of empowerment of women. Access to clean drinking water was underlined as important. Issues of sanitation and the value of clean water in relation to food production emerged (for example, the impact of ground water pollution) and the concerns about the amount of fresh water used in agriculture and food production. Both sustainable food production and sustainable food products were considered important for their contribution to decent work and economic growth. Afurther aspect raised in the audience feedback that is worth considering is the recognition of the time spent on domestic care, in addition to making it compatible with their work outside the home. In recent years we have tried to make a change in this sense that has not been very beneficial for women, since they work twice and barely get recognition" (Participant in Alcala, Spain) "Meat production is not environmentally friendly and releases gases. The water consumption is also large" (Participant in Oslo, Norway) "How much CO2 is emitted and H2O is used to produce food or drinks" (Participant in Bergamo, Italy) "There are very few young people that want to start as a farmer. And it is important that we can motivate and stimulate farmers to innovate, by showing them new economic models like CSA (Community Supported Agriculture). It is very important that we help the young farmers to look at different economic models that will help them to earn some money" (Participant in Berlin, Germany) The idea of sustainable cities and communities were mentioned in relation to the ability of people to access
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products were considered important for their contribution to decent work and economic growth. as a farmer. And it is important that we can motivate and stimulate farmers to innovate, by showing them new economic models like CSA (Community Supported Agriculture). It is very important that we help the young farmers to look at different economic models that will help them to earn some money" (Participant in Berlin, Germany) The idea of sustainable cities and communities were "The community vegetable gardens are a very good"
14 25 18 2115
places where they can plant food. These included urban gardens, community gardens, allotments. interested in sustainable food" (Participant in Alcala, Spain)
Furthermore, communities that live in rural areas and the forging of partnerships/networks were mentioned. "I wish that it becomes legally possible to take over sponsorships for the small areas around the street trees in the city and that this is publicly promoted" (Participant in Berlin, Germany)



Priority 2: Climate smart and environmentally sustainable food systems

Sustainable Development Goals	Themes	Illustrative quotes
13 CLIMATE AGTION	Much of the data gathered had a direct relevance to issues of climate change and environmental sustainability. For example, audiences mentioned how changes in the climate threaten food production and how such changes are also influenced by food transport and consumption .	"We have to teach people what is sustainable because often what is economic is not sustainable. Often food that is cheap comes from the other side of the world" (Participant in Lisbon, Portugal) "it's scary that we do not take care of the earth and that we are refusing to do something about climate change" (Participant in Oslo, Norway)
15 LIFE ON LAND	Audiences commented on the value of diversity of food plants, diversity of agriculture and environmental diversity in food systems. Climate change (causing infestation of pest and diseases) and the value of certain crops as sources of income were underlined as important factors.	"The landscape needs to become more diverse and we need more plant diversity to feed the insects" (Participant in Berlin, Germany) "Without bees we would have less plant biodiversity, not only food plants but wild plants as well. 1 bee hive can pollinate 200 trees, 2 people can pollinate 20 trees" (Participant in Bergamo, Italy)

Table 4: Themes and representative quotes aligned with Food 2030 Priority 2 and Sustainable Development Goals 13 and 15



2030 CIRCULAIN	Priority 3: Circularity and resource effi	ciency of food systems
Sustainable Development Goals	Themes	Illustrative quotes
12 RESPONSELE CONCUMPTED AND PRODUCTER CONCUMPTED AND PRODUCTER CONCUMPTED AND PRODUCTER AND PRODUCT	Sustainable food production in the form of fair trade and organic products was seen as a positive impact. Other significant aspects were growing food locally and maintaining biodiversity. Sustainable food consumption, reduction of food waste, recycling, the ability to make choices, the convenience of certain products (for example, having fast and easy access with minimal effort), the availability of food that is seasonal, easy to grow and local were also deemed important. Finally, marketing issues were mentioned as impacting on food trends and the visual appeal of specific products (for example, their availability in the supermarket and how they are presented respectively).	"Food production should be environmentally friendly; farming in a way that no pesticides are required (e.g. from mixed crops). Agriculture should take into account the species-appropriate treatment of creation (soil, plants, animals, water), the conservation of resources, responsible handling of the soil" (Participant in Berlin, Germany) "I'm happy that people think about sustainable alternatives. I want to eat insects because it's sustainable, they are grown locally and are easy to produce" (Participant in Meise, Belgium) "Access to sustainable food must be easy" (Participant in Hannover, Germany)

 $Table \ 5: Themes \ and \ representative \ quotes \ aligned \ with \ Food \ 2030 \ Priority \ 3 \ and \ Sustainable \ Development \ Goal \ 12$



Priority 4: Innovation and empowerment of communities

Sustainable	
Development	t
Goals	

Themes

Illustrative quotes



The potential to be **involved in decision-making about** food issues emerged as a significant aspect. People stressed the importance of food in relation to memory and the expression of national identity. Preserving knowledge from local actors was also valued along with the opportunity to construct and co-create knowledge.

"Sometimes, answers are right there in front of you, it's just what you choose to do with them. I would suggest to people to stand up and speak up; using your intrinsic value as your voice." (Participant in Leiden, Netherlands)

"Science cafés and co-creation are really useful tools for teachers" (Participant in Alcala, Spain)

Table 6: Themes and representative quotes aligned with Food 2030 Priority 4 and Sustainable Development Goal 16

BigPicnic recommendations

Using the BigPicnic project data, a series of policy briefs have been developed. Food production, sustainability and the climate, participation, education and organisational development were all shown to be important in the context of the project and food security. The common thread that unites all of these individual areas is heritage and the role that food plays in our individual lives. To address food security, heritage and its over-arching influence in all aspects of the debate must be acknowledged.

There are seven BigPicnic policy briefs. Four aim to support policy makers to shape future food policies and funding frameworks and two seek to support informal learning sites to apply the learning that occurred throughout the project. A seventh policy brief specifically addresses issues addressed by the Ugandan project partner to illustrate how their context complements and contrasts the European. To highlight where BigPicnic findings link to existing frameworks and illuminate gaps in current policy, each policy brief maps the BigPicnic recommendations to the most relevant United Nations Sustainability Goals (SDGs) and the European Union's Food 2030 Priorities.



Food and heritage: The cultural heritage dimension of food should be embedded in food policy.



Climate change: Increase the resilience of citizens, especially vulnerable groups, to climate change and increase climate neutrality of food systems.



Sustainable food production: Future funding frameworks should address more efficient food loss and waste management, small scale food production and sustainable supply chains.



Education and food security: Food and food security should be topics embedded throughout the formal and informal learning systems.

The BigPicnic recommendations are categorised by their target audiences

Policy makers

- · BigPicnic policy brief 1: Food and heritage
- · BigPicnic policy brief 2: Climate change
- BigPicnic policy brief 3: Sustainable food production
- BigPicnic policy brief 4: Education and food security
- BigPicnic policy brief 7: The Ugandan perspective

Informal learning sites

- BigPicnic policy brief 5: **Using participatory approaches**
- BigPicnic policy brief 6: Organisational development through food security



Using participatory approaches: Use participatory approaches to raise unheard voices and broaden our perception of expertise.



Organisational development through food security: Organisations should embrace new approaches and draw on a broad spectrum of expertise as catalysts for change.



Uganda: Increase capacity in climate smart agricultural approaches to address challenges posed by climate change and the impact on livelihoods and nutrition.

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Quote

Climate change



"This salmon (ed. note related to a picture of a salmon wrapped in plastic) contributes to climate change because it travels around the world to be packed in China"

Participant in Oslo, Norway

Quote

Sustainable food production -Food waste and circularity



"In a garbage bin food is thrown, this food has been grown / bred and when it is thrown away all the energy is wasted. In addition, a car has to pick up the food waste"

Participant in Oslo, Norway

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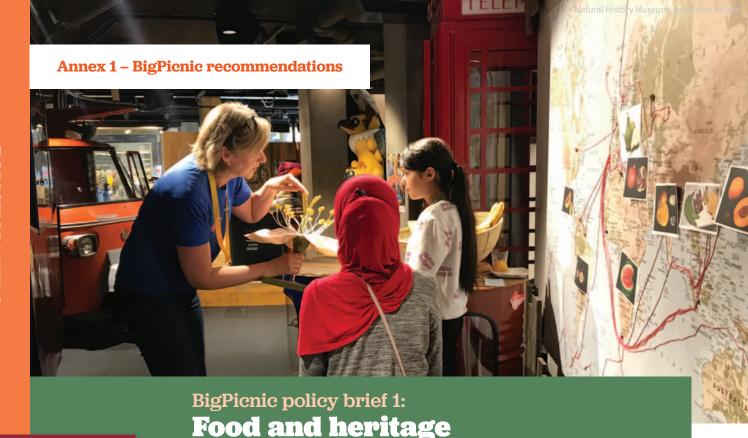
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BIGPICNIC TOPIC



SDGs











United Nations Sustainable **Development Goals**

Recommendations

Overall: The cultural heritage dimension of food should be embedded in food policy.

- Articulate the cultural heritage value of food across all food security policy priority areas.
- Use open, participatory approaches to further explore material and immaterial aspects connected to food and food heritage.
- Enhance cultural diversity in food use and food systems.
- Protect cultural traditions related to food and embed them in strategies for social cohesion.
- Support the acquisition of (traditional) food products and food processing skills as a means to enhance food sovereignty on familial, regional and national levels.

Background

Food security is one of the greatest challenges facing society today, yet the term 'food security' means many different things to different people and in different contexts. According to the Food and Agriculture Organization (FAO): "food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". 1 Thus many definitions of food security (including the BigPicnic's initial definition) focus on three key elements - access, sovereignty and safety.

There is however a key parameter that is to a greater extent omitted from both the key definitions and the associated European and global policies that deal with food and sustainable developments - heritage. Heritage is about supporting culinary traditions and acknowledging that they help to shape personal and collective identities. There is a growing awareness and recognition of the vital importance of heritage as illustrated by 'The Convention for the Safeguarding of Intangible Cultural Heritage' adopted by UNESCO2.

However, more evidence is required to emphasise the important relationship between heritage and food and embed this within discussions about the future of our food. Including this element in food security policy priority areas will provide impetus for increased attention, including research and funding.

Findings

BigPicnic partners clearly highlighted the importance of food as cultural heritage. Food is closely linked to individual and national identity, culture, tradition and memory. The project data provided a rich source of information on this subject which is explored below.

Cultural diversity in food use and food systems

People are personally attached to the food they grew up with which, in some cases, may include lesser known food crops. Specific food systems are associated with an individual's own heritage, and growing or collecting their own food is part of their culture. BigPicnic's audiences addressed the importance of cultural diversity in both food use and in food systems more generally (including transport, production, processing, distribution and logistics). This was often done through a comparison of past and present approaches to food.

Food was linked to religious, political and ethical values. Traditional ways of eating include eating that belongs to certain situations and traditions (e.g. family tradition), and ways of eating that individuals have grown up with that are seasonal and familiar. Additionally, social class appears to play a key role in this theme as do ethical values.

Traditional eating

Specific types of food are often associated with certain situations (events, celebrations) and traditions (familial, regional or national). The notion of seasonality and the value of home food, the link between territory and culture all have importance for communities.

Context of eating

Food was demonstrated to have a specific value in the context of social interaction (the importance of sharing food and eating with others) and food habits are often defined by social norms (pressure provided by the society) and social image (what is trendy).

Food stories/memories

Food appears to have strong associations with specific memories and stories that people keep and remember. These memories are emotionally charged and feature all the senses, which makes them very powerful.

Migration

In the context of diaspora communities, access to ingredients from the home country and knowledge of traditional food preparation are deemed important. People living in foreign countries often have to adapt their food habits as a consequence of adapting their wider lifestyles and ways of living. However, food can also serve as a way to 'reconnect' with the home country.

Food and heritage -

Traditional eating



"I'm worried that everything will start tasting the same. That all the special flavours you used to have will start tasting like white bread and cheese, because marketers think that everyone wants sugar in their food. Now you have all these varieties that get sweeter and sweeter. Apples are allowed to be sour, but apparently you can't sell those. Apples already taste too sweet for me, but now they are all becoming uniform. It's like a dog biting its own tail. It will come back I think, these are only trends, people are probably asking for the old varieties."

Participant in Leiden, Netherlands

"My favourite food memory is, growing up as a child in Eastern Nigeria and going to the village during the rainy season and sitting with the family, roasting corn and African Pear...it's just, you know, the ambience, sitting with your family, the feeling...this is part of the things that remind about my childhood and one of my favourite food memories."

Participant in Meise, Belgium

As food is widely acknowledged for its importance in expressing identity it was not surprising to receive feedback that addressed links between food and migration. Audiences underlined the significance of having access to ingredients for the preparation of home country food and reflected on how easy or difficult it is to find them. This was combined with comments about the knowledge of preparing food in the way that it is eaten in the home country of the respondent. Nevertheless, people acknowledged that they have adapted their lifestyle due to migration.

Conclusion

Efforts to address food security at the policy, organisational or individual level should acknowledge the essential role that heritage plays in people's relationship with food. In particular, this should take into account the importance of food in relation to memory and the expression of national identity and different religious, political and ethical values as well as traditional ways of eating.



BIGPICNIC TOPIC



FOOD 2030 PRIORITIES









SDGs









United Nations Sustainable **Development Goals**

Recommendations

Overall: Increase the resilience of citizens, especially vulnerable groups, to climate change and increase climate neutrality of food systems.

- Ensure that agricultural as well as general climate change mitigation and adaptation policies, programmes, strategies and actions are fully consistent with existing food security related commitments.
- Support Civil Society Organisations, small-scale producer organisations, and women farmer organisations, as well as local communities and vulnerable groups to participate in decision making and the implementation of food security policies and programmes to address climate change and support climate change adaptation.
- Provide training and support, at all levels of the food system, on climate smart agriculture as a means of mitigating and adapting to climate change.
- Reduce excessive food imports.
- Reduce agriculture that is based on monocultures and protect biodiversity as a means of climate change resilience.

Background

Climate change is increasingly recognised as an issue of urgent concern and an imminent threat on a global scale. Around 10-12% of annual emissions and 75% of global deforestation come from agriculture¹. Therefore, climate change is an issue that our food systems must play a part in mitigating, as their contribution is significant. In addition, climate change has the potential to

affect food security across a range of areas such as access, utilization and price stability². Therefore, our food systems must be resilient if we are to ensure global food security. The BigPicnic partners have organised a wide range of activities that addressed directly or indirectly the topic of climate change in relation to food security.



Findings

Participants in BigPicnic activities had a clear understanding of the links between climate change, agriculture and food security. They expressed their concerns about the overexploitation of resources, habitat degradation, erosion and deforestation, loss of biodiversity, pollination, pollution and pesticides or plagues. More specifically, the outcomes of the data gathered had a direct relevance to issues of climate change and environmental sustainability.

Audiences expressed their concerns and mentioned how changes in the climate threaten food production and how, at the same time, such changes are also influenced by food transport and consumption. These threats led to discussions about farmers' insecurity and the need for better state support while also demonstrating the fear that certain members of the public have. Farming practices that are unfriendly to the climate, unnecessary consumption patterns and the excessive import of products were also seen as elements with a negative impact on the climate. Monocultures impacting on the diversity of agriculture and the loss of species or traditional varieties were also highlighted as important concerns. Additionally, the potential for climate change causing infestation of pests and diseases that reduce the value of certain crops was also underlined as an important factor. Therefore, we must create conditions to facilitate access to a broader variety of food plants and crops including their genetic resources as well as a fair and equitable sharing of the benefits arising from their use.

Conclusion

It is essential to acknowledge the urgent need for actions to address the effects of climate change on food security. To achieve this, adaptation to climate change must be a priority for all farmers and food producers, including small-scale producers in urban environments. Approaches to mitigate and build resilience against climate change must take into account equitability and participatory approaches that enable both men and women to gain equitable access to information and

Climate change



"If the climate changes as during this year, there won't be more food anymore anyway, technology won't help, the world is changing."

Participant in Warsaw, Poland

"What is creepy is that we do not take care of the Earth and that we postpone doing something about climate change. It can be drought. Or colder here. We import a lot of food. We have very little production of our own food, well we have little access to food at all."

Participant in Oslo, Norway

We have to teach people what is sustainable because often what is economic is not sustainable. Often food that is cheap comes from the other side of the world."

Participant in Lisbon, Portugal

resources when addressing food security in the context of climate change. At the same time, future programmes, actions and strategies must be fully consistent with existing food security related policies and frameworks.

¹Cruz, A. (2016). Flipping the issue: agriculture contributes to climate change? [online] Available at: https://ccafs.cgiar.org/blog/flipping-issue-agriculture-contributes-climatechange#.XGVz8 Z2uUm

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BIGPICNIC TOPIC



FOOD 2030 PRIORITIES



SDGs









United Nations Sustainable **Development Goals**

Recommendations

Overall: Future funding frameworks should address more efficient food loss and waste management, small scale food production and sustainable supply chains.

- Support plant-focused sustainable urban and peri-urban agriculture from a commercial and community/household perspective to maximize the productivity of arable land and support local food.
- Support organisations involved in food security to adopt a systemic supply chain analysis and perspective to assist consumers in making healthy, sustainable and socially just food choices.
- Make food loss and waste prevention and management a pillar of food security and sovereignty activities.

Background

Food security is a complex issue and encompasses a huge diversity of topics such as food production, sustainability, health and nutrition and climate change. With such a complex picture involving many different stakeholders, priorities and considerations it can be challenging for non-experts to engage with this subject to both better understand and provide input. Botanic gardens, as centres of plant expertise and education, with strong links to scientific and academic audiences are well placed to act as hubs in their local communities, facilitating discussion and providing a place to explore food security topics.

Findings

The primary focus of the BigPicnic discussions and debates were to understand and draw out important issues and concerns that people have in relation to food security. For some of the issues highlighted there are natural solutions and these are detailed where they occur. However, for most of these issues there are no immediate, obvious solutions and thus the findings detailed below aim to showcase the common areas of concern and key issues that the project audiences feel it important to address.

Urban gardening

Urban gardens were considered to play a part in people's ability to access places to grow food, while community gardens and allotments appeared to be linked with the goals of making cities and communities safe and sustainable (SDG 11). Furthermore, having food gardens was deemed to be a good way for people to achieve self-sufficiency, sovereignty and their own food production. However, there was a perceived difference in the role of community gardens compared to allotments community gardens were regarded as a contributing factor to social integration, whereas ideas about allotments, while providing evidence of a generational shift, were more intertwined with how people viewed ownership. Allotments demonstrate a quest for both self-sustainability and a struggle for control of space which is emblematic of the wider environmental and political issues facing many countries today. The forging of partnerships/networks was also seen as a factor contributing positively towards tackling the challenges of the urban environment and problems.

Sustainable food production -Supply chains



"Well, when you start doing something differently, then suddenly you find people who also do things differently, these were food cooperatives, and I still work with them and will continue, these are fantastic places, because you feel at home there."

Participant in Warsaw, Poland

"In a garbage bin food is thrown, this food has been grown / bred and when it is thrown away all the energy is wasted. In addition, a car has to pick up the food waste."

Participant in Oslo, Norway

When people ferment and process their food themselves and put work and energy into it, they pay more attention to where food comes from. And buy more organic food or grow it themselves. Home-grown food can be enjoyed much more. And you consume much more consciously."

Participant in Berlin, Germany

Supply chains

Sustainable food production in the form of fair trade and organic products was seen as a factor contributing positively to responsible food production and consumption (SDG 12). Many of BigPicnic's co-created activities had a strong focus on pollination, highlighting the participants concerns over conservation of pollinators and farming practices that support this. The importance of trust and distrust between producers, suppliers and consumers was also raised as a significant issue. It was emphasised that knowing the farmers, establishing local partnerships, having a direct contact between the producer and the consumer with alternative distribution systems (as opposed to, for example, supermarkets) were all important elements.

Food waste and circularity

Audiences expressed concerns about government practices for waste prevention and sustainable habits. In some cases, food waste was seen as a political issue that could only be solved with better distribution. Food waste was highlighted as a significant problem and members of the public criticised the persistence of this phenomenon while issues of food poverty haven't been solved. Participants underlined that a greater control of the fresh food chain could better recover waste from supermarkets and this could guarantee the right to food to a larger number of citizens.

The practice of composting was seen as a way to contribute both to better food waste management and to circularity/recycling. Composting had a community bonding element while also having a politically charged context as it sometimes distinguishes grassroots approaches from the official state approach. Finally, marketing issues were mentioned as impacting on food trends and the visual appeal of specific products (for example, their availability in the supermarket and how they are presented respectively).

Conclusion

Issues that emerged covered both the supply and demand sides of the food chain and food systems. Sustainable food production was considered both within the context of nutrition and healthy diets (aligning with Priority 1 of the Food 2030 policy) and the efficiency and circularity of food systems (Priority 3 of the same policy). Both sustainable food production and sustainable food products were considered for their contribution to decent work and economic growth (SDG 8).

There should be greater support for local food production and consideration should be given to serving the increasing demand for urban gardening, community gardens and allotments. Participants noted the importance of preserving knowledge from local actors and taking the opportunity to construct and co-create knowledge, innovation and adaptation. At the same time, calling for production methods that support sustainability by protecting the land and reducing food waste. This can occur by recognizing the importance of the International Treaty on Plant Genetic Resources for Food and Agriculture and of the Nagoya Protocol adopted by the 10th Conference of Parties (COP) of the Convention on Biological Diversity (CBD).



BigPicnic policy brief 4:

Education and food security

BIGPICNIC TOPIC



FOOD 2030 PRIORITIES



SDGs



Recommendations

Overall: Food and food security, should be topics embedded throughout the formal and informal learning systems.

- Provide consistent, accurate and accessible information and teaching / instruction from the earliest age possible about food, food products and processes.
- Include both cookery and growing food plants (using school gardens) in the national curriculum.
- Support projects that provide knowledge exchange for stakeholder groups, education staff and relevant audiences on food and food security topics that include the environmental and biological as well as the social and cultural dimensions.
- Draw on a variety of local expertise to implement situational cues that encourage healthy and culturally relevant food habits in places where food is available. These could include cues provided on packages, the availability of different types of food, and food pricing.
- Link healthy eating campaigns to sustainable production and consumption campaigns.

Background

It is increasingly important to both understand the concept of and adopt behaviours to improve food security locally, regionally, nationally and globally. People from different communities have a different relationship to food and food security/insecurity depending on their socio-economic and cultural background. Yet this topic with its environmental, biological,

social (including social justice) and cultural dimensions are rarely dealt with in any meaningful way within our education systems. Thus embedding and updating the concept and value of food security, at all levels and for all age groups requires a lifelong learning approach. This is both a challenge and an opportunity for organisations across formal and informal learning settings.

Both the formal and informal education sector are key to embedding the concepts and value of food security, not only for young children but up to and including those in tertiary education and throughout the wider community. Content knowledge is not enough, learning provision also has to embrace experiential learning to embed the concepts and values of food security. Botanic gardens have a key role as sites for advancing food-related conservation and food security within both their education and research work. They can capitalize on existing public engagement activities and connect to grassroots movements to jointly deliver more inclusive public engagement and education. In tandem with the formal education sector, informal learning settings such as botanic gardens, heritage organisations and museums have the opportunity to embed this topic with a broad range of audiences and communities.

Findings

Audiences identified the provision of food education as very important. In addition, the collected data also indicated that people value not only the raising of awareness about food related issues but also supporting behaviour change.

Points that were raised included understanding how to access information about food, the importance of food labels, the acquisition of food skills (i.e. how to grow, prepare, cook and handle food), knowing more about where food comes from and what constitutes a balanced diet. Awareness of the negative impact of obesity, eating disorders and the need for a healthy diet featured strongly in the empirical evidence collected. At the same time, people felt that information offered by the media and public authorities was not trustworthy, making it increasingly difficult to make informed choices. Co-created actions related to sustainability, culturally appropriate foods and their availability, and the promotion of these ideas were valued because they shape the necessary information provision for different communities.

Conclusion

Education is key to societal change and education with regards to food security requires an approach which is emotionally and culturally relevant. In addition, knowledge provision should have an actionable approach to ensure autonomy in making informed food choices. Embedding the concept and values of food security also requires a lifelong learning approach that is knowledge based, situated in authentic contexts and experiential, and takes into account social and cultural differences. Cues, which take the local social context into consideration, situated in the environment could be used as a mechanism to raise awareness, to re-define people's relationship with food and to encourage changes in behaviour related to food choices.

The formal education system needs to develop a broader and deeper curriculum focus on topics related to food security. Informal education institutions, such as botanic gardens and museums, have the potential to become a trustworthy platform for supporting sustainable food choices with a wide range of audiences.



Quotes

Education and food security



66 But nevertheless we start with the children now and we do not even reach all - and what do you do with those who are no longer in school, that's the larger share, the more money-bearing share and I find that extremely difficult to convey."

Participant in Vienna, Austria

"...visiting the Botanical Garden and seeing the pear labelled as strange food, it was a bit weird...this is part of the things that remind me about my childhood and one of my favourite food memories."

Participant in Meise, Belgium



BigPicnic policy brief 5:

Using participatory approaches

BIGPICNIC TOPIC



FOOD 2030 PRIORITIES



SDGs













United Nations Sustainable **Development Goals**

Recommendations

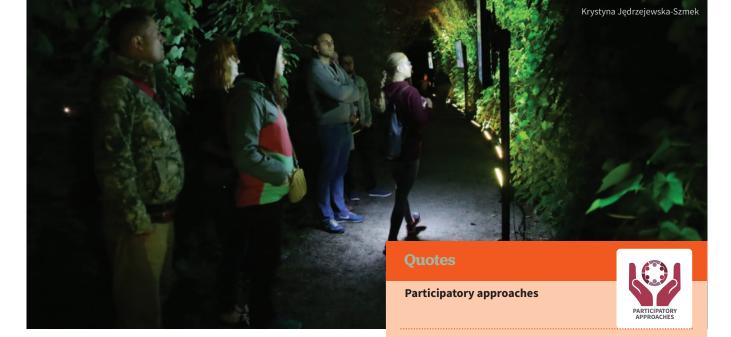
Overall: Use participatory approaches to raise unheard voices and broaden our perception of expertise.

- Build new knowledge and create value, for all concerned, through open and inclusive research and public engagement processes.
- Involve the larger 'eco-system' (e.g. audiences, green organisations, researchers and industry) to allow all key players to work together.
- Leave your site to get easier access to and build relationships with new audiences. Don't expect them to come to you.
- Focus on creating strong, lasting relationships with a deeper, more sophisticated, engagement rather than on reaching more people.
- Open up the research process and co-create across the organisation to build a knowledge base, foster ownership of a topic, gain support for projects and create leverage for the results.

Background

Working towards a food secure, sustainable future and achieving all of the Food 2030 priorities and United Nations Sustainable Development Goals (SDGs) requires cross sectoral collaboration which includes the involvement of the public and community groups. Informal learning sites are uniquely placed to act as hubs to bring stakeholders together to discuss, set research priorities and design a sustainable future.

Informal learning sites have access to scientific and other expertise and have skills in bringing people together to learn and experience. Thus it is important that these spaces, like botanic gardens, respond to their mandate for developing a neutral space for dialogue to increase knowledge and inform policy. Achieving this requires a participatory approach to research, public engagement and project development.



Findings

Through the dialogues supported by the exhibitions and participatory events co-created as part of BigPicnic, the partners have highlighted the potential for informal learning sites to foster multi-stakeholder collaboration. Participants highlighted that food security has a political dimension which links to other policy domains and that there are hidden topics, such as affordability of food, packaging, health and chronic diseases that need to be considered. Project partners found that the public is keen to be involved in setting research priorities and in decisionmaking about food issues.

People engaged stressed the importance of food in relation to memory and the expression of national identity. Accessing and preserving knowledge from local actors was also valued along with the opportunity to construct and co-create knowledge. BigPicnic partners found that food stories were able to bring people together, trigger recognition and create actionable perspectives in visitors. Co-creation was found to change the relationship of audiences to the topic. In addition, attitude change towards food and food security topics were also observed in the public and professionals that participated.

Co-creation creates value on multiple levels, it does not necessarily lead to predictable results - freedom, creativity, flexibility and, above all, perserverence need to be part of the process. Participatory engagement in BigPicnic (applied research and co-creation activities) helped to level playing fields between those who we traditionally consider to be experts and those who hold different, important forms of knowledge. Project partners found that it is important to acknowledge, whether financially, or otherwise, the important contribution that each actor makes. The combination of Team-Based Inquiry (a participatory approach to applied research) and co-creation used in BigPicnic were deemed to be highly complementary approaches which reflect the ethos of Responsible Research and Innovation and supported partners to enhance their project outcomes and capture the conversations raised by them.

"Co-creation, even more participation"

I had not reflected on the possibility of planning cultural events, educational strategies, and hypotheses of institutional development directly with the recipients before. Yet it might seem like a logical process, but before the BigPicnic project this had happened just by chance. It was a discovery, intentionally putting people around a table who will then benefit from the proposals of the Botanical Garden, to feel their opinions not after having organised an exhibition or another event, but even before having conceived it.

Co-creation processes led to several installations within a mobile exhibition on secure, responsible and biodiverse food, but also to the adoption of our tropical plants in pots for the winter season by schools because our greenhouse is too small and more.

It's like cooking not for your guests but with your guests. This allows you to find out what their tastes are, their skills and preferences, and to share yours. You make them feel more protagonists, even if the ingredients, the house, the appliances make them dependent on you. It is different if you prepare everything yourself, imagining what their tastes may be, or how to prepare the table or dishes. This is more comfortable and maybe faster, but co-creation is more creative, participatory, socializing. It is not necessarily that everything always works perfectly, but it also offers surprises and solutions that you could not have imagined.

Gabriele Rinaldi, Director, Bergamo Botanic Garden



BigPicnic policy brief 6:

Organisational development through food security

BIGPICNIC TOPIC



FOOD 2030 PRIORITIES



SDGs











United Nations Sustainable **Development Goals**

Recommendations

Overall: Organisations should embrace new approaches and draw on a broad spectrum of expertise as catalysts for change.

- Build and/or strengthen relationships with national and international networks, acknowledging the strategic advantage these relationships offer.
- Empower curators and education staff to work more regularly and directly with local communities through support, resources and training.
- Embed participatory research and development approaches such as co-creation, science cafés and Team-Based Inquiry across the organisation, to identify and explore new subjects, respond to relevant issues/demands and strengthen internal and external relationships.
- Strategies to maintain momentum and encourage legacy (of projects, knowledge and relationships) should be considered throughout and beyond individual projects.

Background

Organisational-development thinking provides management and staff with the ability to introduce change systematically, by applying a broad selection of techniques and methodologies. This, in turn, leads to greater personal, group, and organisational effectiveness.

However, organisational change can be a challenge as it requires investment in new approaches and new skills and the support through internal and external mechanisms. BigPicnic provided informal learning settings (botanic gardens) with an opportunity to trial new approaches (co-creation, Team-Based Inquiry and Responsible Research and Innovation) to engage with new and diverse audiences on the subject of food security. This allowed botanic gardens to look at how they work with their local communities, reflect upon how these links can be strengthened through new, innovative approaches and consider the benefits these can bring to the organisation itself.

Findings

Within BigPicnic, botanic gardens acted as an inclusive space, or hub, for dialogue around food security, encouraging and facilitating discussion across different stakeholders to inform policy and strengthen (or create) relationships between different societal actors. New approaches, new audiences and the topic of food security were used to develop the organisations' conservation and education offer and build expertise and stakeholder support mechanisms.

In addition to new community audiences, the partners established local Food Security Advisory Groups made up of local experts from policy, industry, food production and civil society. These groups helped the organisation to co-create their food security goals and ensure these were relevant to the needs of the organisation and the local context. Challenges to organisational development included the hiring of new staff for a limited time (just for the duration of the project) which can lead to new skills, knowledge and relationships being lost. In addition, aspects such as the general openness for change, the age and history of the organisation or the structure/hierarchy of staff can also be important factors to consider and address if change is to happen. The ability to link to various disciplines or external stakeholders to utilise knowledge and expertise or collaborate beyond organisational boundaries are also important considerations for institutional change. These can be challenging, particularly for smaller organisations with limited institutional links and networks.

Some partners in the project used BigPicnic's approaches (e.g. co-creation) and events (e.g. science cafés) internally with staff from their own organisations as well as with new external audiences. Internal co-creation was shown to be an extremely valuable exercise which resulted in better communication across departments, a deeper understanding of the project's objectives and a wider support network for the project leaders to draw upon.



Ouotes

Organisational change



"The results have been amazing. You will indeed be surprised by how much you can take out of a co-creation session and by how people you never expected could add value to your work. Co-creation really gives you a parallel view and an understanding of what people expect and need. So making them part of the design process is definitely inspiring and enriching."

Elena, The Royal Botanic Garden of Madrid

"We also co-created with the staff of our Garden, organising Garden breakfasts and a co-creation session to choose the themes and locations of our science cafés. This allowed us to get to know each other better, and try to break through the staff hierarchy. This also meant our staff gave us feedback and their opinions on the activities we were doing in the project, and as a result they were more interested in the project. However, as the organisers of these breakfasts, we always felt it was us, directing the co-creation, steering our colleagues into what we thought they should be saying and thinking. "

Izabella, University of Warsaw Botanic Garden

From these co-creation sessions, topics for science cafés were developed, thereby bringing in the interests and expertise of different actors and stakeholders to the project.

Conclusion

Informal learning sites (including botanic gardens) are centres of knowledge and expertise and have an important role to play as inclusive educational hubs within their local communities. Understanding this role can be key to an organisation's development.

The value of networks should be recognised. Having direct contact with relevant organisations, groups or individuals is a strategic advantage for building knowledge and resilience. The ability to communicate with local people about local problems is invaluable for responsible research and education.

Participatory approaches such as co-creation can support organisational development and lead to new opportunities in unexplored or unexpected topics, fields of work or partnerships.



Food security in Uganda

BIGPICNIC TOPIC



FOOD 2030 PRIORITIES







SDGs



















United Nations Sustainable **Development Goals**

Recommendations

Overall: Increase capacity in climate smart agricultural approaches to address challenges posed by climate change and the impact on livelihoods and nutrition.

- National and local governments should increase access to quality seed of early maturing crops and varieties which are best suited to shortened growing seasons and raise awareness among farmers about quality seed selection¹.
- Support farmers to adopt good agronomic practices, such as soil protection and water use efficient measures to address environmental degradation.
- Reduce food loss and waste through a variety of traditional and modern approaches in a culturally sensitive context.
- Adhere to food and safety standards and provide training to health inspectors.
- Develop training materials, including educational curricula at the primary, secondary and tertiary levels, to raise awareness of the importance of nutritious and sustainable diets for improved livelihoods.

Background

Tooro Botanical Gardens was invited to be part of BigPicnic as the Ugandan context was seen to contrast to that of Europe. In 2017, 77% of the Ugandan population lived in rural areas, as opposed to only 25% of the European².

In Europe, it has been estimated that a third of children are overweight or obese³. In contrast, in Uganda this figure is considerably lower at only 4% and a third of children are affected by stunting due to limited provision of food and healthcare⁴. Therefore, the discussions that took place as part of BigPicnic were very different in Europe and Uganda.

Although many of the themes were shared (e.g. climate change, food waste, education), the specifics of people's concerns were often very different as were the suggested solutions. For this reason, to complement BigPicnic policy briefs 1-6, country specific recommendations for Ugandan policy makers have been developed. Consequently, this policy brief focuses on the dialogue generated in Uganda. It should be noted, however, that the issues raised here may also be relevant in other countries.

Findings

Climate change

It is widely accepted that climate change is negatively affecting both the quantity and quality of food production. Participants highlighted a series of negative impacts caused by climate change, such as prolonged drought, unpredictability of the weather and the seasons, weather-related diseases and excessive rainfall (causing floods, landslides and food spoilage). Such phenomena severely impact crop yields as well as increasing expenses and inputs. Although most farmers agreed that sustainable food crops enable households to have a steady food supply for immediate and future consumption contributing to food security, some did not consider the long-term issue of sustainability. Providing farmers with more information about sustainable crop production and the associated practices and inputs was therefore deemed important.

Reducing food waste

Considering the challenges of poverty, the importance of accessible nutritious food emerged as a significant theme. More specifically, the data highlighted the importance of choosing crops and varieties less prone to post-harvest losses and with a longer shelf life. Such crops were selected based on, for example, their capacity to survive longer in the soil without rotting, their short growth period leading to early cropping and their tendency to last longer after harvesting. It was suggested that farmers should be supported in seed selection choices and introduced to different ways of extending the life span of their food products after harvesting (e.g. drying, pounding, chopping and mixing with other products). The revival of traditional ways of storing crops, like the "Enguli" granaries, was seen as a potential solution to cope with food spoilage in periods of famine. This should be supported by government action to provide safe food transportation and storage equipment.

Health and safety

Participants had concerns over food safety, health and diet. For example, improving cooking methods to avoid extensive frying, overcooking and burning was considered important. Food contamination through the use of dirty utensils and dirty water and from poor sanitary conditions in food preparation areas was identified as a significant challenge. Avoiding the consumption of spoilt food was indicated as a matter that needs better attention stressing the obligation of both the citizens/ consumers themselves as well as effective monitoring on the part of store owners and government services. Several farmers and food vendors face the additional challenge of being located in hard to reach areas where roads are impassable and transport facilities scarce. Transportation of their goods to shops, markets and customers is burdensome, costly and affects the quality and safety of their food products. Food products are also more likely to be exposed to unsanitary conditions due to the problems encountered in storage methods and facilities.

Food choices

It was deemed important that there is further promotion of home gardens with local fruit and vegetables. Certain food crops appear to have additional value to farmers as they not only help them to earn a living from direct sales but also allow for the creation of by-products offering an additional or alternative

income source. People chose what food to grow and buy based on a variety of factors, including cost, taste and nutritional content. Therefore, crop diversification and the significance of value-added crops with complementary marketing opportunities was considered important. Quality education emerged as an important factor that could contribute to more informed choices in the kitchen, garden and market. This should support people to gain cooking skills, prepare healthy meals, improve sanitary conditions that affect food preparation and avoid food waste. Importantly, this would also support them to be more able to reflect on their contribution to sustainable food consumption and production.

Conclusion

In Uganda, engaging in converstations with the local farmers and other members of the public generated a wide range of suggested solutions and the identification of several challenges to the sustainability of crop productions, including the importance of timing and diversification of crops, seed selection and the preservation of traditional ways for storing crops. Furthermore, there was a clear need to promote and support waste reduction and improve food safety.

Quotes

Uganda



"I grow Irish potatoes but with the recent trend of climate change they are easily affected by pests and require a lot of spraying and maintenance which makes it expensive to grow compared to other crops like yams, cassava, and sweet potatoes which are not sprayed."

Participant, Fort Portal

"Although I know that my grains rot due to poorly aerated storage containers, I do not have enough money to buy appropriate storage facilities on the market, they are too expensive!"

Participant, Fort Portal

"Although farmers have tried their best to dry the maize properly before sell, the government should subsidise the appropriate transportation facilities to keep the quality during transportation otherwise with these open lories expect dust and rain to contaminate the maize during transportation, we have no choice. "

Participant, Fort Portal

Annex 2 - Project summary sheet

Name of Garden	
Date	
Who was involved in the co-creation process?	
(from your organisation and possible co-creators)	
What co-creation techniques were used in the activity?	
What are the goals of your project?	
Who are your co-creation partners?	
Who are the audience for your project?	
What aspect of food security are you exploring?	
Lessons learned from planning and running this co-creation project; what	
would you do again, and what would you do differently?	
Follow up: what are the next steps in the co-creation process?	

The next section focuses exclusively on evaluation findings/results (i.e. on data that you collected, analysed and interpreted before, during and/or after your co-creation project), following a TBI approach to evaluation. You will probably have more than one question per co-creation project. Please fill in one project summary sheet for each one of your TBI questions.

1. Question	What we hoped to learn and why it was important
What is the TBI question you are trying to answer? Why is it important for you to answer these questions?	
2. Investigate	How we answered our questions
What are the start and end dates of your evaluation study? Who are you going to collect data from? How are you planning to collect data? What type of data are you collecting? [Quantitative, qualitative] How do you plan to analyse the data?	
3. Reflect	What we found out
Summary of the data [translation of some quotes, taken from taped audio interviews) Questions 3: Food Security What should science contribute to global food security? What do you worry about when you think of food security? What can you do? The most important patterns and findings that emerged from the analysis of the data	
4. Improve	How we changed our practice
How did your group respond or plans to respond to the evaluation findings? What worked well with your TBI evaluation? From what you observed, what about the TBI evaluation didn't work as well? Any other reflections on the findings or the evaluation process (e.g., other strategies to try, interesting visitor comments, group specific issues)? Recommendations for others based on your findings Ideas for future TBI studies (what questions you would like to answer next?)	

Annex 3 - BigPicnic questionnaire

Dear delegate,

Thank you for taking the time to fill in this questionnaire! We really value your answers which will help BigPicnic to better understand the role food plays in your life.

Leat what I eat, because it makes a social gathering more enjoyable because in tontains no harmful substances (e.g. pesticides, pollutants, antibiotics) because it is contains no harmful substances (e.g. pesticides, pollutants, antibiotics) because it is contains no harmful substances (e.g. pesticides, pollutants, antibiotics) because it is considered to be special because it is considered to be special because it is pleasant to eat with others because with substances (e.g. pesticides, pollutants, antibiotics) because with substances (e.g. pesticides, pollutants, antibiotics) because with substances (e.g. pesticides, pollutants, antibiotics) because it is pleasant to eat with others because with substances (e.g. pesticides, pollutants, antibiotics) because it is pleasant to eat with others because it is fair trade (a fair price has been paid to producers) to stand out from the crowd because it is fair trade (a fair price has been paid to producers) because it is natural (e.g. no additives like sweethers or preservatives) because it is natural (e.g. no additives like sweethers or preservatives) because it is organic (hasn't been farmed using synthetic pesticides or fertilizers) because it is organic (hasn't been farmed using synthetic pesticides or fertilizers) because it is to granic (hasn't been farmed using synthetic pesticides or fertilizers) because it is treaditional contact with others (e.g. at business meals, events) because it is revironmentally friendly (e.g. production, packaging, transport) because it is environmentally friendly (e.g. production, packaging, transport) because it is environmentally friendly (e.g. production, packaging, transport) because it is low in fat because it suits any other special day (e.g. graduation, passed exams, first or last day of school) because it si tow in calories because it si tow in calories because it so low in fat because it so low in f	Please tick only 1 box for each multiple-choice question below.	strongly disagee	ee		strongly agree	know
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	because other people (my colleagues, friends, family) eat it					
because I cannot buy the ingredients I need in the country I currently live	because I do not have time to prepare the food I used to eat when I was a child					
	because I cannot buy the ingredients I need in the country I currently live					

Gender	Male Female other (specify)
Which age group do you belong to?	5-11 12-15 16-19 20-39 40-49 50-59 60-69 70-79 80+
Are you still in full time education?	Yes No
What is the highest level of full-time education you have received?	Primary Secondary Vocational school school College University
What town do you live in?	
What country do you live in?	
What do you think is the most important question food research should deal with in the future?	
What current developments in our food supply do you feel confident about?	
What current developments in our food supply are you worried about?	

Annex 4 - Participant quotes mapped to key themes

BigPicnic key theme	Sub-theme	Quote
Food and heritage	Cultural diversity in food use and food systems	"visiting the Botanical Garden and seeing the African pear labelled as strange food, it was a bit weirdthis is part of the things that remind me about my childhood and one of my favourite food memories" Participant in Brussels, Belgium
	Traditional eating	"I, at times, mix cassava flour with millet flour to make Kalo (food) which is eaten with ferinda (bean sauce) as a staple meal in the Tooro culture" Participant in Fort Portal, Uganda
	Context of eating	"I also practice praying for myself alone before a meal, noticing directly how the water runs down my mouth and I come down inside and become calmer and more aware of the food" Participant in Hannover, Germany
	Food stories/memories	"When thinking about my childhood I always remember eating tomatoes from my granny's garden" Participant in Sofia, Bulgaria
	Migration	"We arrived in Belgium in September 1998, and again we started looking for beans. We went to the supermarket, but they didn't have any dried beans. We looked for them in small shops but there were no beans, only the white beans in pots but not the real beans we knew" Participant in Brussels, Belgium
Climate change	n/a	"This salmon (ed. note related to a picture of a salmon wrapped in plastic) contributes to climate change because it travels around the world to be packed in China" Participant in Oslo, Norway
	n/a	"I think if the world population keeps growing and people eat so much meat it will be a big problem because of the greenhouse gases" Participant in Vienna, Austria
Sustainable food production	Urban gardening	'There is a need of quality education in relation to urban agriculture in different sectors of society: schools, high schools, universities and other education institutions" Participant in Alcala de Henares, Spain
	Urban gardening	"Urban gardening also means climate protection (humidity, shade), harvesting without artificial fertiliser, no additional soil pollution, insect protection and gentle irrigation (water cycle)" Participant in Berlin, Germany
	Supply chains	"I buy only organic stuff. I know the production circle is not perfect but it is better than the conventional production" Participant in Vienna, Austria
	Supply chains	"Are there enough local producers to satisfy the local demand of cities?" Participant Madrid, Spain
	Food waste and circularity	"In a garbage bin food is thrown, this food has been grown / bred and when it is thrown away all the energy is wasted. In addition, a car has to pick up the food waste." Participant in Oslo, Norway
Education and food security	n/a	"There is a need of quality education in relation to urban agriculture in different sectors of society: schools, high schools, universities and other education institutions" Participant in Alcala de Henares, Spain
	n/a	'I don't understand, fat connected with cholesterol, fat connected with sugar? It's all very complicated' Participant in Edinburgh, Scotland

