Healthy Lives from Sustainable Food Systems
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A sustainable food system should deliver food security and nutrition for all. But unfortunately, the number of malnourished people continues to grow worldwide. Conflicts, climate shocks, low productivity and inefficient food supply chains are pushing the cost of nutritious foods and increasing the unaffordability of healthy diets. Currently, one in nine people, 820 million worldwide, are hungry or undernourished, and simultaneously, one-third of the world's adult population is overweight or obese. In addition, there is an unequal burden in terms of disease incidence, morbidity, mortality, survival, and quality of life between subgroups related to the food environment.

At the 2022 Uppsala Health Summit held on October 25-26, solutions for creating a more sustainable food system were discussed. Around 200 food and health experts from civil society organizations, private companies, the public sector and academia from approximately 30 countries met to take part in these science-to-policy dialogues.

The conference consisted of four plenary sessions and nine workshops focusing on different aspects of the complex food systems puzzle. The summit was organized by researchers from Uppsala University, the Swedish University of Agricultural Sciences, Örebro University and the National Veterinary Institute (SVA), along with the city of Uppsala, Uppsala Region and the Swedish Medical Products Agency.

In workshops and in plenary sessions, human medicine and nutrition perspectives were met with views from agriculture, veterinary sciences and the social sciences. Practical experience of policy implementation at different levels and contexts was central to the discussions.

The summit's objective was to contribute to the dialogue on how to practically follow-up on recommendations from the 2021 UN Food Systems Summit, but with a particular emphasis on food systems' impact on health. In nine different workshops and plenary presentations, as well as dialogues, the following was discussed:

- What does the term 'food systems' mean to different groups representing various interests in the food systems, and how can different actors work together to promote policy and practice change?
- A toolbox of policy interventions intended to create the right incentives for adopting more appropriate practices aimed at systems change, as well as the ethical aspects of our options and choices.

Examples of tools in the toolbox:

- Actions that improve the production and increase the supply of foods needed to support healthy diets in crisis as well as in stable times – including agile solutions for adaptation of production systems, animal species, and breeds, greater recognition of the role of smallholder farmers and policies that can protect us from unsafe foods and antimicrobial resistance.
- Actions that make healthy diets more accessible by integrating food perspectives into spatial planning and local, national, and global food strategies. Actions that enable, motivate and empower people everywhere to prepare and eat healthy diets produced using environmentally sustainable practices. This also included perspectives on individual behavioural change.

A transformative change in our food environment is urgently needed if we are to improve human and planetary health and well-being and achieve the Sustainable Development Goals (SDGs) 1–3. Despite relatively good evidence of what a healthy and sustainable diet could look like, there is a large gap between knowledge and current dietary habits. Overweight and obesity are increasing globally, not least among adolescents. Because less healthy foods, such as energy-dense and nutrient-poor foods, tend to be more common in socioeconomically disadvantaged areas, food exposure also contributes to health inequality. The workshop Foodscapes for the Future - Creating Local Support for Sustainable Human Health emphasized that bridging the gaps involves changes to both the food environment and our behavioural patterns using both soft and hard policy measures. The participants stressed the importance of locally co-created solutions between different foodscape actors, e.g., politicians, retail and multiple local stakeholders, to support adolescent health. Using a real example from a Swedish municipality, the participants suggested necessary actions to encourage healthy and sustainable eating, such as displaying healthy foods in places associated with positive feelings, improving pricing incentives for both industry and consumers, and introducing nutrition education across all levels of society and government. Similarly, the workshop, the Diet-Environment-Health Nexus, highlighted the interconnectedness between solutions at the individual level (micro-level) and policies (macro-level) as well as the opportunities associated with improving the choice architecture around individuals and ensuring that the "right choice" is the default choice. One key success factor is identifying the agents and factors with the greatest relative impact on facilitating change, and building on sustainable and equitable practices in local contexts.

Imbalances in food systems are major drivers of dietary and nutrition inequities. Participants in the Summit had the opportunity to actively contribute to the continued development of the SHIFT Framework, which was established by an international team of researchers committed to assisting technical staff in improving health and nutrition equity. The framework tool helps identify and implement equity-focused interventions related to the food environment. To further improve the equity aspects of the tool, a set of recommendations was suggested. These include mapping equity gaps within the food environment, ensuring the engagement of relevant stakeholders, facilitating transformation by setting goals and securing financial and human resources as well as monitoring and evaluating both the process and the outcome.

Food planning refers to the integration of food into societal planning and policies, primarily implemented through the mechanisms of spatial planning and the development of food strategies. Food strategies and spatial planning consist of many different implementation activities, which result in different food system outcomes, such as improved access to food, better food availability and affordability, improved public health and nutrition, and greater consideration of environmental impacts. In the workshop Food Planning for Sustainable Consumption and Healthier Living, participants reviewed and discussed a toolbox containing different approaches at different foodscape levels. Instruments included taxes, legislation and regulations, empowerment and youth engagement, and sharing and collaboration through holistic planning approaches, including spatial planning, social science and public health.

When transforming food systems, the robustness of the production systems, the adaptability to climate change, biodiversity, and farmers' socioeconomic factors are key. Diversity in farming systems and solutions adapted to local factors are other important aspects. Improved resilience will contribute to maintaining food production in situations like drought, armed conflicts and other unwanted events affecting the production and supply chains. In the workshop Sustainable Animal Food Production in War and Peace, participants devised solutions to promote a sustainable ruminant food system with a preparedness perspective, including top-down and bottom-up perspectives. To minimize global greenhouse gas emissions, diverse ruminant production with regard to herd size, breeds, species, region, technology, etc. is needed. The contribution of grazing animals to biodiversity, as well as to sustainable and robust production, must be recognized. More self-sufficiency is essential to being prepared for a crisis. There is also a need for on-farm preparedness and contingency plans and the ability to allocate people to work on farms instead of going into the armed services. The cost of producing sustainable food with a preparedness perspective will be higher, with the consequence that consumers will have to pay more for food and thus must be made aware of these interrelationships.

One problem in animal husbandry is the widespread over- and misuse of antimicrobials (AMR), in combination with inadequate measures to prevent and control infections, which have contributed to the global emergence of resistance. This poses a considerable threat to human health and modern medicine. Tackling AMR is needed if we are to protect human and animal health while increasing sustainability in the food and agricultural sectors. Tackling Antimicrobial Resistance for Sustainable Food Systems - how to address the knowledge, practice and governance gaps identified solutions in different settings that can guide policy recommendations on antimicrobial stewardship. Consensus was reached on several prioritized actions and solutions to address the challenges of tackling antimicrobial resistance for sustainable food systems. These were divided into knowledge, practice, and governance gaps, respectively. For each of these gaps, a set of recommendations was identified.

Smallholder farmers produce a large proportion of the food consumed around the world. People engaging in smallholder farming are often poorer and thus more food insecure than the respective national averages. Transforming smallholder farming into more industrialized intensive forms of agriculture is often emphasized as a solution to providing more returns, increasing global food security, boosting rural economic development, and contributing to poverty reduction. Smallholder farming, however, improves food and nutrition security directly by improving access to diverse sources of food, and indirectly by increasing incomes and thus expend on more and better food. The workshop Zero hunger; Is Smallholder farming the solution? invited researchers, policymakers, and international organizations working with agriculture and food systems to discuss the future of smallholder farming, whether sustainable small-scale agriculture can be achieved and whether sustainable industrialization is desirable. One question discussed in the workshop during the Summit was how to better include smallholder voices and priorities in policy and research. Part of the solution could be to encourage smallholders to work together, for example, in cooperatives, to provide a common voice to influence policymakers. Creating political will for supporting smallholder farming requires awareness-raising activities with national and local decision-makers concerning their understanding of the contribution, role and impact of smallholders.

Often there is a conflict between food security and food safety. Foodborne hazards, such as mycotoxins and salmonella, constitute a health hazard to humans. Some countries do not accept this kind of hazard in food products, which means that products with potential contamination are banned or destroyed. If food security is good, this will not affect human nutrition, but in large parts of the world, destroying food is not an option. The workshop Food Safety vs. Food Security highlighted when the different UN Sustainable Development Goals (SDGs) can come into conflict with each other, and how frequently priorities and goals compete with each other. During a crisis, lowering food safety standards may need to be considered to ensure food

security. Because priorities vary across countries and in different situations, conflicts between SDG 2 and 3 may arise. To reduce the impact, a suggested priority action area is to decide on legislation for sustainability and develop scales to measure it. Research is needed on how to reuse food waste and reduce post-harvest losses, and a framework for risk-benefit assessments with more dimensions is called for. These actions include many stakeholders.

Meat production and consumption are intertwined with public health, sustainability, cultural values, equality, and planetary boundaries. Moving to a more plant-based diet with less red and processed meat and with more fruits and vegetables will reduce not only the risks of life-threatening diseases but also the environmental impact of the food system. However, meat is also a very important protein source in many countries and for some population groups, such as the elderly. Questions about what the future of meat should look like were the focus of the workshop A Global Health Perspective on the Future of Meat. The aim of this workshop was to explore different pathways for the future of meat and livestock, and one of the recommendations was that food and agriculture decision-makers be more self-reflective and nuanced when approaching this highly complex topic.

In conclusion, the Uppsala Health Summit 2022 resulted in several innovative ideas and recommendations for how to transform the food system into sustainable food production that supports healthy lives for everyone – a step towards especially SDG 2 and 3. These ideas will now be brought back to policymakers and hopefully integrated into future strategies for a sustainable food system. The importance of cross-sector collaboration cannot be overestimated and should always be considered when creating strategies. The outcome of the Summit is our contribution to a more sustainable world. You are always welcome to contact the researchers to study the results further and discuss possible applications. The conclusions and suggestions from the nine workshops are presented on the following pages and can be found at www.uppsalahealthsummit.se.

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