Food and nutrition security and agriculture

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Introduction to the EASAC-IAP project on Food and Nutrition Security and Agriculture

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Challenges for food and nutrition security

- Malnutrition (undernutrition, micronutrient deficiencies, overweight/obesity) is problem worldwide, including EU
- Defining the goal - to provide access for all to healthy and affordable diet that is environmentally sustainable and culturally acceptable
- Taking an integrative food systems approach covers all steps from production, harvesting, processing, distribution, marketing through to consumption and recycling of waste: inter-related issues for resource efficiency, environmental sustainability, resilience and public health
- Setting priorities for increasing agricultural production by sustainable intensification must take account of pressures on other critical resources, e.g. water, soil, energy, and avoid further loss of biodiversity

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Examples of previous EASAC work on related topics

- Genome editing 2017
- Marine sustainability 2016
- New plant breeding techniques 2015
- Ecosystem services, agriculture and neonicotinoids 2015
- Risks to plant health 2014
- Crop genetic improvement technologies 2013

EASAC-IAP project on FNSA

- 4 parallel regional expert Working Groups, Africa, Asia, Americas and Europe, to analyse and share evidence, make regional and national recommendations: regional reports now published. Fifth report, global synthesis and analysis of inter-regional issues, in preparation
- Agreed common template of themes for food systems, incorporating demand- and supply-side issues, enhancing diet-health interfaces
- Focus on scientific opportunities for FNSA:
  - Using present knowledge to promote innovation, inform policy and practice, and engage with public
  - Identify knowledge gaps to fill with new research
  - Mobilising scientific resource

EASAC report https://easac.eu/publications/details/opportunities-and-challenges-for-research-on-food-and-nutrition-security-and-agriculture-in-europe

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IAP template starting points 1-5

1. What are key elements to cover in describing national/regional characteristics for FNSA?
2. What are major challenges/opportunities for FNSA and projections for the region?
3. What are strengths and weaknesses of science and technology at national/regional level?
4. What are the prospects for innovation to improve agriculture at the farm scale?
5. What are the prospects for increasing efficiency of food systems?

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IAP template starting points 6-10

6. What are the public health and nutrition issues, particularly with regard to impact of dietary change on food demand and health?

7. What is the competition for arable land use?

8. What are other major environmental issues associated with FNSA at the landscape scale?

9. What may be the impact of national/regional regulatory frameworks and other sectoral/inter-sectoral public policies on FNSA?

10. What are some of the implications for inter-regional/global levels?

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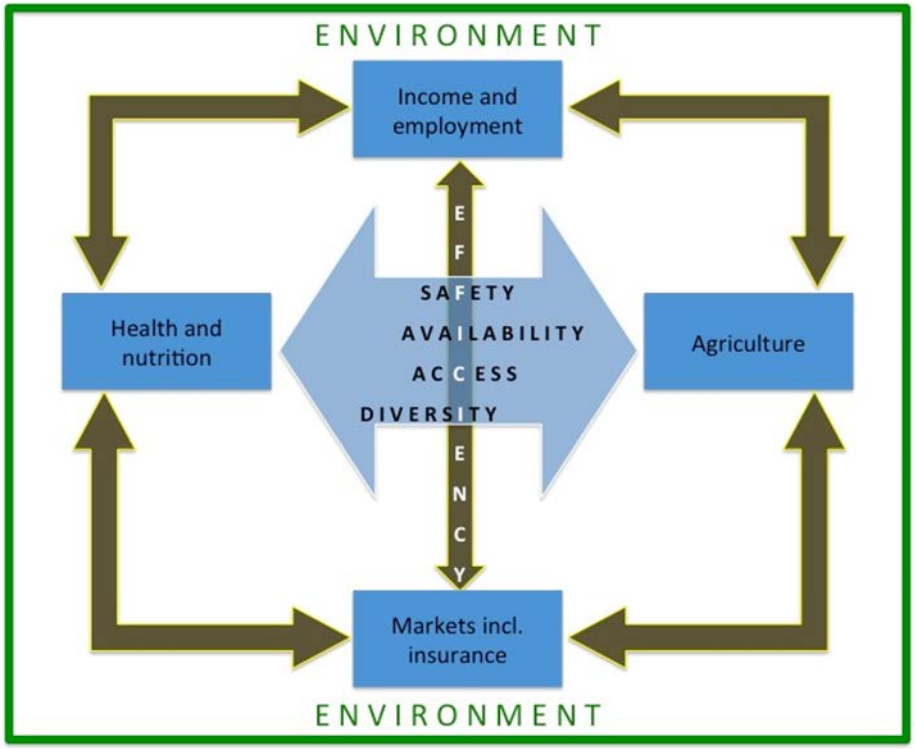
Conceptual framework for aggregating research within the food systems context



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Issues for food and nutrition security are vitally important for tackling SDGs

- The Sustainable Development Goals provide a critically important framework for understanding and meeting the challenges but require fresh engagement by science to reduce the complexities of evidence-based policies and programmes
- Science-informed analysis of interactions among SDGs can be strengthened to support coherent and effective science-policy dialogue and decision-making
- The project principal themes map onto multiple SDGs…..

Agricultural innovation

Food system efficiency

Nutrition, public health

Competition for land

FNSA & the environment

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EASAC Working Group composition and timetable

- Joachim von Braun and Volker ter Meulen (co-chairs), Dag Lorents Aksnes, Tim Benton, Alberto Garrido, Charles Godfray, Anne-Marie Hermansson, Sander Janssen, Christian Jung, Pavel Krasilnikov, Aifric O' Sullivan, Jozsef Popp, Angelika Schnieke, Barbara Wroblewska, Claudia Canales and Robin Fears (scientific secretariat)
- Countries represented: Germany, Norway, UK, Spain, Sweden, the Netherlands, Russia, Ireland, Hungary, Poland
- Main drafting by Working Group during April 2016 – April 2017 followed by independent peer review and EASAC member academy endorsement
- EASAC report published December 2017 with Brussels discussion meeting with EU policy-makers in April 2018

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Issues highlighted by scientific community and media in response to EASAC report

- *Diet and health* – options for changing eating habits, especially meat
- *Agriculture* – climate-smart approaches; orphan and underutilised crops
- *Reform of Common Agricultural Policy* – to focus on innovation
- *Marine resources/aquaculture* – e.g. use of lower tropic levels in capture fisheries; cultivation of algae for bioeconomy
- *Food safety* – including antibiotic use in livestock and implications for antibiotic resistance
- *Importance of basic research and large data sets* – as resource to drive innovation, e.g. genome editing in plants and animals, precision agriculture
- *Frameworks for innovation* – how to avoid deterring research/losing skills?
- *Connecting scientific evidence base to policy development* – how best to do this?

Aims for rest of this session: contributions by EASAC Working Group experts

- *Claudia Canales, Aifric O' Sullivan and Tim Benton* present key findings from the EASAC project, including opportunities at the scientific frontier for sustainable diet-nutrition-health linkages, and global implications and connections
- *General discussion,* including identification of points that should be emphasised from the EASAC work in the IAP fifth, global report

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