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Food systems, priorities to end hunger and protect the planet

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Webinar on Future Food Systems - the Role of Gene Edited Crops at The Royal Swedish Academy of Agriculture and Forestry Oct. 15th, 2021

Our focus: the SDGs, climate and biodiversity agendas

No. 2 “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”.

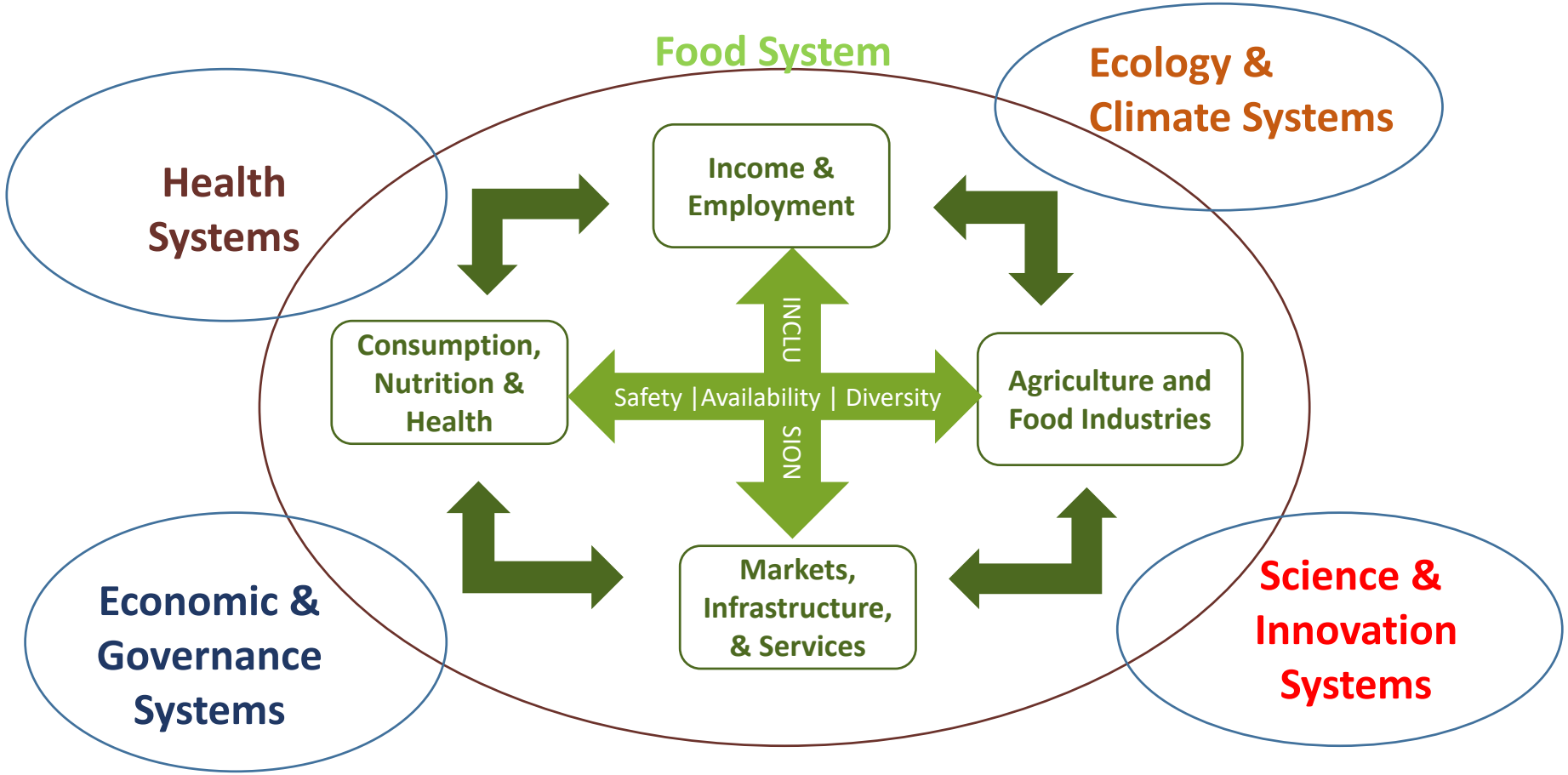
2.1 By 2030, end hunger …

2.2 … end all forms of malnutrition,…

2.3 … double agricultural productivity and incomes of small-scale food producers …

2.4 … ensure sustainable food production systems…

2.5 … maintain the genetic diversity



Joachim von Braun, Kaosar Afsana, Louise Fresco, Mohamed Hassan and Maximo Torero (2021) Food system concepts and definitions for science and political action. Nature Food. Sept 2021. https://rdcu.be/cxPxJ

TRUE COST OF FOOD

Food valued through market prices.

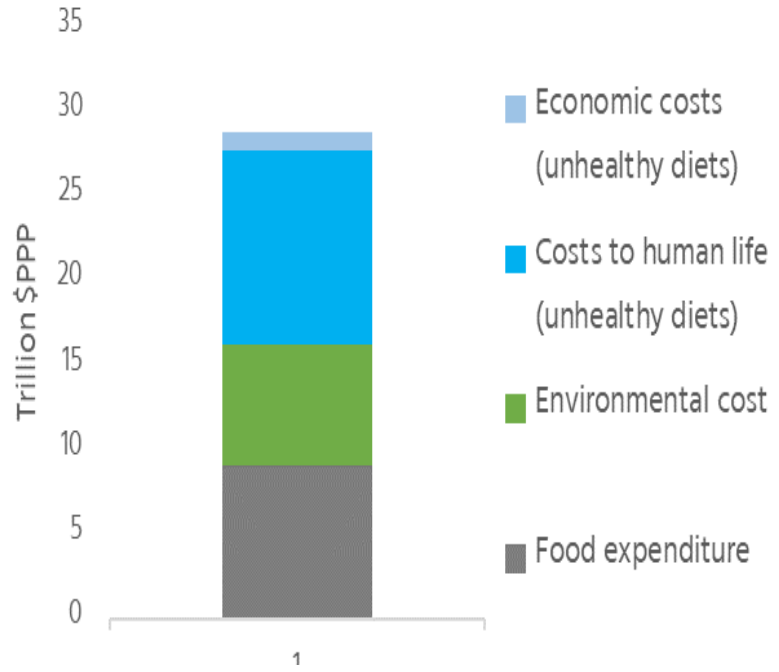
Market prices do not take into account…

- benefits of affordable or healthy food

- costs of unhealthy or unsustainable food

Business' profits not reflect value created/reduced for society

GDP of food system does not reflect contribution to welfare



9 trillion / 28 trillion

>> Sustainable & healthy food is too expensive

>> Unsustainable& unhealthy food is too cheap

S. Hendriks et.al. 2021. The True Cost and True Price of Food. A Brief for the Scientific Group UN FSS

Science and Innovation Proposals by Scientific Group for UN FSS

1. A bundle of context specific policy and institutional **innovations to end hunger and increase availability and affordability of healthy diets** and nutritious foods (partly draws on the 6 innovation actions below)
2. D**e-risk food systems** and strengthen resilience, in particular for climate-neutral, climate-positive, and climate-resilient food systems
3. Innovations for efficient and fair **land, credit, and labor arrangements**
4. **Bioscience innovations** for peoples' health, systems' productivity, and ecological wellbeing
5. Technology-based and policy innovations for productive **soils, land and water, and to protect the agricultural genetic base and biodiversity**
6. Innovations for sustainable **fisheries, aquaculture**, and protection of coastal areas and oceans
7. **Digital innovations** for efficiency and inclusiveness of food systems and rural communities

Joachim von Braun, Kaosar Afsana, Louise Fresco and Mohamed Hassan. 2021. Food systems: seven priorities to end hunger and protect the planet. *Nature* **597**, 28-30 (2021) https://doi.org/10.1038/d41586-021-02331-x

The Scientific Group for the UNFSS: Bio-science and related digital innovations for people's health, food systems' productivity, and ecological well-being

These include…

- genetic engineering, genome editing, alternative protein (including more plant-based and insect-derived protein) sources and essential micronutrient sources, cell factories, microbiome and soil and plant health technologies, plant nutrition technologies, animal production and health technologies.
- These advances in science and technology have great potential to meet food system challenges such as restoring soil health and functionality, improving the resource efficiency of cropping systems, breeding orphan and underserved crops, and re-carbonization of the terrestrial biosphere. Modern plant breeding techniques … for climate … nutritional qualities.

Potential risks associated with science based innovations need to be considered within the science systems and with societal dialogues through transparency, ethical standards and reviews, biosafety measures, and – where needed – with regulatory policies.

Translating bio-science innovations … property rights, skills, and data are key for the translation and management of scientific innovations in practice. Bio-sciences increasingly benefit from digital innovations and artificial intelligence.

- risk of exclusion through the creation of monopolies … anti-trust regulations … governance structures …

- ensure that poor communities are not left behind, … creation of capacities … recognition of Indigenous Peoples food system

SCIENCE READER https://sc-fss2021.org/wp-content/uploads/2021/09/ScGroup_Reader_UNFSS2021.pdf

In passing: on Regulating Genome Editing in Europe

“The current EU genetic engineering legislation no longer meets the challenges. Europe needs a new genetic engineering law.

Only differentiated regulation can do justice to the range of possible applications of genome editing….

Europe will lag behind the rest of the world with a permanent time lag, but will not participate in the necessary global regulation of this "biological revolution“...

In order to change this, the Bioeconomy Council advocates that EU genetic engineering law be adapted in a timely manner to the changed state of technological development and the level of scientific knowledge that has now been achieved.

The amended genetic engineering law should specify which applications of genome editing are permitted in principle, which are prohibited, and which are only permitted with special approval.

It should be noted that some of the risks arising from the use of genome editing cannot be sensibly regulated in genetic engineering law, but require adjustments in other areas of law (e.g. patent law, agri-environmental law).

German Bioeconomy Council. Statement 2019, Translated from https://www.biooekonomierat.de/fileadmin/Publikationen/berichte/BOERMEMO_07_final.pdf

Five Action Areas in SG‘s Statement of Action at UNFSS

Action must be driven at country-level by governments in their local contexts.

Five action areas to help inform the transitions needed to realize the vision of the 2030 Agenda have emerged from the Summit process. These include:

(1) Nourish All People;

(2) Boost Nature-based Solutions;

(3) Advance Equitable Livelihoods, Decent Work and Empowered Communities;

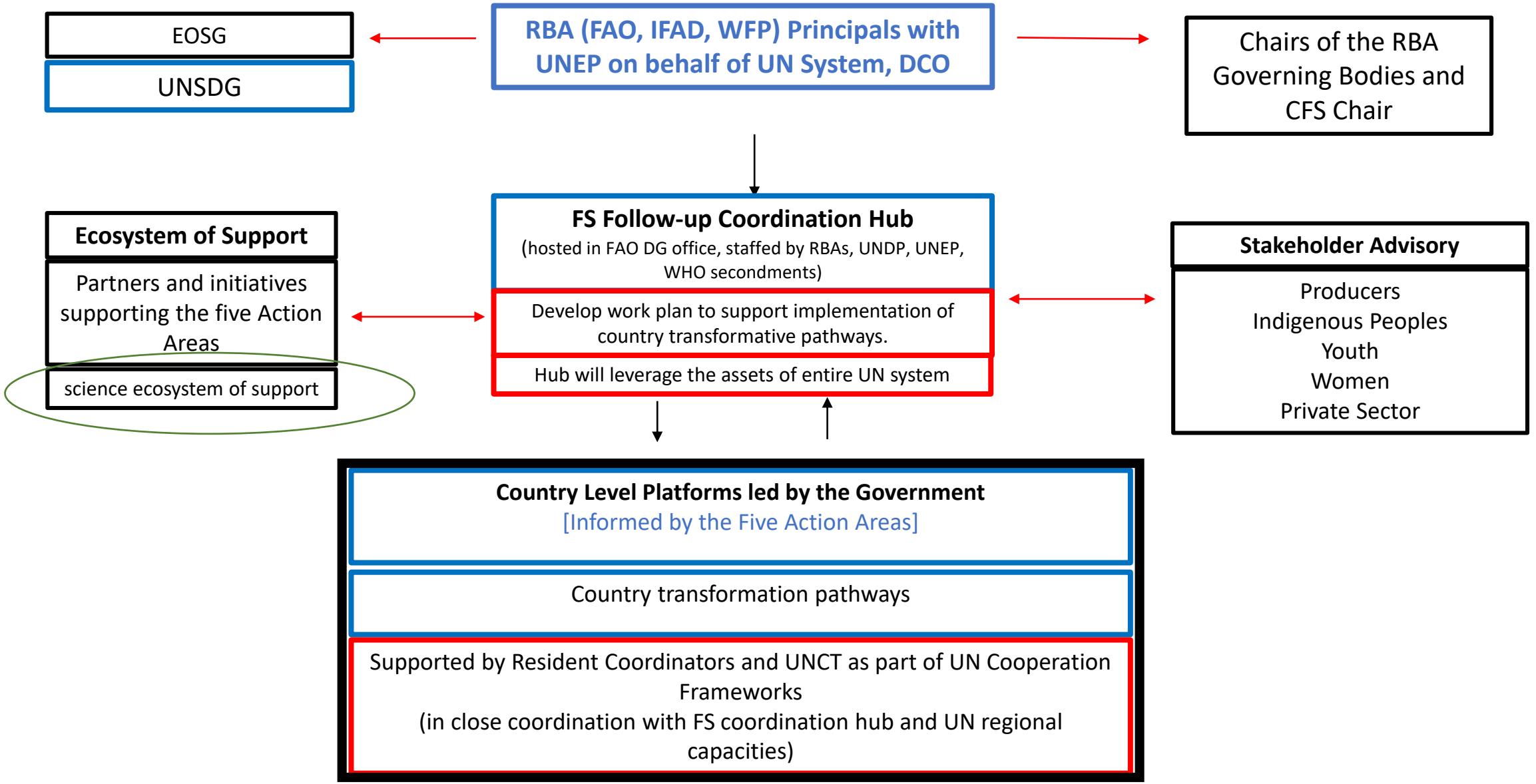
(4) Build Resilience to Vulnerabilities, Shocks and Stresses; and

(5) Accelerating the Means of Implementation.

Science in the SG‘s Statement of Action at UNFSS

- There is a recognition that we must build on good practices — such as Indigenous food systems — invest in science and innovation, and engage all people — particularly women and youth, Indigenous Peoples, businesses and producers — in achieving the SDGs.
- There is also a need to shift and scale public and private financing for food, including for science and research. This innovation and change in financing approaches must avoid excessive hidden costs and support healthier, more inclusive, and more sustainable outcomes.
- Progress will require local and global communities of practice and stakeholders coming together with national governments under the umbrella of these action areas. In particular, support to enhance implementation through financing, data, science and innovation, governance and trade.
- Global initiatives to reinforce the ambition of science-based solutions will be key to deliver on the 2030 Agenda.
- Collaborating with the High-level Panel of Experts (HLPE) of the CFS at global level, support strengthening the science-policy capacities and interfacing at local and national levels.

FOOD SYSTEMS SUMMIT FOLLOW-UP COORDINATION, SUPPORT AND REPORTING



Science in the follow up to UNFSS

1. Food systems science and policy need a **stronger framework** for follow up to FSS and the long term.
2. At the **national level**, food systems research policies to be integrated into national development policies; countries develop their own food systems strategies.
3. Explore options for a new, inclusive, global Science-Policy Interface (SPI) for a sustainable food system that will assist in an evidence-based follow up to the Summit, **connecting national with global**

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