Agrinatura Position Paper

Agrinatura's role in supporting innovation for food system transformation

The UN Food System Summit (UNFSS) has launched a global agenda around Food Systems Transformation (FST), generating a groundswell of interest in public and academic debates to the extent that FST is now widely acknowledged as a foundational cornerstone to the realization of the SDGs. Recent system-level shocks (e.g. prolonged droughts in the Horn of Africa, Covid-19 pandemic, conflict in Ukraine) have highlighted the globalized nature of food systems, as well as their multi-scalar impacts and differentiated outcomes that typically affect low and middle-income countries most adversely in terms of their food & nutrition security, livelihoods, and environments. There is a common understanding that food systems must be transformed to be more agro-inclusive, and resilient, as to deliver, healthy, safe and sustainable diets that are culturally appropriate and accessible to all, focusing on the most vulnerable parts of society.

Though FST has become an important topic on the global agenda, a global action plan is not under development. The UNFSS 2021 has taken a decentralized approach to the operationalization of the food systems transformation agenda, focusing on regional and national levels. Context-specific pathways and measures are to be identified, developed and synergistically implemented to simultaneously reach multiple SDGs.

The EU has expressed the ambition to contribute to the FST, both at European and global level, and has recently launched two initiatives of relevance:

- **Food 2030**, the EU's research and innovation policy to transform food systems

  The Work programme of Horizon Europe addresses these aims in Cluster 6. Further, two partnerships are dedicated to FST: i) Sustainable Food Systems for People, Planet & Climate and ii) Partnership on Accelerating farming systems transition: agroecology living labs and research infrastructures.
- **Farm2Fork strategy** as part of the European Green Deal to accelerate the transition to a sustainable food system

  This strategy also translates at global level, as the EU advocates for Green Alliances on sustainable food systems with its various partner regions and countries.

Both of the initiatives above have relevance for cooperation and partnership policies with third countries, notably in Africa and in the EU neighboring regions.

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agrinatura
The European Alliance on Agricultural Knowledge for Development

Agrinatura firmly believes that a strong European Research and Innovation Agenda will be foundational for the co-creation of impactful FST pathways. We envisage a stakeholder-driven process from the formation of goals to the final assessment of FST pathways and their trade-offs. The com-position of stakeholder groups will be vitally important to effective co-creation, and it is extremely important to give women and youth a strong voice in this process.

How do we understand Food Systems?

"A food system gathers all the elements and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities, including socio-economic and environmental outcomes"

(HLPE 2014, p.29)

Food systems are complex and involve a diverse array of actors and activities across multiple scales and geographies, spanning production, supply chains, food environments, consumer behavior, diets, nutrition, food safety and health outcomes, as well as broader economic, environmental and socio-cultural drivers and impacts (i). FST cannot be realized at the field level alone. Inter- and trans-disciplinary research and trans-sectoral innovation approaches are required to enable farmers, fishers, food processors, distributors, retailers, food workers, consumers and decision makers to collectively co-design coherent food initiatives and policies that leverage food systems/FST to deliver a balance of cross-sectoral public goods. We envision a multi-scalar socio-ecological approach that recognizes the importance of local contexts nested within the wider food system, capable of addressing activities, processes, and linkages between individual, community, regional, national, and international levels. In this respect, agroecological transitions of food systems can play an important role. FST needs to take place in political, economic and social processes. In order to achieve this, it needs to build on robust evidence. A strong European Research and Innovation Agenda will provide a platform for the development of novel methodological tools & approaches required to analyze food systems and FST pathways.

Food systems are challenged in a new way due to political fragility, the increased likeliness of extreme weather events and zoonoses challenges. More shocks and stresses will lead to severe disturbances. Therefore, resilience as a framework, resilience capacities and response mechanisms will need increasing attention. The aim is therefore not to optimize the food system in "normal" years but to make it fit for the "exceptional". Nature restoration is a big issue that needs careful balancing on a landscape level and can include areas of protected forests, strip cropping and agroforestry.

Critical domains

Agrinatura has identified several critical domains, adapted from the HLPE (2020) food systems framework (Figure 1), that need to be addressed to enable successful FST[ii]:

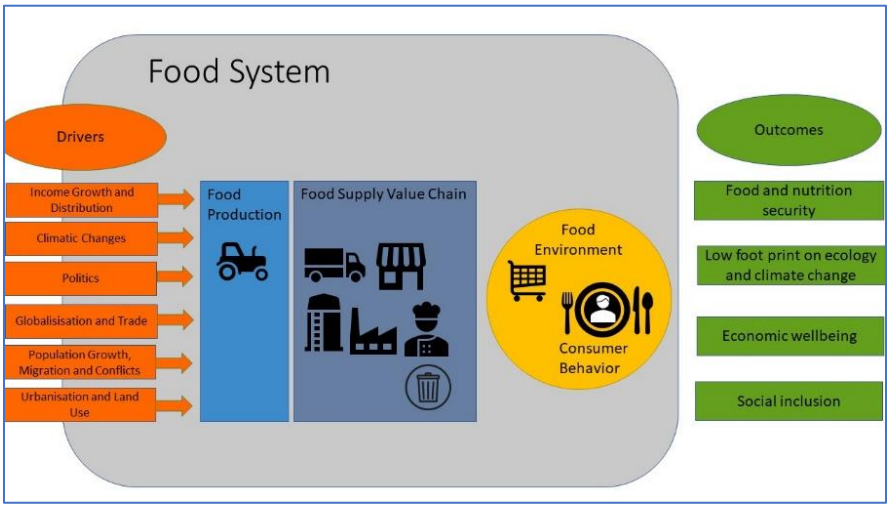

Figure 1 Food systems framework (simplified, HLPE, 2020)

Food production: Agriculture of the future – Technological and institutional innovations related to mechanization, ecosystem services provision, sensors of soils/plants/water, precision applications and other innovations are needed, and must be embedded within wider structural changes that optimize conventional and agroecological practices (e.g., micro fertilizer applications, biostimulants, plant protection products with low ecotox profile, biocontrol). In addition to technological innovations, more diverse farming systems are also needed to improve biodiversity and promote soil and plant health, making crop production less dependent on external inputs. This includes questioning of research goals, such as the focus on one-sided yield-focused breeding while not considering nutritional values, soil quality and agro-biodiversity. However, agricultural innovations cannot address wider societal demands and sustainable (environmental and socio-economic) business models in isolation. FST goes far beyond the agricultural sector and an integrated systems approach is required.

Food supply chains: as in the food production sector, research to enhance supply chains sustainability encompass technological and institutional intertwined aspects. Food processes need to be optimized regarding the use of resources (energy, water, …), diversification, fairness and resilience. The whole supply and market chains need assessments though innovative methodologies regarding environmental social and economic footprint including all actors. Further, true costs need to reflect costs that are created for society at large related to impacts on natural resources, on livelihoods and on public health. In low- and middle- income countries local food market chains are major job providers while mainly informal and invisible from research and development.

[i]HLPE, 2014. Food losses and waste in the context of sustainable food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome 2014.
[ii]HLPE. 2020. Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome

Food environments and consumer behavior: Food environments are a key interface where consumers interact with their wider food system to acquire foods. Food environments include food availability, prices, vendor and product properties, and marketing, regulation and policies, as well as individual level factors including food accessibility, affordability, desirability and convenience. Synergistic interventions at the environmental and individual level have the potential to promote sustainable healthy diets and improved nutrition and are a powerful lever for FST. However, we do not fully understand food environments and the socio-ecological drivers of food acquisition practices.


Source: FAO

Agrinatura's contribution to support innovation for FST

While Agricultural Research for Development (AR4D) is at the core of its identity, Agrinatura acknowledges that research for knowledge generation only is not sufficient to achieve FST. Agrinatura is therefore committed to support innovation for FST through the following entry points for innovation:

- **Strengthen science-policy interface**: Scientific institutions have a specific mandate to produce certified knowledge, while applying rigorous methods backed by solid theories. Beyond the production of academic knowledge, scientists are well placed to convene and collaborate with key FS actors, especially managers, political actors and policy makers, to jointly build plausible change scenarios based on the different sources of knowledge. Effective science-(practice-) policy inter-faces at multiple levels for food system transformation need to be explored. Agrinatura can contribute to the strengthening of capacities of various players (joint projects, platforms in partnership, foresight exercises, professional training and higher education).

- **Collaboration with non-research actors**: Research needs to link with stakeholders in a transdisciplinary process for co-creation and impact; e.g., having non-academic actors in the lead, supported by research (rather than the other way around) and the solutions need to be made visible, e.g., on demonstration sites. Further it is important to strengthen learning processes. Agrinatura members actively engage non-research actors in AR4D projects.

- **Knowledge and innovation broker**: Innovation often emerges from complex interactions among multiple actors which result in technical, social or institutional change. Agrinatura members have substantial experience in performing the role of knowledge and innovation broker, based on agricultural innovation systems principles. Agrinatura members are well placed to take stock of available knowledge evidence, assess it critically and derive evidence informed recommendations for policies and programmes.

- **Capacity building/education**: Training the next generation of entrepreneurs, policy makers and researchers in innovation capacities requires a review of curricula to integrate new learning objectives, interdisciplinary system approaches and soft skills training in tertiary and vocational education. Agrinatura members have both theoretical and practical knowledge and expertise in all these.
- **Network and Partnership**: Forming coalitions of the willing to initiate action and change is essential for FST. Agrinatura is a European network itself and building partnerships to achieve common objectives is thus at its core. We strive to be inclusive and democratic fostering the participation of women and young scientists. Agrinatura encourages and is heavily engaged in several partnerships with the LMIC.
- **Technology development:** To achieve an inclusive and efficient FST in areas of low productivity, also attracting more the youth, several technological developments need to be addressed, regardless the input intensity or the scale of the activity. Lack of collaboration in equal terms with local research partners and stakeholders to develop technologies adjusted to the local needs has been one of the reasons of limited success of introducing technologies already existing in the west. Agrinatura members recognize that and can contribute with know-how to achieve technology development adjusted to the local needs together with local partners of different stakeholder organisations.

ANNEX

Examples of Agrinatura's capacities in terms of **members participating** in **ongoing projects** linked to the EU-AU **STI activity categories** as expressed in the working document of the **AU-EU Innovation Agenda (non-** exhaustive)**.**

Networking	Capacity-Building	Technology Transfer	Incubation
LEAP4FNSSA	VCA4D	BIO4AFRICA	AcceSS
DeSIRA-LIFT	NRF	IRRINN	NRF
NRF	LEAP4FNSSA	EWA-BELT	
SAFOODS	DeSIRA-LIFT	SustainSAHEL	
MicroBiomeSupport	AcceSS	LEG4DEV	
LEAP-AGRI	SAFOODS	BIOSTAR	
VCA4D	BIO4AFRICA	ConServeTerra	
	IRRINN	PHEALING	
	SAFEVEG	BLUE-CYCLING	
	SustainSAHEL	IRRINN	
	NutriGreen	CHANGE-up	
	Agroforestry Rwanda	CRRIsP	
	TRUSTFARM	SALAD	

Contact Information:
Agrinatura Association Secretariat
Czech University of Life Sciences Prague
Kamycka 129
165 00 Prague
Czech Republic
secretariat@agrinatura-eu.eu

agrinatura-eu.eu