



6th Funders Forum: Insights from the SYSTEMIC project

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Systemic project coordinator

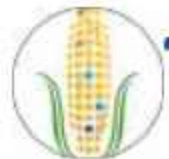
24 April 2024, Brussels



WHY SYSTEMIC?

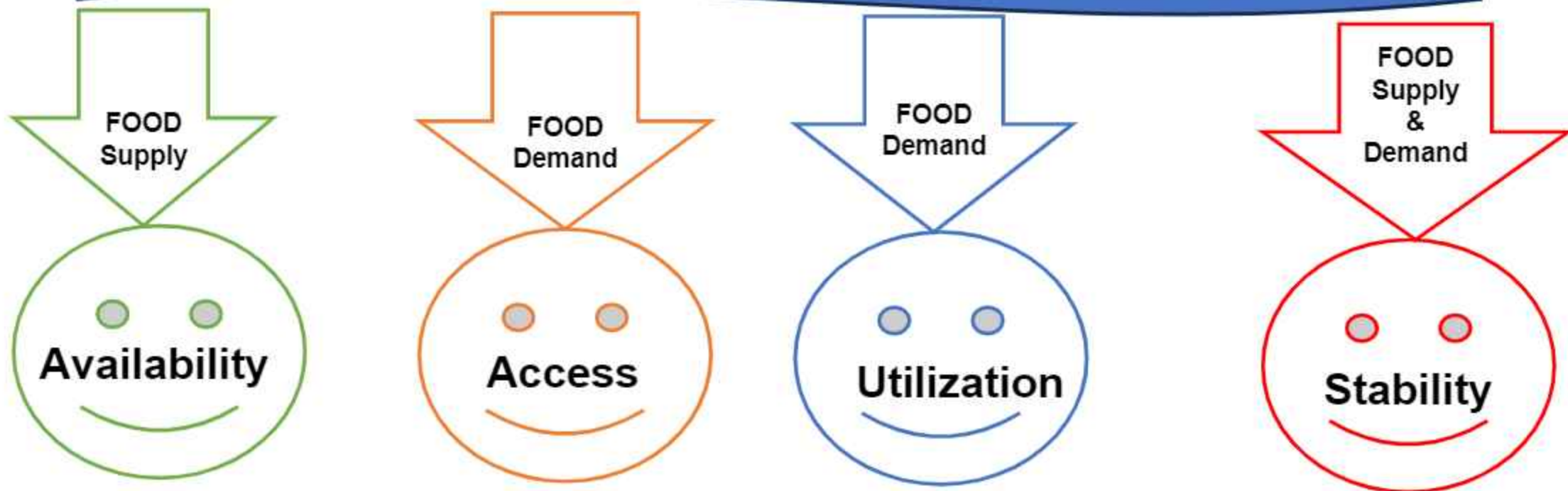


- The supply of farm and seafood is greatly affected by climate change
- Ensuring **sufficient** and **healthy food** for society is a **pressing** issue for
 - Policymakers
 - Researchers
 - Food producers
 - Consumers



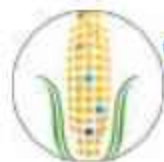
Climate change has a wide-ranging impact on food, including **Food availability, access, utilization, and stability.**

Impacts of Climate Change on Food Systems






Food
Availability

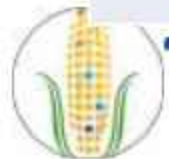
Refers to effects on production, storage, processing, distribution, sale, and/or exchange of food



Food SUPPLY - Availability

Food supply from agriculture and fisheries is highly dependent on the weather

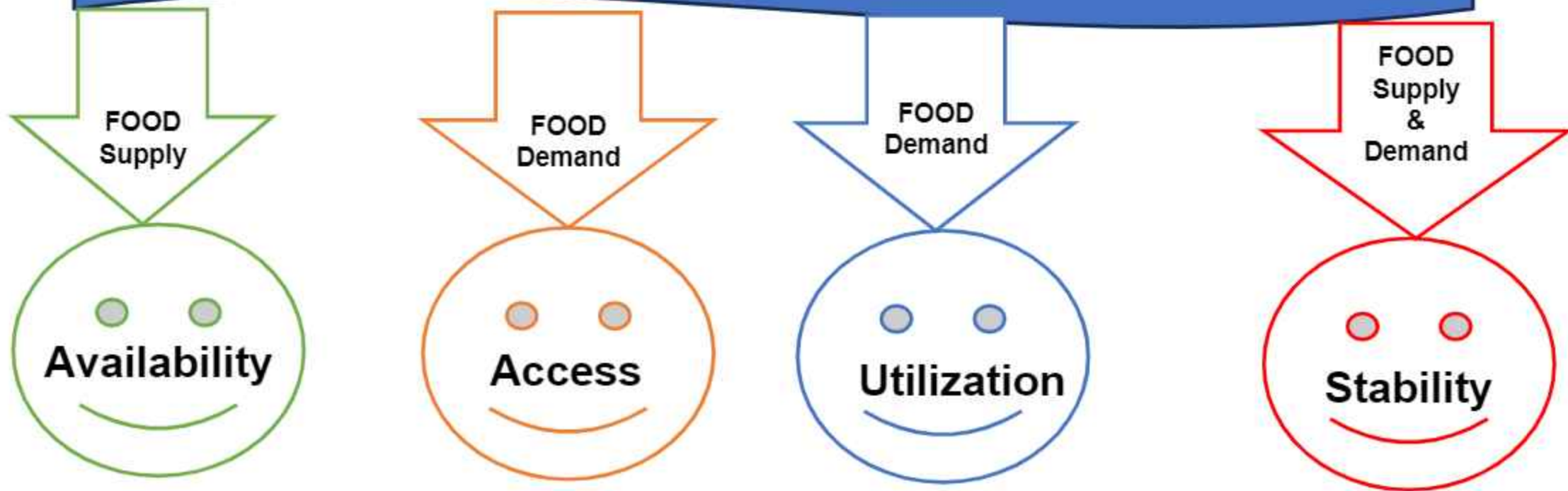
Crop Production 	Livestock Production 	Seafood production 
Total yield failure	availability and quality of forage	Alters distribution and migration patterns of fish species
Reduced yields from lack of pollinators; pests and diseases	increased heat stress in livestock	Affects growth and survival of seafood species due to Ocean acidification
Reduced food quality affecting availability	affecting both water availability and quality	Affects growth and survival of seafood species
Disruptions to food storage and transport networks	influence the distribution of diseases that affect livestock.	Disrupts fishing operations and damages coastal infrastructure for extreme weather events



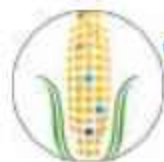
Food Access

is the ability to obtain food, including the effects of price.
reduce supply = impact on price

Impacts of Climate Change on Food Systems



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Food Access (literature)

IMPACTS OF CLIMATE CHANGE

By 2030, nine out of 10 of the major crops will experience reduced or stagnant growth rates, while average prices will increase dramatically as a result, at least in part, due to climate change.



Source: <http://farmingfirst.org>

Without plant science...

What impact will climate change have on food prices in 2050?



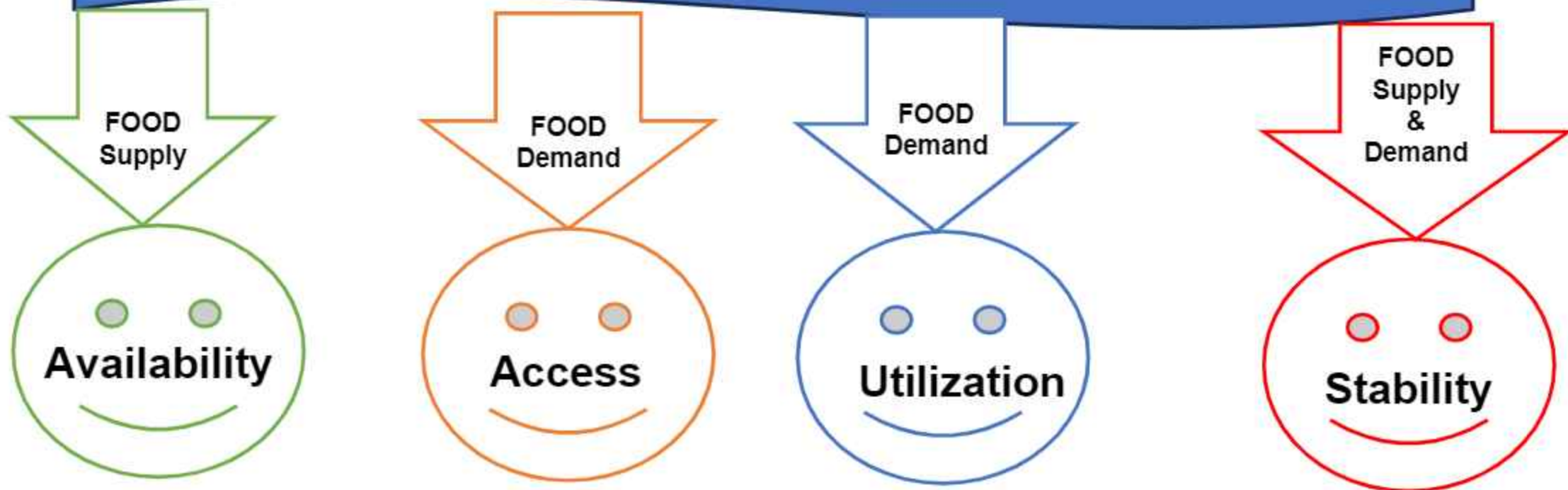
Plant science technologies can help farmers adapt to climate change and keep our food affordable and plentiful.

*Source: <http://www.farmingfirst.org/press-releases/2015/05/20/150520-farming-first-releases-2015-report/>
Revised August 2015. Based on 2014 analysis.

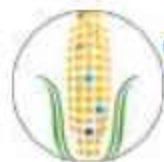
Food Utilization

Climate affects the quality of food = effect on nutrition and health

Impacts of Climate Change on Food Systems

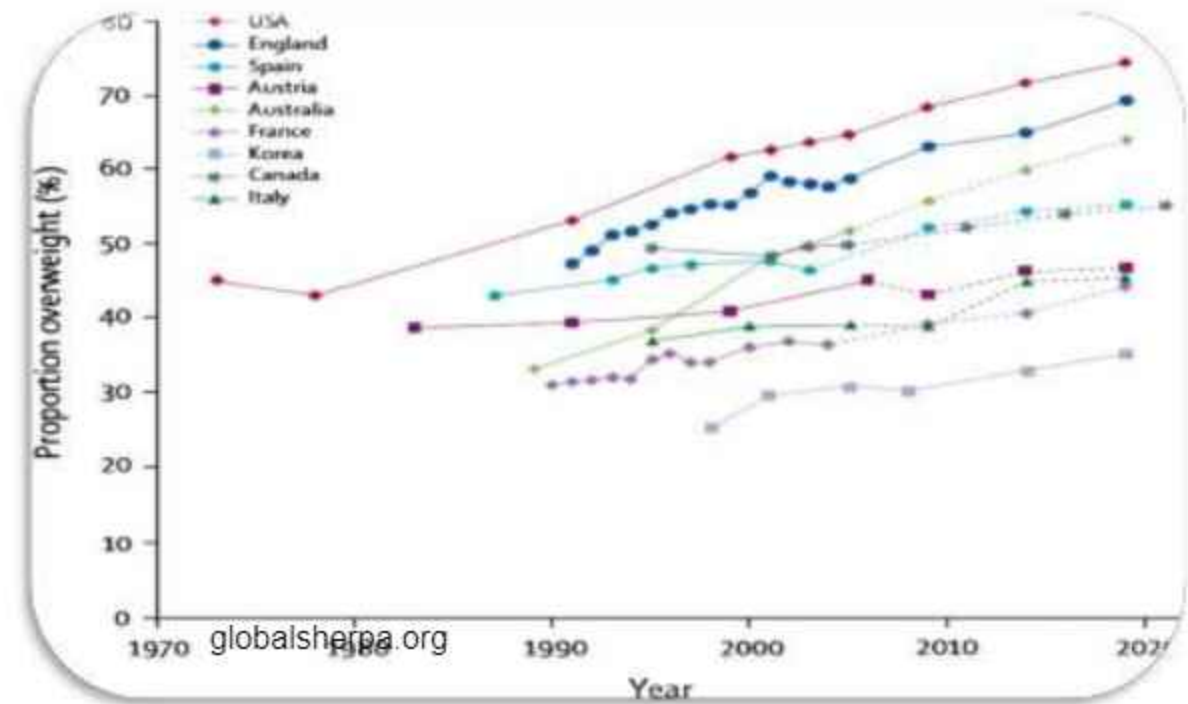


- Nutrition – decline in **quality** and Increasing undernourishment
- Health- increased **diseases** due to climate change



FOOD system challenges- Food Utilization(DEMAND) literature

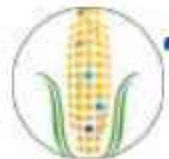
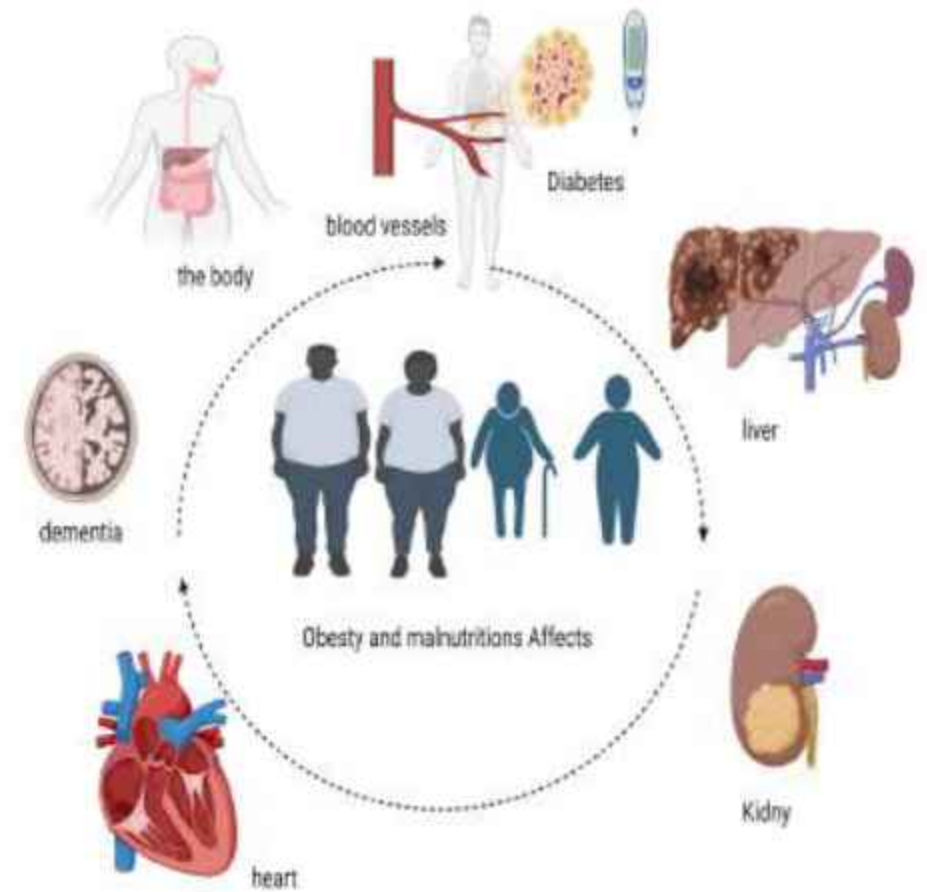
- Malnutrition in all its forms is *increasing*
- The population in many countries is **ageing** (increases the incidence of **malnutrition**)
- The number of **obese children and adolescents** (aged five to 19 years) worldwide has **risen tenfold** in the past four decades (OPS, 2019)



FOOD system challenges- Food Utilization (DEMAND) – literature

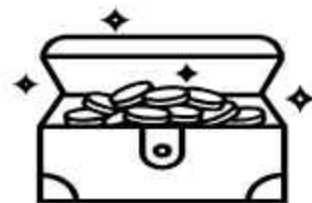
Associations between obesity and human diseases (literature)

- Non-communicable diseases e.g. diabetes, dementia, & inflammatory diseases (Saltiel and Olefsky 2017).
- Cardiovascular disease e.g. disorders of the heart and blood vessels (Ortega et al. 2016).
- Some cancers, e.g., colon, kidney, and liver (Moley and Colditz 2016).

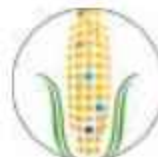


FOOD system challenges- Food Utilization (DEMAND)

Economic costs to society (literature)



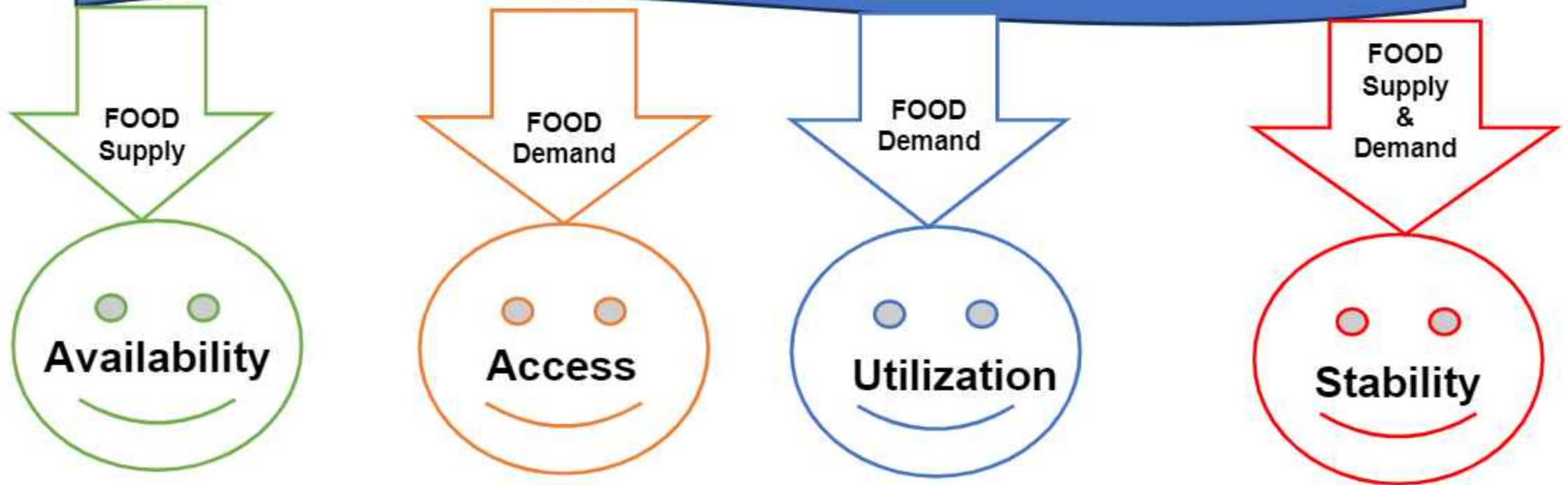
- Poor dietary choices are the leading **global risk** for death and disability (GBD, 2015).
- Malnutrition's diverse impacts incur high costs and estimated costs to the global economy up to **US\$3.5** trillion/ year, or **US\$500/** person (CSIS,).
2019
- Obesity-related diseases economic costs: Estimated at **US\$2** trillion per year (McKinsey, 2014)



Food STABILITY

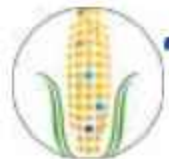
Continuous availability and access to food **without disruption**

Impacts of Climate Change on Food Systems



- **instability** of supply due to increased frequency and severity of extreme events
- **instability** of food producers' incomes- affects the investment in the food sector
- Widespread **crop failure** contributing to migration and conflict

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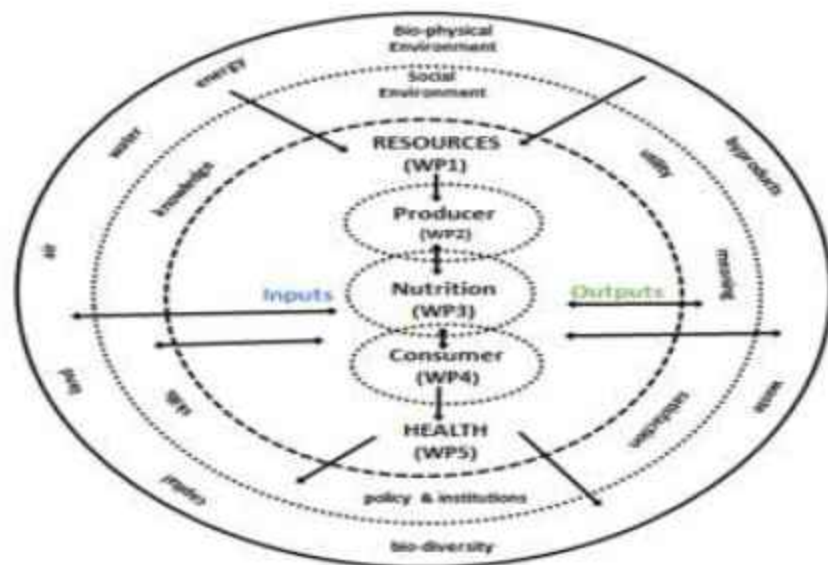
What is the best approach to mitigate the challenge?

Food is a **system** and **complex** issue

- All Challenges- supply and demand sides
- All challenges are interrelated

Opportunities for the challenge of food system

We have resources, skill, knowledge, laboratories, and experimental areas



We need to use all opportunities in a **holistic and integrated approach** to mitigate the impact of **climate change** to food and nutrition security and secure **sufficient and healthy food** for all

Figure 4. A conceptual model of the food and nutritional system based on (Sobal J. et al., 1998). WP= Working packages focus.

An integrated approach to the challenge of sustainable food systems: adaptive and mitigatory strategies to address climate change and malnutrition



- SYSTEMIC has a **joint vision** for the development of an integrated food system for continuous improvement in sustainability at **production, consumption, nutrition, and public health**.

- SYSTEMIC is an EU Knowledge Hub on Food and Nutrition Security.

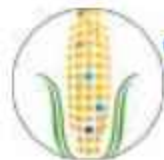


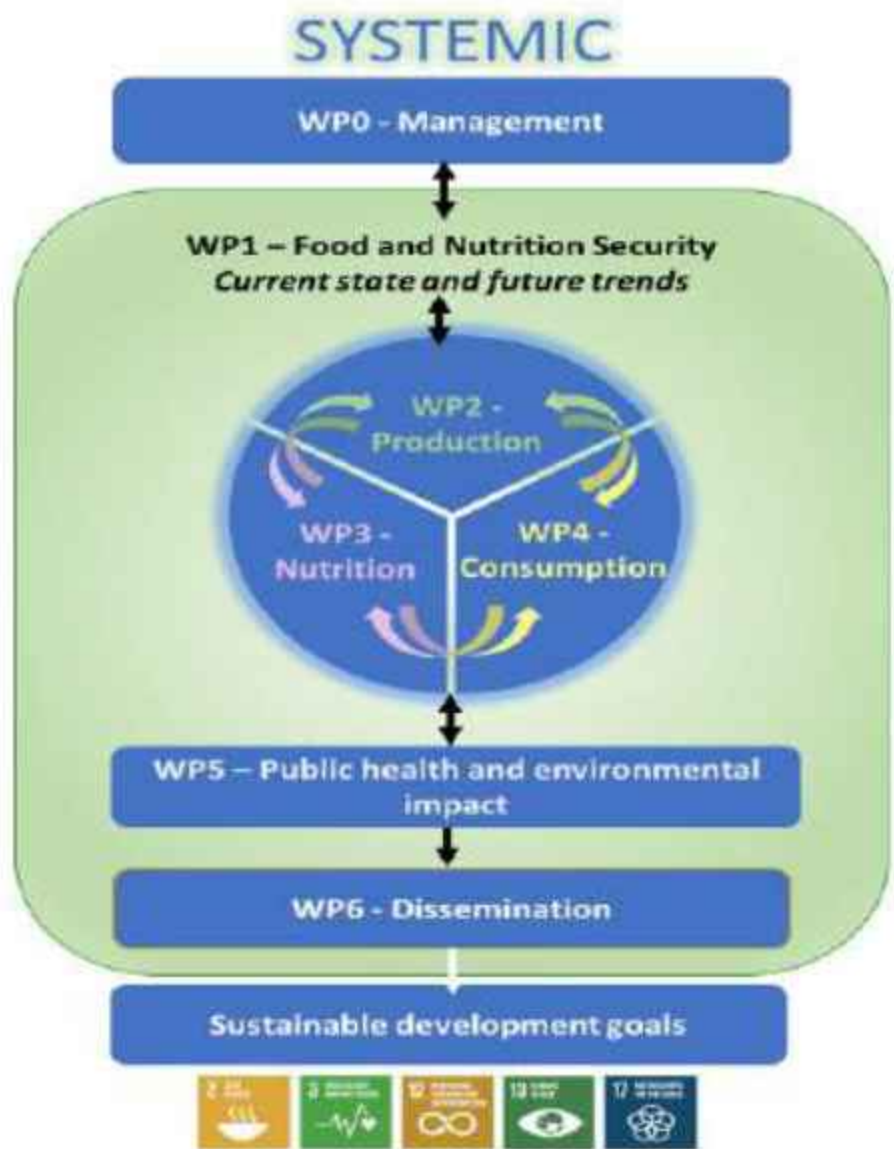
- 41 institutions from 8 countries (Norway, Belgium, France, Germany, Italy, Latvia, Portugal, Spain)



- **Transdisciplinary team** (Integration of diverse knowledge, Problem-oriented focus: Reflexivity and co-learning)
 - 172 expertise in **agronomy, breeding, marine resources, consumer sciences, biology, chemistry human health, and economics**

AIMS: Collaborate to generate holistic understandings of FNS that cannot be adequately addressed by any **single discipline alone**.





Project duration:

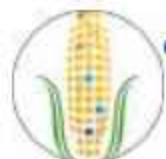
Start date: July 2020 (**delayed by 3 months**)

End date: June 30, 2024 (**one-year extension**)

} COVID 19

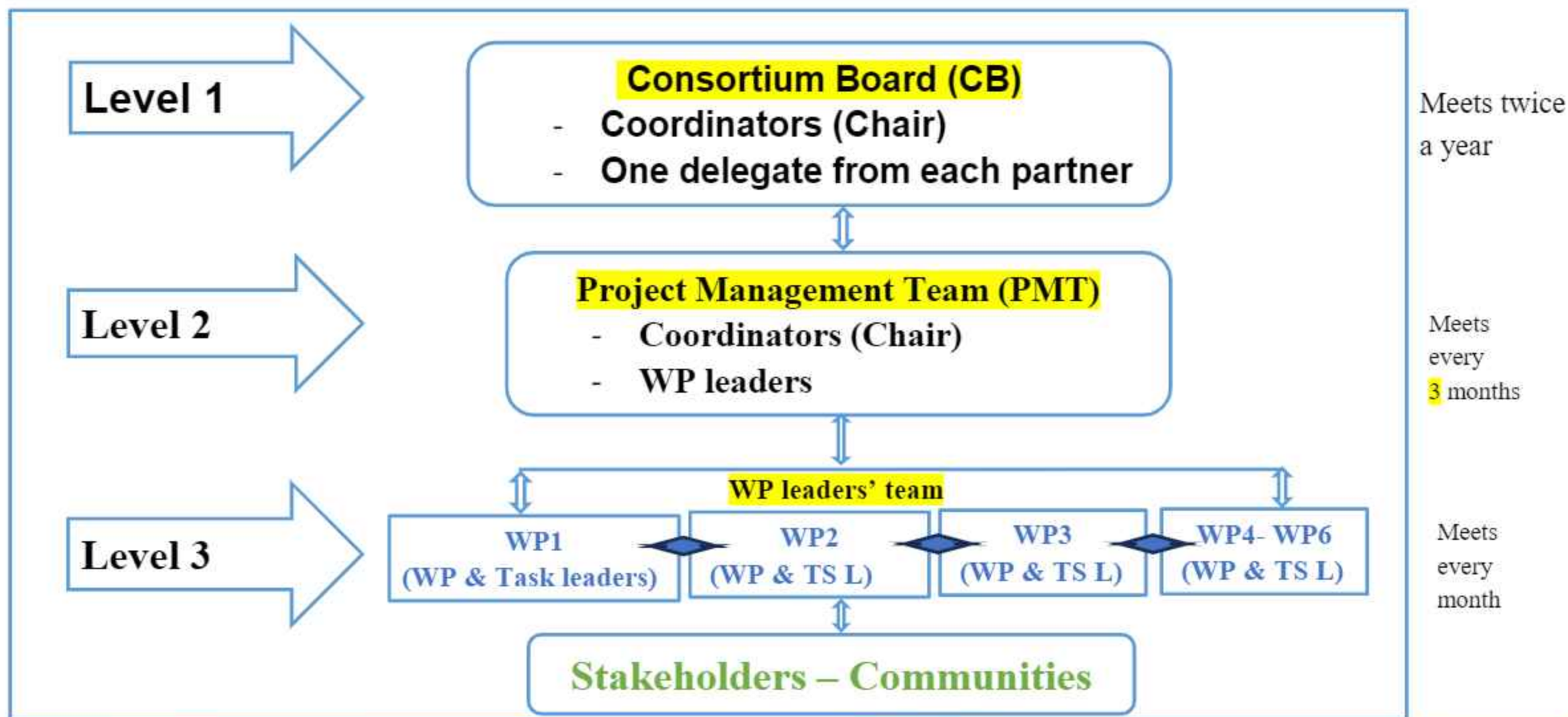
Country	Funding Organisation	Abbreviation
Belgium	The Research Foundation - Flanders	FWO
France	Institut National de la Recherche Agronomique	INRA
Germany	Federal Ministry of Food & Agriculture	BMEL
Italy	Ministero delle politiche agricole alimentari, forestali e del turismo	Mipaaft
Latvia	Ministry of Education and Science	IZM
Norway	The Research Council of Norway	RCN
Portugal	Fundação para a Ciência e Tecnologia	FCT
Spain	State Research Agency	AEI

Figure 1. Peet Chart which shows the interdependencies of work packages (WP)



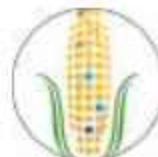
SYSTEMIC Network structure and management

The project structure is divided into **three levels** of management



SUMMARY

- Food is a **system** and **complex** issue
- Challenges- supply and demand sides
- Opportunities – resources, skills, knowledge, laboratories and experimental areas
- Approach - ensuring food and nutrition security requiring an integrated food systems approach.
- SYSTEMIC project is an EU KH and helps EU food systems to be sufficient, sustainable, resilient, responsible, diverse, competitive, and inclusive.
- Webpage <http://systemic-hub.eu/>



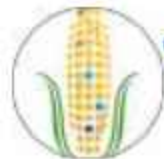
SUMMARY

GAPS

During our work, we identified gaps in addressing FNS within climate change.

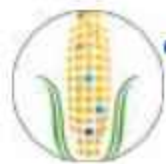
These include:

- ❑ **Interdisciplinary Gap:** While the SYSTEMIC project benefits from its **transdisciplinary** team, there is still a need for improvement in **communication** and **integration across disciplines** to effectively address difficult challenges.
- ❑ **Financial Gap:** differences in financial resources, particularly for partners **without direct** support,
 - ❖ complicate **coordination** and affect researcher **motivation**.
 - ❖ affects fostering **interaction** between WPs and tasks (few interaction).
 - ❖ Difficult to organize **scientific forums** and discussions



GAPS

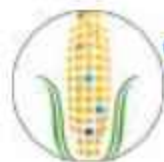
SYSTEMIC



SUMMARY

Recommendations- Pathways to the Future

- **New Partners and project continuity:**
 - FNS is **dynamic** and requires **ongoing** research.
 - needs **new partners**, professions, institutions, and countries to broaden the scope of findings.
- **Diversify and improve funding sources:**
 - Seek grants, sponsorships, and collaborations.
 - Increase stakeholder funding, highlight project importance, and encourage resource sharing.
- **Improved Data Sharing Practices:**
 - Much of the data in the SYSTEMIC project comes from other projects.
 - Standardize data protocols to improve accessibility and full compliance with EU data protection legislation.
- **Strengthened Policy Engagement:**
 - Promote collaboration between researchers and policymakers for effective policy development and implementation.
- **Capacity Building:**
 - Support capacity-building efforts to empower locals in addressing FNS challenges and enhancing grassroots resilience.





<http://systemic-hub.eu/>

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