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SSPICE IT!

Sustainability Skills Program for International Catering
operators and Entrepreneurs through Integrated Training

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CIPFP CAMINO DE SANTIAGO
ESCUOLA DE HOSTELERÍA & TURISMO DE LA RIQUA



Escola Profissional AMAR TERRA VERDE



Submodule n°02: The Complexity of the Food System

THEMATIC AREA	Relationships between food, people, and environment	
SUB AREA OF REFERENCE	<i>Sustainable Food</i>	
HOURS	3	
LEARNING OBJECTIVES		
<ol style="list-style-type: none"> 1. Recognize the principal relations and problems between humans and environment. 2. Understand the environmental impact of food. 3. Apprehend the complexity of the food system and the societal issues associated with it. 		
LEARNING ACTIVITIES		
Theoretical	Practical	
<ul style="list-style-type: none"> ✓ Reading ✓ Web research ✓ Case study 	<ul style="list-style-type: none"> ✓ Researching the causes, mechanisms, and consequences of contemporary environmental issues ✓ Evaluating the impact of fictional scenarios on the global food system 	

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SUBMODULE 2: The Complexity of the Food System

By "food system," we mean all the stages related to the act of feeding a population: production, processing, distribution, promotion, and sale of food; consumption by citizens (at home or outside); public policies related to these actions; and all the domains that are impacted by the food sector and, in turn, impact it (health, technology, economy, environment, demographics, etc.).

To better understand the complexity of this system, we can observe this diagram produced by the HLPE¹:

¹ HLPE stands for the High-Level Panel of Experts on Food Security and Nutrition, which is a scientific panel established by the United Nations to provide guidance and policy recommendations on food security and nutrition issues.

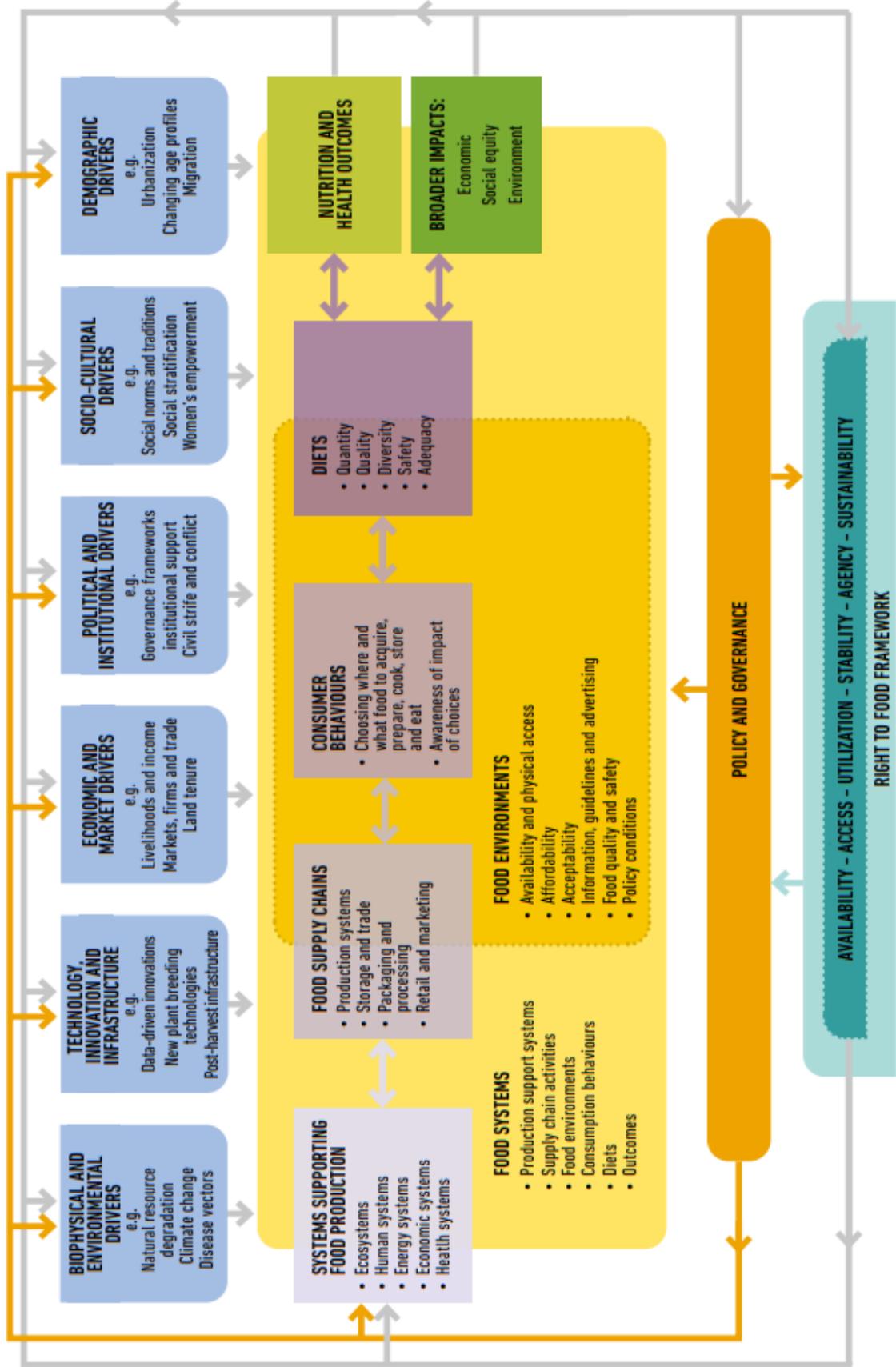


Fig. 2 – Sustainable food system framework – adapted from HLPE 12²

In this diagram, food touches upon various sectors of society, and everything is interconnected.

Let us consider a hypothetical example: the recent emergence of artificial intelligence technologies (labelled as "Innovation, technology, and infrastructure drivers") may impact how companies in storage and distribution transport their goods, such as favouring the use of AI-driven trucks (depicted in "Food supply chains" and "Storage and distribution"). These AI-driven trucks, not requiring human drivers, can operate for longer periods (as they do not need to stop for drivers to rest) and therefore arrive at their destinations faster, improving the freshness of goods (in "Food environments"). Additionally, if the technology advances sufficiently, it may be more cost-effective for a company to use AI-driven trucks than human drivers, potentially reducing their operating expenses and lowering the prices of goods in stores (in "Food environments"). Perhaps this would make previously expensive foods more accessible, leading to a trend of Japanese square watermelons in our restaurants in a few years (in "Consumer behaviour").

However, this transition to AI-driven trucks could also lead to job losses for many people who were previously truck drivers, leaving them unemployed (as depicted in "Impacts", "Economic", and "Social" sections). With reduced income compared to their previous employment, these individuals and their families may not be able to afford as much food or food of the same quality as they could when they were employed, affecting their overall health (in "Nutrition and health outcomes"). All these elements will influence the economic landscape (in "Political and economic drivers") and the adoption of new public policies (in "Political, program, and institutional actions").

² HLPE. (2020). *Food security and nutrition: building a global narrative towards 2030 (Report No. 15)*. High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Retrieved from <https://www.fao.org/3/ca9731en/ca9731en.pdf>, p.31. Please check this link to obtain a higher-resolution version of this diagram.

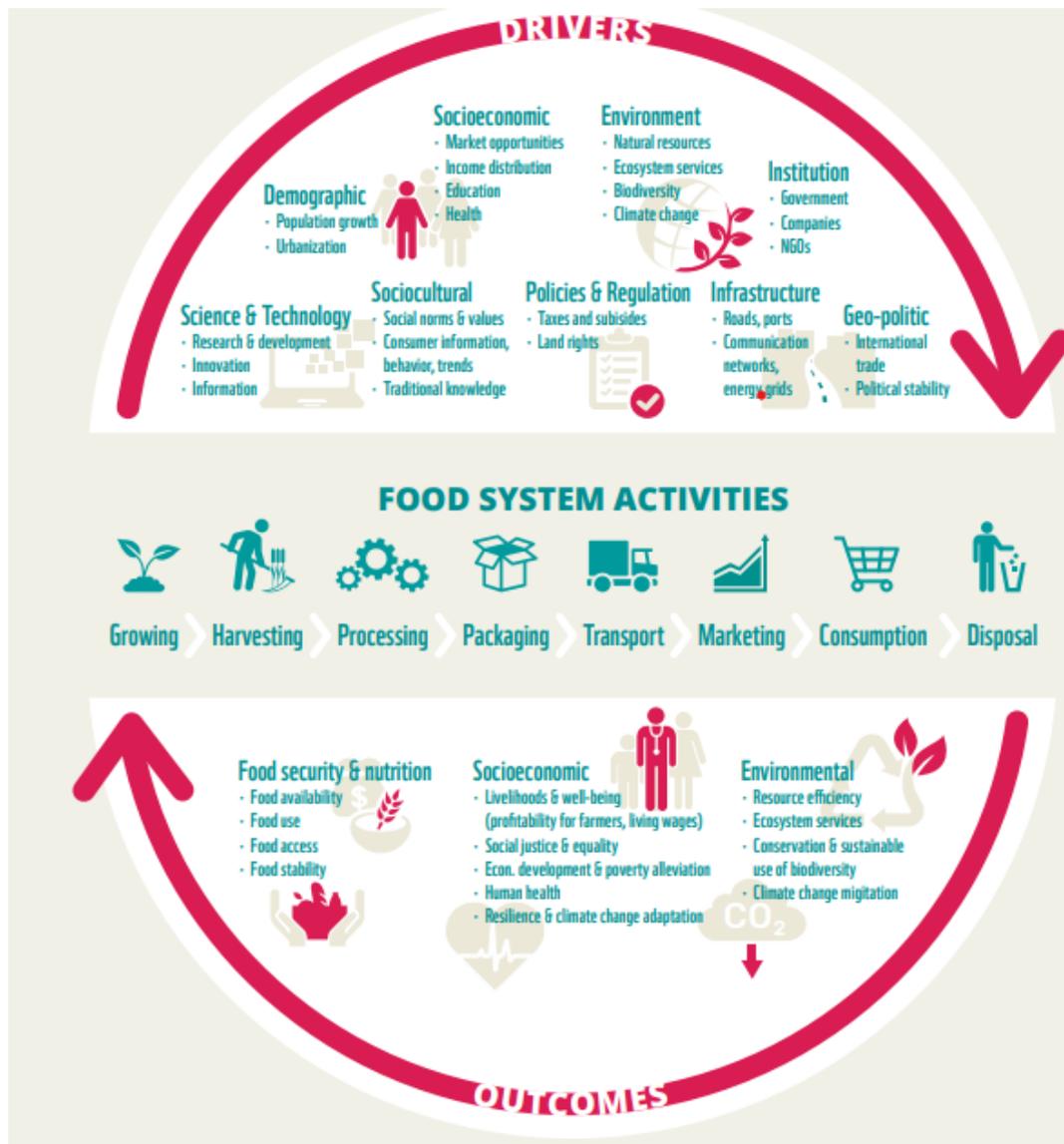


Fig. 3 – Elements of the food system³

³ WWF Germany & WWF Food Practice. (2020, August). ENHANCING NDCS FOR FOOD SYSTEMS: RECOMMENDATIONS FOR DECISION-MAKERS. Retrieved from https://wwfint.awsassets.panda.org/downloads/wwf_ndc_food_final_low_res.pdf, p.6. Please check this link to obtain a higher-resolution version of this diagram.

Exercise: *Understanding the intricacies of the food system*

Pre-requisites	Having closely observed and understood the HLPE diagram in the section 2.1
Time	1 hours
Tools	Pen and paper
Objectives	1. Understand the complexity of the food system and the interconnectedness of its components.

Instructions

- Step 1: Choose one of the following scenarios:
 - a. *"Overnight, all humans became vegetarians. No one wanted to consume animal products anymore."*
 - b. *"After a series of diplomatic tensions, a war finally broke out in Distantland. Overnight, the prices of the most common fertilizers on the market skyrocketed, leading to a significant increase in the cost of plant-based products."*
 - c. *"Following an exceptionally strong solar eruption, terrestrial telecommunication networks (including the Internet) ceased to function. Restoring them will take months, if not years."*
 - d. *"A revolution erupts in the heart of one of the world's largest oil-exporting countries, causing fuel prices to soar."*

- Step 2: Take the HLPE diagram that we saw in section 2.1. What consequences would the scenario you have chosen to have on the food system? First, identify in the diagram where your main factor is (is it in the production process? In the consumer behaviour? etc.). Then, imagine as many consequences as possible for the following points:
 - a. Food supply chains
 - i. Production systems
 - ii. Storage and distribution
 - iii. Processing and packaging
 - iv. Retail and markets
 - b. Food Environments
 - i. Availability and physical access
 - ii. Affordability
 - iii. Advertising
 - iv. Food quality and safety
 - c. Consumer behaviour
 - d. Diets
 - i. Quantity
 - ii. Quality

- iii. Diversity
- iv. Safety
- e. Impacts
 - i. Social
 - ii. Economic
 - iii. Environmental

- Step 3: Finally, imagine you are a leading politician of your country. What are the three main decisions you would take to manage the consequences of the fictional scenario?

1. _____

2. _____

3. _____

EXTRAS

1. Further readings

General documents:

- ✓ What is Climate change? By the United Nations – a nice introduction about the topic of climate change: <https://www.un.org/en/climatechange/what-is-climate-change>
- ✓ “The State of Food Security and Nutrition in the World 2023” by the Food and Agriculture organization of the United Nations – an update on global progress towards the targets of ending hunger and all forms of malnutrition: <https://www.fao.org/3/CC3017EN/online/CC3017EN.html>
- ✓ “Man, and the Environment: A General Perspective” by Nico Stehr – An history of the changing relations between human and nature, and man perception of it.
- ✓ “An inconvenient truth” by Davis Guggenheim - a documentary film exposing that sensibilize on pollution and climate change caused by man.
- ✓ “Les algues vertes (The Green Algae)” by Pierre Jolivet – a french film showing the repercussions of industrialized agriculture and pesticides/insecticides in Brittany.

- ✓ “What is Climate Change? | Start Here” by Al Jazeera English, a seven-minute YouTube video explaining the basics of climate change: <https://www.youtube.com/watch?v=dcBXmj1nMTQ>

Non-profit organizations:

- ✓ Greenpeace: Provide articles on climate change, human damages to the environment. Fight against ecosystems destruction, fossil energies across the world: <https://www.greenpeace.org/international/>
- ✓ Oxfam International: Produce resources on climate change and disasters and food inequalities. Promote social justice: <https://www.oxfam.org/en>
- ✓ Friends of the Earth Europe: fighting for social and environmental justice and an equal access to found while preventing ecological disasters: <https://friendsoftheearth.eu/>
- ✓ Food and Agriculture organization of the United Nations: A specialized agency of the United Nations that leads international efforts to defeat hunger: <https://www.fao.org/home/en>

Documentaries:

- ✓ Food Security - a Growing Dilemma (documentary): a 30 min documentary that address the future of an agriculture, food production along with sustainability and sovereignty concerns: <https://www.youtube.com/watch?v=wu7PjKawjwI>
- ✓ Human Impact on the Environment : A playlist of short videos questioning the consequences of the human activity on our planet: <https://www.youtube.com/playlist?list=PLL4ByIaW73wgSuZyfdxJUUnhhOjDanFteu>
 - Other videos from National Geographic about climate change can be found there: <https://education.nationalgeographic.org/resource/resource-library-climate-change/>

2. Glossary

FAO: The Food and Agriculture Organization of the United Nations (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger and improve nutrition and food security.

Green Deal: The European Green Deal, approved in 2020, is a set of policy initiatives by the European Commission with the overarching aim of making the European Union (EU) climate neutral in 2050.

HLPE: HLPE stands for the High-Level Panel of Experts on Food Security and Nutrition, which is a scientific panel established by the United Nations to provide guidance and policy recommendations on food security and nutrition issues.

UN: The United Nations (UN) is an intergovernmental organization whose stated purposes are to maintain international peace and security, develop friendly relations among nations, achieve international cooperation, and serve as a center for harmonizing the actions of nations.

WWF: The Worldwide Fund for Nature (WWF) is a Swiss-based international non-governmental organization founded in 1961 that works in the field of wilderness preservation and the reduction of human impact on the environment.

3. Acknowledgments

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