



Sustainable Food Systems





Learning Outcomes

- Define food systems
- Examine different types of food systems
- Examine the impact of the global food system on the environment





Agenda

- Define and examine components of a “food system”
- Learn how the food system impacts the environment
- Write a story about your food

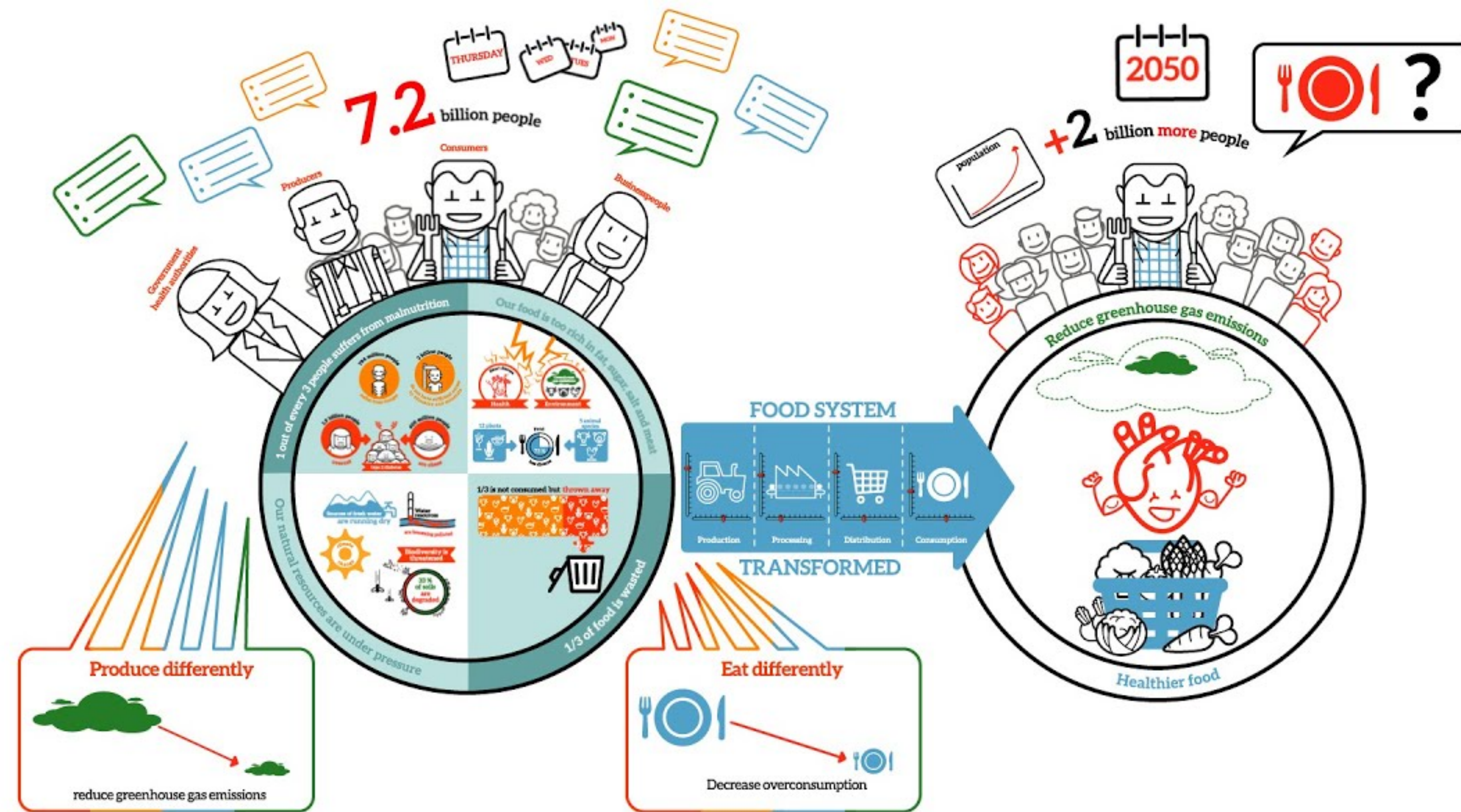


Defining a Food System

- A system is a group of interrelated and interdependent variables that function as a unified whole. Because systems are **interdependent**, a change in one variable affects every other variable in the system, directly or indirectly. A system functions as a unit but also interacts with the larger external environment. Some examples of systems are the interstate highway system, the human body, and—what we will focus on—the food system.
- Every individual is part of the food system, contributing to it in various ways every day. The food system is a complex web that includes the environment where the food was grown, the workers who produced the food, the processing, packaging, and transportation of the food, all the people eating the food, and where the food goes once it's disposed of. It encompasses all people getting fed in any number of different ways. The food system itself interacts with other systems, such as ecosystems, transportation systems, marketing systems, and others.



Defining a Food System



Why do we need to change our food system? (4 mins)

<https://youtube.com/watch?v=VcL3BQeteCc>



Components of the Food System

Match the food system component with its definition.

Production	Helps protect food from spoilage and allows for easy transport and purchasing. Required inputs may include paper, plastic, cardboard, aluminum, glass, ink, and machinery.
Harvest	The collection of raw foods (fruits, vegetables, grains, meat, fish, milk, etc.) from its source. Required inputs may include labor, fuel, machinery and equipment, packing materials, etc.
Processing	Purchasing or eating food. The main input for this step is monetary since the consumers pay for the food item, but inputs also include labor, such as supermarket or restaurant employees.
Packaging	The altering of the structure or character of food, such as turning potatoes into French fries. Minimally processed foods typically maintain their nutritional value, while ultra-processed foods may have decreased nutritional value. Inputs vary depending on the level of processing and can include labor, machinery, water, fuel, sugar, salt, and other preservatives.
Retailing	The process of determining consumer wants or needs and making products available for public purchase at markets, restaurants, etc. Required inputs may include labor, physical and digital advertising, packaging, and transportation.
Distribution	The activities taking place on land and sea that grow and produce our food. Required inputs may include labor, soil, water, sunlight, seeds, labor, machinery and equipment, fertilizer, pesticides, etc.
Consumption	What we do with anything left over after eating, including throwing things in the garbage, composting, or recycling. Required Inputs may include land (for landfills, composting, or recycling facilities), transportation, labor, and machines.
Disposal	The process of dividing up and delivering food to various places, such as supermarkets, farmers' markets, or processing sites, where it is redistributed after processing. Required inputs may include fuel and labor.



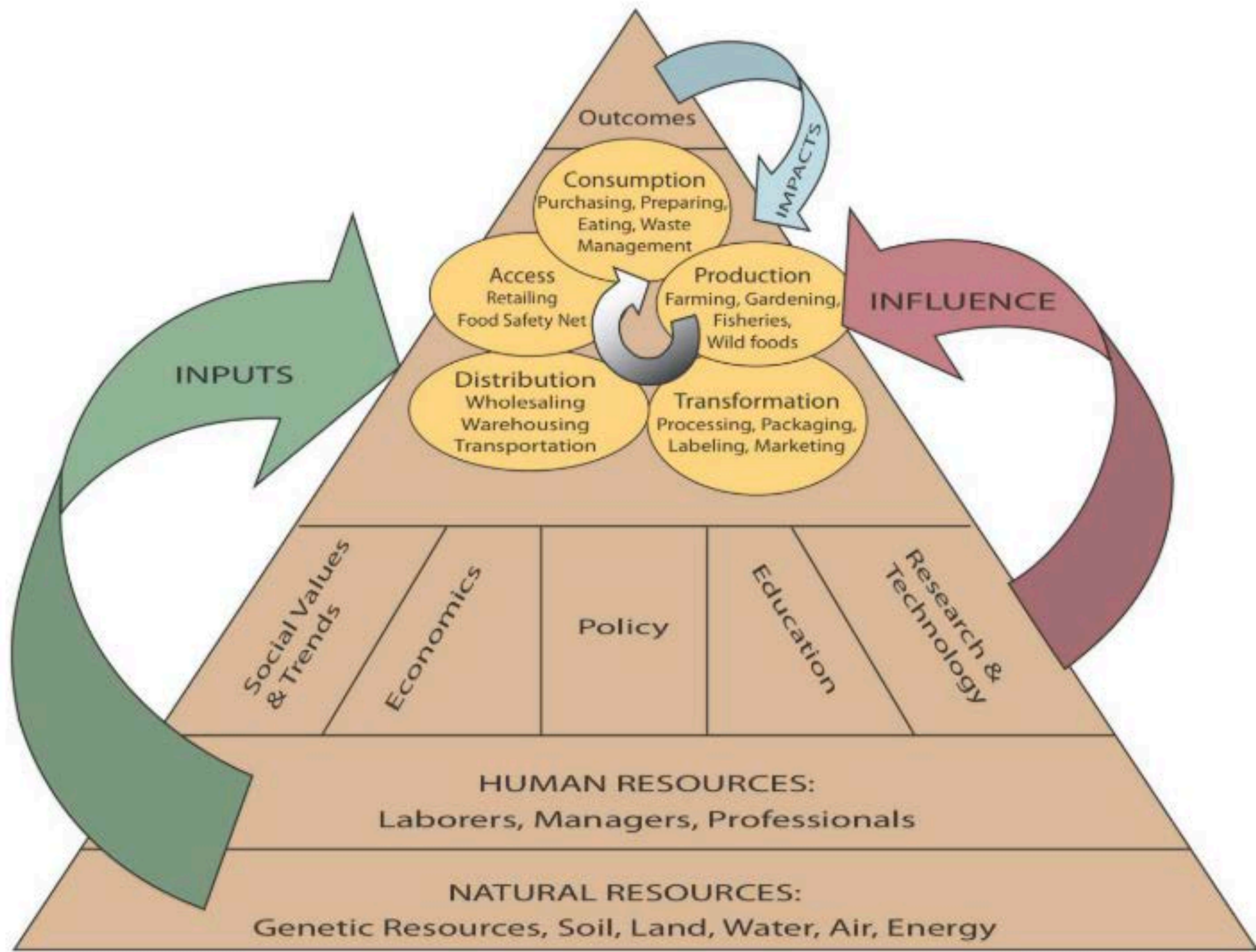


Discussion

- Does the food system always occur in the same order?
Is it always a linear process?
- **How do you find that you interact with the food system every day?**
- Do you think about this as a system you interact with?
- How do your purchases and consumption choices affect the food system?



Food System Model





Different Kinds of Food Systems

- **Global** - Products may come from anywhere in the world, from international or national distributors. Food in the global food system travels, on average, more than 1,000 miles from production to consumption.
- **Regional** - Serves a state or other region. Networks of farmers supply regional retailers and wholesale distributors.
- **Local** - Food is produced in a small area and may be sold directly to local consumers or institutions.
- **Community** - Based in a local area and works to integrate all aspects of the food system to ensure economic, social, and environmental sustainability.



Food Systems and the Environment



The Big Waste: Why Do We Throw Away So Much Food? (10 mins)

<https://youtube.com/watch?v=1aH7RwOD0RE>



Food Systems and the Environment

- Food is **lost** or **wasted** in all parts of the food system: on farms, during harvest, processing, storage, distribution, retailing, and consumption.
 - *Food “loss” occurs before the food reaches the consumer as a result of issues during production, storage, processing, and distribution.*
 - *Food “waste” refers to food that is perfectly good to consume but gets discarded at the retail or consumption phases.*
- In the US, about 40% of all food produced goes uneaten, and about 90% of that uneaten food ends up in a landfill.
- Land-use change for food production is one of the significant environmental issues. 44% of the planet’s habitable land is used for agriculture.
- 25-30% of ice-free land is dedicated to livestock and growing the food livestock consumes. This contributes to biodiversity loss and climate change by the destruction of native ecosystems and the carbon they sequester.
- Cattle, pigs, goats, and sheep produce methane during their digestive process. Methane is a potent greenhouse gas that contributes to climate change.
- About 70% of water consumed worldwide is for agriculture, either directly (watering crops we eat) or indirectly (water needed to keep, feed, breed, and raise livestock).
- Food packaging is mainly made of single-use plastics and often pollutes oceans and waterways.



Story Time!

Fill in the blanks to come up with a story about a food item of your choice:

Madlib Script: Hi, I am **__(food item)___**, and I am made up of **__(#)___** ingredients. The ingredients were produced in **__(place)___**, and **__(place)___**, and **__(place)___**. Before the land where I was produced was agricultural land, it used to be **__(type of ecosystem)___**, and **__(plants, animals, and human culture)___** used to thrive here, but now it's just **__(ingredient crop)___** fields as far as the eye can see! While being produced, farmers named Farmer **__(name)___** and Farmer **__(name)___** made sure my ingredients were nice and juicy by **__(list a farming technique i.e. using fertilizers, using organic compost, plowing fields, etc.)___**. It was hard work though, and Farmer **__(name)___** developed a health condition called **__(health condition)___**. After all that work was done at the farm, I was sent to **__(place)___** to be processed. I traveled **__(#)___** miles, mostly by **__(mode of transportation)___**. Part of my ingredients weren't properly packaged during the trip, so they got thrown away in **__(place)___**. But the rest of my ingredients went to **__(place)___** after being processed. Once my ingredients got there, I got sent to **__(grocery store)___**. I sat there with a bunch of other **__(food item)___** for a while, and some of us got thrown away by **__(name)___** because we weren't pretty enough or didn't get purchased fast enough. Luckily, I was one of the pretty ones, so you picked me! Now you get to eat me, and once you're done **__(food waste items)___** will be left as waste. And you'll throw it away in **__(type of waste receptacle)___**. Oh, what a life I have lived, the things you see as a **__(food item from the beginning)___**!





Discussion

- What did you think about the journey of the food item?
- **How could that journey be more sustainable for people and the planet?**



Additional Resources

- **Food Justice: Fixing our broken food system**: Oxfam America - Hunger is not about not having enough food. It's about inequalities in access to resources to grow food; it's about power and distribution.
- **The Hunt by Sanjay Rawal: Gather (2020)** This excerpt, "The Hunt," by Sanjay Rawal, follows two characters—Chef Nephi Craig of the White Mountain Apache Nation and master forager Twila Cassadore of the San Carlos Apache Nation—as they work with Indigenous foodways to promote processes of healing and recovery from historical trauma.
- **Farm to School: a project of Esperanza Community Farms. Thanks Inspira Studios & Center For Ecoliteracy**: Esperanza Community Farms - Farm to School is a project that tells the story of students partnering with Esperanza Community Farms to bring organic produce to their cafeterias.
- **Palm Oil Scorecard**: World Wildlife Fund - The 2024 Palm Oil Buyers Scorecard by WWF reveals a sobering truth: palm oil buyers are yet to step up to the challenge, leaving the fate of our planet hanging in the balance.
- **Your Food Is Lying To You | Climate Town** - Rollie Williams explains the truth about expiration dates and how they are not about whether your food is safe to eat.





Contributors

Walking Softer would like to thank Richard Flammer and Juliana Dalesio of Hidden Resources and Joshua McGuire for contributing to the sustainable food systems learning materials.



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