



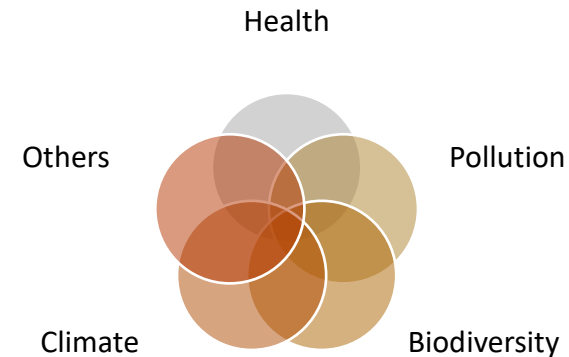
Food and Agriculture
Organization of the
United Nations

Multi-risk management for resilient agriculture and food systems



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Cascading and colliding crises



- **Climate change**
 - One of the key drivers behind the rise of hungry people in the world, undermining livelihoods and leading to displacement.
- **Biodiversity loss**
 - Humans have directly modified 77 percent of the land surface and 87 percent of oceans (Watson et al. 2018).
 - One million species threatened with extinction (IPBES 2019), and many of the ecosystem services essential for human wellbeing are eroding (UNEP 2021).
- **Pollution**
 - Pollution kills more people every year than conflict, murder, road accidents, tuberculosis, HIV/AIDS and malaria combined.
 - About 90% of the world's population lives in an area where air pollution exceeds WHO air quality guidelines
- **Health crisis**
 - The current pandemic has a **compounding effect** on these pre-existing drivers, mainly through declining economic activity related to **COVID-19** restrictive measures (FSIN 2020).
- **Others**
 - Regional, national, subnational and local disasters and crises

Acute food insecurity (FSIN 2021. Global Report on Food Crises)

- **155 million people** were estimated to be **acutely food insecure** and in need of urgent assistance (IPC/CH Phase 3 or above) in **55** countries and territories in 2020. 20 million people more than in 2019.
- Main drivers of acute food insecurity in both rural and urban areas:



CONFLICT/INSECURITY

99.1M people
in **23** countries/
territories



ECONOMIC SHOCKS

40.5M people
in **17** countries



WEATHER EXTREMES

15.7M people
in **15** countries

What can we learn from the impacts of COVID-19 on food security and nutrition?

- The **pandemic and related containment measures** have aggravated the **impact of pre-existing drivers of fragility, notably conflict and climate change** (FSIN 2021).
- With **the COVID-19 pandemic still not under control**, many households face reduced incomes, with **ongoing socio-economic consequences**.
- The COVID-19 pandemic has reminded the world that **risk is systemic, interconnected and cascading**, and with **impacts across all sectors and rural and urban territories**



Agri-food systems and Climate Change

- Impact: Agriculture and food sectors continues to **bear the brunt of disaster impacts**, and in particular from climate extremes
- Driver: the agri-food system contributes up to **34 percent of global greenhouse gas emissions** and to multiple risks linked to unsustainable practices
- Mitigation and Adaptation potential: the agriculture sector – soils, forests and oceans – has great **potential to offer emissions efficiency gains, absolute reductions and carbon sinks** (*20% of emissions reductions needed by 2050 can be delivered through improved climate action in food systems*), while also supporting **resilient socio-economic development**.
- Transformation: Urgent actions by ALL are needed now so that agriculture and food sectors (from production to consumption) **transform** from being a main driver of risk and crisis to become one of the **essential climate and environmental solutions**.

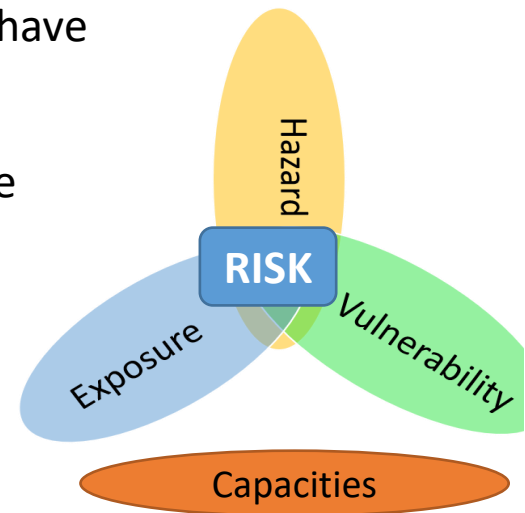


Understanding shocks, stresses and stressors

Risk is the potential for consequence of the interaction between a threat or hazard, the characteristics that make people, places and systems exposed and vulnerable to that threat or hazard, and the capacities available to manage the risk

Events: the manifestation of threats and hazards, or a combination thereof, at a given time and location. Threats or hazards include negative consequences on a system level (not individual level). We include as “events” disasters, crisis, conflicts, or shocks and stresses:

- **Shocks:** external short-term deviations from long-term trends that have substantial negative effects on people’s current state of well-being, or their ability to withstand future shocks.
- **Stresses:** long-term, slow and gradual pressures that undermine the stability of a system (including chronic pressures)
- **Stressors (*risk drivers*):** processes or conditions, often related to development and inequality, that influence the level of risk by contributing to exposure and vulnerability or reducing capacities



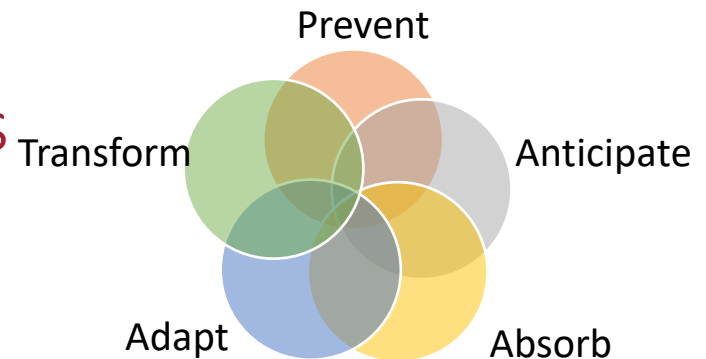
Shocks and stresses impacting agri-food systems

Type of event	Examples
a. Geological events	Earthquakes, tsunami, volcanic eruptions, landslides.
b. Climate and weather-related events	<p><i>i.</i> Climate and weather extreme events (shocks): e.g. drought, flood, storms</p> <p><i>ii.</i> Climate slow onset events (stresses): e.g. seasonal change in rain / temperature patterns; sea-level rise.</p>
c. Ecosystem-related events	Biodiversity loss (ecosystems, species, and genes); Ecosystem degradation (e.g. forest loss, loss of fisheries); Land salinization; Soil degradation; Eutrophication; Ocean acidification
d. Biological events	<p><i>i.</i> Plant pests and disease (e.g. locust, FAW, rusts)</p> <p><i>ii.</i> Terrestrial and aquatic animal disease (e.g. African swine fever, foot-and-mouth disease)</p> <p><i>iii.</i> Food safety events (food containing harmful microorganisms or harmful combinations of substances)</p> <p><i>iv.</i> Human epidemics and pandemics (e.g. HIV, malaria, zika)</p>
e. Technological events	Chemical hazards; Pollution; Industrial accidents and major infrastructure collapse
f. Economic events	Global price instability; Financial crash; Food price crisis of 2008-2009; Pervasive incentives leading to land use change (stress)
g. Political and governance events	Violence, conflict, human rights violations, civil unrest
h. Protracted crisis	Protracted crises are where a significant proportion of the population is acutely vulnerable to death, disease, and disruptions in livelihoods over a prolonged period of time. Conflict is frequently present, alongside lengthy food crises, the breakdown of livelihoods and food systems and insufficient governance and institutional capacity.

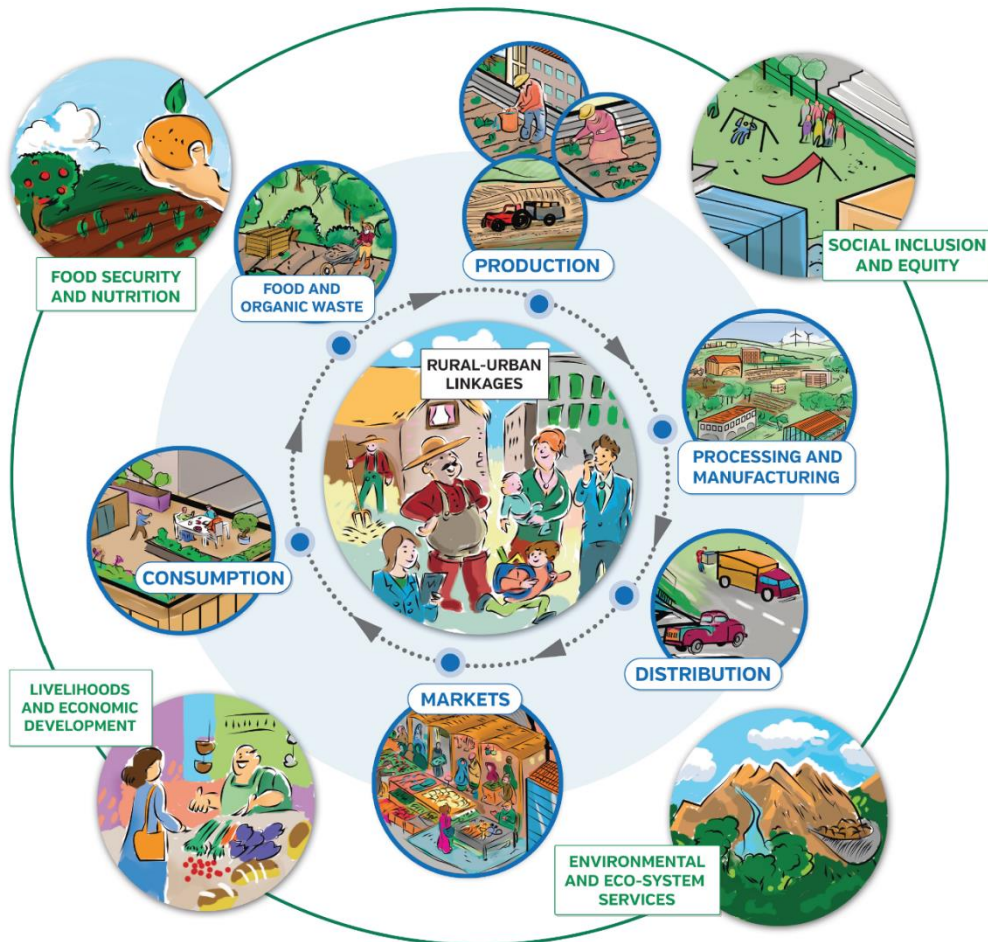
Stressors (processes that increase exposure and vulnerability, and reduce capacities) [*aggravating trends*]

Stressors	
Climate change	If not unpacked, climate change is understood as a threat multiplier and major driver of risk. However, to be tackled, the diverse expressions of climate change need to be unpacked and considered as a suite of shocks and stresses (refer to typology of events above)
Demographic dynamics	Population growth, changes in population cohorts.
Urbanization	Pressures on food chain, pressures onto land use and natural resources.
Technological innovations and digitalization	Potential challenges to smallholders, such as access to innovations and digitalization, and risks of digital power concentration and digital inequality
Gender inequality	Women, key but underrated contributors to food systems, face inequalities in access to resources, services and remunerative opportunities
Poverty	Poor households are more likely to be exposed to risk, have higher vulnerabilities and less access to capacities to respond to current and future crisis and manage multiple risks.
Food loss and waste	An estimated one-third of the food produced in the world for human consumption is lost or wasted during the production to consumption stages
Consumption-nutrition patterns	Changes in diets and consumption patterns (FOFA section 14)

UN Common Guidance on Helping Build Resilient Societies



The ability of individuals, households, communities, cities, institutions, systems and societies to **prevent, anticipate, absorb, adapt** and **transform** positively, efficiently and effectively when faced with a wide range of risks and crisis, while maintaining an acceptable level of functioning, without compromising long-term prospects for sustainable development, peace and security, human rights and well-being for all.



A **City Region Food System** is defined as “all the actors, processes and relationships that are involved in food production, processing, distribution and consumption in a given city region”, connected to other rural and urban sectors (e.g. food security, economic development, water and waste management, energy, transport, health, climate change, governance and spatial planning, etc.).

<https://www.fao.org/in-action/food-for-cities-programme/toolkit/introduction/en/>

FAO Green Cities Initiative focus areas:



- **Enabling Environment** to support risk and vulnerability assessments, evidence-based and inclusive policies, planning and governance frameworks to foster investment and promote innovation for resilient green spaces and sustainable urban food systems.



- **Actions for metropolitan cities** to enhance their contribution to sustainable growth and wealth



- **Actions for intermediary cities** to enhance their role in connecting rural and urban areas to basic facilities and services with a focus on balancing green and healthy environments with productivity



- **Actions for small cities** to enhance nutrition, healthier diets and closer interactions to where food is produced with a focus on governance for functional territories, innovation and green technologies for green infrastructures and food systems, improved agro-processing hubs and urban-rural linkages, promoting off-farm job opportunities, reducing food loss and better food and water waste management. <https://www.fao.org/green-cities-initiative/en/>

FAO innovative package of multi-risk management tools for building resilient agrifood

1. Agro-climatic, disaster/crisis risk and food security information systems
2. **Early warning systems with actionable alerts**
3. Disaster and crisis risk governance
4. Risk transfer mechanisms (social protection and insurance)
5. Vulnerability and risk reduction measures at the field level with good practices, technologies and innovations, including livelihoods and nutrition diversification
6. **Emergency preparedness, anticipatory action and response**
7. Risk proofing of grey infrastructure along the food value chain
8. Nature based solutions
9. Food loss and waste reduction
10. Inclusive, resilient and sustainable diets

