Food and Agriculture Organization
of the United Nations

Climate change implications for global food safety

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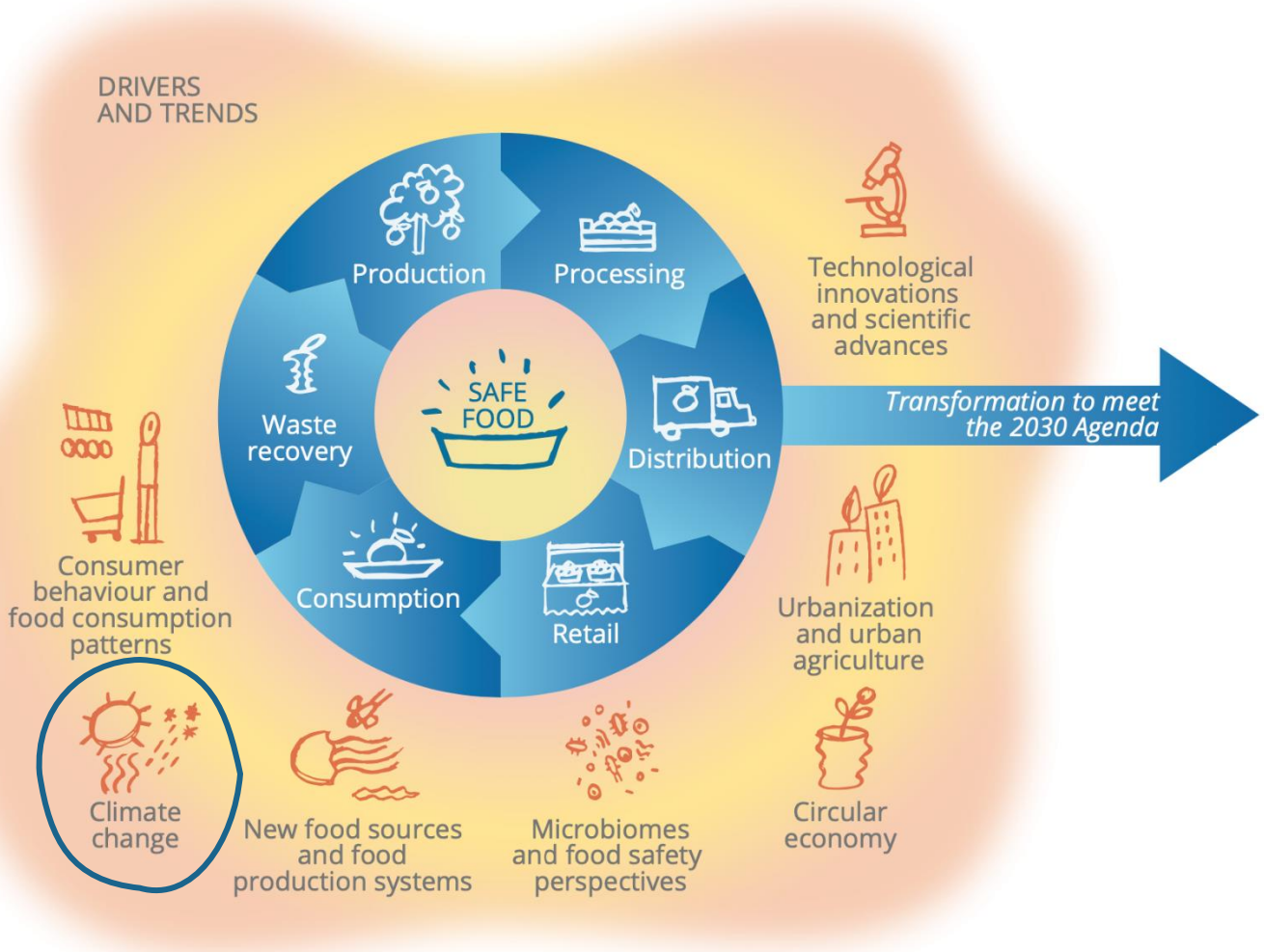
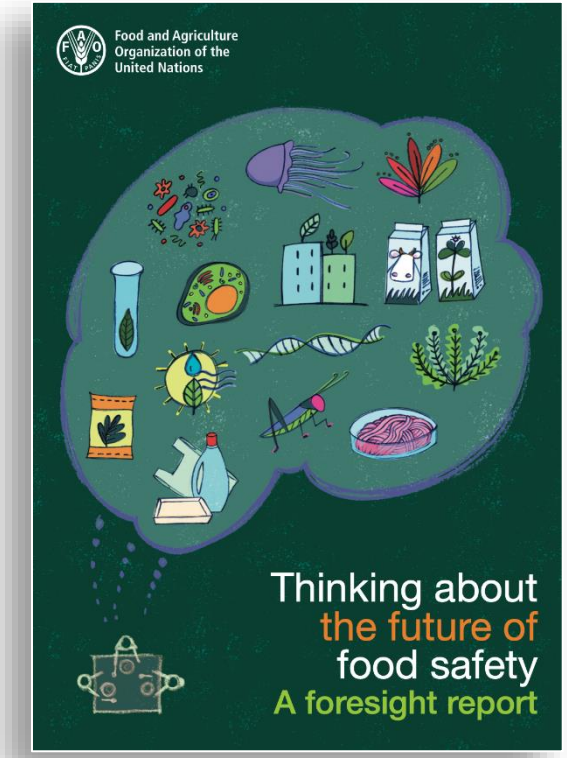
Changing agrifood systems invite more complexities in food safety

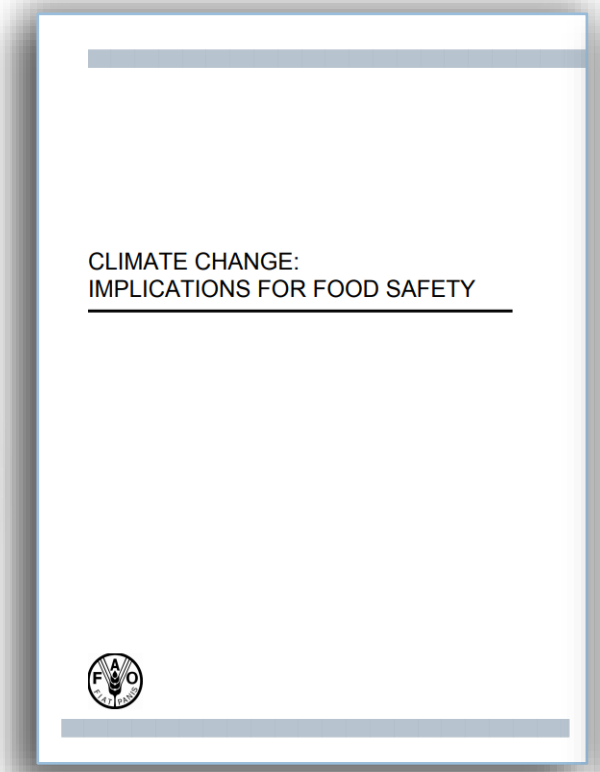


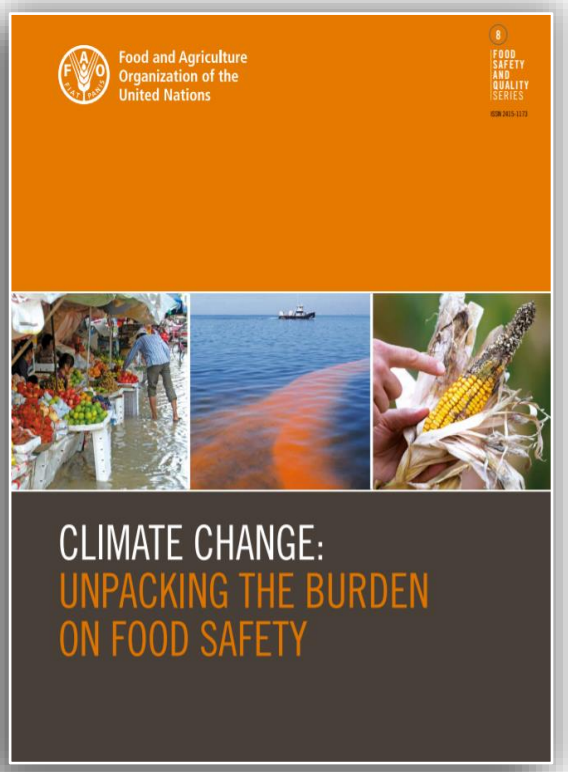
SUSTAINABLE DEVELOPMENT GOALS



Climate change and food safety impacts

FOOD SECURITY and FOOD SAFETY are interlinked





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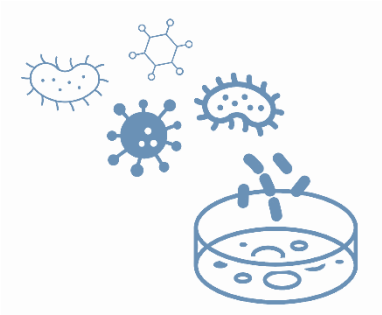
Climate change and food safety impacts



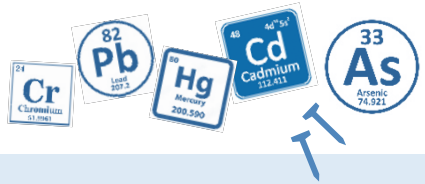
Foodborne pathogens and parasites

- Evidence to link increasing temperatures to higher incidences of infections by foodborne pathogens like *Salmonella* spp. and *Campylobacter* spp.
- Water scarcity can have an impact on hygienic conditions in food processing plants
- Flooding leads to increased likelihood of outbreaks of waterborne diseases like cholera
- Antimicrobial resistance – a growing threat

Mycotoxins

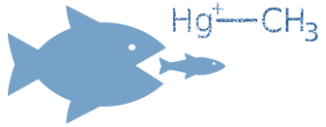
- Mycotoxin contamination in staple crops is a major health concern and barrier to international trade
- Altered distribution of toxigenic fungi and the appearance of mycotoxins in crops
- Increases in temperatures may shift the types of mycotoxins produced by any given fungal species, from those that are currently dominant to other related compounds
- Flooding, after heavy precipitation and extreme weather events, affects storage facilities and standing crops, increasing the risks related to mycotoxins
- Plants stressed by pest damage are more predisposed to fungal infections

Climate change and food safety impacts



Heavy metals

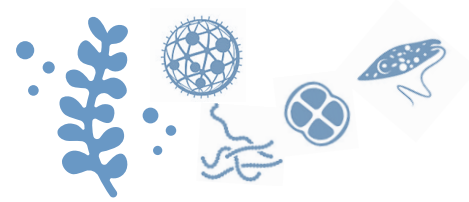
- Heavy precipitation events, especially in mining areas, can release various heavy metals into the surrounding areas, compromising food and water quality
- Accelerated permafrost thawing may release historically trapped heavy metals, such as arsenic, into aquatic ecosystems, compromising aquatic life and the safety of freshwater supplies
- **Rice** – a major crop known to take up and bioaccumulate arsenic from the soil or irrigation water. Arsenic accumulates not only in the plant itself but also in the grain that is consumed.



Methylmercury

- The concentration of mercury present in the ocean surfaces has increased by a factor of three or more compared with pre-anthropogenic conditions
- Methylation of mercury is temperature-dependent. Thawing of permafrost releases mercury into aquatic systems
- Deposition of inorganic mercury in lakes and oceans is enhanced by increased precipitation
- Lowering pH values increase the microbial uptake of mercury in the oceans

Climate change and food safety impacts



Harmful algal blooms (HABs)

- The frequency and duration of certain endemic HABs have increased globally
- An overabundance of fertilizer application combined with more frequent and intense precipitation are leading to increased eutrophication in waterbodies, resulting in algal blooms
- Reports on the effects of ocean acidification on HAB toxicity and abundance are not uniform
- Warming temperatures widen the seasonal windows for certain HABs, enabling them to persist for longer periods

Food safety in the face of climate change requires SHARED solutions

Greater collaboration among stakeholders

Early warning and surveillance systems

Proactive, instead of reactive

Intelligence gathering and foresight


and homes.

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Thank you

FAO

Better production
Better nutrition
Better environment
Better life

Further information on FAO food safety foresight work