Summary

Climate change is likely to have considerable impacts on food safety, both direct and indirect, placing public health at risk. With changing rainfall patterns and increases in extreme weather events and the annual average temperature we will begin to face the impacts of climate change. These impacts will affect the persistence and occurrence of bacteria, viruses, parasites, harmful algae, fungi and their vectors, and the patterns of their corresponding foodborne diseases and risk of toxic contamination. Alongside these impacts, chemical residues of pesticides and veterinary medicines in plant and animal products will be affected by changes in pest pressure. The risk of food contamination with heavy metals and persistent organic pollutants following changes in crop varieties cultivated, cultivation methods, soils, redistribution of sediments and long-range atmospheric transport, increases because of climate changes.

Climate sensitive risk factors and illnesses will be among the largest contributors to the global burden of food-related disease and mortality, including under-nutrition, communicable, non-communicable, and diarrheal and vector borne diseases.

The impact of climate change will not be even across different food systems. Some regions are projected to have an increase in food production; however, generally the projected climate change is foreseen to have a negative impact on food security, especially in low- and middle-income countries. The effects of climate change on food security and consequently nutrition are closely linked to effects on food safety and public health and must be considered together. WHO, together with agriculture, environment and other relevant sectors must be ready to support national authorities, particularly in low- and middle-income countries and countries most affected, to prepare and respond to these effects.

- **Climate change** is expected to lead to modified bacterial, viral and pathogenic contamination of water and food by altering the features of survival and transmission patterns through changing weather characteristics, such as temperature and humidity.

- **Climate-dependent** temperature and moisture, fungal growth and formation of mycotoxins will lead to changes in occurrence patterns. Mycotoxins are produced by certain fungi (moulds) on crops and can cause both acute toxic effects and chronic health problems (including cancer) in humans and livestock.

Climate change has also been described as a ‘catalyst for the global expansion’ of algal blooms in oceans and lakes, interacting with nutrient loading from fertilizer run-off into water bodies.

This high risk of emerging zoonoses, changes in the survival of pathogens, and alterations of vector-borne diseases and parasites in animals, may necessitate the increased use of veterinary drugs, possibly resulting in increased residue levels of veterinary drugs in foods of animal origin. This poses not only acute and chronic risks to human health but is directly linked to an increase in antimicrobial resistance in human and animal pathogens.

The application of pesticides, and the subsequent residues in food, is an ongoing concern that is expected to become more prevalent due to climatic changes, with shifts in farming systems and farmers’ behaviour to adapt to the changing climate.

The increased frequency of inland floods linked to climate change will impact environmental contamination and chemical hazards in foods through the remobilisation of contaminated river sediments and subsequent contamination of agricultural and pastureland soil.

Climate change increases the frequency and severity of extreme weather events which impacts food security. Where food supplies are insecure, people tend to shift to less healthy diets and consume more “unsafe foods” — in which chemical, microbiological and other hazards pose health risks and which contribute to increased malnutrition.

WHO role in combatting the impact of climate change on food safety

Though the challenge of halting and reversing climate change is bigger than any one country, mitigating its health-related impacts is both possible and necessary. Across WHO Member States, health systems should, in collaboration with agriculture, environment and other relevant sectors, be able to prevent, detect and manage the increased foodborne risks associated with climate change and do so in a way that advances health equity and ensures no one is left behind. There are several ways to do this:

- Member State health authorities, with support from WHO, should be fully aware of and prepared for the specific increased foodborne risks associated with climate change they face and draft national plans (including financing and investment plans) accordingly.

- As outlined in the Thirteen General Programme of Work (GPW13), WHO needs to strengthen its work with non-health sectors at country level to address the health impacts of climate change. WHO together with all relevant sectors such as agriculture and environment to work on financing of investments in food safety and climate change and incorporate food safety into its approach to climate change in order to provide comprehensive and effective policy advice, directives and interventions across all sectors.

- Incorporate food safety into approaches to mitigate the effects of climate change on health in order to provide comprehensive and effective policy advice, directives and interventions across all sectors, in a One Health approach.

- Provision of scientific risk assessments to provide the evidence basis for the development and adoption of food safety standards and guidance on food safety measures, as well as to provide risk assessment on emerging food safety risks.

- Support countries to enhance emergency preparedness, response and capacity building to better manage the threat of increased foodborne risks associated with climate change.