

# Pathways for Impacts of Climate Change on Food Systems, Food Security and Undernutrition

HUMAN ACTIVITY

GREENHOUSE GAS EMISSIONS

CLIMATE AND  
ATMOSPHERIC SHIFTS

Terrestrial temperature increase  
Rainfall variability  
Extreme weather events  
Increased atmospheric CO<sub>2</sub>, ozone levels

Aquatic temperature, HCO<sub>3</sub><sup>-</sup>  
increase (acidification)

PROXIMATE BIOLOGICAL  
CONSEQUENCES

Increased exposure to  
enteric pathogens (5.4)

Abiotic effects on crop yield (2.1, 2.2)  
Greater pests, pathogens, weed  
pressure (2.3)  
Pollinator declines (2.4)  
Lower human labor capacity (2.5)  
Poorer crop nutrient content (2.6)  
Greater post-harvest losses (5.4)

Animal heat stress (4)  
Changes in forage  
species composition  
and productivity (4)

Altered primary production,  
poleward shifts of species,  
smaller mean fish size (3.1)  
Coral reef degradation and  
shellfish declines (3.2)  
Altered fish nutrient content (3.3)

IMPACT ON HUMAN  
SOCIO-ECONOMIC SYSTEMS

Higher frequency of conflict (5.1)  
Lower GDP growth (5.3)

Altered crop yields and  
reduced nutrient content (2)

Altered livestock  
productivity (4)

Altered fish catch and  
nutrient content (3)

Lower purchasing power  
of nutritionally vulnerable  
populations (5)

Price increases (5.2)  
Price volatility (5.5)

NUTRITIONAL AND  
HEALTH CONSEQUENCES

Increase in diarrheal diseases  
and enteric infections

Altered global nutrient supply

ALTERED NUTRITIONAL STATUS