What a 2°C and 4°C warmer world could mean for global food insecurity (based on research on extreme climate projections for food security)

1. Using science to inform adaptation options

Many experts are agreeing on the need to decrease greenhouse gas emissions, but the world will not be able to do this without the contribution of governments. This project, led by the World Food Programme (WFP), shows that a 2°C and 4°C warmer world could bring various impacts on food insecurity.

2. Impacts of extreme climate change on global food insecurity

- **Cambodia**: Vulnerability to food insecurity as a result of climate-related hazards is measured by:
  - +2°C increase in temperature could result in a 3% increase in crop yields.
  - +4°C increase in temperature could result in a 7% increase in crop yields.

- **Bangladesh**: Vulnerability to food insecurity could increase by 88% in comparison to the present day.

- **Ethiopia**: Vulnerability to food insecurity could increase by 66% in comparison to the present day.

- **South Asia**: Vulnerability to food insecurity could increase by 46% in comparison to the present day.

3. Methodology: New research in food security and nutrition analysis for extreme climates

- **Global climate risk and food security in the Greater Horn of Africa Region**: The HELIX project is funded by the European Union Seventh Framework Programme (P7/2007-2013) under grant agreement n° 603864. It is a 4-year project that brings together 16 organizations to provide a set of credible, up-to-date climate analyses and projections for the Greater Horn of Africa region. The project aims to understand the impacts of climate change on food security and nutrition, and to help governments, humanitarian actors, and other stakeholders to adapt to these changes.

The HELIX project brings together in-country stakeholders from the region to develop and refine the HCVI (Hunger and Climate Vulnerability Index), a tool that assesses vulnerability to food insecurity at the sub-national level. The HCVI is a multi-faceted index that incorporates various indicators, including climate-related hazards, poverty, and access to food, to provide a comprehensive assessment of vulnerability.

The project also uses climate impact models and in-country stakeholder engagement approaches to develop tailored adaptation options. The project’s results are shared through a climate atlas, a series of policy briefs, and other publications, and the project is working to ensure that its findings are incorporated into decision-making processes in the region.

- **Bangladesh**: The project has developed a climate atlas that includes an assessment of the impacts of extreme climate events on food security, livelihoods, and food systems. The atlas is intended to help decision-makers understand the potential impacts of climate change and to inform adaptation strategies.

- **Ethiopia**: The project has developed an innovative Fill the Nutrient Gap tool to help governments and humanitarian actors better understand the potential impacts of climate change on food security and nutrition.

- **South Asia**: The project is working to understand the potential impacts of climate change on food security and nutrition in the region, and to help governments and humanitarian actors develop tailored adaptation strategies.