Food and Agriculture Organization of the United Nations

CLIMATE RISK TOOLBOX (CRTB)

QUICK USER'S GUIDE

CLIMATE RISKS IN AGRIFOOD SYSTEMS

Agrifood systems contribute significantly to greenhouse gas emissions. At the same time, they are extremely vulnerable to climate-related risks. Climate change and weather extremes drive damage and losses in agriculture and contribute to food insecurity and malnutrition.

However, agrifood systems have a great potential in supporting sustainable development, offering many solutions to reduce greenhouse gas emissions and increase the resilience of communities, ecosystems and the wider economy to climate change and weather extremes.

CLIMATE-PROOFING AGRICULTURAL INVESTMENT PROJECTS

Countries must strongly invest in climate-proofing and developing early warning and early action mechanisms to reduce the impact of climate-related risks, disaster risks and build resilience.

A key element in sustainable and transformative development in agriculture is ensuring that investments are designed with robust evidence about both past and future climate variability, seasonality, and extremes.

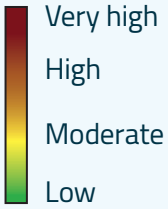
The Climate Risk Toolbox (CRTB) was developed to support climate-resilient project design. The tool is an open-access resource, hosted on the **Hand-in-Hand Geospatial platform**, allowing users to obtain a climate riskscreening in a few steps.

The CRTB contains a set of geospatial layers that gather information on different risk components to help identify climate risk hotspots in a given location and system of interest (crops, livestock, forestry, fisheries and biodiversity).

Climate risk is based on the interaction between the different risk components:

Hazard + Exposure + Vulnerability − Adaptive capacity

Based on this, the level of risk is classified as 'Very high', 'High', 'Moderate', and 'Low'.



An automatic report can be downloaded, identifying the main hazards which affect the targeted systems to make sure climate-resilient measures are appropriately integrated at early stages of project formulation.

CLIMATE SCIENCE FOR CLIMATE RISK MANAGEMENT

Climate science has moved forward rapidly in the last decade, providing more nuanced insights into the future of agricultural production, and societal and environmental risks associated with climate impacts on agriculture and food security.

The CRTB support's FAO's aim at enabling and enhancing the inclusive and affordable access and use of data, information, digitalization and science among the global community, partners and decision-makers.

- Choose an area of interest.
- Explore geospatial climate risk layers.
- Identify climate risk hotspots.
- Select climate-resilient measures.

MAJOR STEPS OF THE CRTB

The CRTB simplifies climate risk screenings.
It can be used for high-level screening at an early stage of planning processes or project design to strengthen climate-resilient development.

1 By navigating the world map, the user determines the project location using the drawing tool available on the platform.

2 The user must select the systems of interest, for which the screening will be applied.

Crops | Livestock | Fisheries | Forestry | Biodiversity

3 The user can explore and visualize the results for each risk component (hazard, exposure, vulnerability and adaptive capacity). The user can select specific time periods and Shared Socio-economic Pathways.

4 The user clicks on "Run" to obtain the climate risk calculations, and click on "Download" to obtain the screening report. The report will present the key results as demonstrated in the platform in the form of a Google Document modifiable by the user.

5 The report includes recommendations and climate-resilient measures based on observed and projected hazards which will be tailored to the selected systems of interest.

6 The user will be able to manually complete the table on the modulation of the climate risk which will be specific to the project components and activities.

ACKNOWLEDGEMENTS

The urgent need for climate investments in adaptation action has been strongly recognized by several global institutions, given the observed and projected climate impacts on critical sectors, particularly agriculture. Climate risk screening ensures that the linkages between hydrological, meteorological, and climatological hazards and impacts on agricultural systems are fully understood well in advance to strengthen project formulation and implementation.

The Climate Risk Toolbox was developed by the Food and Agriculture of the United Nation's (FAO) **Risks team** within the Office of Climate Change, Biodiversity and Environment (OCB), in collaboration with the FAO **AgroInformatics team** within the Digitalization and Informatics (CSI) Division.

A complete user's manual is also available for consultation for further guidance. The manual includes a detailed step-by-step of how to perform the climate risk screening on the CRTB with screenshots, as well as a complete set of the technical specifications of the tool showing the various layers and tresholds contained within each component of risk.

A ROBUST TOOL

The CRTB aims to identify climate risk hotspots and support the integration of climate-resilient measures at early stages of project formulation. These include climate risk, impact and vulnerability assessments, multi-hazard early warning systems, climate-proofing infrastructure and risk transfer systems (e.g insurance and social protection), anticipatory action, and emergency preparedness and response.

By doing so, the CRTB strengthens anticipation, prevention, and adaptation to multiple climate hazards, and transformation into resilient systems, by mainstreaming climate action into all decision- and policy-making levels.