SAVING LIVES
CHANGING LIVES

WFP Guide to Climate & Food Security Analyses

Supporting the design of climate adaptation policies and programmes that increase the ability of vulnerable communities and governments to build their resilience to climate-related risks and climate change

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WFP
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WHY UNDERTAKE A CLIMATE & FOOD SECURITY ANALYSIS?

Climate and food security analyses are an important first step to identify the most appropriate policies and programmes that WFP, governments and partners can consider when designing a climate change adaptation intervention.

These analyses aid in understanding the impacts that climate change can have on vulnerable people's food security and nutrition, the possible adaptation actions they can take, and aim to help decision-makers identify the most appropriate policies and programmes to implement, in order to prepare for climate risks, respond to climate-related disasters and adapt to longer-term climate change.

Specifically, climate and food security analyses seek to:

UNDERSTANDING VULNERABILITIES

Identifying communities and livelihoods that are the most at risk to climate shocks, and with the lowest ability to adapt

POLICY & PROGRAME DESIGN

Helping governments and organisations design better informed policies, plans and programmes

CLIMATE FINANCE

Enabling better planning of resources and access to climate finance to support climate change adaptation

Climate analyses can include supporting governments with prioritization of food security in national climate policies (e.g. National Adaptation Plans and Nationally Determined Contributions) and conversely incorporating climate change considerations into food security policies. They can further advise the design of programmes, including WFP Country Strategic Plans and associated activities and proposals.

A well designed analysis can also support the monitoring and evaluation of climate change adaptation measures implemented with communities.

MAIN TYPES OF CLIMATE ANALYSES

Our experience in undertaking climate analyses for food security has allowed us to identify three main types. Various methodologies to achieve these analyses are found on page 6.

Historical

- Examines the **historical relationship** between climate risks and vulnerability of food-insecure populations.
- Based on **past trends** of climate shocks.
- Often used with design of resilience programmes.

Climate Risk Analysis

- **Examines short-term impacts** of climate variability on food security and nutrition.
- Focus on **past and present** trends in climate shocks.
- Understand the likely risks through these trends.

Climate Change Analysis

- Includes **future** climate change projections.
- Identifies **longer-term shifts** in climate (e.g. precipitation, temperature, seasonal patterns).
- Integrates complex climate modelling and qualitative interpretation.

Steps for conducting a food security climate analysis

When you are considering conducting a food security climate analysis, the following steps will help define the scope and additional value of the study, as well as identify needs in terms of resources, data, potential partners and communication.

1. Define decision needs
2. Establish partnerships
3. Undertake the analysis
4. Identify actions
5. Validate & share

STEP 1

Define your decision needs

There are many ways in which an analysis can be undertaken, so it is important to first understand what decisions you and your partners would want to make with the analysis so as to best define the analysis' scope. Only once this is known can you determine which analysis methodology is most suitable. Some questions to help identify this decision scope include:

What are the decision needs of WFP and partners?

Stakeholders should define what **programmatic and/or policy objectives you have in the country,** before choosing one of the methods of analysis. What are the questions you need answering? It is best if this discussion becomes a joint one from the very start with government and other partners, as this generates co-ownership and engagement throughout the analysis process.

Is the aim to define policies, programmatic interventions or both?

Depending on the aim of the analysis, you may choose a different methodology. For example, **climate projections** help to understand the longer-term impacts of climate change on hunger, guiding policies and financing in different time frames. A CLEAR approach can help design interventions for **at-risk livelihood groups**, while an ICA+ can help **target food-insecure populations** in a geographical area as part of wider resilience-building efforts.

Who are the most vulnerable to food insecurity, and their exposure to climate risk?

This requires analysing **past and present climate trends**, **socio-economic characteristics**, **livelihood and coping strategies adopted** as well as other key information to characterise exposure and level of risk.

What is the country's understanding of its climate risks and climate change?

What has been identified as the **main priorities** in government **climate and food security policies**, for example, National Adaptation Plans, Nationally Determined Contributions and other policies and plans (e.g. WFP Country Strategic Plans)? Is more information needed for future policy and planning processes?

Would interventions that target food insecure communities need to change with long-term climate change impacts?

This would require an understanding of impacts based on analysis of **future climate projections** and scenarios and identification of **feasible adaptation options**.

What local capacity is available for the analysis?

Does WFP or the government have access to **VAM/GIS analysis** or **advanced climate modelling**, including the requisite software and equipment? Are there technical partners who could assist in such an analysis?

What data is available in the country?

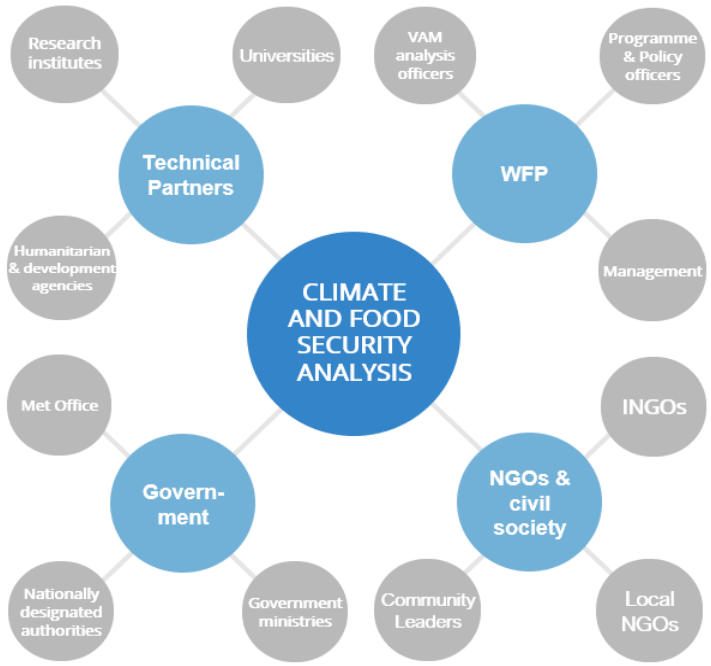
Are **time series data sets** for the past 20 to 30 years available for rainfall, temperature? Food security indicators? Socio-economic characteristics? **Identification of information gaps** will contribute to defining the scope of the analysis.

Choose the most appropriate method

Once you've answered these questions, you will be better able to select the most appropriate methodology, with a **comparison of WFP analyses** found on page 4. The WFP Climate & Disaster Risk Reduction Unit can also help you with deciding your best options and connecting you with different types of expertise (write to climatechange@wfp.org).

STEP 2

Establish partnerships



Working with governments and partners early on is essential in both the design and execution of analyses. This ensures information needs are efficiently met while building trust in sharing data and achieving wider buy-in with the final results.

Government partners are critical to involve from the very outset to ensure the analysis' scope will answer questions that support their country in determining their national policy and programmatic direction. In several countries, joint WFP climate analyses have been incorporated into national policies, such as National Adaptation Plans and government investment priorities.

Further, working together with other **humanitarian and development actors** focused on addressing food security and climate change avoids duplication and potential confusion with different results.

Technical partners may also need to be employed to lead the actual analytical work. Climate modelling requires a skill-set that may be absent at the local level, and thus identification of academic or private sector institutions may prove necessary.

STEP 3

Undertake analysis

When undertaking the analysis, you need to:

Establish the baseline

The baseline helps to provide a better overview of the current climate, food security and nutrition situation, and patterns in terms of vegetation, precipitation and temperature (average, variability, trends and seasonal trends).

Understand changes & potential impacts

This involves analysing how trends and projections are changing in comparison to present day, and the potential impacts on livelihoods, climate sensitivities, identification of thresholds and vulnerabilities. When possible, establish plausible scenarios to widen the analysis to a range of different possibilities.

Avoiding maladaptation

Maladaptation refers to "actions, or inaction that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future" (IPCC, 2018, pp.857-859). In essence, it **is when actions (or lack thereof) cause more harm than good**. There are a few frameworks for avoiding maladaptation (see Magnan, 2014). Climate analyses can give a more science-based visibility of how people will be impacted by climate variability or change to also help identify where maladaptation might occur, but note that the analysis timescale can lead to different conclusions on appropriate actions (see Nissan et al 2019 for more insights).

STEP 4

Identify actions

This step can often be left as an afterthought, but **identifying feasible adaptation options** is important to ensure concrete actions can be identified with communities and experts. Ideally the discussion should be based on how people address climate risks and also plausible climate change scenarios to ensure robust recommendations. It is also good to think of adaptation measures that will meet people's needs in the short to longer term.

STEP 5

Validate & share

The consultation process should be conducted throughout the different stages of the analysis to ensure transparency, accountability and engagement of relevant stakeholders. Once the analysis is completing, validating allows agreement on the results, enhancing ownership and the likelihood that the analysis is used in policies and programme design.

Communicating Uncertainty

Uncertainty is a result of trying to predict the future, so applies to climate variability and climate change analyses. For example, maps that are generated out of climate change projections are based on averages of possible future scenarios. Much caution needs to be paid to **communicating to decision-makers** that **a map containing projections does not display a certain future.** This also means **we cannot know if the actions we're taking are definitely adapting to the future**.
It's similarly important to ensure decision-makers are aware of other analysis limitations. See Climate-Adapt's Guidance on Uncertainty for more information.

Climate and Food Security Analysis Methodologies

There are a range of methodologies that can be used to undertake a climate and food security analysis, with the choice of methodology being reliant on the scope of the analysis needed. Based on this decision, the analysis can involve one more analytical methods, from qualitiative to quantitative techniques.The key methodologies that WFP has found useful in understanding the impacts of climate on food security are outlined below.

HISTORICAL

Example: Integrated Contextual Analysis Plus (ICA+)

Decision

Historical analyses can be helpful when you wish to plan and design **resilience programmes/activities** with a range of stakeholders. The "Plus" of integrating historical weather data into an ICA can add a lens to seeing how populations have addressed and coped with climate-related hazards in the past.

Limitations

Identified activities could be **maladaptive** as analysis does not consider that climate variability may change in the future, and ignores longer-term climate change projections (unless qualitatively considered).

Methods

Techniques used include:

Linear regression of time series data (rainfall & temperature).

Analysis of Correlation between temperature and rainfall with crop yields.

Consultations with experts.

Literature review of climate variability and projections (recommended).

Complexity/cost: ★★

Information Needs

Long-term (panel) data precipitation and temperature, population growth and density, poverty rate, food security data, coping strategy index.

CLIMATE VARIABILITY

Example: Climate Risk Analysis

Decision

Climate risk analyses can inform activities within the time frame of months to years, and are useful in many developing country settings when "no-regrets" actions serve the needs of the poor and food insecure. Activities include **community-based adaptation activities, climate information services, forecast-based financing, early warning systems and insurance**.

Limitations

Cannot project climate change impacts, thus activities may be **maladaptive** towards longer-term trends. Nevertheless, developing country settings benefit from more intermediate "no-regrets" flexible actions versus long-term uncertainty.

Methods

Qualitative analysis of food security using literature reviews, focus group discussions and consultation with experts.

Quantitative analysis of time series weather data correlating with yields, livestock, water, food consumption.

Complexity/cost: ★★★

Information Needs

Time series of temperature and precipitation, frequency of droughts and floods, yields of staple crop, income sources, food security data, land use.

CLIMATE CHANGE

Example: Climate Projections / Models

Decision

Longer-term climate projections (timescale decades or longer) are useful to governments when designing **climate or food security policies and plans.** They also can serve as decision tools for **large-scale infrastructure projects (e.g.** major hydro-electricity dams) which would benefit a population for 30 or more years.

Limitations

Climate models can flatten out climate variability info, **potentially influencing maladaptive** community and agricultural decisions. Communicating uncertainty and developing relevant adaptation options are challenging.

Methods

Quantitative analysis of time series weather data, food security, hazard geographical distribution; typically uses climate modelling

Qualitative analysis of food security impacts using literature reviews, focus group discussions and consultation with experts.

Complexity/cost: ★★★★★

Information Needs

Time series of temperature and precipitation, frequency of droughts and floods, food security data, vulnerabilities, climate projections, livelihood zone and land use maps, secondary information on adaptation measures.

FLEXIBLE

Example: CLEAR (Consolidated Livelihood Exercise for Analysing Resilience)

Decision

A flexible approach developed by WFP to look at climate variability or change, depending on need, e.g. has been used to **design climate adaptation and resilience programmes/activities/ targeting**; inform existing livelihood programmes of climate risks; provide a climate lens to **food security monitoring and early warning systems**; serve as an **emergency preparedness tool** for El Nino; and as a **policy advisory & advocacy tool** with governments.

Limitations

Uses livelihood zones, which may not be available in some countries.

Methods

Livelihoods is main unit of analysis.

Consultations with the national government and communities to validate results.

Ranking system for climate resilience by livelihood zone.

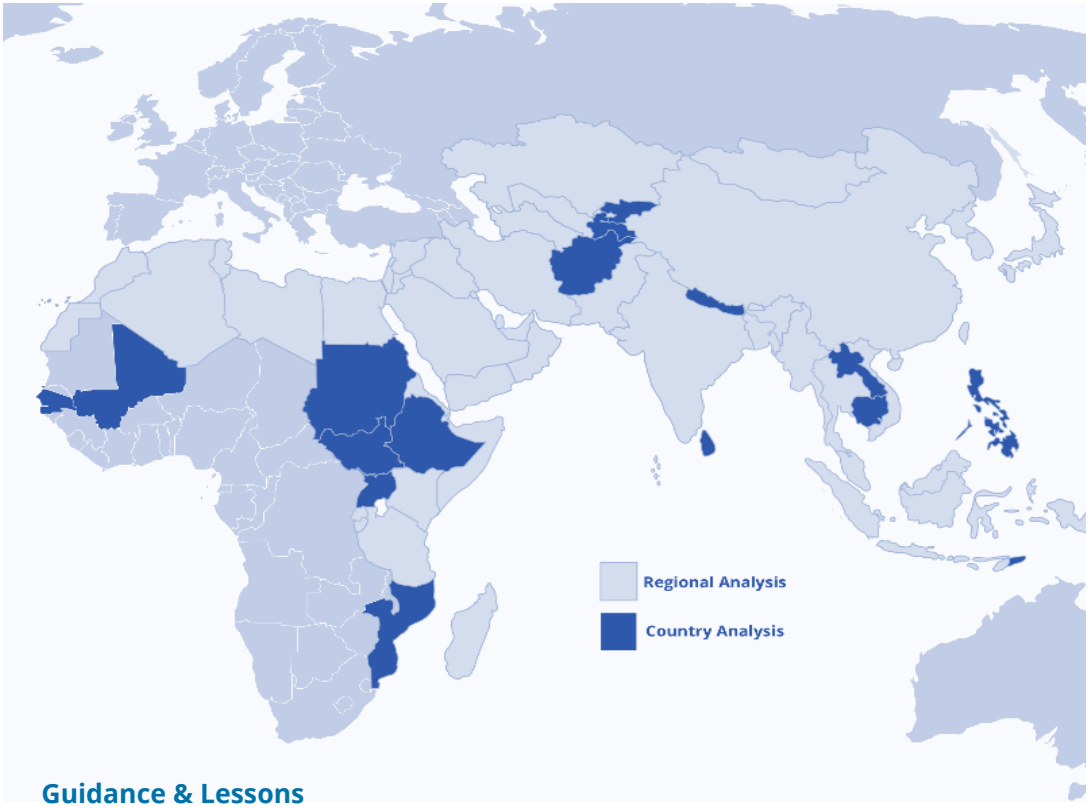
Qualitative assessment of future climate projections to determine impacts to livelihoods.

Complexity/cost: ★★★★

Information Needs

Map of livelihood and agro-ecological zones, infrastructure and water bodies, combined with agro-climatic conditions, climate sensitivity of income and food sources and climate projections.

WFP's Climate and Food Security Analyses



Guidance & Lessons

How Climate Drives Hunger: Food Security Climate Analyses, Methodologies & Lessons 2010 –2016

The Consolidated Livelihood Exercise for Analysing Resilience (CLEAR) Approach

The 72-HR Emergency Assessment Approach

Global Analyses

Hunger Climate Vulnerability Index (HCVI)

High-End cLimate Impact and eXtremes (HELIX)

Regional Analyses

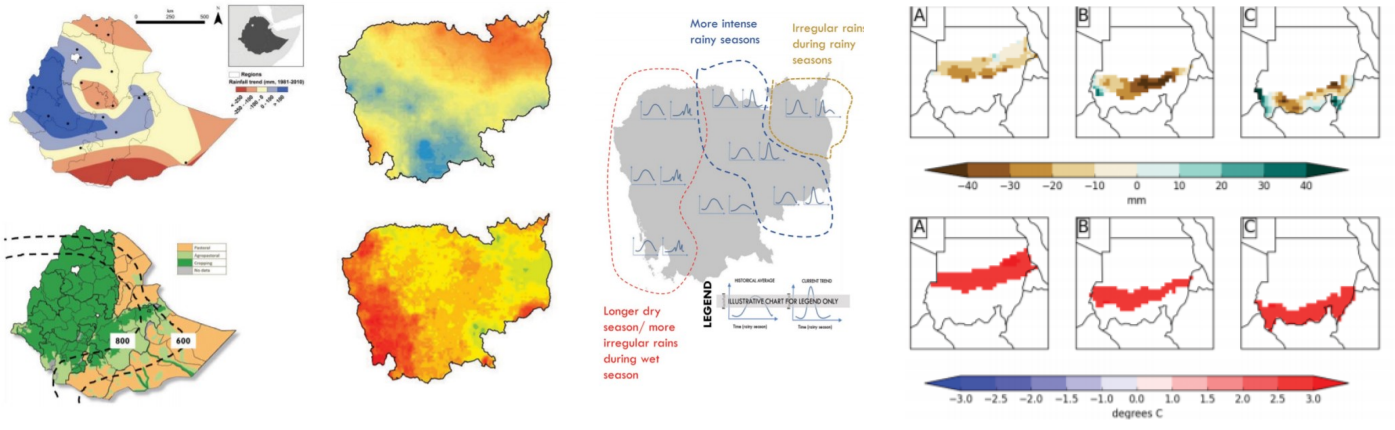
Asia

Middle East, North Africa, and Central Asia

East Africa

Country Analyses

Afghanistan	Philippines
Cambodia	Senegal
Ethiopia	South Sudan
Kyrgyz Republic	Sri Lanka
Laos PDR	Sudan
Mali	Tajikistan
Mozambique	Timor Leste
Nepal	Uganda



A snapshot of various WFP climate and food security analyses that have been undertaken around the world, and which are summarised in How Climate Drives Hunger. Image 1 shows historical rainfall and livelihood data in Ethiopia; image 2 shows climate variability trends in the onset of the rainy season in Cambodia; image3 shows projected climate changes in Sudan's annual average rainfall and temperature.

Climate and Disaster Risk Reduction Programmes Unit

Policy & Programme Division

World Food Programme

Via Cesare Giulio Viola 68/70,
00148 Rome, Italy
T +39 06 65131 wfp.org/climate-action
climatechange@wfp.org

Photo credits:
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