



# Climate Change and Rural Development – Selected Resources

## What you can find here

Many rural areas worldwide are already suffering from the consequences of climate change today. The impacts of the changing climate further exacerbate other developments: e.g. soil degradation, biodiversity loss, declining agricultural productivity, and reduction of ecosystem services. This also applies to conflicts over land and competing interests over the use of natural resources. If you want to gain a better understanding of the nexus between climate change and rural development, this selection of resources gives you examples of relevant publications and websites.

For more information or specific questions, you can contact [sv.le@giz.de](mailto:sv.le@giz.de).

This resource selection does not claim to be complete and is a living document. Within each chapter documents are sorted chronologically by year of publication.

## Background information

### Introduction to basic concepts

[The State of Food Security and Nutrition in the World \(SOFI\) – Urbanization, agrifood systems transformation and healthy diets across the rural-urban continuum | FAO | 2023](#)

Every year the SOFI publishes an update on the global state of food security and nutrition and evaluates the progress made for achieving Sustainable Development Goals (SDG). According to SOFI 2023, about 735 million people were exposed to chronic hunger. The report highlights drivers of food insecurity and current trends. This edition focuses on the dynamics, drivers, and patterns of urbanization.

[The State of Food and Agriculture – Revealing the true cost of food to transform agrifood systems | FAO | 2023](#)

This report investigates the true cost of food for sustainable agriculture and food systems. The concept of hidden costs and benefits of agrifood systems is presented and true cost accounting as an approach for assessing them is suggested. The analysis reveals the urgent need to factor hidden costs into decision-making for the transformation of agriculture and food systems.

[Global Risks Report | WEF | 2023](#)

The report assesses the most severe global risks for the decade until 2033. It identifies failure in climate change mitigation and adaptation as the two most pressing risks.

[AR6 Synthesis Report: Climate Change 2023 – IPCC Summary for Policymakers | IPCC | 2023](#)

This report presents the state of knowledge on climate change, including projected impacts and risks. It moves on to summarise mitigation and adaptation options. The contributions of three Working Groups and their three special reports are condensed in this Synthesis Report.

[Climate Change 2022: Impacts, Adaptation and Vulnerability | IPCC | 2022](#)

The Working Group II contribution to the IPCC Sixth Assessment Report considers ecosystems, biodiversity, and human communities at global and regional levels to assess the impacts of climate change. It analyses vulnerabilities as well as potentials for and limits of nature and human society for climate change adaptation.

[Global Update Report \(interim\): Agriculture, Forestry and Fisheries in the Nationally Determined Contributions | FAO | 2021](#)

This report provides an update on the Nationally Determined Contributions' (NDC) uptake of coverage and quality of mitigation and adaptation measures in the agriculture, forestry, and fisheries sectors.

[Sustainable Agri-Food Systems: A World without Hunger | BMZ | 2021](#)

The core area strategy of the Federal Ministry for Economic Cooperation and Development has the objective to end hunger worldwide by transforming agri-food systems. The three areas of intervention Food and Nutrition Security, Rural Development and Agriculture complement one another.

[Climate Change and Land: Summary for Policymakers | IPCC | 2019](#)

This IPCC Special Report elaborates on greenhouse gas fluxes in terrestrial ecosystems and the interdependency of land use and climate change. It addresses sustainable land management and the potential of adaptation and mitigation options to combat desertification and land degradation for enhanced food security.

## Reference documents of the UNFCCC

[Introduction to Land Use | UNFCCC | 2023](#)

This website highlights the role of land for the mitigation of and adaptation to climate change, as well as the importance of the "Agriculture, Forestry and Other Land Use (AFOLU)" sector for the emission of greenhouse gases. Further, it provides an overview of progresses at UNFCCC level related to land use.

[Issues related to agriculture and food security | UNFCCC](#)

This website provides an overview and outlook on different processes about the topic of agriculture and food security that take place at UNFCCC level.

[Sharm el-Sheikh Joint work on implementation of climate action on agriculture and food security | UNFCCC | 2022](#)

This document presents the informal note concluded at COP28 under the Sharm el-Sheikh Joint work on implementation of climate action on agriculture and food security. The workstream builds on the recognition of the fundamental priority of safeguarding food security and ending hunger, and the vulnerabilities of food production systems to the adverse impacts of climate change in the Paris Agreement. The Joint Work is the successor of the [Koronivia joint work on agriculture \(KJWA\)](#).

[Adaptation - Under the Frameworks of the CBD, the UNCCD and the UNFCCC | Joint Liaison Group of the Rio Conventions | 2008](#)

A Joint Liaison Group between the secretariats of the CBD, UNCCD and UNFCCC, established in 2001 aiming to enhance coordination between the three Conventions. This information note is the first step to strengthen collaboration linking climate change adaptation with combating desertification and conserving biodiversity.

## Tools, platforms & databases

[CRISP: Climate Risk Planning & Managing Tool for Development Programmes in Agri-Food Systems | CGIAR, EURAC & GIZ | 2023](#)

The interactive web-based tool helps mainstreaming climate risk considerations into projects and policies in the agriculture and food sector. It displays impact chains of climate risks within specific agricultural systems and suggests relevant adaptation options based on an extensive scientific knowledge base.

[Climate Change Adaptation and Mitigation in Agri-Food Systems | GIZ | 2023](#)

The Compendium is a comprehensive resource listing different tools, e.g. for Climate Risk Assessment and Greenhouse Gas Assessment. It helps users to find the most relevant tool to assess climate risks for rural development and agriculture and food systems. The compendium is complemented by the interactive [Product Landscape](#) which provides a visual overview on the tools and additional resources.

[Climate Risk Sourcebook | GIZ | 2023](#)

The Sourcebook provides a conceptual framework for a comprehensive Climate Risk Assessment (CRA) combined with modular instructions. It is divided in eight modules on how a CRA can be conducted. Rural development increasingly depends on solid CRA as rural areas are particularly vulnerable to the impacts of climate change.

[Adaptation Community | BMZ, BMUV](#)

Adaptation Community is a website providing different resources, including publications, trainings, and online sessions, regarding climate change adaptation. The topics are ranging from Ecosystem-based Adaptation to Climate Services and many more.

[Agriculture Adaptation Atlas | CGIAR](#)

The Agriculture Adaptation Atlas maps climate risks and solutions, while zooming in on climate hazards, detecting the exposure magnitude, and identifying local abilities for farmer resilience.

[Climate & Disaster Risk Screening Tools | World Bank](#)

The tool provides a systematic way to flag potential risks for projects in the agricultural sector. The website provides an in-depth assessment, including a detailed evaluation of current and future climate and disaster risks, as well as a rapid assessment. *Registration is needed to access the website.*

[Climate Change Data | Climate Watch](#)

The Climate Watch interactive chart displays GHG emissions from agriculture and other economic sectors by country and shows the development of top emitters over time.

[Climate Change Knowledge Hub | FAO](#)

The hub gathers knowledge and resources on climate change in the agriculture and land use sectors. Through interactive features connecting with peers, experts, and providers of capacity building is possible. The knowledge hub offers data, learning materials and activities, guidelines, policy advice and tools.

[Naturebase | Nature4Climate](#)

Naturebase brings together science-based data on nature-based pathways to mitigate climate change across every region of the planet, combining them with the latest information on policy frameworks, finance schemes, feasibility considerations, and case studies.

[Nature-Based Solutions Database | Equator Initiative](#)

The Equator Initiative is an interactive database of solutions which informs about how local communities and indigenous peoples around the world are making the achievement of the UN SDGs possible through nature-based actions, focusing i.a. on climate justice in rural communities.

[Nature-based Solutions Evidence Tool | Nature-based Solutions Initiative](#)

The Nature-based Solutions Evidence Platform is an interactive map linking nature-based solutions with different ecosystem types, to assess their ecological and social outcomes.

[Solutions for a healthy planet | PANORAMA](#)

The PANORAMA platform is a global knowledge exchange initiative where tested and replicable solutions for biodiversity conservation and sustainability concerns are shared. It provides access to more than a thousand examples worldwide.

## Thematic highlights

### Transformation of agriculture and food systems

[Documentation of the United Nations Food Systems Summit 2023 | UN | 2023](#)

This website lists important outcomes of the UNFSS +2 Stocktaking Moment. It provides access to background documents and statements about the state of food systems, including a progress report on food systems transformation and a call to action to accelerate the process.

[Current Conditions & Policy Frameworks of Agri-Food Systems Transformation | TMG | 2023](#)

This document is the first of a series, which includes four papers that are summarised in [this report](#). It discusses the transformation of agri-food systems in the wake of different crises, including Climate, Covid, Conflict and Costs (4C) and their interaction. A general overview of the international policy landscape is provided, and a focus is put on synergies of the three Rio Conventions.

[Transforming Food Systems Under Climate Change through Innovation | Campbell, Bruce et al. | 2023](#)

This book elaborates why a food system transformation is needed. It discusses ways to achieve change and the role of research in this process while focusing on necessary changes in food systems in the context of climate change and other urgent socio-economic challenges.

[Global food policy report: Climate change and food systems | IFPRI | 2022](#)

This report illustrates the nexus between climate change and food systems. It touches upon different aspects that contribute to a sustainable food systems transformation, incl. repurposing agricultural support, climate finance, landscape governance, change in diets and food value chains. Finally, it illustrates regional developments concerning food systems for every world region.

[The future of food and agriculture – Drivers and triggers for transformation | FAO | 2022](#)

This report aims at inspiring transformation of agriculture and food systems towards a sustainable, resilient, and inclusive future. It describes 18 drivers and alternative scenarios, as well as challenges, triggers, and strategic policy options for sustainable agriculture and food systems.

[A Long Food Movement: Transforming Food Systems by 2045 | iPES FOOD | 2021](#)

This report outlines two different scenarios for the future of food systems by 2045: the 'business-as-usual' food system and the 'long food movement', which embraces civil society as driving force for the transformation of food systems.

[Food Systems at Risk – Transformative Adaptation for Long-Term Food Security | WRI | 2021](#)

Reduced productivity and food security are consequences of climate change that will intensify over the coming decades. To protect rural livelihoods, the report explores the benefits of long-term, systemic, and transformative approaches to adaptation.

[Actions to Transform Food Systems Under Climate Change | CGIAR | 2020](#)

This article discusses the urgent need for transformative action in the food system to mitigate and adapt to climate change. It identifies four high-priority actions that must be taken to achieve this transformation.

[Rethinking Land in the Anthropocene: from Separation to Integration | WBGU | 2020](#)

This report carves out five governance strategies illustrating ways to overcome competition between rival claims to the use of land. It makes clear that we need a fundamental change in the way we treat land to limit climate change, reverse biodiversity loss, and create sustainable food systems.

[Systemic-Challenges-Systemic-Responses | TMG | 2020](#)

The working paper explores the contribution of agroecology to innovative, systemic, and transformative climate change adaptation responses. It provides concrete examples of such adaptation approaches describing the results from agroecological initiatives in the Philippines and India.

[CCAFS WP No.271 - Local to global policy as a catalyst for change | CGIAR | 2019](#)

This working paper discusses how policy can bring transformative change for food systems to become sustainable, resilient, climate smart, and inclusive, while delivering affordable, culturally appropriate, and healthy diets for all.

## Climate change adaptation

[Adaptation Gap Report | UNEP | 2023](#)

The annual Adaptation Gap Report states progress in planning, financing, and implementation of adaptation actions. It finds that adaptation finance flows are declining while adaptation finance needs of developing countries remain high.

[State of Climate Action | WRI | 2023](#)

The report analyses global progress in limiting global warming to 1.5°C and states that recent climate action is insufficient in pace and scope to meet the 1.5°C-target. It suggests ways to accelerate progress and close the gap in climate action.

[Learning Briefs on Climate Services | GIZ | 2023 \(find the links at the bottom of the website under “climate change and rural development”\)](#)

The three learning briefs illustrate (i) [the potential of climate services for livestock production in smallholder farming systems](#), (ii) [ways to scale Participatory Integrated Climate Services for Agriculture \(PICSA\)](#) and (iii) [the potential of using radio as a communication channel for climate services](#).

[State and Trends in Adaptation Report 2022 | Global Center on Adaptation | 2022](#)

This report presents the state in adaptation for Africa. Based on in-depth analyses and various case studies, innovative adaptation and resilience approaches, new solutions, effective

regulatory and legal instruments, and recommended actions are identified.

[Climate Risk Management | GIZ | 2021](#)

This publication describes a Climate Risk Management framework developed by GIZ. The risk-based, iterative approach to manage climate-related risks takes into consideration social, economic, non-economic, institutional, biophysical, and environmental aspects.

[Integrating slow onset processes into climate risk management | GIZ | 2021](#)

This working paper presents a climate risk management framework for understanding risk and generating resilience to slow-onset processes and related extreme weather events. It outlines definitions, key challenges, and opportunities in this regard.

[Climate Change and Labor in sub-Saharan Africa | SNRD Africa | 2020](#)

This publication informs about the impacts that climate change has on labor productivity, employment, and labor mobility worldwide – with a focus on Sub-Saharan Africa. The paper calls for better informed policy responses and development planning regarding climate adaptation and mitigation measures.

[Agricultural risk management practices and lessons learned for development | PARM | 2017](#)

This publication defines key pillars for successful implementation of agriculture risk management and presents promising case studies. Based on the outcomes of a workshop and the analysis of ten case studies, it aims at improving strategies to cope with agricultural risks.

[AGRICA publications and policy briefs | PIK](#)

Conducted on behalf of the BMZ, this website entails climate risk analyses for adaptation planning in African countries. It includes climate risk profiles as well as climate risk analyses for adaptation planning in the agricultural sector for several countries in sub-Saharan Africa.

## Nature-based Solutions/ Ecosystem-based Adaptation

[Agroecology: Making Ecosystem-based Adaptation Work in Agricultural Landscapes | GIZ | 2023](#)

This report outlines the opportunities of blending Ecosystem-based Adaptation (EbA) with agroecology for the transformation of food systems in a systemic and climate resilient way. With a Five-Step-Approach it presents a comprehensive method to merge both approaches for country-level implementation.

[State of Finance for Nature: The Big Nature Turnaround – Repurposing \\$7 trillion to combat nature loss | UNEP | 2023](#)

This annual report observes finance flows to Nature-based Solutions (NbS) and compares them to finance needs to fully utilize NbS' potential for addressing climate, biodiversity, and degradation challenges, i.a. in rural areas.

[Five Key Messages on How to Implement Agroecology as a Systemic Adaptation Response | GIZ | 2022](#)

This policy brief outlines five key messages for decision-makers on how to strengthen agroecology as an EbA approach in the agricultural sector.

[The Land Gap Report | Dooley, K. et al. | 2022](#)

This report analyses pledges for climate mitigation which rely on land-based carbon dioxide removals. It problematizes the unrealistic amount of such removals pledged by mainly high-income, major emitting countries and private actors. According to the update 2023 this trend risks the achievement of the Paris goals.

[Land Gap Report Briefing Note – 2023 Update | Self et al. | 2023](#)

[Agroecology and climate change rapid evidence review: Performance of agroecological approaches in low- and middle- income countries | CGIAR | 2021](#)

The aim of this review is to evaluate (i) the effects of agroecological methods on mitigating and adapting to climate change in low- and middle-income countries, and (ii) the strategies and circumstances that promote the widespread adoption of agroecology.

[The contributions of agroecological approaches to realizing climate-resilient agriculture | Sinclair, F. et al. | 2019](#)

The publication demonstrates how agroecology can enhance adaptation in the face of climate change. It discusses benefits for smallholder livelihoods and addresses challenges for the implementation, as well as opportunities to scale up the adoption of agroecological approaches.

## Pastoralism

[Climate Resilience – What can we learn from Pastoral Systems in Africa’s Drylands | GIZ | 2022](#)

This publication gives an insight into the pastoral systems in Africa's Drylands in the face of climate change. It highlights the benefits of pastoralism on agroecosystems and rural communities, along with ways to strengthen pastoralist resilience.

[Pastoralism and Resilience of Food Production in the Face of Climate Change | GIZ | 2022](#)

This technical paper's purpose is to highlight the lessons that pastoral systems have taught us about coping with climate change, particularly the difficulty of achieving global resilience to climate variability without relying on unsustainable energy sources.

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