

Lessons from the field: Case studies to advance research on climate change adaptation strategies and their impact on public health

NIH Fogarty International Center – Center for Global Health Studies

Invitation to develop case studies on the impact of climate change adaptation strategies on public health

Submission deadline extended to November 13, 2023

Summary

As part of the [NIH Climate Change and Health Initiative](#) and in collaboration with partner NIH Institutes and Centers, the [Center for Global Health Studies \(CGHS\)](#) of the Fogarty International Center (FIC) within the U.S. National Institutes of Health (NIH) is inviting submissions for a collection of case studies on adaptation strategies that respond to the impact of climate change on public health. For the purposes of this call, adaptation is broadly defined as the process of adjustment to actual and potential climate-led impacts. A case study approach is particularly useful when there is a need to explore in-depth information of a topic or event, identify gaps in current literature, and lessons learnt in multiple settings [1]. This collection is intended to shed light on current knowledge and the potential for research to increase our understanding of climate change adaptation and its impact on health. For instance, research is needed to:

- 1) Increase our knowledge of evidence-based adaptation strategies that impact health;
- 2) Support the use of innovative research approaches which incorporate quantitative and/or qualitative assessments to better understand the impact of climate adaptation strategies on health outcomes;
- 3) Increase our understanding of the impacts of climate change adaptation on health among populations disproportionately impacted by climate change, including those in low- and middle-income countries (LMICs) and under-resourced and marginalized populations globally;
- 4) Encourage use of implementation science methodologies to translate adaptation strategies promote the uptake, scale-up, and spread across different contexts; and
- 5) Increase opportunities to strengthen climate and health research capacity and support scholars from LMICs to study climate adaptation and health and publish their results.

This project will contribute to building a solutions-oriented evidence base focused on the threats to health from global climate change. The overarching goal of this collection is to identify and understand current or historical climate adaptation strategies that address deteriorating health outcomes due to climate-led stressors, thereby contributing to the scientific evidence base on the topic. Accordingly, the collection will help identify research priorities and future research needs in this area.

Researchers, practitioners, and implementers from any country, especially LMICs, are encouraged to submit case study proposals by **November 13, 2023**. The final collection of cases will include a variety of adaptation strategies focused on diverse health outcomes across different geographical areas, with special attention to adaptation strategies that focus on reducing the impacts of climate change on health among under-resourced and marginalized populations. A Steering Committee of experts in the field and CGHS staff will select 8-12 proposals to be developed into full case studies. CGHS will engage with leading climate and health-focused

journals to explore the potential of publishing the selected case studies. Limited financial support may be available to support the development of the case studies (further details are included below).

Background

Climate change has exacerbated health risks and adverse health outcomes that vary temporally and spatially. Existing evidence confirms an unprecedented rise in the incidence of climate-led stressors including, but not limited to, increased ambient temperatures, extreme and erratic precipitation, extreme weather events, sea level rise, wildfires, and desertification. These stressors have exacerbated exposure to conditions such as non-optimal temperatures (especially heat), reduced air quality, food and water systems disruption, migration and internal displacements, resource conflicts, disrupted healthcare systems, and changes in infectious agents. This has led to worsening public health outcomes such as premature mortality, heat-related illnesses, exacerbation of non-communicable diseases, increased vector-borne diseases, poor maternal and child health outcomes, malnutrition, and mental health consequences [2]. Health inequities, primarily a function of social, political, economic, behavioral, and institutional factors, have further deteriorated due to climate change. There exists a broad consensus that adverse consequences for health are already occurring, with the greatest impacts affecting LMICs and communities who have been historically marginalized in places all around the globe. These climate shifts will continue to worsen in many places for decades to come. This calls for urgent attention to identify effective adaptation practices that can mitigate public health risks and consequences due to climate change in multiple geographical areas.

Adaptation and health outcomes

Adaptation is broadly defined by the Intergovernmental Panel on Climate Change (IPCC) as the process of adjustment to actual and potential climate-led impacts [3]. Examples of adaptation strategies include, but are not limited to, heat-resistant crops, behavior change, effective climate communication and awareness building, green infrastructure, wetland restoration, coastal land preservation, health system resilience (both structural and functional), health workforce capacity-building, and microfinancing [4, 5]. While adaptation may not reduce the larger climate-led stressors, they tend to minimize the exposure pathways, thereby abating the adverse consequences of climate change on human and natural systems.

While many climate adaptation strategies are being developed and deployed globally, few are designed to directly address health outcomes. The selected case studies will offer new insights on: 1) adaptation strategies that appear particularly promising with respect to impact on health; 2) theoretical and methodological challenges in studying the impact of climate adaptation on health; 3) innovative research approaches and methods that can be deployed to study climate adaptation and health; 4) strategies to understand how and why adaptation interventions impact health; and 5) implementation science approaches to enable translation of adaptation strategies across different contexts, geographies, and areas of health.

Completed case studies will be made widely available to the public and will be disseminated to key stakeholders including academic researchers, funders, policymakers, and communities most impacted by climate change.

Objectives

The overall objective of this project is to identify and understand current or historical adaptation responses that can be better harnessed to address deteriorating health outcomes using relevant and appropriate research approaches and methodologies. The specific aims of this collection of cases are to:

- 1) Center the importance of examining the health as a critical outcome in the larger climate adaptation research and implementation agenda.

- 2) Encourage scholars and funders to conduct and support more high-quality adaptation research as it relates to climate and health, especially in LMICs that are disproportionately impacted by climate change.
- 3) Review current adaptation strategies to improve our understanding of adaptive capacity of populations most at risk of climate change impacts.
- 4) Identify how and when the impact of climate-led adaptation responses on public health outcomes has been or can be assessed through research.

Submissions may utilize diverse approaches and methods, including, but not limited to, use of longitudinal data, a counterfactual and/or comparison area, qualitative research, community engaged/community based participatory research, and/or implementation science. Please note that this collection does not support primary data collection or human subjects research. Applicants may conduct analyses on previously collected data or previously completed research. They may also conduct interviews or focus group interviews as long as those activities do not constitute primary data collection or human subjects research.

Eligibility

This call is open to researchers, practitioners, and implementers from any country and applicants from LMICs (as defined by the World Bank) are especially encouraged to submit a proposal. Studies focusing on an LMIC must include an author from that country or region. Submissions are welcome from high-income countries (HICs), especially those that focus on marginalized populations and from authors underrepresented in biomedical and behavioral sciences. However, the collection will prioritize submissions focused on LMIC adaptations and climate health threats, written by authors from those countries and regions.

This call is not intended to support original research. Rather, applicants are invited to develop analytical case studies of climate change adaptation strategies that have already been deployed. However, strong case studies analyzing ongoing adaptation strategies may be considered if the deployment will be completed prior to the final submission deadline. Case studies may analyze adaptation strategies deployed by the applicants themselves or by carefully studying adaptation strategies deployed by others.

What to submit

The application process involves two stages of submission. In the **first stage**, we welcome the submission of an **application proposal** as a Microsoft Word or PDF document (2 pages maximum, excluding the appendix). The application proposal must include the following components:

- Background/Context
 - Description of the geographical area where the adaptation strategy was deployed, and the demography of the populations studied.
- Adaptation Strategy
 - Description of the adaptation strategy and how it was implemented.
 - Justification for the adaptation strategy, including any evidence to support its efficacy, how it is likely to address the problem under investigation, why it was chosen, etc.
 - Discussion of climate-led stressors and exposure pathways related to the adaptation strategy.
 - Discussion of the relevant health outcomes and how they were assessed.
- Proposed Analysis
 - Description of the additional analyses to be undertaken by the submitting team to improve assessment of the health outcomes and or other variables associated with the adaptation strategy.

- Discussion of how the additional analysis this case study will contribute to understanding the scientific landscape, identifying gaps, and/or elucidating future research opportunities in the field.
- Source of the data to be used to construct the case study.
- Appendix 1 – Background and expertise of the authors contributing to the case study (1 paragraph for each author).
- Appendix 2 – CV (max. 2 pages) of the contributing authors.

In the **second stage**, selected application proposals will be invited to submit a **complete case study**. A draft framework for the case study is discussed below.

Case study format

Applicants selected to develop a complete case study will follow the format described below. The required components ensure consistency across cases, but the structure is designed to be flexible. Specific components of the framework may not apply to each case, depending on the scope and context. The format is subject to change based on the requirements of the journal selected for publication.

1. *Abstract*

- The abstract should include the following: background/context, approach, discussion, and lessons learned.

2. *Background/Context*

- Geographical area and the demography of target populations.
- Climate stressors experienced by the population and the exposure pathways.
- Adaptation strategy, how it was chosen, timeframe of implementation, and how it was implemented, (e.g., justification, multi-level and multi-sectoral adaptation approaches, level of adaptation taking place, sectors engaged, etc.).
- Summary of current health condition of the population with reference to the health outcomes of interest.
- Discuss whether and how communities were involved in the planning and implementation of the adaptation and/or their response to it.

3. *Approach*

- Discuss the study design, methods, measurements, and the justification of the selected approach to assessing the impact of adaptation responses on health outcomes for the case study.

4. *Discussion*

- Discuss how the adaptation responses addressed the key health risks.
- Examine the role of multiple social, economic, behavioral, and institutional drivers in the community and how they interact with climate stressors, exposure pathways, and health outcomes.
- Examine the unintended consequences of adaptation responses on health outcomes (i.e., maladaptation).
- Discussion of how this case study contributes to understanding the scientific landscape, identifying gaps, and/or elucidating future research opportunities in the field.
- Examine how the adaptation strategies discussed are relevant/applicable to different countries and contexts.

5. *Lessons learned*

- Share key lessons learned by the team throughout the process.
- Discuss key challenges in developing the case study to examine the impact of climate change adaptation on health outcomes.

- Share insights on scientific workforce capacity needed to conduct adaptation research.
- Future directions including key remaining challenges/unmet needs.

Selection process and criteria

Applications will be distributed to the Steering Committee and reviewed based on the following criteria:

1. Scientific and public health relevance of the case study.
2. Innovative and scientific approach used to develop the case study.
3. Case study location (preference will be given to locations that are underrepresented in the literature, e.g., LMICs).
4. Extent to which the proposal discusses specific health impacts associated with the adaptation strategy.
5. Focus on underrepresented, under-resourced, marginalized, and at-risk populations.
6. Extent to which the case study discusses a specific climate change adaptation measure(s) or strategy addressing a specific climate hazard.
7. Relevance of case study to future research and priority areas within the climate change and health landscape.
8. Diversity of the submitting authors in terms of geographic locations, interdisciplinarity of teams, areas of expertise (preference will be given to authors under-represented in the field, e.g., authors from LMICs).

The Steering Committee and CGHS staff will ultimately select 8-12 application proposals to be developed into full case studies. This selection will be made with the goal of creating a diverse collection based on the geographic location of the case study, the geographic locations of authors and their institutions, adaptation strategies described, relevant climate stressors and exposure pathways, and health outcomes assessed.

Financial support

Updated September 20, 2023

Limited financial support is available for costs associated with developing and writing a case study for this project. Eligible costs include part-time salary support for a research assistant (e.g., an intern, student, or analyst) and/or limited travel/meeting expenses. Funds may **NOT** be used for primary research or for the development, deployment, or testing of an adaptation strategy. Use of these funds is subject to NIH approval. Maximum costs that can be requested per case study are \$15,000, inclusive of indirect costs. All publication costs, including open access fees, will be separately covered by NIH. Questions regarding how these funds can be used should be emailed to ficclimatehealthcasestudies@mail.nih.gov.

Use and dissemination

CGHS will work with a leading climate and health-focused, open-access and peer-reviewed journal(s) to explore publication of these case studies. If accepted for publication, the authors will work with CGHS to adjust the structure of the case studies to suit the journal's format. All publication costs, including open access fees, will be separately covered by NIH.

The final collection of cases may also be used as a compilation of white papers, policy briefs, or education tools. There may be future opportunities to present the case study as part of a webinar series or at relevant conferences.

Proposed timeline

- Call for case studies issued: August 14, 2023
- Application proposal due: November 13, 2023
- Steering Committee review and response to application proposals: January 2024
- Draft of complete case studies due to CGHS: May 2024
- Review by Steering Committee: June 2024
- Final draft of case study submitted to journal: August 2024

This is a tentative timeline and is subject to change.

Instructions for submission

Please submit your proposal in two parts:

- 1) Complete an online form with basic information about the submitting team and the case study at this link: <https://forms.office.com/g/10r9wRQMjJ>
- 2) Send an email to FICClimateHealthCaseStudies@mail.nih.gov with the lead submitter's surname and the title of the application proposal in the subject of the email (e.g., Einstein_Theory of Relativity). Attach one file that includes your application proposal and the Appendix materials (e.g., CV for each team member) as an attached Microsoft Word or PDF document.

By submitting an application, an applicant affirms their ability and commitment to completing a case study within the specified timeline. They affirm the inclusion of their case study in any and all resulting deliverables, whether online or in print.

Inquiries

Please send questions by email to FICClimateHealthCaseStudies@mail.nih.gov.

References

1. Song, J.W. and K.C. Chung, *Observational Studies: Cohort and Case-Control Studies*. Plastic and reconstructive surgery, 2010. **126**(6): p. 2234-2242.
2. Hess, J.J., et al., *An evidence-based public health approach to climate change adaptation*. Environmental Health Perspectives, 2014. **122**(11): p. 1177-1186.
3. Sharma, J. and N.H. Ravindranath, *Applying IPCC 2014 framework for hazard-specific vulnerability assessment under climate change*. Environmental Research Communications, 2019. **1**(5): p. 051004.
4. Scheelbeek, P.F., et al., *The effects on public health of climate change adaptation responses: a systematic review of evidence from low-and middle-income countries*. Environmental Research Letters, 2021. **16**(7): p. 073001.
5. Bryan, E., et al., *Can agriculture support climate change adaptation, greenhouse gas mitigation and rural livelihoods? insights from Kenya*. Climatic Change, 2013. **118**(2): p. 151-165.