



Terms of Reference

Extended deadline!

Conducting background research on an early warning system for tipping points in the climate system

1. Background

The climate crisis is already a reality: Recent reports of the Intergovernmental Panel on Climate Change show how extreme weather events and slow onset processes are already becoming a risk and a danger to human security: almost half of the world's population (3.3-3.6 billion people) already live in contexts that are highly vulnerable to climate change impacts. But as the climate crisis progresses, medium- and long-term climate change impacts of a completely different magnitude are emerging: If thresholds within individual ecosystems, flow systems, or ice bodies are exceeded by the unchecked rise in temperature and other deleterious impacts of human activity in the climate system, they may "tip" out of their original state. Irreversible, often mutually reinforcing and accelerating developments are set in motion, which can have massive consequences often for entire continents or even globally. Information presented in the IPCC- Special Reports (2018 and 2019) suggests that major tipping points could be crossed as early as between 1 and 2 °C of global warming. That means, not even a complete - and now unlikely - achievement of the Paris climate targets (well below 2° and preferably below 1.5°C) would offer absolute security by any means.

However, a systematic approach that translates scientific knowledge (with all the intrinsic uncertainty of these highly complex systems) into concrete recommendations and targeted calls for action for policy makers in affected countries and regions as well as the international community is still lacking. An early warning system in the form of a regular report can fill this gap.

2. Purpose, Objectives and Use

The purpose of the research is to provide a sound and comprehensive overview of the scientific and policy debate around tipping points in the climate system. The results of the research report will lay the ground for further publications by Germanwatch (potentially with partners) on particular focus topics touched upon in the report.

The contractor will grant the exclusive and unrestrained right of use for the work and its parts to Germanwatch. This legal right of use compasses all known and all currently not yet known types of use. Germanwatch will be authorised to assign its legal right of use or to grant simple rights of use to third parties. Germanwatch will be eligible for editing and redesigning the work as well as any of its parts.

3. Roles

The expert conducts the research report in close cooperation with Germanwatch e.V. (Kaiserstraße 201, 53111 Bonn). Germanwatch can be contacted to resolve technical and content questions of conducting the research.

Information provided by Germanwatch:

- Germanwatch Briefing Paper
- Recommendation of experts

4. Scope of Work

The research report (around 30 pages) should cover:

1. Status of research on different tipping points

Focus should be put on tipping points in bold

- 1. Collapse of West Antarctic ice sheet**
- 2. Loss of Greenland ice sheet**
3. Melting of Arctic Sea Ice
- 4. Partial Collapse in East Antarctica**
5. Melting of the arctic Permafrost
6. Methane Emissions from the Ocean
7. Atlantic thermohaline circulation (THC)
8. Disruption of Southern Oscillation and strengthening of El Niño (ENSO)
9. Slowdown or Stagnation of Planetary Waves
10. West African monsoon
- 11. Indian summer monsoon**
- 12. Transformation of the Amazon rainforest**
13. Retreat of northern boreal forests
- 14. Destruction of Coral Reefs**
15. Weakening of the Marine Carbon Pump

- a) What is the status quo of natural sciences research regarding the chosen tipping points and which research institutions/individuals are leading in this regard (worldwide, especially also in the Global South)?
- b) What is the status quo of research regarding global and region-specific findings on (potential) physical and socio-economic impacts of crossing specific tipping points and which research institutions/persons are leading on this (worldwide, especially also in the Global South)?
- c) What are concrete recommendations for action a) to prevent the relevant tipping point from being crossed/ or to reduce speed or scale of the damage after crossing the tipping point?
- d) What studies focus on the human security risk / socio economic damage as a consequence of crossing the relevant tipping points?

- e) What studies focus on necessary action to mitigate the consequences/to deal with the consequences and which research institutions/think tanks are working/leading on this (worldwide, especially in the Global South)?
- f) Are there channels to systematically inform policy makers about scientific findings or where is relevant research taken into account in the policy context? E.g. in national climate assessments or similar.
- g) Which open research questions are stated or stand out in particular - on the one hand with regard to tipping points, on the other hand with regard to recommendations for action? What are the gaps?

2. Detailed overview of the institutional landscape:

- a) Which institutions deal with issues around climate and security? Which concept of security are they using: human security /conflict? Who analyses socio-economic risks of tipping points? Which institutions focus on climate/disaster risk management (do they relate work to tipping points)? Or on migration as a consequence of crossing tipping points (worldwide, especially also in the Global South) on the global, regional and – potentially – on a national level? **(can be captured in a tabular format)**
- b) Which political, security actors or regulators at global/regional/possibly national level should receive regular information on the status quo of research on tipping points and recommendations for action derived from it on the global, regional and – potentially – on a national level (worldwide, not neglecting the Global South)? **(can be captured in a tabular format)**
- c) What institutions/actors can play an important role to implement an early warning system (worldwide, not neglecting in the Global South)?

5. Methodology

Research should be conducted via

- desktop research
- Interviews (about 5-7)

Please discuss list of experts you plan to consult with Germanwatch in advance

The expert is not expected to conduct in-person interviews. If the Covid-situation allows, in-person interviews would be possible only under safe conditions.

6. Process and tentative timeline

Milestone/Meeting	Date
1. Call for tender to potential consultants with request for proposal (<i>extension</i>)	27.06.-05.07.22
2. Selection and contracting	06.07.-07.07.22

3. Start of consultancy	08.07.2022
4. Kick-off with Germanwatch (clarifying open questions, confirming suggested work plan)	11.07.2022
5. Preparation of the study incl. desk study and interviews and preparation of the report <ul style="list-style-type: none"> ● annotated outline and interview questionnaire to be discussed with Germanwatch 	12.07.-14.09.2022
6. Short progress report and status quo meeting	15.08.2022
7. Submission of report and discussion with Germanwatch	14.09.2022

7. Outputs and Deliverables

The research report should comprise around 30 pages (excl. additional data material) and be written in English. It should contain answers of the questions posed under “scope of work”.

8. Expert Profile

Characteristics of the expert:

- a professional, result-orientated, well-structured, giving a critical assessment of the study context/focus
- uses a focused and concise language, bringing important findings to a point, has excellent communication skills

The expert has substantial working experience

- technical expertise
 - profound knowledge of the concept of tipping points in the climate system, climate and security, climate impacts, climate risk management, climate change adaptation or L&D
 - knowledge of related political processes on the national and international level e.g. work of the UN Security Council, UNFCCC, UNISDR, etc.
- methodological expertise e.g. of conducting focused interviews, preparing questionnaires
- very good command in English

Germanwatch is looking for an expert to carry out the above activities within the proposed timeline.

Interested applicants are encouraged to submit their offer including:

- expression of interest

- CV incl. references to prove the required substantial work experience (see paragraph "expert profile")
- financial offer in Euro (separate disclosure of applicable taxes)

The contract will be awarded to the most economically advantageous tender, i.e. the tender offering the best price-quality ratio. The evaluation of offers will be based on: 60% required work experience, 25% price, 15% overall impression of the offer (based on following criteria: professional, result-orientated, well-structured, focused and concise language).

Deadline for applying is 05th of July 2022 by 23:59 GMT+2 and offers should be sent to: Vera Künzel (kuenzel@germanwatch.org), with copy to Beate Runze (runze@germanwath.org).