

Guidance note on how to use the database on comparison of climate risk assessment methods

1. Background

In 2013, the German federal Ministry for Economic Cooperation and Development (BMZ) commissioned GIZ with the project “Risk Assessment and Management for Adaptation to Climate Change (Loss & Damage)”. The project aims to generate tried-and-tested guidelines, innovative concepts and practical instruments for climate risk assessment and management for application by German development cooperation and its international partners in the UNFCCC process. In 2018, the Climate Risk CoP (Community of Practice) was launched with the aim of “promoting quality, efficiency, and innovation of state-of-the-art and practically useful climate vulnerability and risk assessment via the creation and maintenance of a global workspace for exchange and innovation on these topics.”¹ GIZ Colleagues from different departments as well as those working in partner countries came together with experts from science, KfW and the consulting industry to discuss current challenges, new developments and opportunities in the field of climate risk assessments. In its commonly agreed workplan, the workstream 2 aims at a comparison of different existing methods for climate risk assessments. The GIZ global programme Loss & Damage took over the task to coordinate and initiate this work stream. Other members of the Climate Risk CoP contributed via provision of material (literature, comparison studies,) and commenting of the work in progress.

The comparison of different methods for climate risk assessments aims at giving an overview on an extensive number of existing methods and at highlighting relevant aspects. For those decision makers or project staff who seek to identify suitable climate risk assessment methods for their specific context, this work helps to navigate through the variety of existing methods. It shall be noted that the presented overview is, however, bound to the capacity of interpretation of the analysts who reviewed the available methods and their descriptions based on a fixed set of criteria (see next chapter for details). Following fixed criteria is an attempt to create a framework to make various different methods comparable. The degree of subjectivity, hereby, depends on multiple factors, such as the extent of detail in the method's description.

2. Methodology

The methodology is comprised of two main steps: the selection of the sample (2a) and the analysis in accordance to predefined categories and sub-categories (2b). In the following, the two steps will be explained in more detail including in-depth information on the process of developing the given set of criteria.

Prior to this, it seems worthwhile to define more precisely the understanding of what is considered to be a climate risk assessment as included in this database. According to a publication of OECD (2011)² in their working paper series, tools can be distinguished generally into 3 types: process guidance tools, data and information provision tools and knowledge-sharing tools (see also table 1 for illustration). While the aforementioned publication's focus is

¹ Source:

<https://gizonline.sharepoint.com/sites/beezy/groups/445/Pages/Blog/Climate%20Risk%20CoP%20-%20Concept%20Note%20%20Aims%20%26%20Scope.aspx> (access on 19.03.2020)

² Source: <https://www.oecd-ilibrary.org/docserver/5kg706918zvl-en.pdf?expires=1588000988&id=id&accname=guest&checksum=678662AF741A424FC7E362F25698D997> (access on 11.05.2020)

on different methods for climate risk assessments from a development cooperation's perspective, present database also covers tools and methods developed by the private sector as well as private public partnerships. Risk assessment is thereby and in coherence with the publication of OECD, understood as “a methodology to determine the nature and extent of risk by analysing potential hazards (current and/or] projected) and evaluating conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.” (OECD 2011). For this reason, tools assessing for example only the nature and extent of hazards have not been included in the database. Further on, also tools and methods which analyze different management options, evaluate them and show their limitations in terms of risks covered have been included as these aspects are estimated crucial in the context of Loss and Damage.

During the analysis attempts have been made to organize methods according to their focus on either the disaster risk reduction or the climate change adaptation “school of thought” as done earlier by Surminski et al (2012)³ for a specific number of L&D specific assessment methods. However, the attribution to either one of these schools of thought unveiled to be unambiguous as the range of methods covered in this analysis is much broader and doesn't focus on L&D solely.

a) Sample selection

Different sources have been used in order to identify a comprehensive overview on existing CRA methods as illustrated below. Four criteria have been applied in order to identify methods suitable for this analysis; only if all criteria are met, a method is taken into account:

1. A clear link to methods that take climate variability or climate change for the identification of risks / vulnerabilities into account
2. Availability of method description online
3. Availability of method description in English
4. Conformity with definition of ‘method’ in distinction to ‘framework’⁴

For the screening of project proposals which have been accepted by large climate funds (Adaptation Fund, Global Environmental Facility and Green Climate Fund) an external consultant was recruited whose results can be found [here](#). All other methods have been analysed by team members of the global programme “Risk Assessment and Management for Adaptation to Climate Change (Loss & Damage)”. The articles published in scientific journals have been purchased and made available for GIZ internal use [here](#). The first sample has been widened to a specific research of German key words with the results to be found [here](#). However, only those methods that fulfill all the four above mentioned criteria – including availability of an English method description – have been included in the analysis.

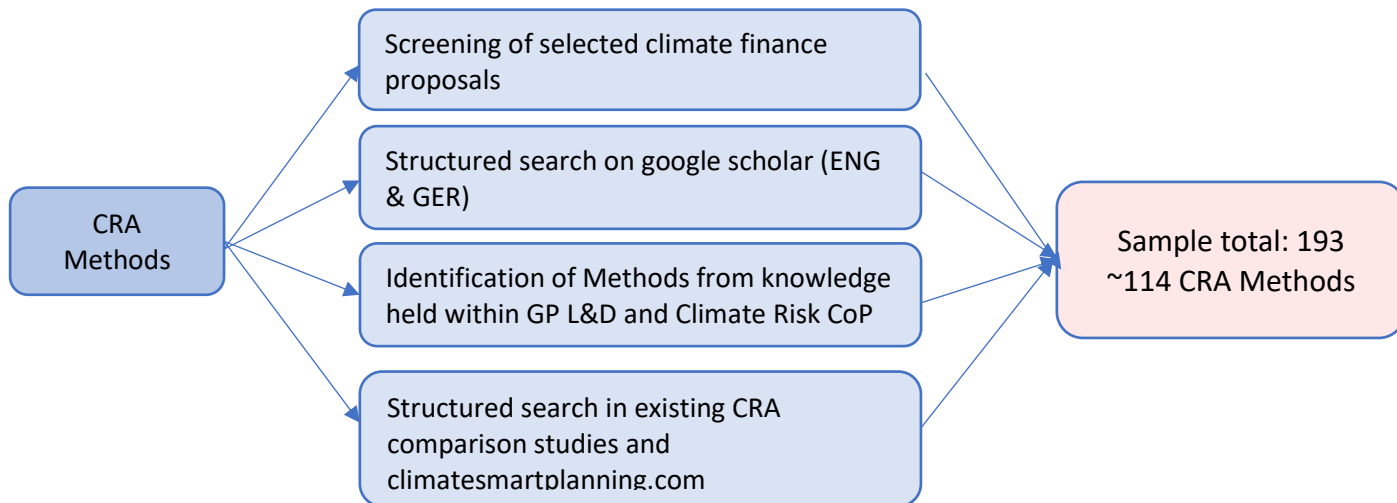
Throughout the process of analysis, the sample of CRA methodologies has been extended to over 192, partly through extended research and analyst's personal experience as well as via contacts of the Climate Risk CoP.

The distinction of ‘framework’ and ‘method’ was based on literature research as explained in annex II. For the majority of the methods included in the analysis, authors described the respective approach as ‘method’. In those cases when the analyst judged investigated ‘frameworks’ (respective to name given by author) as equivalent to the investigated methods in accordance with the definitions given in annex II, those frameworks were included in the analysis.

³ Source:

https://unfccc.int/files/adaptation/cancun_adaptation_framework/loss_and_damage/application/pdf/bac_kground_paper_full.pdf (access on 27.7.2020)

⁴ See annexe 2 for the definitions on which the distinction has been based



b) Analysis according to predefined categories and sub-categories

A set of criteria with according categories has been set up for the content analysis of the methods. A first set of criteria was designed by GP L&D and then presented, discussed and further developed at the CoP Climate Risk physical meeting in August 2019. Particular emphasis was put on criteria relevant to the L&D discourse, such as incorporation of non-economic losses and damages, interconnectedness of risks and coverage of the whole risk continuum. The results can be found in the Excel Sheet. An effort was made to follow the predefined categories as much as possible to facilitate filtering and research for future users of this database. Additional information was noted in open fields for remarks. In total, 33 categories were analysed as listed in Annex I.

3. Intended use

The database in its final form shall help decision makers to identify suitable methods according to their context and specific criteria. In a first step, it will be made available for GIZ colleagues which can use the provided *filtering functions* or the *search function* in order to identify methods corresponding to their field of interest. As indicated above, the database represents a content analysis and is partially based on subjective judgment. Lastly it shall be noted that this database does not intend to ‘evaluate’ the quality of the different methods or to establish a ranking. The investigation simply follows the objective of cataloguing existing methods in the context of climate risk management and providing the findings in a table based on established criteria.

4. Annexe I: criteria and categories of analysis

Organisational

- ID
- name
- organisation / author
- year of publishing
- language of method description
- format of assessment (app / guideline / paper based / web tool / other)
- est. cost to be conducted
- est. duration of assessment

- to be carried out by whom (consultants (climate experts) / government representatives / private individuals and firms / scientists & researcher / multiple actors / others (describe who))
- institutional scale of use (global / continental / national / regional / local & community / project level / multiple (please specify) / no information)
- assessment to be used by which target audience (state level decision makers / local decision makers / regional decision makers / private sector representatives & SME owners / private individuals & general public / media & communications / multiple actors / others (please specify) / no information)
- output (report / risk map / excel sheet / others (please specify))

Methodological

- geographic coverage
- private/public sector (private sector / public sector / both / none / no information)
- sectors covered (agricultural sector / humanitarian sector / financial sector / infrastructure & transport sector / energy sector / water sector / other sectors / not sector specific)
- method used (impact chains / quantitative model / scenario mapping / index development / mixed method approach / other)
- risk framework used (AR 5 / AR4 / broad risk mapping according to different definition / no explicit use of risk framework)
- risk components incorporated (hazard / exposure / vulnerability (differentiated according to AR4 and AR5 understanding) / risk / all / selected (please specify) / no information)
- type of climate hazard(s) considered in the assessment (flood / sea level rise / precipitation / multiple (please specify) / others (please specify))
- source of required data (primary (data has to be generated) / secondary (available data is used) / both / others (please specify))
- temporal scale (backward looking / current / forward looking / all / multiple / none / no information)
- participatory elements (yes / no / partly / no information)
- consideration of interconnectedness and - dependencies of risks (yes / no / partly / no information)
- Addressing uncertainty (yes / no / partly / no information)
- scope of assessment (please choose the "furthest one") (identification of risks = screening / assessment of impacts / identification of adaptation options = analysis / prioritization of adaptation options = options evaluation / identification of limits to adaptation / other)

Relevance for L&D

- economic/non-economic losses incorporated (economic / non-economic / both / none / no information)
- applicability for risk continuum (from EWE to SOE) (yes / no / partly / no information)

Applicability

- Applied in practice (yes / no / partly / no information)
- usefulness for political purposes/decision makers/finance proposals
 - If there are any indications, please enter here (eg.GCF; GEF; NAP's;...)
- Applied by whom?
- Link

5. Annexe II: Definition and Differences of Framework and Method

| | Framework | Method |
|------------------------------------|---|--|
| Definition | "A basic structure underlying a system, concept or text" ¹ e.g. conceptual or theoretical frameworks | "A particular procedure for accomplishing or approaching something especially a systematic or established one" ² e.g. quantitative, qualitative or mixed-methods (survey, interview, data analysis, ...) |
| Key points | <ul style="list-style-type: none"> • Loose and generic; can be applied to different scenarios, conditions • Based on set of theories, concepts and relationships • Not too detailed or rigid • Offers guidance and rationale/structure within study | <ul style="list-style-type: none"> • Constitutes a research tool and instrument with specific rules, procedures, which aid problem-solving • Replicable (possibility of triangulation) and established methods of research |
| Structure | Flexible | Prescriptive, according to procedural rules of method |
| Content | "What to do" | "What, when & how to do" |
| Consistency of findings | Low | High (e.g. triangulation) |
| Required knowledge | High | Medium to high |
| Applicability | Yes | Partially, depending on conditions, case etc. |
| Project implementation mode | More freedom in implementation, smaller projects with less defined issues. | Large-scale projects with specific situations, cases, data etc. |

References:

Creswell, J. (1998). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.

Green, E. H. (2013). Use of theoretical and conceptual frameworks in qualitative research. *Nurse Researcher*, 21, 34-38.

Latham, J. r. (2014). *The Research Canvas: A Framework for Designing and Aligning the "DNA" of Your Study* (E-book). Leadership Plus Design Ltd. Retrieved September 9, 2019 from https://www.drjohnlatham.com/wp-content/uploads/2018/10/Research_Canvas_2-1.pdf.