

Evaluation of GEF Support to Climate Information and Early Warning Systems

Approach Paper

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Abbreviations

AfDB	African Development Bank	SCCF	Special Climate Change Fund
CIEWS	climate information and early warning systems	SIDS	small island developing states
EWS	early warning systems	UNDP	United Nations Development Programme
GCA	Global Commission on Adaptation	UNEP	United Nations Environment Programme
GEF	Global Environment Facility	UNDRR	United Nations Office for Disaster Risk Reduction
IFRC	International Federation of the Red Cross	UNFCCC	United Nations Framework Convention on Climate Change
LDC	least developed country	WMO	World Meteorological Organization
LDCF	Least Developed Countries Fund		
MTF	multitrust fund		
MSP	medium-size project		
NAPA	National Adaptation Programme of Action		

Introduction

1. Climate information and early warning systems (CIEWS) are a vital part of reducing vulnerability to the impacts of climate change and building climate change resilience. Climate and weather information dissemination has become synonymous with early warning systems (EWS) for responding to the hazards and impacts caused by climate change. Given their interchangeability in interpretation, within projects and intervention activities, this evaluation includes both terms under the umbrella of CIEWS.
2. Globally, almost 80 percent of disaster events between 1970 and 2019, were hydrometeorological or climate-induced, with least developed countries (LDCs) and small island developing states (SIDS) being the most acutely affected (GCF 2022). The scaling-up of CIEWS combined with disaster risk reduction and management has been shown to reduce the number of deaths in areas affected by major natural disasters.¹ Their importance was recently highlighted by the Special Representative of the UN Secretary-General for Disaster Risk Reduction, Mami Mizutori's statement "early warning systems are one of the most effective risk reduction and climate adaptation methods for reducing disaster deaths and economic losses" (Mizutori 2023).
3. Investments in CIEWS have been consistently shown to have a strong benefit-to-cost ratio and the potential to save both lives and assets and as a result, are included by the Global Commission on Adaptation (GCA) as one of five priority areas. The financial savings of CIEWS has tended to reach at least ten times the cost of their investment (GCA 2019). The GCA found that investing \$1.8 trillion globally in the five priority areas from 2020 to 2030, with CIEWS being one of the priority areas, could generate \$7.1 trillion in total net benefits over a ten-year period (GCA 2019).
4. The importance of EWS has been reiterated in international disaster agendas and frameworks such as the Yokohama Strategy (1999), the Hyogo Framework for Action (2005), and the Sendai Framework for Disaster Risk Reduction (2015–2030). EWS jointly with climate information systems have increasingly gained attention, with the role of CIEWS being also emphasized within international climate agreements. Critically, the Paris Agreement (2015) on climate change, encourages parties to "strengthen scientific knowledge on climate, including research, systematic observation of the climate system and EWS, in a manner that informs climate services and supports decision-making" (UNFCCC 2015).
5. During the 27th Conference of Parties (COP27) to the United Nations Framework Convention on Climate Change (UNFCCC), the Early Warnings for All Action Plan was announced along with a \$3.1 billion plan to achieve early warning systems for all by 2027 (WMO 2022). This target was announced on World Meteorological Day, March 23, 2022, by the UN Secretary General's statement that by the year 2027, everyone on Earth should be protected by early warning systems against climate change and resulting extreme weather (UNCC 2022). The

¹ Cyclone Amphan in Bangladesh (2020); floods in Sri Lanka (2017); and droughts in Kenya (2010), among others.

2023–2027 five-year action plan sets out four pillars to be enacted under the lead of UN and international agencies: pillar 1–Disaster risk knowledge and management; pillar 2–Observations and forecasting; pillar 3–Warning dissemination and communication, and; pillar 4–Preparedness and response capabilities.

6. For CIEWS to be incorporated within country-priorities as an integral part of climate change resilience, strengthening CIEWS has become a commonly deployed intervention for the Least Developed Countries Fund (LDCF) and has also been addressed by a number of GEF Trust Fund (GEF TF), Special Climate Change Fund (SCCF), and multitrust fund (MTF) projects. Project interventions have included investments in automated weather stations and their operations and maintenance; agro-hydrometeorological forecasting; institutional capacity building; and last-mile technologies (streamlining and efficiency technologies). These have addressed both rapid and slow-onset climate threats, including floods, droughts, tsunamis, cyclones, and desertification.

Climate Information and Early Warning Systems in GEF Programming Strategies for Adaptation

7. GEF programming directions lay out strategies for achieving global environmental benefits under each GEF focal area for a four-year period. From 2010 onwards, the GEF Secretariat developed four-year programming strategies on adaptation to climate change, coinciding with GEF replenishment periods. CIEWS are noted in all the adaptation strategies and elevated to one of four priority themes in the strategy for 2022–2026. While less prevalent, CIEWS have also been included in some past GEF programming Strategies on climate. Below is an overview of discussions of CIEWS in GEF strategies.²

GEF Programming Strategies for Adaptation

8. Climate information and early warning has been included in GEF Programming Strategies since 2010 until 2026 (to date), as summarized in table 1.

² Discussion excludes examples of EWS projects presented as part of the general narrative of strategies.

Table 1: Inclusion of climate information and early warning systems in GEF programming strategies 2010–2026

<p>2010–2013 GEF Programming Strategy for Adaptation</p>	<ul style="list-style-type: none"> • The first GEF Programming Strategy for Adaptation covering 2010 to 2013 (GEF 2010) included “improving the monitoring of diseases and vectors affected by climate change, and related forecasting and early warning system, and in this context improving disease control and prevention” listed as one of nine programming priorities for the SCCF. • CIEWS are also mentioned as an example of LDCF interventions under both the categories of disaster risk management and natural resources management and as an example of SCCF interventions under disaster preparedness and risk management. • Early warning and forecasting are listed as the fifth largest sector where urgent and immediate adaptation projects were needed, based on identification in the National Adaptation Programmes of Action (NAPA). • Additionally, under objective CCA-2: Increasing Adaptive Capacity, a specific output (2.2.1) was included on “Systems in place to disseminate timely risk information.”
<p>2014–2018 GEF Programming Strategy for Adaptation</p>	<ul style="list-style-type: none"> • In the GEF Programming Strategy for Adaptation covering July 2014 to June 2018 (GEF 2014), CIEWS are included in the results framework for LDCF SCCF programming. • CIEWS are listed under objective 2: “Strengthen institutional and technical capacities for effective climate change adaptation” for <i>outcome 2.3: Access to improved climate information and early-warning systems enhanced at regional, national, sub-national and local levels</i>. An indicator for the number of early warning-systems established or strengthened is also included in the results framework, with a baseline of 30 in 24 countries and a target to support all LDCs. Further, a specific indicator measuring the “Number of people (percentage of whom are female)/ geographical area with access to improved climate information services” was included in the revised results framework of the LDCF and SCCF. • CIEWS are noted under discussions of coastal-zone management, climate information services, as well as in a discussion of LDCF financing needs. • As with the previous policy, CIEWS related to the monitoring of diseases and vectors affected by climate change is listed as one of nine programming priorities for the SCCF. • The strategy also notes that 16 percent of the NAPA thematic priorities are categorized as early warning and disaster risk, showing that the sectoral distribution of LDCF and SCCF investments was closely aligned with country demand as well as the mandate of the funds. • More specifically, the strategy reported a more than \$40 million-dollar regional initiative aimed to strengthen hydrometeorological services and early warning systems in nine LDCs in Sub-Saharan Africa. • The strategy reports that the GEF Adaptation Program has provided considerable support towards weather and climate monitoring, data

	<p>collection and early warning systems, comprising 12 percent and 6 percent of all LDCF and SCCF investments respectively.</p>
<p>2018–2022 GEF Programming Strategy for Adaptation</p>	<ul style="list-style-type: none"> • In the GEF Programming Strategy on Adaptation to Climate Change covering July 2018 to June 2022 (GEF 2018), CIEWS are mentioned twice: <ul style="list-style-type: none"> – a) in a discussion of mainstreaming adaptation across GEF themes, as an example of the type of LDCF activity that might be seen in multitrust fund (MTF) projects, and: – b) in the discussion of enhanced private sector engagement as an opportunity for transforming markets for adaptation technologies and innovations with private sector partners. • In the LDCF/SCCF results framework, “vulnerability to climatic hazards reduced through new or improved early warning systems” is considered as Output 1.1.3 in seeking to “Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation.” • The 2018-2022 programming period follows the adoption of the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development. Adopted at the UN Summit in January 2016, SDG 13 (take urgent action to combat climate change and its impacts) comprises a specific target (13.3), mentioning the goal to “improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.” According to the strategy, the GEF adaptation program is well aligned and capable of contributing to SDG 13 and delivering groundwork for other goals.
<p>2022–2026 GEF Programming Strategy for Adaptation</p>	<ul style="list-style-type: none"> • In the GEF Programming Strategy on Adaptation to Climate Change covering July 2022 to June 2026, the most prominent inclusion of CIEWS is as one of four themes in the programming architecture. Under this theme, both LDCF and SCCF will support EWS and climate information systems “with a focus on bridging climate information value chain gaps, expanding access to early warning systems, and striving for greater user uptake and application of climate information services” (GEF 2022). • In the global context section of the strategy, CIEWS are noted as contributing to reduced risk and informed decision-making by communities, along with other interventions. A sub-indicator on CIEWS is included in the results framework for the period: “number of direct beneficiaries from the new or improved climate information services including early warning systems (sex-disaggregated).” • CIEWS are also mentioned in priority area 1 for the SCCF: Supporting the Adaptation Needs of SIDS, as one area where SCCF has a successful track record. • The strategy mentions that since the creation of the LDCF, it has supported a wide range of sectoral priorities, with climate information services (53 percent) as the third with the highest participation just behind water (55 percent) and agriculture and food security (67 percent). The SCCF’s sectoral distribution shows climate information

	services (37 percent) as the second most active, just behind water (43 percent).
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GEF Replenishment Programming Directions

9. Both the **GEF-7 and GEF-8 replenishment programming directions** note that investments to support flood and drought CIEWS will be made under the international waters focal area to support the focal area’s third objective: enhance water security in freshwater ecosystems. EWS are not mentioned in programming directions from previous periods.

Definitions

10. Formal definitions for CIEWS, and associated terms, have not been provided in GEF documents. Climate information services (CIS) refer to the collection and interpretation of observations of actual (past and present) weather and climate as well as simulations of both past and future periods (forecasting) to provide a credible, relevant and usable interpretation of weather and climate information (CARE 2023). These can include information that assists decision-making based on anticipating and managing the risks of changing and variable climate to provide access to interpreted targeted climate information that is relevant, reliable, accurate and communicated appropriately.

11. The United Nations Office for Disaster Risk Reduction (UNDRR) defines EWS as “the provision of timely and effective information, through identified institutions, that allows individuals exposed to hazards to take action to avoid or reduce their risk and prepare for effective response” (UNDRR 2004). UNDRR identifies four key elements of effective EWS (UNISDR 2006), shown in figure 1.

Figure 1: Four elements of effective early warning systems



In LDCF/SCCF strategy documents, CIEWS are often discussed in combination with forecasting. For the purposes of this evaluation, forecasting, or “the provision of timely information to improve the management in the emergency phase,” can be considered a vital element of an EWS (CIF 2020).

Portfolio of Climate Information and Early Warning Systems Projects

12. To identify the preliminary portfolio of projects for review, the evaluation team searched for key terms related to CIEWS in project results frameworks. Projects pertaining to the GEF-3 period or later with the term “early warning” and “climate information” included in the text of project goals, objectives, components, outcomes, and output descriptions at the PIF and CEO Endorsement stage were included in the preliminary portfolio. During the portfolio review process, this preliminary list was further refined to exclude projects supporting EWS that do not address hazards caused by or exacerbated by climate change, or that refer to CIS for mitigation purposes rather than adaptation, resilience, and response to climate change impacts.

13. Table 2 presents an overview of projects from GEF-3 onwards involving CIEWS ($n = 209$).³ Projects addressing CIEWS have been implemented mainly in the African region with 52 percent of projects undertaken throughout Africa (109 projects), followed by the Asia-Pacific region at 22 percent (45 projects), and 15 percent of projects in the Latin American-Caribbean region (32 projects). The largest share of projects has been implemented by the United Nations Development Programme (UNDP) (111 projects) followed by the World Bank (20 projects). Nearly all projects addressing CIEWS have been full-size, national-level projects. Notable among these projects are 13 national-level UNDP-implemented LDCF projects focused directly on strengthening CIEWS, 12 in African countries and 1 in South-East Asia. In total, \$1.13 billion in LDCF, SCCF and GEF funding have been invested in these projects from the GEF-3 period onwards.

Table 2: LDCF, SCCF and GEF projects addressing climate information and early warning systems

	GEF-3	GEF-4	GEF-5	GEF-6	GEF-7	Total
Africa		18	46	22	23	109
Asia		8	23	11	3	45
LAC	1	2	13	7	9	32
ECA	1	1	5	3	2	12
Global		5	1	2	3	11
UNDP	1	17	52	26	15	111
WB		8	8	2	2	20
UNEP	1	7	7	6	4	25
FAO			12	3	6	21
AfDB			4	5	6	15
Other Agencies		2	5	3	7	17
CCA	1	25	65	27	23	141
MF		3	7	9	4	23
BD		1	8	5	2	16
IW		2	4	4	7	17
LD	1	3	4		4	12
FSP	1	31	82	42	28	184

³ To determine the initial portfolio, project titles, objectives, components, outcomes, and output descriptions were searched for the key terms “early warning” + “climate information services” + “climate change information” + “EWS” + “climate change services.” The final portfolio will then be refined via a review of project documents to projects supporting CIEWS interventions targeted to address adaptation to the impacts of climate change. Projects which have not yet been approved/endorsed by the CEO, canceled, or dropped, and enabling activities will be excluded.

MSP	1	3	3	2	8	17
EA			3	1	4	8
National	2	30	80	34	29	175
Regional			7	9	8	24
Global		4	1	2	3	10
LDCF		19	53	24	17	113
GEF	2	9	22	18	18	69
SCCF		6	10	2	1	19
MTF			3	1	4	8
LDCF		64.8	303.7	148.9	117.2	634.8
SCCF		21.7	50.7	6	0.5	78.9
GEF	3.4	36.7	109.9	127	72.8	350
MTF		0.0	20	13.9	30.7	64.7
Total	3.4	123.2	484.3	295.8	221.2	1128.4

Source: GEF Portal. Data as of December 1, 2022.

Note: *Region:* ECA = Europe and Central Asia, LAC = Latin America and the Caribbean; *Lead Agency:* AfDB = African Development Bank, FAO = Food and Agriculture Organization of the United Nations, UNDP = United Nations Development Programme, UNEP = United Nations Environment Programme, WB = World Bank; *focal area:* BD = biodiversity, CCA = climate change adaptation, IW = international waters, LD = land degradation, MF = multifocal; *Project size:* FSP = full-size project, MSP = medium-size project, EA = enabling activity; *Funding source* = GEF = Global Environment Facility, LDCF = Least Developed Countries Fund, MTF = multitrust fund, SCCF = Special Climate Change Fund.

Financing includes project preparation grant (PPG). Agency fees and cofinancing are excluded.

Literature on Climate Information and Early Warning Systems

14. There is substantial literature available on CIEWS as a response to hazards caused by climate change that informs this evaluation. This evaluation of GEF support to CIEWS will include a summary of best practices based on a literature review of CIEWS to provide a critical assessment of LDCF, SCCF, and GEF project practices against established best practices, including the elements most effective in CIEWS for climate change adaptation.

15. The summary of best practices will highlight critical areas for inclusion in climate information and early warning communication and engagement, such as for vulnerable population and disability inclusion, and community-centric and gender-centered approaches. Multiple studies, for example, have identified challenges such as the “last mile” issue,⁴ whereby connecting CIEWS to end users posed the biggest challenge to successful CIEWS. Community engagement is not only essential but communities and traditional knowledge must also be engaged in the “first mile” of the system design (Singh & Zommers 2014). A critical approach to

⁴ E.g., coordination, connectivity, efficiency, and integration.

addressing this challenge has been the adoption of community-based early warning systems (CBEWS) approaches. These involve “community-driven collection and analysis of information that enable warning messages to help a community to react to a hazard and reduce the resulting loss or harm” (Macherera & Chimbari 2016).

16. GEF Agencies and other organizations involved in the establishment of CIEWS in developing countries have also produced guidance based on their experience. These experiences provide valuable lessons learned for incorporation into the design and implementation of future EWS and climate information systems. While a full range of academic and practice-based studies provide a substantial body of literature on CIEWS—some key studies from GEF implementers and partner implementers include:

- The Early Warnings for All Executive Action Plan 2023–2027 (WMO 2022).
- United Nations Office for Disaster Risk Reduction’s (UNDRR) inclusive and accessible multi-hazard early-warning systems: learning from women-led early-warning systems in the Pacific (UNDRR 2022).
- The Green Climate Fund’s Climate Information and Early Warning Services Sectoral Guide (GCF 2022).
- UNDP’s Five approaches to build functional early warning systems (UNDP 2018)
- Community early warning systems: guiding principles from the International Federation of the Red Cross (IFRC 2012).
- Gender equality in the context of multi-hazard early warning systems and disaster risk reduction (Pudmenzky et al. 2022).
- UN Women’s Gender-Responsive Early Warning: Overview and How-to guide (UN Women 2012).
- Disability Inclusion in Disaster Risk Management Operations: An Exploration of Good Practices and Resources - Guidance Note (Uzair et al. 2022).
- Practical Action’s Towards disability transformative early warning systems: Barriers, challenges and opportunities (Batchelor et al. 2021).
- Practical Action’s Gender transformative early warning systems (Brown et al. 2019).
- Mercy Corps and Practical Action practitioner’s handbook for establishing community-based EWS on progress and lessons learned in their work in Nepal (Mercy Corps & Practical Action 2010).

Evaluation Objectives and Audience

17. Given the elevated focus on CIEWS in the Adaptation Strategy for the GEF-8 period as one of four priority themes for the LDCF and SCCF, a detailed review of projects addressing CIEWS has the potential to influence the future direction of a major area of work. This evaluation would fill a knowledge gap in the performance and trends of an intervention area that has been elevated to a priority theme in the GEF-8 adaptation strategy.

18. This work intends to understand the relevance and effectiveness of these interventions, including the outcomes and the mechanisms by which observed outcomes were achieved. The

evaluation aims to identify lessons applicable to the GEF by obtaining evidence-based findings of what works, why, and for whom.

19. The main audience of this evaluation is the GEF Council and Secretariat and the GEF partner agencies. However, the findings of the evaluation will be relevant to donors, industry experts, government officials, and practitioners in developing countries.

Evaluation Questions

20. The evaluation would seek to answer the following questions:

1. How do GEF-administered trust funds support CIEWS?

- *What types of disaster events are being targeted and what types of activities associated with CIEWS are funded by LDCF, SCCF, and the GEF TF to support CIEWS?*
- *Are LDCF, SCCF, and GEF TF projects addressing the most relevant aspects of CIEWS?*
- *What proportion of the project deals with climate information and early warning in GEF projects?*
- *Are LDCF, SCCF, and GEF TF projects integrating or leveraging other services and warning system platforms?*

2. How effective have CIEWS interventions financed by LDCF, SCCF and GEF TF been?

- *How have CIEWS interventions performed based on performance documentation?*
- *How effective have CIEWS interventions been when tested with disaster events?*
- *How have CIEWS interventions considered gender and inclusivity⁵?*

3. What is the added value of the LDCF, SCCF and GEF TF in CIEWS interventions?

- *What innovations, approaches or new technologies are being piloted or supported within LDCF, SCCF, and the GEF TF projects?*
- *What indicators are being used to track the effectiveness of CIEWS outcomes, and how successful are the outcomes?*
- *What are the risks to the sustainability of CIEWS outcomes?*

4. What are the lessons learned specific to the design and implementation of LDCF, SCCF and GEF TF CIEWS projects?

Methodology

21. The evaluation sets about undertaking an overall review of the elected portfolio of projects pertaining to the GEF-3 period with CIEWS investments included within their components, via desk review. Detailed information and follow up probing for information is to be collected through the case study (project visits) and interviews with key informants. Overall,

⁵ Inclusivity is defined as the process of improving the terms of participation in society, particularly for vulnerable populations and people who are disadvantaged, through enhancing opportunities, access to resources, voice, and respect for rights (UN 2016).

the protocols for reviewing the portfolio to understand the effectiveness of CIEWS investments are based on key best practices established in the currently available literature.

Activity 1: Desk review

22. As described above, all approved LDCF, SCCF and GEF TF projects pertaining to the GEF-3 period or later have been screened to identify those which note work on CIEWS in their objective, components, or expected outcomes of components. The evaluation team is conducting a more detailed desk review of the projects identified. A portfolio review protocol is also being developed to ensure a consistent approach to extracting and assessing data on results, lessons learned and the added value of the LDCF, SCCF and the GEF TF in CIEWS interventions from project documents.

Activity 2: Summary of best practices in CIEWS

23. There is a substantial body of academic literature and practice-based study on CIEWS. The evaluation therefore engaged a climate change adaptation expert to prepare a summary of best practices. Based on a literature review, these focused on identifying best practices as well as factors helping and hindering in the development of effective CIEWS. Identified best practices and factors helping and hindering effective CIEWS, will then inform data and indicators for analysis.

Activity 3: Case studies

24. Three to four projects addressing CIEWS will be selected as case studies. Field verification will be conducted by GEF IEO staff to gain information on how systems work in practice. Where opportunities exist, an examination of the functioning of CIEWS in the incidence of a disaster event or forecasted impacts will be included in the case study. Through these case studies, the evaluation aims to understand outcomes in a country context, the mechanisms by which the outcomes were achieved, and the factors contributing to observed outcomes. Project selection will be purposeful to reflect a diversity of GEF funds and Agency, and country conditions, including region, the scale of CIEWS development, and differing implementation stages (e.g., completed or in progress).

Activity 4: Key informant interviews

25. Interviews will be conducted with select stakeholders from a) the GEF Secretariat, b) GEF Partner Agencies, and c) relevant project in-country stakeholders, as possible. The purpose of these interviews will be to triangulate findings from the desk review and case studies.

Quality assurance

26. The evaluation will go through a comprehensive quality assurance process. The draft approach paper and draft evaluation report will be circulated and validated before finalization through a feedback process with the key stakeholders. In the case of the draft evaluation

report, this will take place prior to the December Council in 2023. In addition to GEF IEO management and peer review, the evaluation’s designs and methods will be carefully documented, adhering to the principles of independence, impartiality, credibility, and utility.

Risks and limitations

27. This evaluation does not pose significant implementation challenges. However, the use of search terms to identify the preliminary list of projects may not capture all projects providing support to CIEWS and climate information services, as it is possible that projects may have strengthened CIEWS without using the terms in their results framework. However, the evaluation team considers the inclusion of the direct reference to CIEWS in the results framework as a legitimate threshold for inclusion, as this will capture all projects for which CIEWS is a primary focus. If, in the course of data collection, stakeholders identify key projects which were not captured in initial scoping, these will also be included.

Timeline

28. The evaluation will be presented to the LDCF/SCCF Council in December 2023.

Table 1: Timeline of activities

Activity	Start date	End date
Portfolio protocol development	September 2022	November 2022
Project portfolio review	December 2022	February 2023
Case studies	April 2023	September 2022
Key informant interviews	March 2023	August 2023
Literature review	December 2022	March 2023
Report drafting	August 2023	October 2023
Circulation of draft report to stakeholders	October 2023	October 2023
Revision of report	November 2023	November 2023
Presentation to Council	December 2023	

Resources

29. The evaluation will be led by IEO task manager Anna Viggh, Senior Evaluation Officer, with oversight by the Chief Evaluation Officer and Director of the IEO. The evaluation team consists of an Evaluation Analyst, a short-term consultant (STC) to conduct the desk review, and a senior independent climate change STC. The senior STC was recruited to help refine evaluation questions, identify potential gaps, additionality of LDCF, SCCF, and GEF TF in CIEWS interventions and transformative elements of LDCF, SCCF, and GEF TF CIEWS interventions. The senior consultant will also prepare the summary of best practices and participate in the interpretation of the findings of the evaluation. Neeraj Negi will serve as an internal reviewer.

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Annex A: Evaluation Matrix

Key question	Indicators/measures	Source of information	Methodology
1. How do GEF-administered trust funds support CIEWS?			
1a. What types of disaster events are being targeted and what types of activities associated with CIEWS are funded by LDCF, SCCF, and the GEF TF to support CIEWS?	# of projects supporting: Risk knowledge Monitoring and warning service Dissemination and communication Response capability	Project proposals and performance documents	Project portfolio review
1b. Are LDCF, SCCF, and GEF TF projects addressing the most relevant aspects of CIEWS?	Alignment of project design with international best practices	Academic literature and practice-based studies, project proposals and performance documents, GEF Agencies, country stakeholders	Best practices summary, project portfolio review, interviews, case studies
1c. What proportion of the project deals with climate information and early warning in GEF projects?	Project funding allocated to CIEWS	Project proposals and terminal evaluations	Project portfolio review
1d. Are LDCF, SCCF, and GEF TF projects integrating or leveraging other services and warning system platforms?	Evidence of integration, replication or scaling up	Project proposals, PIRs, terminal evaluations, GEF Secretariat, GEF Agencies, country stakeholders	Project portfolio review, interviews, case studies
2. How effective have CIEWS interventions financed by LDCF, SCCF and GEF TF been?			
2a. How have CIEWS interventions performed based on performance documentation?	Development outcome and progress implementation ratings for CIEWS interventions	Project terminal evaluations, midterms reviews, PIRs	Project portfolio review, case studies
2b. How effective have CIEWS interventions been when tested with disaster events?	Aggregated results from completed projects and projects under implementation with performance information available	Project terminal evaluations, midterms reviews, PIRs	Project portfolio review

2c. How have CIEWS interventions considered gender and inclusivity?	Type/extent of gender analyses, actions or results delivered through CIEWS projects	Project proposals, performance documents and terminal evaluations, GEF Secretariat, GEF Agencies, country partners	Project portfolio review, interviews, case studies
3. What is the added value of the LDCF, SCCF and GEF TF in CIEWS interventions?			
3a. What innovations, approaches or new technologies are being piloted or supported within LDCF, SCCF, and the GEF TF projects?	# of projects supporting innovations, approaches or new technologies	Project proposals, PIRs, terminal evaluations, GEF Secretariat, GEF Agencies, country stakeholders	Project portfolio review, interviews, case studies
3b. What indicators are being used to track the effectiveness of CIEWS outcomes, and how successful are the outcomes?	List of indicators, evidence of outcomes	Project proposals, PIRs, terminal evaluations, GEF Secretariat, GEF Agencies, country stakeholders	Project portfolio review, interviews, case studies
3c. What are the risks to the sustainability of CIEWS outcomes?	Aggregate ratings of likely sustainability of outcomes, perception of stakeholders	Project terminal evaluations, country stakeholders	Project portfolio review, interviews, case studies
4. What are the lessons learned specific to the design and implementation of LDCF, SCCF and GEF TF CIEWS projects?			
4. What are the lessons learned specific to the design and implementation of LDCF, SCCF and GEF TF EWS projects?	Lessons learned as recorded in performance documentation	Project terminal evaluations, midterms reviews, PIRs, GEF Secretariat, GEF Agencies, country stakeholders	Project portfolio review, interviews, case studies