

Guidelines:

- This Request Submission Form should be completed by the organisation requesting technical assistance from the Climate Technology Centre & Network (CTCN) in collaboration with the National Designated Entity (NDE) of the country in question
- The Form must be signed by the NDE. Please see updated contact list of NDEs here: <http://unfccc.int/ttclear/support/national-designated-entity.html>
- The Form can be submitted as a Word file containing a digital signature or as a signed and scanned PDF file in combination with an un-signed Word file
- For requests submitted by multiple countries, all the NDEs of the respective countries shall sign identical Forms before official submission to the CTCN
- NDEs have the opportunity to submit CTCN requests in collaboration with National Designated Authorities (NDAs) for the Green Climate Fund (GCF) if targeting the GCF Readiness Programme.

Requesting country or countries:	Kingdom of Lesotho
Request title:	Scaling up Lesotho's national early warning system to strengthen communication and alert dissemination to the population through the Early Warning System for All initiative
NDE	Ministry of Environment and Forestry, Meteorological Services Department Lesotho Meteorological Services (LMS) Mr. Maqhanolle Tsekoa maqhanolle.tsekoa@gov.ls
Request Applicant:	ICT Ministry of Lesotho Principal Secretary Mr. Ramashamole kanono.ramashamole@gov.ls

Climate objective:

- Adaptation to climate change
 Mitigation of climate change
 Combination of adaptation and mitigation of climate change

Geographical scope:

- Community level
 Sub-national
 National
 Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change (up to one page):

This section should answer the question "what is the problem?" Please summarise the problem related to climate change and/or the negative impacts of climate change in the country that the request aims to address.

The Kingdom of Lesotho, a small landlocked nation in Southern Africa, is entirely surrounded by the Republic of South Africa. With a population of 2.14 million people in 2020, Lesotho experiences an annual demographic growth rate of 0.8% in 2020. Projections indicate that the population may reach 2.3 million by 2030 and 2.6 million by 2050. The proportion of the population residing in urban areas is estimated to rise from 28% to 34% by 2030 and 46% by 2050.

Recent weather patterns have brought about extreme events, such as droughts and floods. Projections also suggest an increasing likelihood of higher temperatures and fluctuations in rainfall. Lesotho's vulnerability to climate change is exacerbated by the country's already challenging climate and is further compounded by issues of poverty and land degradation.

Lesotho is already witnessing the adverse impacts of climate change, including heightened frequency of extreme events, such as droughts, increased rates of soil erosion and desertification, and diminishing soil fertility. Projections indicate that Lesotho will generally experience hotter and drier conditions in the future, alongside an ongoing presence of extreme events like droughts and floods, as well as other climate-related hazards. These changes are likely to result in adverse environmental impacts, including soil erosion, deforestation, recurrent droughts, desertification, land degradation, and biodiversity loss, including wildlife. Key sectors, including agriculture and livestock, health, water resources, and tourism, face increasing vulnerability to these climate-related challenges.

Lesotho is prone to various climate-related hazards, making early warning systems critical for preparedness and response. While Lesotho has made strides in developing early warning systems, there's a need to scale up their implementation and coverage. This includes expanding the network of monitoring stations, improving risk knowledge and data collection, dissemination and use, and enhancing public awareness and response mechanisms. Multi-Hazard Early Warning Systems should be tailored to the specific needs of local communities and linked to preparedness and response plans. The support of both national and international partners as well as leveraging on global initiatives such as Early Warnings for All (EW4All) is essential to bolster these systems and make them accessible to all communities, particularly those in remote or vulnerable areas based on a UNFCCC report issued in October 2023¹.

Past and on-going efforts to address the problem (up to half a page):

This section should answer the question "what has been done or is currently being done to address the problem?" Please describe past and on-going processes, projects or initiatives implemented in the country or region to tackle the climate problem as described above.

In preparation for the FNC to the UNFCCC, national climate change scenarios were developed for the years 2030, 2050 and 2075 using several methods³². To inform these climate change scenarios – and early warning systems – LMS currently manages over 90 meteorological stations³³ distributed across Lesotho. These consist of: i) 31 climate stations with the primary purpose of carrying out temperature and precipitation observations; ii) three synoptic stations fully equipped with sensors for various weather elements; iii) six agrometeorological stations which make meteorological observations primarily for application to farming activities; and iv) and 52 rainfall stations recording daily rainfall. Several of these meteorological stations are in disrepair, requiring refurbishment and upgrading to include other parameters for observation. There is also a shortage of technically qualified personnel who can calibrate and monitor this equipment. The data collected from Lesotho's national network of meteorological stations is stored in a computerised data bank, managed by LMS. Although the data collected by LMS is useful, it is not converted into user friendly information that can be easily analysed or distributed. For example, the LMS data bank is not freely accessible to other government institutions, external organisations or members of society. To counteract this shortcoming, LMS regularly publishes climate information in print and on electronic media for distribution to relevant stakeholders. The LMS website³⁴

¹ https://unfccc.int/sites/default/files/resource/Lesotho%20Diagnostic%20Study_FINAL.pdf

is one of the few external sources for national climate change information and is in need of updating. Although the website has been recently revamped and now includes a designated Climate Change Portal, many of the sections are not fully populated and relevant documents – including vulnerability assessment reports, NCs and sectoral plans – have not been uploaded to the website. Under the Africa Adaptation Programme³⁵, a GIS-based knowledge management system was implemented in Lesotho to store information related to climate change and adaptation activities. However, the system stopped working after the project ended as the GoL were unable to purchase the required software license. The availability and quality of climate information and the capacity required to effectively use this information in adaptation planning are significant barriers to implementation of the NAP process. In addition to the climate information generated by government entities, the private sector, NGOs and academic institutions contribute to climate research in Lesotho. Information sharing between these entities is largely insufficient because much of the data are compiled for internal use only and the limited coordination and collaboration between these entities can lead to the duplication of climate research. Furthermore, climate research led by academic institutions is limited because there is currently no tertiary institution in Lesotho offering specialised courses in climate change or other climate-related fields such as meteorology³⁶. Similarly, primary and secondary school curriculums do not explicitly incorporate education on climate change. As a result, there are limited opportunities within Lesotho for learning about climate change and generating climate research. Lack of awareness is consequently a major issue facing the NAP process in Lesotho. While many people are aware of climatic conditions such as droughts, flooding and hailstorms, the occurrence of these events are not necessarily linked to climate change. There is also very little awareness of Multi-Lateral Environmental Agreements (MEAs) such as those enforced by the UN³⁷. Local government structures such as district and community councils as well as district and village disaster management teams are commonly used groups for sharing climate information with local communities. However, these councils and teams do not have adequate financial resources or technical capacity to continually provide communities with up-to-date climate change information. Although other methods of information dissemination exist – including radio and television broadcasts – they are only appropriate for communities with access to these technologies.

Telecommunications and Early Warning Dissemination in Lesotho

Lesotho's current early warning dissemination mechanisms predominantly rely on traditional communication channels such as public gatherings, radio broadcasts, and SMS messages. A recent evaluation indicated that public gatherings were the most utilized method, accounting for 79% of early warning message dissemination, followed by radio and SMS channels. However, the country has not yet adopted Cell Broadcast (CB) technology for emergency alerting. CB offers the advantage of sending geo-targeted alerts to all mobile devices within a specific area without causing network congestion, a feature particularly beneficial during disasters when network traffic is high. The absence of CB in Lesotho's early warning infrastructure highlights a significant gap in the nation's ability to promptly and efficiently disseminate critical information during emergencies. Integrating CB technology could substantially enhance Lesotho's capacity to deliver timely alerts, thereby improving disaster preparedness and response.

Scaling Up Early Warning Systems: CRFS can facilitate the scaling up of Lesotho's Multi-Hazard Early Warning Systems to address existing gaps. In particular, CRFS can facilitate links with the EW4All initiative, leveraging UNDRR's membership, to support Lesotho in strengthening its Early Warning Systems and preparedness mechanisms.²

² <https://www.greenclimate.fund/sites/default/files/document/iso-rs003.pdf>

Specific technology³ barriers (up to one page):

In Lesotho, the insufficient collection, management, analysis and dissemination of high-quality climate information is hindering the development of adaptation planning because policy- and decision-makers do not have access to the required information. The primary institution responsible for the collection, storage and dissemination of weather, climate and climate change data and information is LMS, while the Ministry of Water (MoW) is responsible for hydrological data. LMS has extensively studied Lesotho's climate regime, with meteorological records dating back to 1889. However, the only large-scale coordinated efforts for climate data generation have been for the development of Lesotho's National Communications, and the resulting climate models are at a relatively low resolution. Similarly, risk and impact assessments conducted in the country to date have lacked sector-specific detail. Indeed, a critical gap identified in the NAP workshop was a lack of sectoral climate risk and vulnerability assessments.

Contribution to Programme of Work 2023-2027:

As per 3rd Programme of Work of the CTCN⁴, please indicate the system transformation area, key enablers and cross-sectoral themes related to the request:

System transformation areas (mandatory)

- Water-Energy-Food Nexus
 Sustainable Mobility
 Energy Systems
 Buildings and Infrastructure
 Business and Industry

Key enablers (optional)

- National Systems of Innovation
 Digitalization

Cross-sectoral themes (optional)

- Gender
 Youth
 Indigenous Peoples

Sectors:

Please indicate the main sectors related to the request:

- Coastal zones
 Early Warning and Environmental Assessment
 Human Health
 Infrastructure and Urban planning

³ *"any equipment, techniques, practical knowledge and skills needed for reducing greenhouse gas emissions and adapting to climate change"* (Special Report on Technology Transfer, IPCC, 2000)

⁴ <https://www.ctc-n.org/resources/ctcn-third-programme-work-2023-2027>

- | | | | |
|---|---|--------------------------------------|---|
| <input type="checkbox"/> Marine and Fisheries | <input type="checkbox"/> Water | <input type="checkbox"/> Agriculture | <input type="checkbox"/> Carbon fixation |
| <input type="checkbox"/> Energy Efficiency | <input type="checkbox"/> Forestry | <input type="checkbox"/> Industry | <input type="checkbox"/> Renewable energy |
| <input type="checkbox"/> Transport | <input type="checkbox"/> Waste management | | |

Please add other relevant sectors:

Technical assistance requested (up to one page):

Lesotho is requesting support to the CTCN to scale up its national early warning system under the Early Warning System for All initiative with the objective to strengthen current communication and alert dissemination to the population. This support is critical in ensuring that people at risk are better informed and able to take timely and appropriate action in response to extreme weather events, disasters and other crises.

The CTCN is invited to support Lesotho in accessing technical assistance under the UN Secretary General's global [Early Warning Systems for All](#) initiative, which aims to ensure that everyone on Earth is protected by effective, timely and context-specific multi-hazard early warning systems. EW4All is co-led by a consortium of 4 institutions : UN Office for Disaster Risk Reduction, World Meteorological Organization (WMO) , International Telecommunication Union (ITU) and the International Federation of the Red Cross and Red Crescent Societies (IFRC).

The Lesotho Meteorological Services (LMS), the Ministry of Information, Communication, Science, Technology and Innovation, the Lesotho Communications Authority and Econet Telecom Lesotho are ready to work closely with the Adaptation Fund focal point to implement Pillar 3 of EW4All in the country.

The technical assistance requested will focus on strengthening the institutional, technical, and operational capacities needed to ensure that alerts are delivered reliably, inclusively, and at scale. This includes the adoption of Cell Broadcast technology, the implementation of Common Alerting Protocol (CAP) standards, and the development of a National Emergency Telecommunication Plan (NETP) that ensures resilient communication infrastructure in the face of crises. Lesotho will be able to take advantage of established, as well as new and innovative communication channels, mobile and digital technologies and innovations such as AI-based tools.

Specifically, the implementation will support countries in building warning dissemination and communication systems and to strengthen countries' ability to reach and warn people at risk ahead of disasters, to reduce their impact and save lives. It will be guided by the objectives identified in the EW4All Plan of Action that relate to Pillar 3 (Warning Dissemination and Communication):

- Warnings should reach every person at risk and all people should be covered by early warning information through local governments or national dissemination mechanisms.
- Risks should be understood, and messages should be clear and usable.
- Countries should have updated registries of alerting authorities.
- Warnings should be disseminated in the common alerting protocol (CAP) format

Through this support, EW4All will support Lesotho to:

- Establish multi-channel alerting systems leveraging mobile, broadcast, digital, and community-

based dissemination methods.

- Deploy Cell Broadcast technology to enable location-specific, real-time alerting that reaches populations at risk without network congestion.
- Adopt the Common Alerting Protocol (CAP) to ensure consistency and interoperability of alerts across all platforms and stakeholders.
- Develop and operationalize a National Emergency Telecommunication Plan (NETP) that strengthens telecom sector preparedness and coordination during emergencies.

CTCN support should include:

- **Technical expertise and capacity building** to support national authorities, conduct training, and strengthen institutional capabilities in public warning systems.
- **Interpillar and cross-sectoral collaboration:** organising workshops, consultations, and joint initiatives that enhance synergies between different components of the EW4All framework and promote integrated approaches to early warning dissemination.
- **Technical resource development,** including guidance materials, toolkits, and innovative solutions to enhance national implementation and technical preparedness.
- **Specialized technical assistance** to address country-specific challenges, optimize implementation strategies, and ensure alignment with evolving needs and technological advancements, including support in leveraging additional funding to complete the implementation cycle of the EWS for all Initiative.

This support will help ensure that Lesotho meets the EW4All targets for universal early warning coverage while strengthening national resilience and saving lives.

Expected timeframe:

This project is expected to be implemented within a timeframe of 24 months.

Anticipated gender and other co-benefits from the technical assistance:

The "Early Warnings for All" (EW4All) initiative recognizes the importance of gender-responsive and inclusive early warning systems (EWS). It aims to ensure that EWS are accessible to everyone, including marginalized groups, women, and those with disabilities, by addressing their unique needs and vulnerabilities. This means considering how gender shapes vulnerability to hazards and how warnings can be made more effective and equitable.

Key aspects of gender-responsive EWS within the EW4All initiative:

- **Addressing gender inequalities:**

EWS should not perpetuate existing inequalities or marginalization, but rather strive to address them.

- **Tailoring messaging and communication:**

Warnings should be designed to reach diverse audiences, including those with different literacy levels and access to technology.

- **Involving women in EWS development:**

Women's leadership and expertise are crucial in designing and implementing effective EWS, as they often have a deeper understanding of local contexts and needs.

- **Intersectional approach:**

Recognizing that gender interacts with other factors like disability, socio-economic status, and ethnicity, and addressing these intersections in EWS.

- **Monitoring and evaluation:**

EWS should be regularly evaluated to ensure they are effectively meeting the needs of all users, including women and marginalized groups.

Examples of how gender is integrated into EWS:

- **Communication:**

Using culturally relevant language, accessible formats (like voice recordings), and local media to ensure that warnings reach women in diverse communities.

- **Preparedness:**

Ensuring that women and girls have access to information about preparedness activities and safety plans.

- **Disaster response:**

Integrating gender considerations into relief efforts and recovery plans to ensure that women's specific needs are met.

- **Data collection:**

Collecting data on gender-specific risks and vulnerabilities to inform EWS development and improve their effectiveness.

By prioritizing gender-responsive approaches, the EW4All initiative aims to build more resilient and equitable communities that can better withstand the impacts of climate change and other hazards.

Anticipated follow-up activities after this technical assistance are completed:

The CTCN project will enable the country to:

- develop preliminary assessments on EWS and Cell Broadcast
- evaluate where the country stands on EWS and CB, in relation to technical, economic, regulatory and general aspects
- conduct Disaster Connectivity Map for Risk Assessment to identify populations lacking access to early warning notifications because they are beyond the reach of mobile networks
- to develop a feasibility study for the implementation of a National Public Warning System in the country
- identify the most suitable technical and economic solution and estimating the costs for its implementation
- convene a national workshop on Pillar 3 to bring together all stakeholders involved in DRM and emergency telecommunications and identify the main gaps for the achievement of an effective, people-centered early warning system in the country
- support the country in the process of leveraging additional funding that will ensure the full

deployment of the mobile EWS solution (Cell Broadcast).

In parallel to this CTCN TA, the country will initiate the process of leveraging additional funding with the support of the IP with the objective to deploy fully the initiative.

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity	Member of the Steering Committee
ICT Ministry of Lesotho	Proponent and Member of the Steering Committee
Lesotho Communication Authority	Member of the Steering Committee
Econet Telecom Lesotho.	Member of the Steering Committee
Vodacom Lesotho	Member of the Steering Committee
National Climate Change Committee (NCCC)	Member of the Steering Committee or key observer
GCF, LDCF, Adaptation Fund	Potential Donors
Disaster Management Authority	Member of the Steering Committee or key observer
Lesotho Vulnerability Assessment Committee	Member of the Steering Committee or key observer
Other governmental entities	MAFSN Ministry of Agriculture, Food Security and Nutrition, MoE Ministry of Energy, MoET Ministry of Education and Training, MoF Ministry of Finance and Development Planning, MEF Ministry of Environment and Forestry, MoGYSR Ministry of Gender and Youth and Social Development, MoH Ministry of Health, MoLGCHAP Ministry of Local Government, Chieftainship, Home Affairs and Police, MNR Ministry of Natural Resources
International Organisations	UN Resident Coordinator Office and resident UN agencies providing support on climate adaptation and EWS; National Red Cross Society; The World Bank, GIZ, World Vision
MISA	Radio, Print Media, TV, Social media houses, etc
Academia	NUL, Limkokwing, Botho, Agric College
Private Sector	Econet Telecom Lesotho (key stakeholder and member of the steering committee)
CSO	LENAFU

Alignment with national priorities (up to 2000 characters including spaces):

Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments (incl. whether this request refers to any technologies prioritized within Technology Action Plans), Long-term Low Emission Development Strategies, National Adaptation Plans, GCF Country Programme, sectorial strategies and plans, etc.

Reference document (please include date of document)	Extract (please include chapter, page number, etc.).
Nationally Determined Contribution (NDC)	Direct alignment and contribution to NDC implementation is required for all CTCN technical assistances. Please include a direct reference to the INDC/NDC document (chapter, page number, etc.). The NDC clearly states in p10, under agriculture sector the need to “provide early warning/meteorological forecasts and related information”. It also states under p18, cross cutting “Establishment of an integrated early warning system, and disaster response plans”
Technology Needs Assessment and Technology Action Plan	The TNA of Lesotho updated in 202 has a specific Technology factsheet on EWS where the adherence to EWS for All initiative is clearly referenced: The target is to establish DCEWS in every district by 2030 leveraging on the current six pilot areas supported by upgraded and modernized climate monitoring and forecasting systems. The timeline for realizing DCEWS covers the period 2024-2030 in line with national and development policies and the Early Warnings for All initiative, launched by the United Nations Secretary- in March 2022, which seeks to ensure that everyone is protected from hazardous weather and/or climatic hazards by the end of 2027. ⁵
National Adaptation Plans	Intends to build on the NAPA, the NCCP and the other plans and strategies mentioned by assessing opportunities for implementing medium- and long-term climate change adaptation actions. 11 projects were identified as per the NAPA, the 4 th one is “Improvement of an Early Warning System against Climate Induced Disasters and Hazards”.
GCF Country Programme	EWS for All has recently approved a full proposal to further support the adherence of countries to EWS for all initiatives. Lesotho being a LDC other source of funding are also available.
National Policies	National Climate Change Policy (NCCP) National Environmental Action Plan (NEAP)

Development of the request (up to 2000 characters including spaces):

Please describe how the request was developed at the national level and the process used by the NDE to approve the request before submitting it (who initiated the process, who were the stakeholders involved and what were their roles?) and describe any consultations or other meetings that took place to develop and select this request, etc.

The request was initiated in Jan 2025 in closed cooperation with the NDE of Lesotho, the South African Meteorological Agency and many other local actors and slowly evolved to the priority of developing an application software for Early Warning Systems (EWS) or a dedicated website for the dissemination of

⁵ <https://tech-action.unepccc.org/wp-content/uploads/sites/2/2024/12/dcews-approved-181124.pdf>

weather-related information. Our initiative aims to bridge this critical gap by developing an app-based platform that can be integrated with WhatsApp to effectively disseminate timely alerts and information on snow, drought, and heavy rainfall. This would ensure that the public is better informed and able to take appropriate action in response to adverse weather conditions. This idea evolved with the support of the CTCN and meeting were held with the EWS for All initiative agencies to discuss the possibility to initiate the adhesion process with Lesotho as Lesotho was not listed in the initial pre-selected 30 countries defined when the initiative was launched. Emails and meetings were held with the focal point of the EWS for all in Lesotho and the NDE to clarify the outcomes of this Technical Assistance and strong emphasis was made on the importance of the involvement of Lesotho Communication Authority and Econet Telecom. All parties agreed to move forward with the submission of this request.

Background documents and other information relevant for the request:

- Please list all relevant documents that will help the CTCN analyse the context of the request and national priorities. Please note that all documents listed/provided should be mentioned in this request in the relevant section(s), and that their linkages with the request should be clearly indicated. For each document, please provide web-links (if available) or attach to the submission form. Please add any other relevant information as required.
- Please indicate if this request has been developed with the support of the CTCN Request Incubator.
- Lesotho TNA : <https://tech-action.unepccc.org/wp-content/uploads/sites/2/2024/12/dcews-approved-181124.pdf>
- Lesotho NDC: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC187334/>
- Lesotho GCF NAP : <https://www.greenclimate.fund/sites/default/files/document/lso-rs003.pdf>
- UNFCCC analysis of Lesotho EWS : https://unfccc.int/sites/default/files/resource/Lesotho%20Diagnostic%20Study_FINAL.pdf

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 and paragraph 4, 7 and 8 of 14/CP.24 that addresses Linkages between the Technology and the Financial Mechanisms⁶.

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

Advanced engagement (preferred): The GCF NDA of the requesting country has been directly

⁶ Please see:

https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name: Mokoena France

Date: 15/05/2025

Signature:



Adaptation Fund Designated Authority name : Mokoena France

Date: 15/05 /2025

Signature:



EWS4all Initiative Focal point:

Date:

Signature:

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures. This includes the active engagement as NDE together with the key project proponent / beneficiary in regular project steering meetings.

I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country. This includes the completion of NDE feedback and post-implementation forms.

Signature:

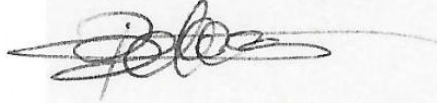
NDE name:

Mr Maqhanolle Tsekoa

Date:

05/06/2025

Signature:



THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.