



# **ETC Country Preparedness and Resilience Delivery Model**

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## **Abstract**

This document provides guidance on implementing ETC country preparedness and resilience activities. This document is intended to be used by country and regional ICT or ETC teams who are looking after preparedness and resilience activities.

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## 1 ETC's Role in Country Preparedness and Resilience

National authorities have primary responsibility for preparedness. However, Resident Coordinators (RC) (and Humanitarian Coordinators (HC) where they exist) have a responsibility to ensure that the humanitarian system is able to support national actors and is equipped to respond to a crisis. The RC/HC will therefore call on Cluster Lead Agencies to operationalize emergency response preparedness (ERP) in their respective sectors and monitor its quality and comprehensiveness<sup>1</sup>. The ETC supports and engages in ICT country preparedness, building resilience through strengthening the capacity of national actors.

## 2 Response with a Preparedness mindset

Country preparedness and resilience activities are considered during all phases of the humanitarian program cycle, including the response. The ETC may have resources and funding during the response phase, which presents an opportunity to design response activities that contribute to preparedness and resilience while responding. When preparing a Concept of Operations (CONOPS), preparedness and resilience outcomes shall be included.

### The Humanitarian Programme Cycle (HPC):

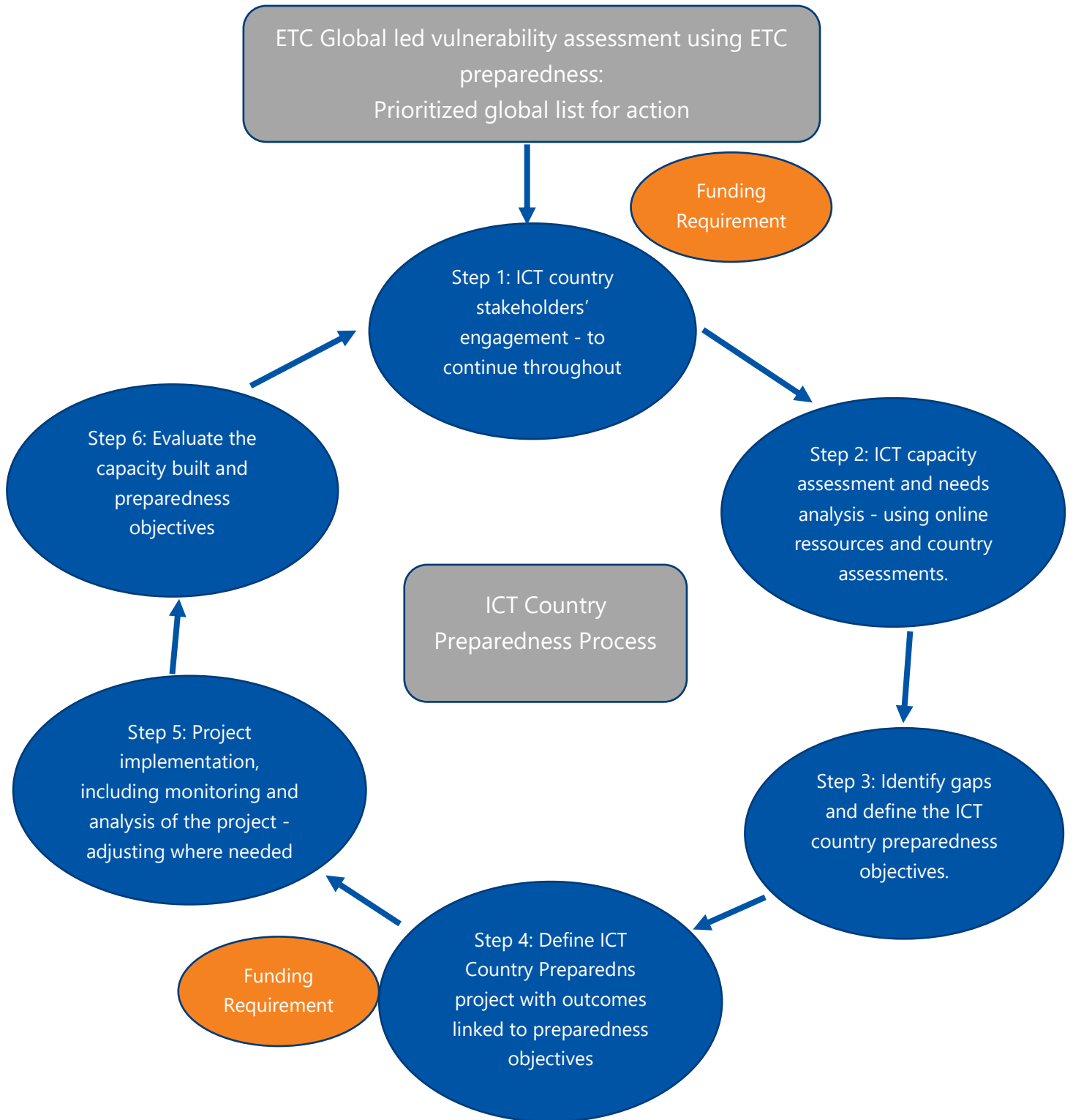


Source: "The implementation of the humanitarian programme cycle module, version 2.0, July 2015, IASC"

<sup>1</sup> IASC Guidance - Reference Module for Cluster Coordination at Country Level (revised July 2015).

### 3 ETC Country Preparedness process

The ETC has based its approach to preparedness and resilience on the United Nations Development Group's (UNDG) capacity development companion guidance, which follows a six-step process. The diagram below aimed at adapting the UNDG six-step process to ETC:



## 4 Country Preparedness and Resilience Prioritisation Globally

ETC country preparedness and resilience projects come from multiple sources. After responding to a humanitarian crisis and during the recovery phase, the ETC looks at building back better, both in terms of infrastructure and local capacity to respond. The ETC also responds to direct requests from countries and monitors locations prone to disaster or other type of crises. For instance, the ETC initiated a preparedness program in the Pacific in response to a request to strengthen ICT country preparedness, as the region is subject to climate related disasters on a seasonal basis.

Where there is a need to prioritise, based on the risk profile and the level of ICT capacity in-country, the ETC may use the following data sources:

1. [ITU ICT-Eye](#) – a comprehensive assessment of national ICT capacity and infrastructure.
2. [INFORM GRI](#) – a global, open-source risk assessment for humanitarian crises and disasters. It can support decisions about prevention, preparedness, and response.

## 5 Step 1: ICT Country Stakeholder Engagement

The commitment and involvement of a strong government counterpart is essential for successful ICT country preparedness and resilience. Identifying a government agency and if possible, a specific person in the government who will champion preparedness efforts, along with a humanitarian organisation champion, is recommended. **Without these two ICT country preparedness champions, progress along the ICT country preparedness path is unlikely.**

The first phase of stakeholder engagement is stakeholder mapping. An example of typical stakeholder mapping is given below:

National and local Government Agencies	Humanitarian Organisations	Private Sector Partners	National Population & Civil society
Department of Disaster Management (DDM) or National Disaster Management Office (NDMO)	Red Cross and Red Crescent National Societies	Mobile Network Operators (MNOs)	National community radio organisation
The Information and Media Authority	The UN World Food Program (WFP)	Internet Service Providers (ISP)	National Scouts
Department of Information Technology and Telecom (DITT)	UN agencies (i.e. UNDP, UNHCR, UNICEF, WHO)		Amateur radio organisations
National Centre for Hydrology & Meteorology (NCHM)			Academic Institutions
Department of Geology & Mines (DGM)			Other community-led organisations and associations
Electricity Authority (EA)			

*For an example of stakeholder mapping, please refer to the ICT capacity assessment report in the Appendix.*

## 6 Step 2: ICT Capacity Assessment and Needs analysis

This step involves collecting available assessment data on the disaster context and risks that have been identified, the ICT landscape and the specific needs of the population. Before going through the ETC-ITU emergency preparedness checklist and engaging with key government agencies, external sources of information should be referenced.

### 6.1 Existing online resources:

1. [ETC country profiles](#) – ICT Country Profile available from the ETC website.
2. [Disaster Connectivity Map \(DCM\)](#) – development in progress.
3. [GSMA connectivity map](#) and [mobile connectivity index map](#) – coverage.

### 6.2 In-Country Assessments:

The [ETC-ITU Emergency Telecommunications Preparedness Checklist](#) focuses on understanding national readiness to enable communications in a disaster scenario, together with identifying targeted areas which may require attention.

The ETC-ITU Emergency Telecommunications Preparedness Checklist is a guide and does not need to be completed in its entirety. It is important to work closely with the government and humanitarian organisation champion(s), focusing on what is most important and including additional requirements outside of the checklist, if required. For example, if working on a project for a community, it is important to ensure people's voices are heard during the assessment phase.

The ETC-ITU Emergency Telecommunications Preparedness Checklist examines 'readiness' in four key thematic areas:

1. National government – roles, responsibilities, and coordination provisions.
2. External coordination with key stakeholders.
3. Capacity development – training and simulation exercises.
4. Infrastructure and technology – requirements, planning and maintenance.

### 6.3 Existing and planned MSNA, HNO and HRP:

To identify whether an Multi-Sector Needs Analysis ([MSNA](#)) has been carried out for a country, or to find out if one is planned, either contact OCHA offices in-country or REACH, who usually supports these activities. If an MSNA is intended, the assessment questionnaire is typically organised by sectors or clusters, and the development of ETC-related section should be overseen and approved by the ETC Coordinator via the Assessment Working Group (or relevant local equivalent).

Most operations have a Humanitarian Needs Overview (HNO) or a Humanitarian Response Plan (HRP); ICT country capacity building topics should be aligned with the priorities of the humanitarian operation.

HRPs can be found on the [OCHA humanitarian response page](#).

## 7 Step 3: Identify gaps and define ICT Country Preparedness objectives.

This step involves the identification of emergency preparedness goals and the formulation of pathways to develop capacity. Where appropriate, the ICT country preparedness goals should be aligned with the ETC's mandate, the [Sendai Framework](#) on disaster risk reduction and the priorities of the country HRP.

At this step, the **humanitarian organisation and government champions** work together to identify and prioritise gaps and opportunities. It is recommended to either run a workshop or to have another face-to-face event. The output of this step is an **ICT Country Capacity Report** with an itemised list of priority actions which will form the basis of country preparedness activities undertaken by national stakeholders, or capacity building with the support of the ETC.

### 7.1 Examples of ICT Country Preparedness gaps:

1. Standard Operating Procedures (SOPs) for inter-government communication during emergencies might not be in place.
2. Indications show that stakeholders lack an understanding of the basic requirements that constitute ICT emergency preparedness and response.
3. Mobile Network Operators (MNOs) do not have emergency response capacity or limited coverage and services.
4. District and national training and emergency simulations have not taken place.
5. Clearly defined roles and responsibilities for an ICT emergency response, including a coordination structure in case an event occurs, are not present.
6. Regular testing of emergency response communications systems does not take place.
7. The role of the private sector is seen as being essential, with communications relying on privately-owned and publicly used networks. However, these private companies are not sufficiently engaged in the national emergency preparedness plans and/or coordination mechanisms.
8. Redundancy is not built into the telecommunications system.
9. A [National Emergency Telecommunications Plan \(NETP\)](#) is not present.

### 7.2 Example of ICT Country Preparedness Objectives:

#### **Thematic Area 1: National Government – Roles, Responsibilities and Coordination Provisions**

1. To have a resilient emergency communication system.
2. To have clearly defined roles and responsibilities for all stakeholders in disaster risk management.

#### **Thematic Area 2: External Coordination with Key Stakeholders**

1. To facilitate effective partnerships amongst all emergency communications stakeholders, resulting in a rapid and predictable response from all stakeholders, post-disaster.

#### **Thematic Area 3: Capacity Development – Training and Simulation Exercises**

1. Well-trained national emergency responders.
2. A disaster-ready population.



## Thematic Area 4: Infrastructure and Technology – Requirements, Planning and Maintenance

1. Ensure continuity of equipment functionality in a disaster scenario.
2. Prompt telecommunications infrastructure damage assessment.
3. Allow quick recovery and uninterrupted Internet and telephony connections.
4. Facilitate the efficient use/deployment of local staff and resources.
5. Design and deploy early warning systems supported by resilient telecommunication networks to enable real-time data collection.
6. Ensure good communications tools are available for post-disaster assistance provision to impacted people.
7. Use disaster-resilient telecommunications infrastructure as the standard.

## 8 Step 4: Define ICT Country Preparedness and Resilience Projects with Outcomes linked to Preparedness Objectives.

After creating a prioritised list of actions, the next step is to build objectives for ICT country preparedness and resilience. These objectives will be built into existing programs or form a new project, working with key stakeholders and seeking funding.

1. Define the ICT **country preparedness objectives** for the project, aligning them to the achievement of national development goals, results, and targets. Where possible, consider cross-cutting issues, including Accountability to Affected Populations (AAP) and Gender and Age, which is measured by the [Gender and Age Marker \(GAM\)](#);
2. Define how the **new capacity will be measured**.
3. Complete a **project plan** of the tasks to be carried out.
4. Define your **theory of change**. Explain how activities such as training, infrastructure support and policy support will contribute to the country ICT emergency preparedness objectives. By carrying out this step, any issues that could potentially block the project from building the required capacity can be identified and mitigated.

Technical assistance, simulations, and services from the ETC's catalogue can be inserted into a specific preparedness objective that have been identified and prioritised by the humanitarian organisation and government champions. Here is an example:

- **Preparedness objective:** Disaster-ready population.
- **How to measure the objective:** Percentage of MSNA respondents answering 'yes' to the question, "do you know what to do in the case of a tropical cyclone?"
- **Preparedness project:** Local broadcaster support.
- **Theory of change:** This section will explain how supporting local broadcasters and implementing a common feedback mechanism will lead to a disaster-ready population. In this example, this could be:
  - *"Community and commercial radio in country X and region Y have a high penetration rate of 80%, recorded in the Multi-Sector Needs Analysis (MSNA) of 2020. Considering the levels of digital literacy and access to a smartphone among the population, it is found that access to information through local broadcasters has the highest penetration amongst women when compared to access to*

smartphones. For this reason, local broadcaster support has been chosen as one the most suitable ways to communicate with the population in the case of a disaster.

- The National Disaster Management Authority (NDMA) currently creates relevant content on what to expect ahead of a tropical cyclone and the actions to be taken.
- Through engagement with the national-led emergency communications sector meetings, a memorandum of understanding has been signed between the national association of community radio broadcasters and the disaster management authority. Community radio broadcasters participate in the emergency simulations led by the NDMA and run key messaging spots on their shows once per month, before and during the cyclone season.”

## 8.1 Technical Assistance for National and Local Authorities

The provision of technical assistance to national and local authorities to support their ICT emergency preparedness and resilience efforts can form part of the activities in a country preparedness project, including:

- **National authority operational readiness:** reviewing systems and processes of the national authority and providing recommendations;
- **Holistic country assessment:** considering national goals and national capabilities, including the private sector.
- **Coordination:** supporting authorities to set up an ICT coordination group.

## 8.2 Infrastructure Capacity Augmentation for National and Local Authorities

The ETC prepares for and provides services from the ETC service catalogue for national and local authorities during an emergency. To empower national authorities to respond, the ETC can hand over infrastructure or services when appropriate as part of a continuous effort to build capacity and preparedness throughout the humanitarian program cycle or work with these authorities to provide this infrastructure before an emergency.

The ETC service catalogue represents the core competencies of the ETC network of partners and is an excellent place to start when looking to support country preparedness and resilience activities. The below table summarizes the ETC services and customers segmentation. More information on the [ETC service catalogue](#).

ETC Services:	Humanitarian Organisations	National and local authorities	Affected Population
Internet Connectivity	✓	✓	✓
Telephony	✓	✓	✓
Customer Support	✓	✓	✓
Security Communications System (SCS)	✓	✓	
Unmanned Aircraft Systems (UAS) Coordination	✓	✓	
Common Feedback Mechanism (CFM)	✓	✓	✓
Local broadcaster support	✓	✓	✓

## 8.3 Training and Simulations for Governments, National and Local Authorities

The ETC strengthens the capacity of national and local authorities and encourages knowledge-sharing between stakeholders through customised training, workshops and simulation exercises focused on country ICT preparedness.

**ICT Emergency Management for Governments and Partners (ICT4Gov):** This course is designed for national and local authorities to develop knowledge and skills to plan, implement and manage ICT solutions to support emergency response preparedness.

**ETC-ITU Emergency Telecommunications Table-top Simulations:** The ETC and ITU have co-authored a table-top simulation guide to support and standardise such simulations. These simulations are desk-based and help participants to test and refine national plans, particularly NETPs, including policies and regulatory frameworks. These tabletop exercises also give an overview on whether networks, redundant communications capacity, personnel, and other telecommunication systems are in place and ready to be used for disaster response.

## 8.4 Preparedness Projects Linked with Objectives: Examples

### Thematic Area 1: National Government – Roles, Responsibilities and Coordination Provisions

- Objective 1: Define clear roles and responsibilities of all stakeholders in disaster risk management.
  - Project 1: With the support of ITU, develop an NETP.

### Thematic Area 2: External Coordination with Key Stakeholders

- Objective 2: Facilitate effective partnership amongst all emergency communications stakeholders where disaster-resilient telecommunications infrastructure is the standard.
  - Project 2: Support the national authorities to set up coordination with all stakeholders.

### Thematic Area 3: Capacity Development – Training and Simulation Exercises

- Objective 3: Well-trained national emergency responders.
  - Project 3: Facilitate a tabletop simulation using existing resources such as the ETC-ITU Emergency Telecommunications Table-top Simulations Guide.
- Objective 4: Disaster-ready population.
  - Project 4: Facilitate the flow of information regarding emergency preparedness between emergency response and preparedness organisations and the population. *Example: During the COVID-19 crisis in the Central African Republic (CAR) and Libya, a common feedback mechanism was established. Local broadcaster support could also support this objective.*

### Thematic Area 4: Infrastructure and Technology – Requirements, Planning and Maintenance

- Objective 5: Ensure continuity of equipment functionality in a disaster scenario.
  - Project 5: Infrastructure support to national emergency response organisation.
- Objective 6: Enable prompt telecommunications infrastructure damage assessments.

- Project 6: Support building procedures with the national authorities and the private sector who are responsible for maintaining the communications infrastructure used during an emergency.
- Objective 7: Facilitate the efficient use/deployment of local staffing and resources.
  - Project 7: This objective could be included in the NETP.
- Objective 8: Design and deploy early warning systems in resilient networks to enable real-time data collection.
  - Project 8: In collaboration with the ITU, support the establishment of early warning systems and infrastructure.

## 9 Step 5: Project Implementation

For the most sustainable long-term results, project implementation should be managed through existing national systems, **led by the government and humanitarian organisation preparedness champions** and with close engagement of other national actors such as the private sector where possible. Using national structures reinforces change and gives the project a greater chance of success and sustainable results.

The progress of the projects should be monitored with the capacity building objectives in mind and should take evidence-based corrective action if it looks like the program activities will not result in the desired outcomes. The specific country capacity building aspects of any project are:

1. Work in collaboration and/or consultation with national stakeholders.
2. Engage national stakeholders in monitoring the progress of the project.
3. Verify that the **theory of change** specified in the project is still valid. It is possible for project activities to be completed without the capacity building objectives being achieved. Hence, the validity of assumptions made when preparing the project also needs to be monitored.

## 10 Step 6: Evaluate the Capacity Built Against Preparedness Objectives with Lessons Learned

As a baseline, include a mid-term and final evaluation of the projects and programs, choosing either self or independent assessment. This step is separate from the project evaluation or completion and seeks to measure the capacity built. In the example given in step 4, the MSNA is an excellent way to independently assess the results of the project.

### 10.1 Return on Investment (ROI)

ROI is a concept in emergency preparedness and is yet to be calculated for an ETC project. The ideas below represent the current thinking on how to calculate the ROI.

There are two metrics that can be used: Cost savings for future response and social return on investment.

### 10.1.1 ROI – Cost savings for a future response

**Cost savings for any future ETC emergency response** could be measured by using The Boston Consulting Group's methodology used for the "UNICEF/WFP Return on Investment for Emergency Preparedness Study"<sup>2</sup>.

An **example** of this could be:

- **Project description:** By training national staff within the Haitian department of emergency response to support both themselves and the response community with emergency Internet connectivity during an emergency, along with contract resources from two Internet Service Providers (ISPs), the ETC was not required to deploy personnel or equipment.
- **Cost for a local solution ahead of time:** USD20,000.00 per year.
- **Cost to deploy international team for three months with satellite connectivity (based on 2016-2017 Hurricane Matthew response):** USD200,000.00
- This type of emergency is a regular occurrence in Haiti which has experienced 10 Hurricanes since 1998. Based on this, there is an 87.5% chance that within three years, there will be a hurricane that could require such an intervention.
- Thus, the **ROI** would be:  $(200,000.00 - 3*20,000.00) / (3*200,000) = 233\%$ .

### 10.2 ROI – Social Return on Investment (SROI).

The SROI looks at other cost savings based on social, environmental, and socioeconomic factors, apart from what the response would cost if the preparedness activity did not take place. An example of the SROI from the example given in step 4 would be:

*"Increasing the percentage of a disaster-ready public from 60% to 80% would reduce damage to private property by an estimated 20% and the total number of those affected by a disaster by 10%. Taking statistics from a tropical cyclone that passed through the area in the last five years, causing XX million in damage and requiring a response of XX million, would lead to a return on invest of XX."*

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<sup>2</sup>

## 11 Appendix

### 11.1 Preparedness Resource Matrix

Step	Resources for each step	The output of the step
Step 1: ICT Country Stakeholder Engagement	<ul style="list-style-type: none"> <li>- ICT Country Profiles: <a href="https://www.etcluster.org/country-profiles">https://www.etcluster.org/country-profiles</a></li> </ul>	<p>List of in-country stakeholders</p> <p>Name the government and humanitarian organization champion</p>
Step 2: ICT Capacity Assessment and Needs Analysis	<p><b>Existing online resources:</b></p> <ul style="list-style-type: none"> <li>• ICT Country Profiles: <a href="https://www.etcluster.org/country-profiles">https://www.etcluster.org/country-profiles</a></li> <li>• Disaster connectivity Map (development in progress): <a href="https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Disaster-Connectivity-Maps.aspx">https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Disaster-Connectivity-Maps.aspx</a></li> <li>• GSMA connectivity map: <a href="https://www.gsma.com/coverage/">https://www.gsma.com/coverage/</a> and <a href="https://www.mobileconnectivityindex.com/">https://www.mobileconnectivityindex.com/</a></li> <li>• Disaster Risk Management Knowledge Centre: <a href="https://drmkc.jrc.ec.europa.eu/inform-index/">https://drmkc.jrc.ec.europa.eu/inform-index/</a></li> </ul> <p><b>In-country assessment to be conducted by the ETC:</b></p> <ul style="list-style-type: none"> <li>• ETC-ITU Emergency Preparedness checklist: <a href="https://www.etcluster.org/document/emergency-telecommunications-preparedness-checklist">https://www.etcluster.org/document/emergency-telecommunications-preparedness-checklist</a></li> </ul> <p><b>Existing and planned Multi-Sector Needs Analysis (MSNA), Humanitarian Needs Overview (HNO) and Humanitarian Response Plan (HRP):</b></p> <ul style="list-style-type: none"> <li>• Multi-Sector Needs Analysis: <a href="https://www.reachresourcecentre.info/theme/multi-sector-assessments/">https://www.reachresourcecentre.info/theme/multi-sector-assessments/</a></li> <li>• Humanitarian Needs Overview and Humanitarian Response Plan: <a href="https://www.humanitarianresponse.info/en">https://www.humanitarianresponse.info/en</a></li> </ul>	<p><b>ICT Country Assessment</b> (capacity assessment and needs analysis section)</p>

<p>Step 3: Identify gaps and define ICT Capacity Preparedness Objectives</p>	<ul style="list-style-type: none"> <li>ICT Country Assessment (the result of step 2)</li> </ul>	<p><b>ICT Country Assessment</b> (gaps and preparedness objectives)</p>
<p>Step 4: Define ICT Country Preparedness Project with Outcomes lines to Preparedness objectives</p>	<ul style="list-style-type: none"> <li>ETC service catalogue: <a href="https://www.etcluster.org/services">https://www.etcluster.org/services</a></li> <li>Designing a project with gender and age: <a href="https://www.iascgenderwithagemarker.com/en/home/">https://www.iascgenderwithagemarker.com/en/home/</a></li> </ul>	<p><b>Project proposal</b></p>
<p>Step 5: Project Implementation</p>	<p>Where a National Emergency Telecommunications Plan (NETP) is to be created or tabletop simulation is to take place, the following are guides for their implementation:</p> <ol style="list-style-type: none"> <li>ITU Guidelines for NETP (if required): <a href="https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Documents/2019/NETP_Global_guideline.pdf">https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Documents/2019/NETP_Global_guideline.pdf</a></li> <li>Emergency Telecommunications Table-Top Simulation Guide: <a href="https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Publications/2020/Guidelines-for-TTX.aspx">https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Publications/2020/Guidelines-for-TTX.aspx</a></li> </ol>	<p>Project status reports. ETC closure report at the end.</p>
<p>Step 6: Evaluate the Capacity Built Against Preparedness Objectives</p>	<p>Lessons learned exercise.</p>	<p>ETC project evaluation (different to a closure report) this should be ROI measure.</p>

## **11.2 Sendai Framework for Disaster Risk Reduction**

[The Sendai Framework for Disaster Risk Reduction \(2015–2030\)](#) is an international document which was adopted by UN member states between 14-18 March 2015 at the World Conference on Disaster Risk Reduction held in Sendai, Japan, and endorsed by the UN General Assembly in June 2015. As part of the UN and NGO community that adopted the Sendai Framework, the ETC shall integrate where appropriate the framework into ICT country preparedness.

The following section outlines some of the opportunities for the ETC to implement the Sendai Framework in its ICT country preparedness and resilience activities.

### **11.2.1 Sendai framework priorities for action most relevant for ICT Country Preparedness**

The following priorities are taken directly from the Sendai Framework document.

#### **Priority 1 - Understanding disaster risk:**

- To develop, periodically update and disseminate, as appropriate, location-based disaster risk information – including risk maps – to decision-makers, the public and communities at risk of exposure to disaster in a proper format by using, as applicable, geospatial information technology.
- To promote real-time access to reliable data, make use of space and in-situ information, including Geographic Information Systems (GIS), and use information and communications technology innovations to enhance measurement tools and the collection, analysis, and dissemination of data.
- To promote investments in innovation and technology development in long-term, multi-hazard and solution-driven research in disaster risk management to address gaps, obstacles, interdependencies and social, economic, educational, and environmental challenges and disaster risks.
- To enhance collaboration among people at the local level to disseminate disaster risk information through the involvement of community-based organisations and non-governmental organisations.
- To promote and enhance, through international cooperation – including technology transfer, access to and the sharing and use of non-sensitive data and information as appropriate – communications and geospatial and space-based technologies and related services; maintain and strengthen in-situ and remotely-sensed earth and climate observations; and enhance the utilisation of media – including social media, traditional media, big data and mobile phone networks– to support national measures for successful disaster risk communication, as appropriate and following federal laws.

#### **Priority 2 - Strengthening disaster risk governance to manage disaster risk:**

- To assess the technical, financial, and administrative disaster risk management capacity to deal with the identified risks at the local and national levels.

#### **Priority 3 - Investing in disaster risk reduction for resilience:**

- To strengthen, as appropriate, disaster-resilient public and private investments, mainly through structural, non-structural and functional disaster risk prevention and reduction measures in critical facilities, in particular schools, hospitals and physical infrastructures; building better from the start to withstand hazards through proper design and construction, including the use of the principles of universal design and the standardisation of building materials; retrofitting and rebuilding; nurturing a



culture of maintenance; and taking into account economic, social, structural, technological and environmental impact assessments.

**Priority 4 - Enhancing disaster preparedness for effective response, and to «Build Back Better» in recovery, rehabilitation, and reconstruction:**

- To invest in, develop, maintain and strengthen people-centred multi-hazard, multisectoral forecasting and early warning systems, disaster risk and emergency communications mechanisms, social technologies and hazard-monitoring telecommunications systems; develop such strategies through a participatory process; tailor them to the needs of users, including social and cultural requirements, in particular, gender; promote the application of simple and low-cost early warning equipment and facilities, and broaden release channels for disaster early warning information.
- To train the existing workforce and voluntary workers in disaster response and strengthen technical and logistical capacities to ensure better response in emergencies.
- To support regional cooperation to deal with disaster preparedness, including through joint exercises and drills.

**11.2.2 Sendai Framework: Role of Stakeholders most relevant to ICT Country Preparedness**

In addressing economic disparity and disparity in technological innovation and research capacity among countries, it is crucial to enhance technology transfer, involving a process of enabling and facilitating flows of skill, knowledge, ideas and technology from developed to developing countries in the implementation of the present framework.

**11.2.3 Sendai Framework – targets**

Of the seven targets of the Sendai Framework, the following three are most related to ICT country preparedness:

- Substantially reduce disaster damage to critical infrastructure and disruption of essential services, among them health and educational facilities, including through developing their resilience by 2030.
- Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
- Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

## 12 Acronyms

- 3G Third generation mobile network
- 4G Fourth generation mobile network
- CFM Common Feedback Mechanism
- DMR Digital Mobile Radio
- ERP Emergency Response Preparedness
- e-TA Electronic Travel authorisation application
- ETC Emergency Telecommunications Cluster
- EWS Early Warning system
- GDAC Global Disaster Alert and Coordination System
- HF High Frequency
- HPC Humanitarian Programme Cycle
- HRP Humanitarian Response Plan
- ICT Information Communications Technology
- IASC Inter-Agency Standing Committee
- IM Information Management
- ISCG Inter Sector Coordination Group
- ISP Internet Service Provider
- ITU International Telecommunications Union
- IVR Interactive Voice Response
- LTE Long Term Evolution
- MNO Mobile Network Operator
- MSB Swedish Civil Contingencies Agency
- NDMA National Disaster Management Authority
- NGO Non-Government Organisation
- PSTN Public Switched Telephone Network
- S4C Services for Communities
- SCS Security Communications Systems
- SMS Short Message Service
- SOC Security Operations Centre
- TSF Telecom Sans Frontier
- UAS Unmanned Aircraft Systems
- UN United Nations
- UNDSS United Nations Department of Safety and Security
- UNSMS United Nations Security Management System
- VHF/UHF Very High Frequency, Ultra High Frequency
- WFP World Food Programme