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Country Prioritization Methodology

Introductory Brief

A model to identify and prioritize at-risk countries for engagement in telecommunications preparedness

Contents

Foreword

The Emergency Telecommunications Cluster (ETC), led by the World Food Programme (WFP), is a global network of organizations that work together to provide shared communications services in humanitarian emergencies. It coordinates a network of partners to deliver reliable technology and services that enable resilient communication environments to meet humanitarian needs. To better determine countries which can benefit from ETC service engagement—from coordinating preparedness workshops to providing infrastructure support to local broadcasters—this introductory brief has been developed by the Global ETC to detail the Country Prioritization Methodology.

The ETC supports the Sendai Framework for Disaster Risk Reduction (2015–2030)[1] endorsed by the UN General Assembly, which acknowledges that Disaster Risk Reduction requires an *all-of-society engagement and partnership*, which promotes the empowerment and inclusive, accessible, and non-discriminatory participation of all people disproportionately affected by disasters, especially the poorest.

ETC Services Overview

From conflicts to natural disasters, the ETC deploys to provide vital communications services. Since 2005, the ETC has responded to over 40 humanitarian crises around the world. ETC services include internet connectivity, security communications, telephony, customer support, Common Feedback Mechanism (CFM), local broadcaster support, and Unmanned Aircraft Systems (UAS) Coordination. The cluster also focuses on global and country preparedness to ensure coordination of emergencies and preparedness activities across national and global channels.
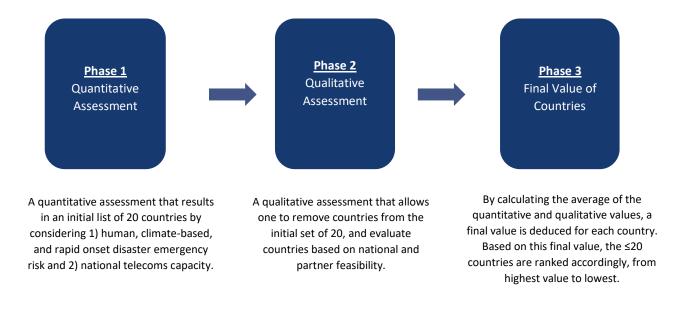
Introduction

There is an increase in the frequency of disasters across the world and emergency preparedness is a powerful way to mitigate risks and improve the capacity of communities. However, it is not always easy to identify the countries that would most benefit from the assistance of the Global ETC and its preparedness operations, especially when there are countries with multiple disasters and varying hazard types.

The Global ETC has developed a methodology to prioritize those countries most at risk. This model, to be used annually, will entail a thorough analysis of countries at risk as well as their Information and Communications Technology (ICT) capabilities. This list will be used as a tool to inform the judgments regarding local ETC activation, while the ETC supports establishing partnerships with countries which are not included in the final listing. The country prioritization methodology presented in this brief illustrates the considered quantitative and qualitative assessments as well as the weight distribution.

Methodology Overview

The methodology is composed of three phases, which together, produce a final list of ≤20 countries to be prioritized by Global ETC for preparedness operations. The first phase is a quantitative assessment which consults four publicly available indices, the second phase is a qualitative assessment whose data is collected via ETC Partner survey, and the third phase is the calculation of the average of the quantitative and qualitative values. The details of each phase are as follows:

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[1] https://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf

Phase 1
Quantitative Assessment

Phase 2
Qualitative Assessment

Phase 3
Final Value of Countries

A quantitative assessment that results in an initial list of 20 countries by considering 1) human, climate-based, and rapid onset disaster emergency risk and 2) national telecoms capacity.

A qualitative assessment that allows one to remove countries from the initial set of 20, and evaluate countries based on national and partner feasibility.

By calculating the average of the quantitative and qualitative values, a final value is deduced for each country. Based on this final value, the ≤20 countries are ranked accordingly, from highest value to lowest.

*The threshold of 20 countries is tentative and should be adjusted to reflect ETC's capabilities

Phase 1: Quantitative Assessment

The first phase is a quantitative assessment that results in an initial list of 20 countries by considering the risk profile and national telecommunications capacity. Each country is measured against two criteria: 1) human-induced, climate-based, and rapid onset disaster risk, and 2) national telecommunications capacity. The criteria are respectively answerable to the questions, 'which countries are most at risk?' and 'where can ETC Preparedness operations have the greatest impact?'

For the criterion 'Human-induced, Climate-Based, and Rapid Onset Emergency Risk,' three indices are consulted: the INFORM Risk Index, the World Risk Index, and Climate Risk Index. For the criterion 'National Telecommunications Capacity,' the ICT Development Index 2023 is consulted. The two criteria are given equal weight of 50%. The 20 countries which receive the highest total score following the scoring method below are transferred over to the second phase. If a country's indicator value is missing, the average of the available values should be deduced.

CRITERION	COMPOSITION	INDICATOR	SCORING MODIFICATION	SCORING	WEIGHT
Human-induced, Climate-Based, and Rapid Onset Disaster Emergency Risk	Rapid onset disaster (earthquake, flood, tsunami, cyclone, drought, epidemic) and human hazard & exposure for overall risk calculation	**INFORM Risk Index**	none	The average of the three indicators should be deduced.

For each indicator, a 10-point scale with 0 being the lowest risk and 10 the highest risk; | 50% |
| | Includes long-term adaptation capacities to risks for rapid onset disaster hazards- earthquakes, cyclones, floods, droughts, sea-level rise | **World Risk Index** | Index score/5 | | |
| | Impact of climate-based events based on fatalities and losses. | **Climate Risk Index** [Germanwatch based on multiyear average 1999-2020] | 0.05555556*(180 - Index score) | | |

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National telecoms capacity	Readiness levels in terms of ICT capacities, systems, and infrastructure.	ICT Development Index (IDI)	10 – Index score/10	10-point scale with 0 being the most and 10 the lowest in ICT development; equal weight	50%

The methodology combines three indices for the first criterion 'Human-Induced, Climate-Based, and Rapid Onset Disaster Emergency Risk,' because the indices on their own fail to be comprehensive. For example, the INFORM Risk Index does not account for climate-based risks but considers rapid onset disaster risks by accounting for human and natural exposure and hazards, measures vulnerabilities, and lack of coping capacity. The World Risk Index only accounts for five natural hazards but observes capacities for long-term strategies for societal change. The Climate Risk Index accounts for climate-based risks but does not take into consideration the coping capacity or the infrastructure of the country, which results in a one-dimensional assessment of the countries which experience the most climate-based risks. To mediate for their respective shortcomings and biases, the three indices are grouped together to assess various emergency risks in a country and its coping capacities.

It is important to note that for the second criterion, national telecommunications capacity, a revised indicator has been used, namely the ITU's 2023 ICT Development Index (IDI). After a six-year hiatus it has been launched on the 13 December 2023. Based on its new methodology developed through an inclusive and iterative process, the IDI 2023 covers 169 economies and aims to assess the extent to which connectivity is universal and meaningful around the world. The IDI 2023 contains 10 indicators – organised under the two 'pillars' of Meaningful connectivity and Universal connectivity – which are assessed on a scale from 0 to 100, where 100 means that the 'ideal state' has been reached. The ETC included these new values in its CPA approach, by adjusting the index to fit the dataset's scale.

Based on the combination of these indexes, a quantitative number is associated to each country, allowing a first ranking of the most at-risk countries considering human-induced, climate-based, rapid onset (50%) as well as national ICT capacity (50%).
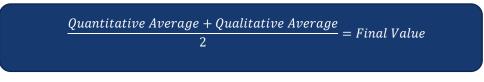
Phase 2: Qualitative Assessment

The second phase is a qualitative assessment that allows one to remove countries from the initial set of 20. The selected countries are measured against two criteria: national feasibility in-country and partner feasibility in-country. When a country has one or more qualitative indicators with a value of 0 (not feasible), that country is immediately removed from the listing.

For each country that has not been removed from the listing, an average of the qualitative values on a scale from 1-10 is deduced, where a higher value represents the highest feasibility. The indicators are based on the ETC Partner survey that is collected by colleagues in Country Offices, and officers of the Global ETC team.

CRITERION	COMPOSITION	INDICATOR	SCORING	WEIGHT
National feasibility in-country	Country uptake potentials, including clear activities, an implementation timeline and national stakeholder interest and engagement.	Qualitative [This data should be collected via ETC CPR survey.]	10-point scale with 0 being the lowest feasibility and 10 the highest feasibility 0: not feasible (rule-out criteria)	70%
Partner feasibility in-country	Presence and readiness of ETC partners for in-country project implementation.	Qualitative [This data should be collected via ETC CPR survey.]	10-point scale with 0 being the lowest feasibility and 10 the highest feasibility 0: not feasible (rule-out criteria)	30%

Phase 3: Final Value of Countries

The average of the quantitative and qualitative assessments is calculated for each country with the following equation:

$$\frac{Quantitative\ Average + Qualitative\ Average}{2} = Final\ Value$$

Based on their final values, the ≤20 countries should be listed and ranked accordingly, from highest value to the lowest. This final list reflects, in order, the countries that should be prioritized by Global ETC for preparedness operations, as those are theoretically the ones where the biggest impact can be achieved.

Case Study: Dominican Republic

The country prioritization methodology has been conducted for Dominican Republic, which is particularly prone to disasters. Like the rest of the Caribbean region, the Dominican Republic is a hurricane-prone country. The hurricane season usually runs from June, with the peak season from mid-August to late October.

Hurricane Fiona severely impacted the Dominican Republic in September 2022, causing extensive floods, cutting off villages, displacing 12,500 people, leaving 700 without power, and over a million without water. Logistics efforts were disrupted, with bridges and roads rendered impassable. Amidst these challenges, portable satellite communication emerged as a key solution, providing connectivity where traditional means failed. In 2021, the Emergency Telecommunications Cluster (ETC) collaborated with the Dominican Republic to enhance emergency telecommunication preparedness efforts. This involved activities like assisting in setting up a coordination mechanism, capacity building, and simulation exercises that were informed the emergency telecommunications preparedness capabilities, contributing significantly to the effective response in 2022.

Following the 3-phase model, the Dominican Republic exhibits a notable improvement with a quantitative value averaging 3.54, compared to 5.04 in 2023—a significant enhancement indicating decreased risk, which highlights that preparedness pays off. The qualitative value stands at 5.5, primarily due to the country's high feasibility from ongoing efforts at national level and with the ETC. The qualitative assessments were populated with dummy variables for the time being due to the lack of existing ETC Partner survey results. The combined average yields a final value of 4.82, placing the Dominican Republic ahead of the Solomon Islands (4.60) and the Philippines (4.50). Notably, the Dominican Republic's quantitative value (3.54) aligns closely with Sri Lanka (3.55) and Guyana (3.60).

Beyond risk factors, a high ranking indicates the ETC's potential impact considering national and partner feasibility. External factors may hinder ETC impact and feasibility, emphasizing the importance of stable government structures and the potential for effective project and activity implementation. The comprehensive methodology for this case study is detailed below:

1	QUANTITATIVE ASSESSMENT	Human-induced, Climate-Based, and Rapid Onset Disaster Emergency Risk	Rapid onset disaster (earthquake, flood, tsunami, cyclone, drought, epidemic) and human hazard & exposure for overall risk calculation	INFORM Risk Index	None 4.4	The average of the three indicators should be deduced. For each indicator, a 10-point scale with 0 being the lowest risk and 10 the highest risk;
			Includes long-term adaptation capacities to risks for rapid onset disaster hazards- earthquakes, cyclones, floods, droughts, sea-level rise	World Risk Index	Index score/5 3	6.12

			Impact of climate-based events based on fatalities and losses.	Climate Risk Index [Germanwatch based on multiyear average 1999-2020]	0.05555556*(180 - Index score) **6.7**	
		National telecoms capacity	Readiness levels in terms of ICT capacities, systems, and infrastructure.	ICT Development Index	10 – Index score/10 **2.5**	10-point scale with 0 being the most and 10 the lowest in ICT development; equal weight
2	QUALITATIVE ASSESSMENT	National feasibility in-country	Country uptake potentials, including clear activities, an implementation timeline and national stakeholder interest and engagement.	Qualitative	None **7**	10-point scale with 0 being the lowest feasibility and 10 the highest feasibility 0: not feasible (rule-out criteria)
		Partner feasibility in-country	Presence and readiness of ETC partners for in-country project implementation.	Qualitative	None **4**	10-point scale with 0 being the lowest feasibility and 10 the highest feasibility 0: not feasible (rule-out criteria)

Limitations

The methodology's objective of creating a simple, plug-in model introduces limitations, particularly in its reliance on a qualitative assessment for the final value. This assessment is often based on ETC's interpretation of feasibility rather than a comprehensive and detailed survey with the relevant stakeholders. Consequently, countries may exhibit high final values despite potentially low quantitative values compared to others, as is the case for the Dominican Republic. Their elevated final value is primarily attributed to their strong past and ongoing collaboration with the ETC in emergency telecommunication preparedness.

Another limitation stems from missing values in the ICT Development Index (IDI), prompting the ETC to resort to alternative indexes to compensate for incomplete data. In cases where the IDI value did not exist for certain countries, we relied on the INFORM Risk Index, a holistic index that scores countries' risks in a multidimensional way, to formulate the final value. This approach, while ensuring inclusiveness, comes at the cost of decreasing the completeness, representativeness and homogeneity of the data.

Moreover, the IDI methodology itself faces challenges related to data availability and quality. The universal connectivity pillar, ideally encompassing indicators across various settings like homes, schools, community centres, and workplaces, focuses solely on households and individuals due to limited data availability. Similarly, the meaningful connectivity pillar, intended to cover five connectivity enablers, is constrained by data availability and the necessity to rely predominantly on official data. Consequently, only three of the five enablers—infrastructure, affordability, and devices—can be effectively assessed.

Due to the aforementioned limitations, this methodology is encouraged to be used to inform the judgments of ETC regarding local ETC activation, but complete reliance on it is not recommended. It can be a useful tool in indicating primary countries which require assistance in preparedness, but alternative factors which lie outside of this methodology should also be considered on a qualitative basis.

Conclusion

In its goal to create a world where safe and local access to communications is always reliable, the ETC prioritizes regional and country preparedness. One of the cluster's strategic pillars for 2025 concerns improving the resilience of regional, national and community actors based on best practice and mainstreaming the preparedness mindset. To

achieve this goal, the ETC plans to work with stakeholders in vulnerable countries and regions to strengthen ICT preparedness holistically at a country level working with national and local government agencies, civil society groups, humanitarian organizations, the private sector, and the population itself.

To action this objective and to best identify the spaces for capacity-building, this country prioritization methodology can serve as a vital tool as it allows the Global ETC team to derive a final list of ≤20 countries at most risk where ETC activities and projects, especially in country preparedness and partner coordination, can have the greatest impact.

By following three phases, the methodology demonstrates a thorough analysis of both the quantitative and qualitative factors, which are weighed equally to prevent final skews in assessment. By considering indices which are publicly available and conducting partner surveys, the methodology arrives at a final, comparable value for each country. The methodology, consistent with the approach adopted by WFP across other clusters, serves as a powerful decision-making tool as it quantifies emergency risks and the impact of a global ETC-led project.

Annex

ETC Country Prioritization Methodology Survey

The ETC CPM Survey provides the qualitative dataset for the country prioritization methodology. It conducts two assessments: 1) national feasibility in-country and 2) partner feasibility in-country, with yes/no questions. For national feasibility in-country, ten questions are considered. If the response is yes, a value of 1 is given. If the response is no, a value of 0 is provided. For partner feasibility in-country, five questions are considered. If the response is yes, a value of 2 is given, and if no, 0. Based on the total values of the national feasibility in-country and partner feasibility in-country, a final qualitative value is derived using the following equation:

$$(n * 0.7) + (p * 0.3)$$

n = national feasibility in-country sum
p = partner feasibility in-country sum

National Feasibility in-country
*if yes, 1; if no, 0

1. Is there a designated government ministry/agency responsible for disaster management in the country?
2. Is there a standard operating procedure in place, outlining the role and mandate of the ICT ministry/ agency and regulator, with regards to preparedness and response?
3. Are there clearly defined points of contact established for disaster management in the respective agencies/ministries involved?
4. Can key contacts (identified in question 5) be reached at any time of the day or night?
5. Is there a national emergency telecoms cluster group established, representing key ICT contact persons?
6. Are roles, goals, and responsibilities coordinated across national to sub-national and community levels?
7. Is telecommunications/ICT prioritized, or addressed, as a critical function or priority within the country's disaster management framework?
8. Does the communications ministry/agency or regulator coordinate with, and participate in, the activities of the national disaster management agency?
9. Has an inter-organizational preparedness exercise been conducted in the last 24 months?
10. Is there an updated available list of telecommunications, information technology (IT), payment technology, and payment switch providers?

Partner Feasibility in-country
*if yes, 2; if no, 0

1. Has ETC worked with any partners in this country in the last two years?
2. Are there any known activities currently being carried out by ETC partners in the country?
3. Is there an ETC Partner engagement approach in place for coordinating disaster preparedness and response in the country?
4. Are ETC Partners coordinated with frequently for preparedness and response readiness activities and actions?
5. Have processes been established in advance for both the entry of experts and communications equipment in times of disaster, such as the ratification of the Tampere Convention?

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