

3<sup>RD</sup> GLOBAL FORUM ON EMERGENCY  
TELECOMMUNICATIONS

**ITU**GET  
MAURITIUS 2019

*Innovating together  
to save lives: using technologies  
in disaster management*

6-8 March  
Balaclava, Mauritius

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## Global Forum on Emergency Telecommunications (GET-19)

*Innovating together to save lives  
Using technologies in disaster management*

6 to 8 March 2019  
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# FINAL REPORT



## Introduction



The 3<sup>rd</sup> Global Forum on Emergency Telecommunications (GET-19) organized by the International Telecommunication Union (ITU) and hosted by the Information and Communication Technologies Authority (ICTA) of Mauritius attracted close to 180 participants from 36 Member States, representing public and private organizations including ministries, regulators, universities and research institutions, humanitarian organizations, development banks, regional disaster management organizations, telecommunication operators, ICT companies, and regional and international organizations. Women represented 25 per cent of all participants and 40 per cent of speakers and moderators.

The theme of GET-19 was **Innovating together to save lives: using technologies in disaster management.**

GET-19 was opened by Mr. Mahmad Aleem Bocus, Chairman of the Information and Communication Technologies Authority (ICTA) of Mauritius, Ms. Doreen Bogdan-Martin, Director of the ITU Telecommunication Development Bureau (BDT), Honourable Minister Marie Joseph Noël Etienne Ghislain Sinatambou of the Ministry of Social Security, National Solidarity, and Environment and Sustainable Development and Honourable Minister Yogida Sawmynaden of the Ministry of Technology, Communication and Innovation of Mauritius. Mr. Jérôme Louis, Officer in Charge of ICTA and Director of Engineering, chaired GET-19.

### Key outcomes

- GET-19 reaffirmed the need to strengthen coordination and cooperation at all levels, as well as the importance of data, trust and the need for a collective understanding of all phases of disaster management.
- GET-19 reinforced the principle that all actions and programmes must be people-centred: when disaster strikes, it is all about the people.
- GET-19 agreed that the preparedness phase is crucial to saving lives.

## SUMMARY OF DELIBERATIONS

Wednesday, 6 March 2019

### Opening Remarks:

The opening remarks marked the start of the 3rd Global Forum on Emergency Telecommunications (GET-19).

The first speaker, Mr. Mahmad Aleem Bocus, from the Information and Communication Technologies Authority (ICTA) of Mauritius, highlighted that Mauritius is affected by natural hazards, in particular cyclones and flash flooding. He stressed that the ICT Authority is dedicated to using technology and investigating how ICTs can help address the challenges of disaster management. The ICT Authority is actively engaging with the National Disaster Risk Reduction and Management Centre, telecommunication operators, and other stakeholders to establish a framework where existing telecommunications infrastructure can be put to use during emergencies. He mentioned that with substantial mobile penetration in Mauritius, the focus is now towards providing public warning systems over mobile networks.

Ms. Doreen Bogdan-Martin, Director of the ITU's Telecommunication Development Bureau, reminded participants that between 2007 to 2017, the world recorded an average of 350 disasters resulting in 68,000 deaths, 210 million people affected, and over 150 billion dollars' worth of damage a year. She highlighted the importance of disaster risk reduction and management for the achievement of the Sustainable Development Goals, and the importance of ICTs for delivering on the Sendai Framework for Disaster Risk Reduction.

She mentioned the important role that ICTs play for disaster preparedness and for saving lives, as during the 2017 hurricane season in the Caribbean.

The BDT Director also mentioned that more than half of the world's population is using the Internet and that services are now offering unprecedented ways to communicate before, during and after disasters strike.

### Session 1: Leaders' dialogue: disaster management and risk reduction - ICT opportunities and challenges

The high-level leaders' dialogue examined the opportunities and challenges of using information and communication technologies for disaster management and risk reduction. The panel highlighted the importance of disaster risk reduction and management for the achievement of international development goals, including the 2030 Agenda for Sustainable Development. It also emphasized the importance of ICTs for addressing climate change, humanitarian crises and disasters, and for creating a sustainable future. ICTs play an important role in producing valuable data that helps policy makers make informed policy decisions and to identify and manage disaster risks.

The panel shared concrete examples for better preparedness, which is critical when disasters require immediate action and coordination. This includes developing resilient infrastructure, setting up early warning systems, and developing comprehensive digital strategies that take account of disaster management and which include all relevant stakeholders. Policy makers can support the development of a digitized world and in creating opportunities for ICT-driven development through an enabling environment and innovative policies and regulation. An increasing number of countries are developing national disaster risk reduction strategies - one of the objectives of the Sendai Framework for Disaster Risk Reduction – and telecommunication and ICT strategies should be taken into consideration and included.

Panellists emphasized the importance of considering potential disaster impacts when planning new ICT infrastructure and increasing the levels of ICT access and use, raising awareness about the opportunities of technology and ICTs, including by the media, and building more resilient networks and interoperable systems that can deliver in times of disasters.

All panellists highlighted the importance of cooperation for better preparedness but also during disasters. The dialogue highlighted the exceptional circumstances of disasters, when everyone's business is saving lives and traditional interests and silos must be overcome. It emphasized the importance of coordination between the ICT community and the disaster risk reduction community and discussed some concrete and successful examples of collaboration and partnerships, such as those under the Emergency Telecommunication Cluster (ETC).

The Forum highlighted that while technological changes are offering great new opportunities, including in the area of digital identity and personalized services, efforts must be made to reach the most vulnerable, which are often those not connected.

To effectively reach out and deliver services to all affected communities it is imperative to work for and with local communities and make them part of the solution.

#### **Side Event: The role the satellite communication in disaster response**

The side event presented an overview of existing satellite systems in place and highlighted the role of satellite telecommunications for disaster management. It demonstrated the important role of satellite operators in providing reliable communication services for effective and coordinated disaster response. The presenter highlighted that natural hazards can lead to physical damage to the networks or disruption to the power grid, which can disable, or severely impact, established terrestrial communications systems. In these cases, satellite technologies provide critical connectivity after disaster. The presenter emphasized the importance of ensuring the protection of satellite services and the benefits of harmonized spectrum in promoting worldwide coverage of satellite services. A number of case studies from recent disasters were presented to highlight the use of satellite services by relief workers and to meet basic communication needs of the general public during times of emergencies.

## Session 2: High-level debate: Information and Communication Technologies for saving lives – lessons from the Caribbean, a case study

The high-level debate on *Information and Communication Technologies for saving lives – lessons from the Caribbean*, focused on the series of hurricanes that struck the Caribbean in 2017.

The session highlighted the importance of coordination, including for gathering, analysing and disseminating meteorological information and data. The Caribbean experience highlighted that the region is highly exposed to hurricanes and that accurate monitoring and timely forecasting are crucial. It showed that some countries in the region share services and information and that the impact of certain calamities can vary. Regional and national coordination amongst and between forecasting centres and disaster management agencies is critical to avoid misperceptions and to make better decisions.

The panel also discussed the importance of multi-stakeholder partnerships and the need for close cooperation between the public and the private sector. Through the harmonization of policies and regulations and spectrum allocation for emergency telecommunications, the use of ICTs for better preparedness could be enhanced. Harmonization could also facilitate rapid response processes. The session highlighted that even through the recovery period of one disaster, there should be a continuation process of preparedness activities to reduce vulnerability of potential future disasters. Panellists emphasized that using multiple technologies, communication channels and platforms can help deliver critical information to the public. At the same time, it is important that the information provided is trusted and trustworthy, and that citizens follow the instruction of warning messages. This will require further awareness raising.

Other recommendations from the discussions included the need to build-back better, to improve the region's Early Warning Systems, and to invest in preparedness and resilience. The Forum also highlighted the importance of taking advantage of new technologies and connectivity options. It suggested that governments could provide incentives to develop local applications and services that respond to local needs, further strengthening the involvement of communities.

### Session 3: Breakout sessions

The breakout session engaged conference participants around addressing and providing inputs towards challenges relating to the overall GET-19 topic of *Innovating together to save lives*, with a focus on *connectivity*. While one group focused on *Disaster Connectivity Maps* the other group discussed a possible *Framework for Connectivity Cooperation*.

#### Breakout Group 1: Disaster Connectivity Maps

This breakout session presented a proposal by ITU to develop a new initiative on disaster connectivity maps. The objective of this initiative is to produce near real-time information on the type, level and quality of connectivity in areas affected by disasters by using different data sources. The initiative would help identify connectivity gaps, and to make decisions on where and when to deploy often limited human, financial and physical resources. The session demonstrated that a number of ICT industry players – mobile network operators, Internet service providers, Internet and social media companies – have data sets that could be used to identify and monitor the status of connectivity, in near real-time. The session discussed the opportunities of such disaster connectivity maps and recommended convening a group of relevant stakeholders to consider potential opportunities and challenges related to implementation of the proposal, including a suggestion to pilot the project in some countries. The session also highlighted a number of different data sources, mapping tools and options, and possible challenges in obtaining data from, for example, mobile network operators.

#### Breakout Group 2: Framework for Connectivity Cooperation

The session highlighted that connectivity challenges arise during almost every disaster or emergency. Panellists emphasized the need for cooperation to restore communications in a timely manner and emphasized that capacity building and awareness raising at the political level is needed to properly fund and support disaster management activities at a local level. It was stated that public-private partnerships are key for disaster management and that they need to be established in advance.

The session highlighted that effective pre-positioning of equipment helps reduce the time taken in responding to disasters. Participants also mentioned the need to encourage national terrestrial roaming agreements among all national mobile operators according to GSM roaming standards for infrastructure sharing, and the existence of the ESOA/GVF satellite Crisis Connectivity Charter. The session highlighted the importance of training and skills, and supported the use of common altering standards, such as CAP to deliver warnings and alerts to the public.

It emphasized the need to establish flexible regulatory frameworks to address short-term spectrum needs, to fast track equipment through customs and to waive related fees, including the need for the provision of mechanisms to allow experts involved in response to enter the country.

Thursday, 07 March 2019

#### Session 4: Disaster Response Innovation and Technologies to Stay Connected

This session provided concrete examples of how different ICTs and disruptive technologies, such as Artificial Intelligence, Big Data, Internet of Things (IoT), Robotics and Drones, create new possibilities for disaster risk reduction and management. It also presented the new [ITU study on disruptive technologies for disaster risk reduction and management](#).

ICTs and disruptive technologies refine processes by spreading critical information quickly. They improve understanding of the causes of disasters, enhance early warning systems and damage assessments, and increase knowledge of social behaviour and economic impact during disaster. The session showed that applying these disruptive technologies to disaster management varies in pace, scope and impact, with robotics and AI technologies remaining largely experimental. Participants at the Forum discussed the idea of building a global repository to help share information on different projects, stakeholders, investors, opportunities and challenges. Such a repository could also share best practices and increase awareness to avoid the duplication of efforts.

The session brought to attention the way disruptive technologies change how things are done, people's interaction with the world and the impacts they can have on markets. Further challenges and opportunities were discussed, including the way in which technology can make a huge impact for vulnerable communities and for those living in unserved and underserved areas.

To address the challenges and opportunities posed by disruptive technologies, several concrete recommendations were discussed. These include the need to engage and invest in pilot projects and to scale projects to have widespread impact and become more affordable. Training is indispensable for the disaster community to understand how to deploy new and emerging technologies in crisis settings, and it is also important to understand and address the legal ramifications of technological research and interventions for disasters. . In addition, the standardization, interoperability and development of different protocols for new technologies will make their use more efficient and widespread. Insights on how to engage people in technology development, deployment and adoption were discussed. Scaling up technologies such as IoT can be achieved through crowd and open sourcing. Innovation is massively important, allowing those with skills to inflict change and to encourage a maker movement.

Partnership building brings inclusivity, involving public and private sector actors, and academia. Collaboration must also take place among companies themselves, which could further encourage scalability of technological solutions. It was noted that this inclusivity can help us better adapt technologies to the level of ICT access, ICT use and user skills which can make a greater impact to all.

The Forum also presented new and innovative ways of delivering and expanding connectivity in times of disasters and to connect remote and rural areas, including through high altitude platforms of "flying cell towers" (incorporating technologies such as balloons or drones) as hybrid solutions that can complement existing cellular networks. These temporary solutions do not create competition but rather fill connectivity gaps for effective response during

disasters. In this context, the session discussed ways of ensuring that regulation must be dynamic, innovative, flexible and accommodating to promote innovative ideas and services.

## Session 5: Emergency telecommunications for better preparedness

This session focused on the use of emergency telecommunications to strengthen disaster preparedness to address potential impacts caused by natural hazards more proactively. It discussed improvements in the area of disaster preparedness through better ICT connectivity, hybrid solutions, alerting and multi-hazard early warning systems, and through stronger partnerships and collaboration. The session included a discussion on the need to use both emerging and existing technologies, to focus on those that are most appropriate under different circumstances, and to adapt these to the needs and skills of those using the service. It provided a range of examples of how to use 'older', or more traditional technologies and services to receive alerting messages, such as via SMS, to provide mobile money services to vulnerable communities, and to use real time data from mobile cell towers to understand the impacts to connectivity of weather related events as well as resulting population movement.

It highlighted the need to ensure the resilience of different networks, including the Internet, which many technologies and services depend on, in particular during emergencies, when the Internet is used for social media, and data applications. Making networks resilient requires coordination of stakeholders, in particular with services providers, regulators but also civil society. This includes electricity infrastructure resilience, which is a key requirement for ICT services to be delivered. For small countries, such as small island developing states, regional coordination can help address scarce human and financial resources and regional concerns of resilience.

The session identified a number of policy recommendations for regulatory flexibility that can enable network operators, including mobile operators, to adapt during times of disasters, such as increasing power levels, or timely approvals of temporary connectivity solutions where delays in the approval process may hinder response. It also mentioned the importance of the Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations (1998), a multilateral treaty governing the provision and availability of communications equipment during disaster relief operations, particularly as regards the importation of equipment. A presenter suggested revisiting the convention to adapt it to technological developments and noting the ITU could initiate this process.

Partnerships can help deliver better resilience and the session highlighted the importance of coordination and partnership, for example between regulators, multilateral agencies and operators. In addition, shared principles, such as those laid out in the GSMA's Humanitarian Connectivity Charter, help to provide guidance, improve preparedness and resilience, drive interoperability (for example in such areas as mobile payments) and build business continuity for mobile operators. Besides reaching out to operators, regulators are also encouraged to identify policy guidelines that set out unambiguous rules.

The session discussed the important role of satellite networks and services, which are becoming faster and more affordable with technological developments. Satellite operators have an important role to play in the achievement of the Sustainable Development Goals by delivering last-mile connectivity and ICT services, including broadband services, to remote and rural areas, and in delivering life-saving connectivity to communities at risk when disasters strike.

#### Side Event: Regulatory Actions for Disaster Response – the Brumadinho’s Case

The side event presented a real-life experience of the response efforts provided by the Government of Brazil after the devastation caused by the collapse of the Feijao dam (January 2019), which was used to collect mining waste. Rapid ICT response efforts were delivered in a timely manner thanks to the preparedness measures established by the National Telecommunications Agency (ANATEL). This included a 2015 resolution on emergency telecommunications integrating the three critical areas of risk management, telecommunications network performance, monitoring, preparedness and response measures. The presentation highlighted the need for preparedness and coordination measures for better response. It also emphasized the need of the establishment of private-public partnerships that could support recovery and reconstruction efforts in the long term. The presentation demonstrated the usefulness of deploying different ICT technologies, including drones and robots, for saving lives.

### Session 6: ICT strategies, policies and plans for disaster management

The session highlighted the importance for countries to adopt National Emergency Telecommunications Plans (NETPs), to set up policies, regulations, and standard operating procedures (SOPs) for better preparedness, and to operationalize all phases of disaster management. ITU presented its draft Global Guidelines for the development of NETPs, and invited participants to comment on the guidelines until April 30<sup>th</sup> 2019.

The Forum highlighted the usefulness of the Guidelines, acknowledged ITU’s support to governments in developing NETPs, and encouraged more countries to use these guidelines to develop new, or review, existing plans. A number of countries that have developed regulatory frameworks and emergency telecommunication plans shared their experience. It was highlighted that NETPs should be part of a country’s national emergency response plan, exercised and updated on a regular basis, and address all possible hazards. Panellists highlighted that the process of developing an NETP can help identify stakeholder roles, increase the awareness amongst policy makers and that high-level support is critical for success.

The Forum also pointed to the challenges of implementing plans, in particular if a country lacks the necessary legislation and/or financial resources. Discussions further emphasized the importance of high-level awareness, the urgency for all countries to develop NETPs and to

ensure their relevance to national circumstances. For NETPs to be relevant for those they are supposed to protect and support, governments are encouraged to take into account international, regional, national but also state and local needs and circumstances.

### Session 7: People, processes, technologies – a Table Top exercise

Tying in with the theme of GET-19, a simulation table-top exercise on a fictitious disaster engaged participants in an interactive learning experience on the alignment between “people, process, technology” for effective preparedness and response. This exercise, which took place in the fictitious country of Getonia, was held in three parts: the phases of preparedness, needs assessment and response. Participants collaborated, sharing their own experiences and insights to inform the group's responses to the exercise requirements. The exercise helped to increase awareness about the need of inter-agency coordination in disaster preparedness and response, to highlight the need for clear coordination structures and engagement with telecommunication service providers, media agencies, telecommunications bodies, meteorological and seismology services, and disaster management authorities. This hands-on session demonstrated that preparedness efforts can improve response effectiveness, showcased the process of dissemination of warning advisory to the public using ICT-based early warning systems, as well as the value of GIS visualization and ICT-enabled tools for decision-making.

The debrief of the exercise built on this activity by looking at lessons learned - with participants providing feedback and generating a series of questions for self-evaluation, for when they return to their home countries. These questions, combined with the checklist in the ITU Guidelines for developing National Emergency Telecommunication Plans will assist people evaluate their own readiness for disaster.

Friday, 8 March 2019

## Session 8: Improving disaster resilience through ICTs

Session 8 focused on the critical element of resilience for ICTs during a disaster. The session recognized that communication is a basic need and provides a lifesaving element during disasters for all phases of emergency management, preparedness, response, recovery and mitigation.

The session discussed the importance of Internet resilience and presented different tools that countries can use to determine if they have connectivity and the speeds they require. Promoting the use of Internet Exchange Points, which improves bandwidth and local traffic quality by exchanging web traffic in country, and augmenting this with remote-mirrored hosting, is a good resilience example. It was also suggested that a copy of the root server for DNS be kept in-country and that the use of Internet Exchange Points (IXP) be promoted and enforced.

Panellists emphasized the value of developing and conducting tests and drills during ordinary times making sure all stakeholders are prepared and communities are resilient. Standard operating procedures are vital and must be tested and be ready to enact when an incident occurs. Highly vulnerable countries must work diligently to be prepared and make sure ICTs are redundant and resilient for the many threats that may occur.

The session discussed technological developments in the satellite industry and its role in building resilient infrastructure. Satellite communication provides support for preparedness as well as response and recovery. Coverage over the globe can also provide for Internet access to remote and rural areas in the case of emergencies, as the costs for services are falling. The session also described the ESOA and GVF Crisis Connectivity Charter, through which the satellite industry has committed to donate prepositioned equipment and free airtime, which is to be used in disaster response and deployed by the ETC within 48 hours of being activated. Ratifying the Tampere Convention can reduce bottlenecks to deploying technologies during disasters, if necessary national procedures are put in place.

## Session 9: Transforming the humanitarian response through ICTs

This session focused on the use of ICTs to respond to humanitarian crises, in particular flows of refugees and internally-displaced persons (IDPs). Each year millions of people are forced to leave their homes and seek refuge from conflicts, violence, human rights violations, and the impacts of natural hazards and climate change. Although there are often short-term and urgent dimensions to this issue, it also requires a long-term response, with some refugee communities becoming established for decades. There is often a degree of ambivalence expressed by Governments in welcoming refugees, and this can work against the efforts to improve connectivity and provide communal ICT facilities. While refugees and IDPs have some very specific information needs, their need to connect and in particular to have access to free

Wi-Fi, is similar universally. A number of organisations like NetHope and UNHCR, are helping to respond to these needs.

The discussion raised the issue that policies and regulations that are developed with the best of intentions – such as mandatory SIM card registration based on *know-your-customer* requirements – can sometimes have unintended consequences, in making it more difficult for refugees and IDPs to legally use mobile communications. Panellists highlighted that digital ID should be used for inclusion, not exclusion. Similarly, increasingly secure arrangements for data protection and privacy can sometimes harm the interests of refugees and IDPs, for instance by making it more difficult to locate separated family members. There is a need for more regulatory flexibility therefore the Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations provides a framework to enable the deployment of communications for response to emergencies and humanitarian crises, provided that national policies are put in place, including for frequency and type approval as well as equipment import. The ITU membership is encouraged to consider updating the Convention, and those countries that have not yet ratified the Convention and urged to do so.

There is a need to ensure that initiatives to provide enhanced connectivity to refugees and IDPs are equally extended to host communities. There is also a need to better understand refugee flows. Here the tools available, in particular from satellite imagery, social media sentiment analysis and from Big Data Analytics, have improved dramatically in recent years. A newly-released report – [The Global Broadband Plan for Refugee Inclusion](#) - provides in-depth research, from case studies in Burundi, Tanzania and Uganda, and thoughtful recommendations that will help organisations active in the field of humanitarian response to better manage and coordinate their efforts.

#### Side Event: Federal Communications Commission (FCC) Role in Disaster Planning

The presentation offered a comprehensive overview of the role of the United States Federal Communications Commission (FCC) in disaster preparedness and response. It covered the general statutory responsibilities the FCC has regarding the protection of public safety including spectrum management and licensing for public safety communications as well as the FCC's role within the U.S. Federal disaster response framework. The presenter mentioned that in certain disasters the FCC provides support both from headquarters through provision of waivers and special temporary authorities to support restoration efforts and also to support federal response operations in the field by helping with incident management including damage assessment and interference mitigation. The presenter was able to highlight, through the FCC's activities, many of the themes and best practices that were identified throughout the GET such as the importance of stakeholder coordination, emergency alerts, and the enabling policy and regulatory environment to harness the power of communications technologies to strengthen disaster response.

### Special Lunch to Celebrate International Women's Day 2019

On 8 March, a special lunch was organized to mark International Women's Day under the theme "Think equal, build smart, innovate for change". The event was an opportunity to reflect on how ICTs can be used to create opportunities for women in disaster management.

### Session 10: Results from breakout sessions on day 1 and key lessons of the Table Top exercise on day 2

This session presented the key results of the Breakout Session 3 and 7 (see above) to the Forum.

### Presentation of Chair's summary and conclusions

The GET-19 Chair provided a summary of deliberations of GET-19 and invited all participants to access the full final report on the GET-19 website (available at [www.itu.int/GET2019](http://www.itu.int/GET2019)). This final report incorporates all the comments received.