

TELECOM EMERGENCY RESPONSE PLAN

PUBLIC TELECOMMUNICATIONS SECTOR

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EXECUTIVE SUMMARY

Telecommunications Infrastructure and Services play a primary role during national disasters and emergency situations as they provide a means for communication and information sharing which is particularly important for the dissemination of alerts and for the effective coordination of rescue and relief operations. The Telecommunications Infrastructure and Services are however susceptible to failure leading to Telecom Emergency which will not only have a negative impact on the Sector but can also hinder emergency response and disaster relief efforts. It is therefore crucial to ensure that Critical Telecommunications Infrastructure and Services are operational during any national disaster or emergency. In line with Government's fourth and fifth National Telecommunications Plans ("NTP 4" and "NTP 5") in ensuring that the Sector remains resilient to any cyber and physical threats and is ready to mitigate any disaster or emergency, the Authority in coordination with the stakeholders from the Sector, has developed a Telecommunications Emergency Response Plan ("the Plan"). The Plan lays the foundation for an effective and coordinated response by the Sector to a Telecom Emergency.

The Plan provides guidance to the Sector by defining the roles and

responsibilities for the Licensees and the Authority during pre-disaster and post-disaster phases and lays down the sequence of actions to be taken by the Sector during a Telecom Emergency.

The Plan also contains important information for all those who require an understanding of the Sector's response to Incidents and Telecom Emergencies which may affect, directly or indirectly, the Critical Telecommunication Infrastructure and Services of the Kingdom of Bahrain. This Plan is subject to periodic review and updates by the Authority in coordination with the Licensed Operators. Future amendments may be implemented based on progress made toward achieving the NTP 4 and NTP 5 goals, variations in national priorities, and lessons learned from after-action reports.



INTRODUCTION

Telecommunications services can play a primary role during a disaster or emergency by enabling the dissemination of alerts and can support in coordination of rescue and relief operations. However, Telecom Infrastructure is also susceptible to disasters or emergencies leading to Telecom Emergency which will not only have an impact on the Sector but can also hinder rescue and relief efforts. Hence it is crucial to ensure that Critical Telecommunication Infrastructure or Services are operational during any national disaster or emergency.

The Authority has drafted this Telecom Emergency Response Plan (“the Plan”) for the Sector to lay the foundation for an effective and coordinated Response by the Sector to a Telecom Emergency.

OBJECTIVE

To enable and ensure availability and operability of Critical Telecommunications Infrastructure and Services during a Telecom Emergency, this plan lays out the activities to be carried out by the sector during all the four phases of the disaster management - mitigation, preparedness, response, and recovery phases, by promoting coordination across the sector.

SCOPE

The scope of the Plan is to:

1

Define the roles and responsibilities for the Licensees and the Authority for the 4 phases of disaster management

2

Lays down the sequence of actions to be taken by the Sector during a Telecom Emergency.

3

Promote coordination and collaboration between Licensees during a Telecom Emergency.

4

Encourage Licensees to ensure that their respective crisis management teams (CMT) are adequately and continuously trained.

5

Form the Sector’s Emergency Response Committee (ERC) comprising of representatives from the Authority and Licensees.

POLICY & INITIATIVES

Based on the Government’s National Telecommunications Plan (NTP)¹ 4 and 5, to ensure that the Sector remains resilient to any cyber and physical threats and is ready to mitigate any disaster or emergency, the Authority had published the Critical Telecommunications Infrastructure Risk Management Regulation (‘the CTI Risk Management Regulation’)² and is now launching this Telecom Emergency Response Plan for the Sector.

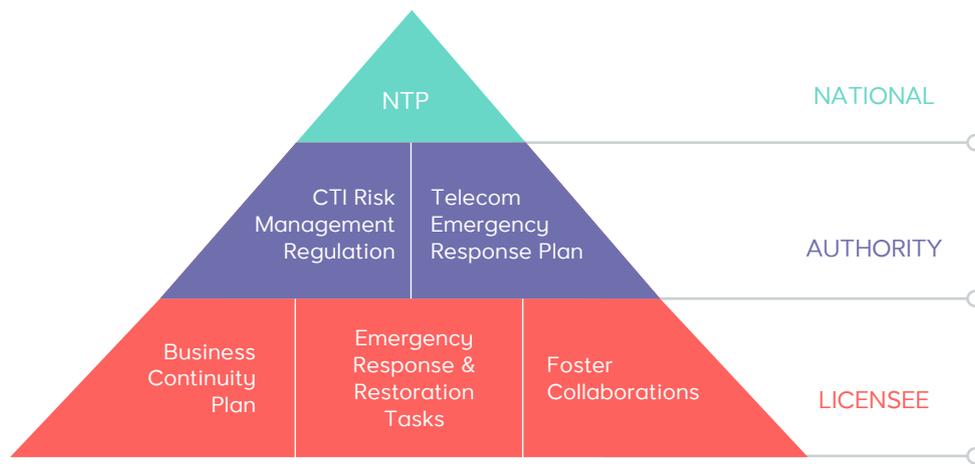


Figure 1 Policy and Initiatives

Pursuant to the CTI Risk Management Regulation, Licensees are required to attain ISO 27001 certification and thereafter on an annual basis submit several documents as per Article 5 thereof. Subsequent to the issuance of the CTI Risk Management Regulation, the Authority believes that it is now opportune to set out a documented plan of its expectations addressing licensees’ ability to respond in time of emergencies. Based on this Telecom Emergency Response Plan:



Licensees are expected to be capable of handling incidents with a view of Responding to, Mitigate & eventually restore Critical Telecommunications Infrastructure & Services.



Licensees are encouraged to foster collaboration amongst themselves to allow a coordinated effort during a Telecom Emergency.



Licensees are recommended to form a Crisis Management Team (CMT) and nominate a representative from their side to be part of the ERC to act as a Licensee point of contact with the Authority during the Telecom Emergency.

1 - <https://www.tra.org.bh/en/category/national-telecommunications-plans>
 2 - CTI Risk Management Regulation - https://tra-website-content-prod-2019-do-not-delete.s3-eu-west-1.amazonaws.com/Media/mediafiles/document/CTI_Risk_Management_Regulation_En.pdf

TARGET AUDIENCE



This document is addressed to all Licensees but also contains important information for all those who require an understanding of the Sector's response to Incidents and Telecom Emergencies which may affect, directly or indirectly, the Critical Telecommunication Infrastructure and Services of the Kingdom of Bahrain.

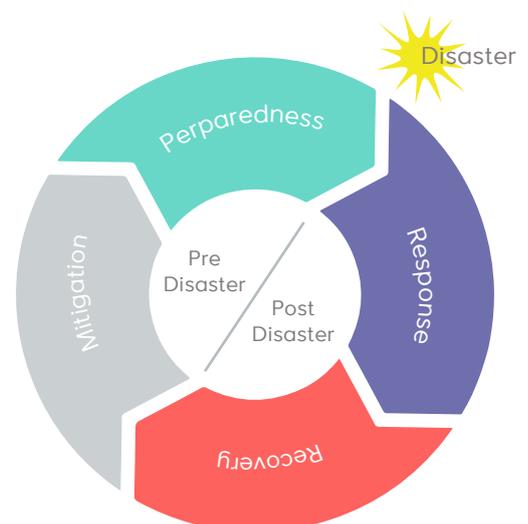
CONCEPT

The Plan developed by the Authority is based on the "ITU Guidelines for national emergency telecommunication plans"³ that reflects all the four phases of Disaster Management – Mitigation, Preparedness, Response and Recovery.

Sector Emergency Response Committee

The Authority will establish the Sector Emergency Response Committee under the chairmanship of its General Director. A core team including Head of the ERC, relevant Authority Staff, and Licensee's representatives will be formed to oversee the response and recovery efforts during a Telecom Emergency.

The structure of the ERC is detailed on page 17.



TELECOM EMERGENCY

Critical Telecommunications Infrastructure or Services could be impacted and eventually lead to the Telecom Emergency in any of the following instances:



01

Natural Disasters

A 'natural disaster' is one that emanates from an environmental incident. It may be related to a geophysical, hydrological, meteorological, climatological, and biological disasters. A non-comprehensive list of natural disasters is listed in the Appendix.

02

Man-made Disasters

A 'man-made' disaster is the direct creation | activity of human-being(s). These are mostly related to events such as civil disturbance | war | terrorist attack | cyber-attack | security breach and other law & order aspects.



03

Other Threats to the Sector

Other threats include those being faced by the Sector from: electricity outage, unavailability of fuel or oil, failure for whatever reason of Critical Telecommunications Networks, electronic interference, denial of site or geographical area, disruption to land, sea, or air transport, loss of mains water and sewerage.

It is fundamental that Licensees take the requisite steps to mitigate and respond to Incidents. However, only in the case that the Incident increases in complexity and severity resulting in a Telecom Emergency, that the Plan be invoked based on the assessment of the severity of the situation by the Head of the ERC and an appropriate response will be determined.

Further, the Head of ERC may, as a result of any situation, can choose to invoke the Plan and call upon the Licensees to work in co-ordination to maintain the operability of Critical Telecommunications Infrastructure and Services. Licensees will be expected to take all necessary action to manage such situations. Once the Emergency is declared, The Authority will notify the NCSC and the other government bodies (as required).



ADDITIONAL REPORTING REQUIREMENTS

Additionally, Licensee representatives are required to notify the Authority (Head of ERC) within 30 minutes where any Place of Significant or Special Interest suffers a complete data or voice outage lasting more than 60 minutes even though such an incident will not lead to a Telecom Emergency and where the impacted Licensee is required to take unilateral action to respond and recover from the situation.

The licensee representatives are required to the notify every 30 minutes the progress of the situation to the Head of ERC until the situation is recovered.

Note: Notification shall be made using the most effective and reliable means of communication available at the time.

INFORMATION FLOW AND SEQUENCE OF EVENTS DURING TELECOM EMERGENCY

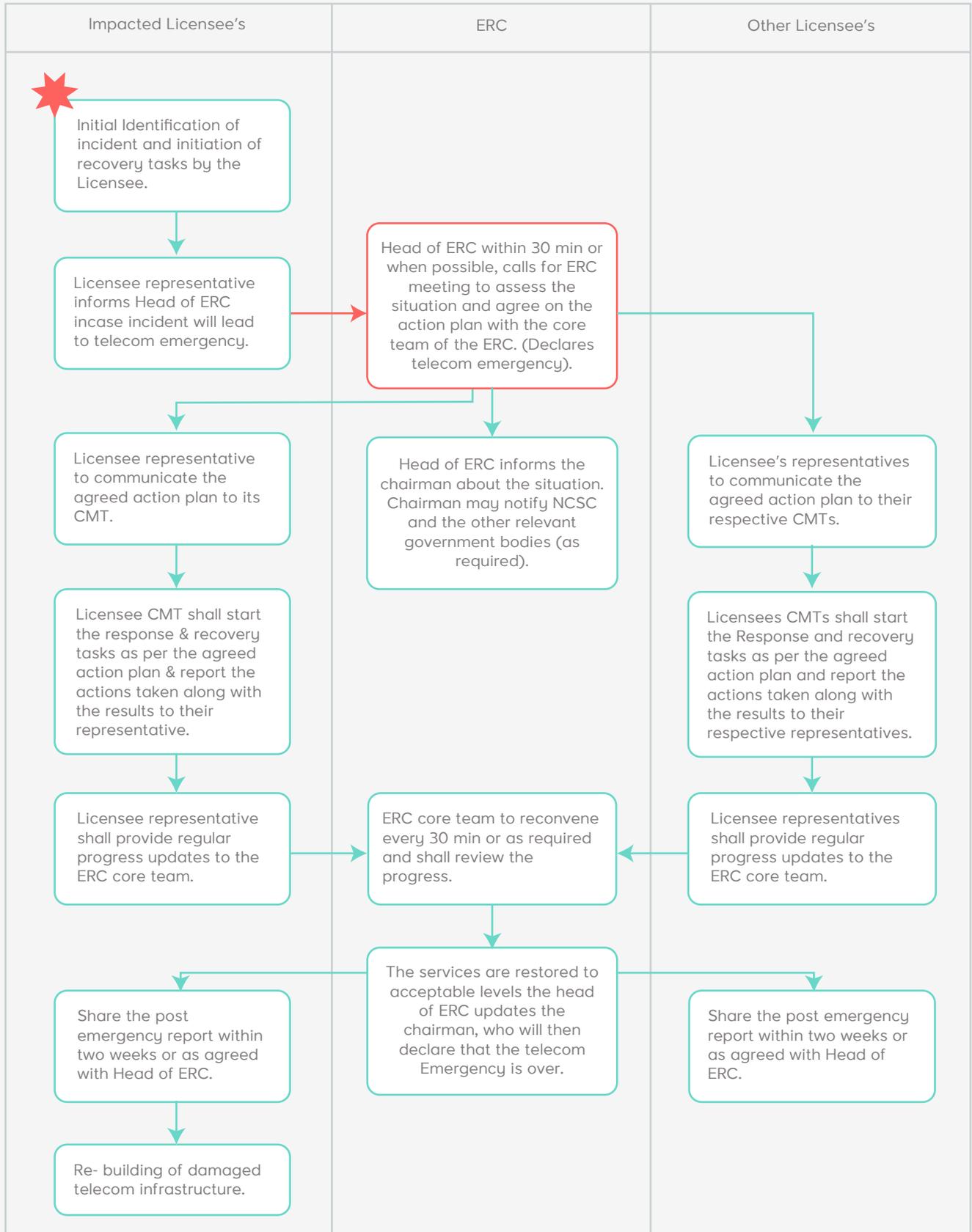
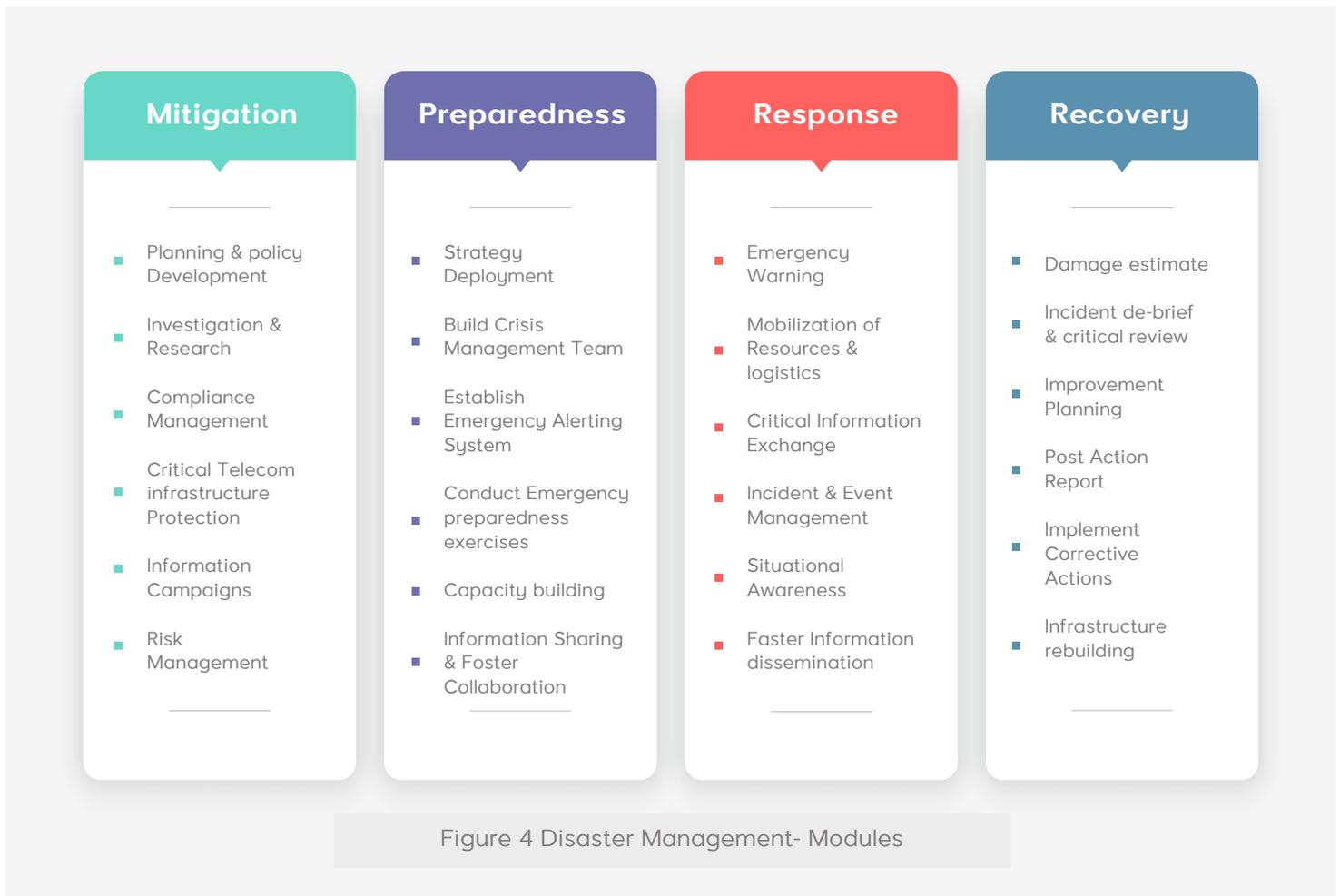


Figure 3 Sequence of events during Telecom Emergency

ROLES AND RESPONSIBILITIES

The Sector shall support all four phases of disaster management - mitigation, preparedness, response, and recovery by performing tasks as per the defined roles and responsibilities at each phase.



MITIGATION PHASE

This phase includes any type of activity that seeks to prevent an emergency, reduce the likelihood of its occurrence, or limit the negative effects of unavoidable threats. Hence, under normal working conditions it is important for the Authority and the Licensees to consider necessary steps that seek to reduce the impact of Incidents.

It is understood that the licensees have developed their own BCP, incident response plan and any other contingency plans to manage the Incidents.

In case Licensees have not developed such documentation, it is recommended that Licensees develop such documentation within 5 months of publication of this Plan.

PREPAREDNESS PHASE

This phase includes the planning and preparation necessary for responding to the Telecom Emergency and both the Licensees and Authority shall consider performing the tasks as below:

Licensee Requirements:

Affected Licensees shall:

- Nominate a representative that shall be part of the ERC and to act as a single point of contact on behalf of the Licensee during the Telecom Emergency.
 - Foster collaboration by signing the MoU attached to this Plan amongst themselves to allow information sharing and coordination during the Telecom Emergency.
 - Form a Crisis Management Team (CMT) and provide adequate training to the CMT members.
 - Conduct regular Internal Drills.
- It is further recommended that licensees should conduct at least one Internal Drill within 12 months of the publication of this Telecom Emergency Plan and share the report with the Authority.
- Thereafter, shall conduct Internal Drills annually.

It is also recommended that Licensees:

- Have the availability of spares and Emergency Telecommunications Infrastructure e.g., portable - base stations, power backups, instant network solutions, mobile exchange on wheels etc. that are easily and quickly deployable to mitigate technical failures and Incidents and avoid leading such Incidents to a Telecom Emergency.
- Implement Early Warning Systems (EWS) / Implement Common Alerting Protocol (CAP) that can assist in alerting the public and disseminating information regarding disaster or emergency (e.g., Cell Broadcast, SMS Broadcast, website etc...)
- Implement Emergency Operations Center (EOC) that can act as a command-and-control center including a well facilitated secondary location if the primary location becomes untenable for any reason for the licensee to:
 - co-ordinate and manage the tasks and activities during the Telecom Emergency.
 - manage and operate its network (Network Monitoring)
 - respond to telephonic subscriber queries (Call Center Facility with IVR capabilities)
- Implement Push to talk communications.

The Authority shall:

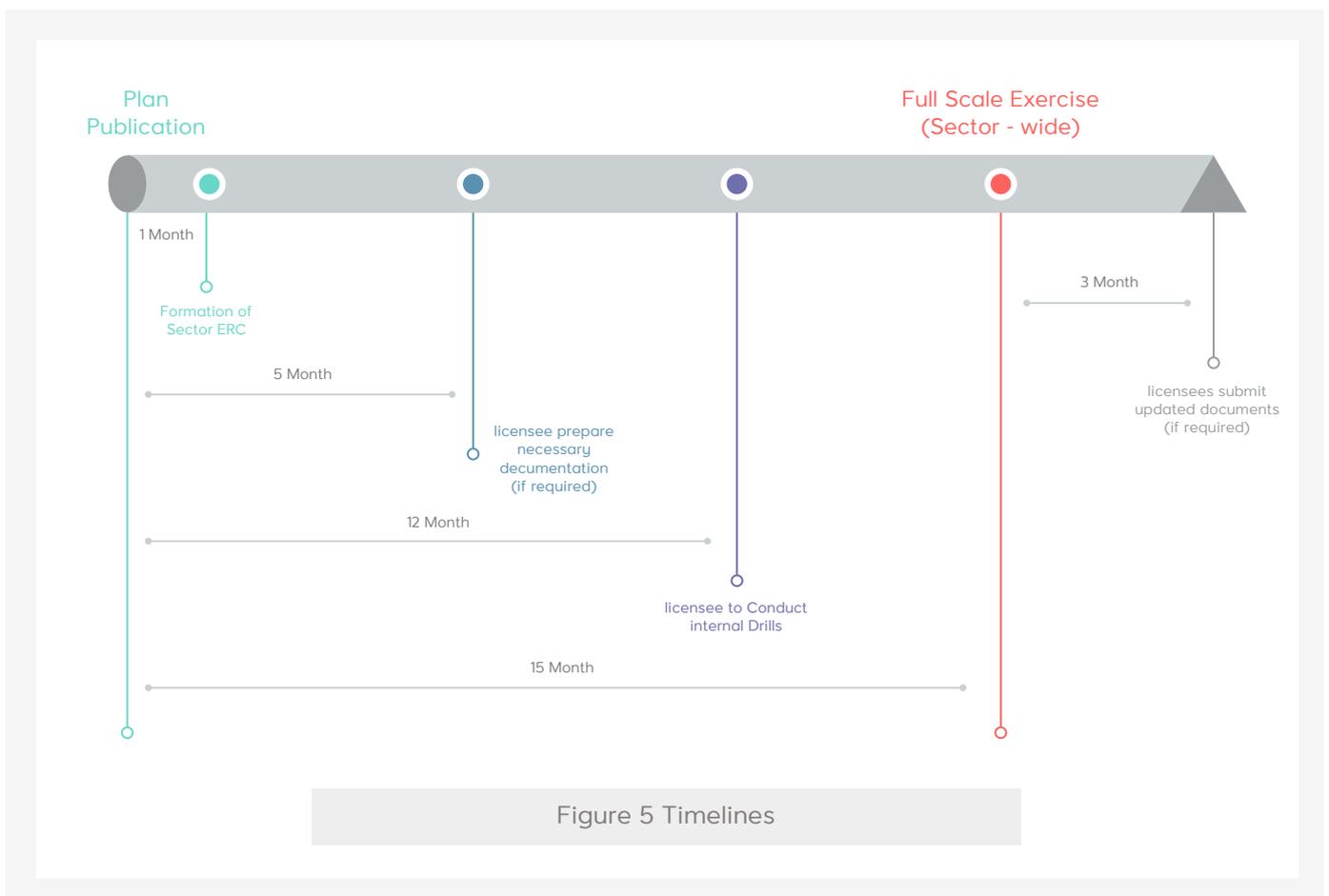
- Formalize the Sector Emergency Response Committee (ERC).
- Review the documents / information / Internal Drill reports submitted by Licensees.

The Authority will engage with Affected Licensees (as applicable) to:

- Allow Domestic Roaming during the Telecom Emergency.
- Diversification of Internet routes.
- Conduct a full-scale exercise along with the Licensees within 15 months of the publication of this Plan.

Note: The Authority may engage NCSC to be the part of the full-scale exercise.

The overall timelines are highlighted as below:



Recurring Actions

Regular meetings and actions shall be performed by the Affected Licensees and Authority as per the table below:

ACTION	RESPONSIBILITY	PERIOD
Conduct Internal Drills	Affected Licensees	Yearly
Submission of relevant documents	Affected Licensees	When required
Review of corrective actions	Authority	When required
Full Scale Exercise	Affected Licensees & Authority	Periodically
Review of the Telecom Emergency Response Plan	Authority	When required

Table 1 Recurring Actions

RESPONSE PHASE

The roles and responsibilities of Affected Licensees, Authority and ERC during the response phase are listed as below:

Licensee responsibilities:

- Take immediate actions to respond to the Incident
- Notify the Authority of the Telecom Emergency or imminent Telecom Emergency.
- Activate their respective Business Continuity Plan, incident response plan and follow the ERC's agreed action plan.
- Mobilization of resources and coordinate the activities of its CMT.
- Handling of Emergency calls.
- Log all the activities, tasks, events and provide regular updates to the Authority.
- Rapid deployment of Emergency Telecom Infrastructure to replace damaged or destroyed telecoms physical infrastructure.

Authority responsibilities:

- Provide regular updates to NCSC, other sectors, and ministries where applicable.
- Public Information Exchange – Media Handling
- Approve and allocate resources such as spectrum, frequencies, and licenses etc. on temporary basis as required.

ERC responsibilities:

- Ensure smooth coordination amongst the Licensees.
- Regular and timely follow-ups (every 30 minutes or as required).
- Ensure all the activities, tasks and events are logged by the Licensees.

Note: Information Flow listed on page 11 shall be followed during this phase. Meeting of the Emergency Response Committee (which can be hosted physically or virtually) shall be conducted to achieve a unified and coordinated approach to resolve the Telecom Emergency. The Draft of the Framework for the Emergency Response Meeting has been provided in the Appendix b.

RECOVERY PHASE

This phase focuses on activities such as re-building telecom infrastructure, damage assessment, reviewing and update of relevant plans and procedures, and implementing corrective actions.

An effective review of the performance of the licensees' CMT during emergency is essential in ensuring that the key learning points are captured and acted upon in a timely and effective manner.

Licensee responsibilities:

The following elements are the minimum to be considered by the Affected Licensees at the recovery stage:

- Identify the main challenges faced during the Telecom Emergency; and
- Submit a status report along with the logbook within two weeks or as mutually agreed with the head of the ERC of the declaration of 'emergency over' to the Authority outlining:

- The reasons of interruptions
 - Impact of the Telecom Emergency
 - Time taken to respond and recover.
 - Lessons learned and any planned remedial action.
- Provide a full debrief to the members of the Emergency Response Committee who were involved in the response.
 - Re-build telecom infrastructure and implement corrective actions.
 - Update Business Continuity Plan and any other such documentation

ERC Activities:

- Capture as much information about the emergency as possible.
 - Compile a report which lists the lessons learned including details received from the Licensees regarding the emergency.
- Following the de-brief and receipt of the after-action reports from the licensees the ERC
- will present the consolidated report to the Chairman (General Director of the Authority) within four weeks of the declaration of an emergency over.

The Authority activities:

- Ensure that all relevant legal instruments are kept up-dated.
- Review and Update this Plan if required.



THE SECTOR EMERGENCY RESPONSE COMMITTEE STRUCTURE

The Sector Emergency Response Committee Structure has been detailed below:

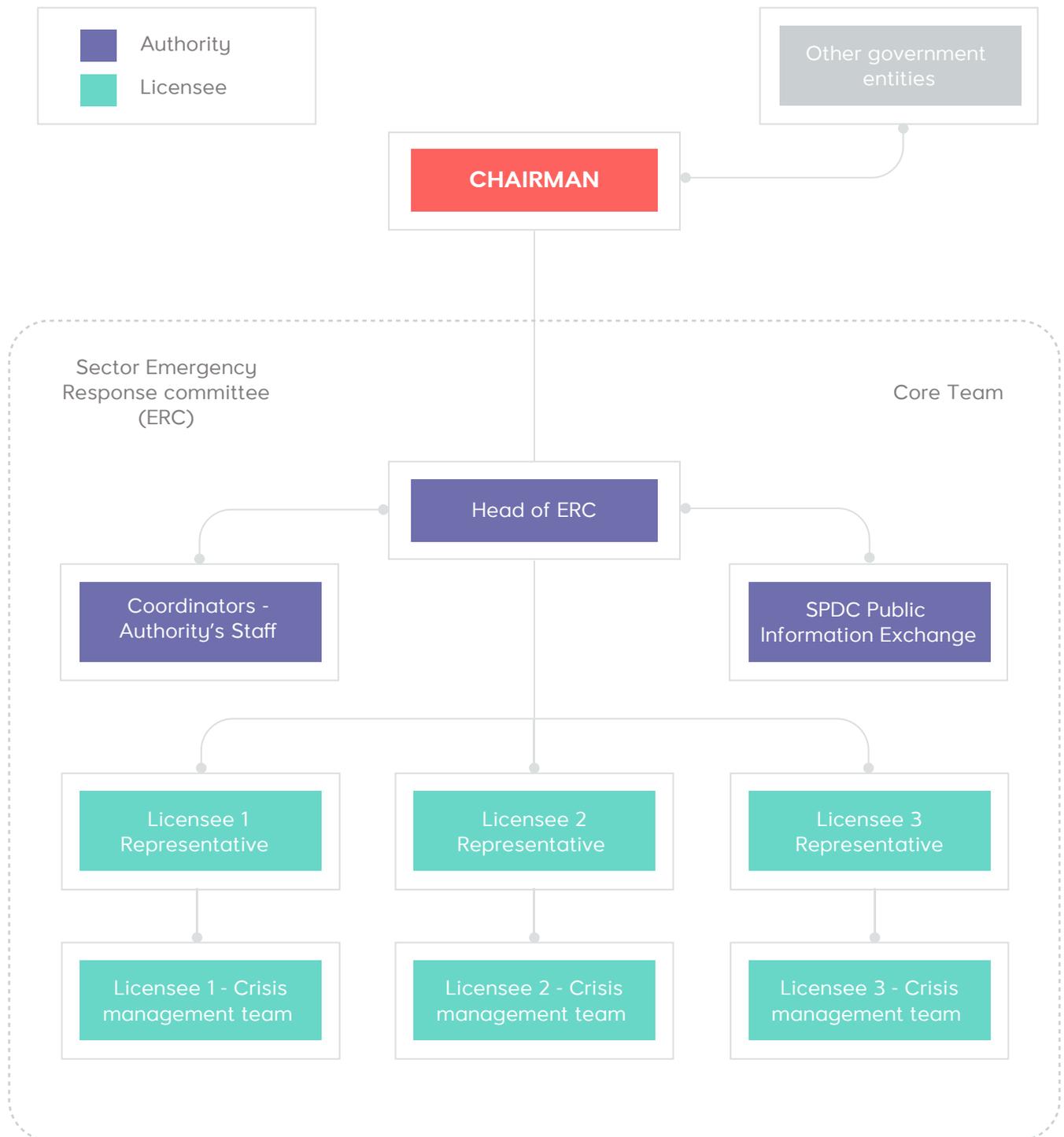


Figure 6 Committee Structure

■ **Chairman**

General Director of the Authority – takes the key decisions when required e.g., Emergency Over Declaration. Also notifies and maintains communication channel with other relevant government bodies for information flow as and when required.

■ **Core Team**

- Head of ERC: Chairs the Sector’s Emergency Response Committee Meeting, analyzes the overall situation and agrees the plan with committee members, communicates the Emergency status along with agreed response and restoration activities with the Chairman (the Authority’s General Director).

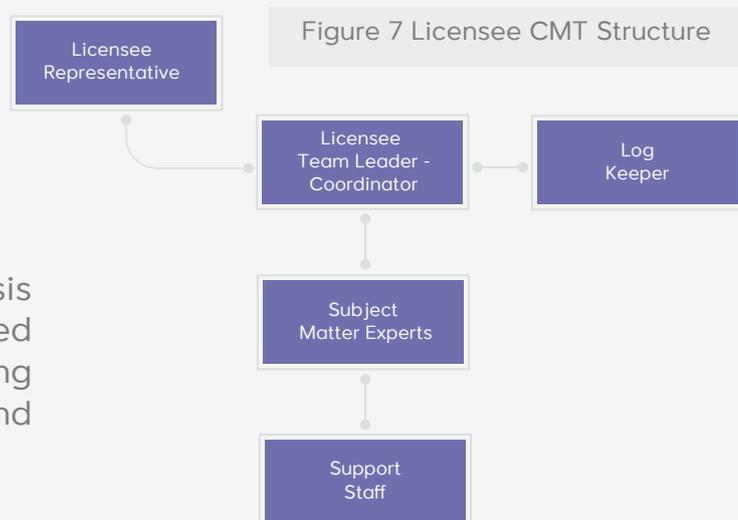
- Authority’s Staff: Assigned staff members of the Authority to be part of the committee to monitor the overall situation, act as coordinators to ensure smooth flow of information between the Licensees and ensure the tasks and activities to respond and recover from the Telecom Emergency are being performed in a professional manner.

- Single point of contact to communicate with media and public from the Authority to either provide regular updates on the events related to the Telecom Emergency or answer any queries of media and public related to the Telecom Emergency; and

- Licensee representative: Licensee point of contact during the Telecom Emergency to manage the information flow to and from between the ERC and the Licensee CMT. Communicates the agreed decisions and action plan to its CMT and notifies the ground status and actions being taken by its CMT to the ERC.

■ **Licensees Crisis Management Team**

It is recommended that the Crisis Management Team of Affected Licensees have the following set-up with the roles and responsibilities as below:



■ **Team Leader / Coordinator**

To co-ordinate the response and recovery effort of the licensee act on the information being conveyed by the Licensee representative.

■ **Log Keeper**

To capture all the correspondence, decisions taken in/out as well as minutes of meetings with timestamp.

■ **Subject Matter Experts**

Technical Team (Core, Ran, IP, Microwave etc...), Administrative, Legal etc.....to perform the restoration activities.

■ **Support staff**

Technicians, Testers, Drivers, Riggers etc..... to support the effort.

REVIEW

The Authority is responsible for managing version control of this document and will be reviewed when required by the Authority.



APPENDICES

Appendix A - Natural Disasters

Center for Research on the Epidemiology of Disasters (CRED) categorizes natural disasters as geophysical, hydrological, meteorological, or technological, climatological, and biological disasters.

 GEOPHYSICAL	 HYDROLOGICAL	 METEOROLOGICAL	 CLIMATOLOGICAL	 BIOLOGICAL
Earthquake	Landslide	Storm	Drought	Epidemic
Mass Movement (dry)	Flood	Extreme temperature	Glacial lake outburst	Animal accident
Volcanic Activity	Wave action	Fog	Wildfire	Insect infection

Figure 8 Disaster categories as per CRED (2017)

■ Geophysical disasters

These types of disasters originate from activity of the Earth, according to the classification of CRED. They can include earthquakes, whether on land or under the seabed; volcanic activity; and sudden terrestrial movements.

- **Earthquakes** are defined as a “vibratory motion of the ground of a random nature resulting from the propagation of a disturbance originating inside the Earth’s crust.” Earthquakes can occur both on land and below the ocean floor, and in the latter case can generate large ocean waves or tsunamis.

- **A volcano**, on the other hand, can be defined as “a vent or fissure in the Earth’s surface from which lava and volatiles are extruded.”

- The third type of disaster of geologic origin is the **mass movement** of large amounts of terrestrial material, including any type of downward movement of ground material. These threats include avalanches and rock falls.

■ Hydrological disasters

Hydrological disasters are those caused by changes in the movement and distribution of surface and subsurface fresh water and saltwater. Such disasters can cause flooding, whether coastal floods (higher-than-normal water levels along the coast caused by tidal changes or storms); river floods (due to sudden, heavy rainfall, usually associated with temporary weather events); or ice jam floods (the accumulation of floating ice restricting or blocking a river's flow and drainage).

Another hydrological-type disaster is a seiche, which refers to an "oscillation (lasting from a few minutes to several hours) of the surface of a lake or other small body of water caused by minor earthquakes, winds, or variations in atmospheric pressure".

■ Meteorological disasters

The term "meteorological disasters" refers to the hazards caused by short-lived, micro- to meso-scale extreme weather and atmospheric conditions that last from minutes to days. These include extreme temperatures, fog (small drops of water suspended in the air near the surface of the Earth) and storms (wind, sand).

Extreme temperatures include heat waves, cold waves, and severe winter conditions. A storm is defined as "an atmospheric disturbance involving perturbations of the prevailing pressure and wind fields, on scales ranging from tornadoes (1 km across) to extratropical cyclones (3000–2000 km across)."

Technological-type disasters are those caused by hazards of human origin, such as industrial, transport, or other types of accidents, including fire, collapse or explosion of physical infrastructure, and any other technological disaster that is not considered an industrial or transport accident.

■ Climatological disasters

Climate-type disasters refer to those caused by long-lived, meso- to macro-scale atmospheric processes ranging from intra-seasonal to multidecadal climate variability.

Examples of climatological disasters include droughts and wildfires. A drought can be defined as a "prolonged absence or marked deficiency of precipitation," or as "a period of abnormally dry weather sufficiently prolonged for the lack of precipitation to cause a serious hydrological imbalance". The resulting impacts of such an imbalance – such as crop damage, or a scarcity of water used by people, animals, or plants – can lead to consequences as serious as death.

Wildfires, on the other hand, are defined as “any uncontrolled and non-prescribed combustion or burning of plants in a natural setting such as a forest, grassland, brush land or tundra, which consumes natural fuels and spreads based on environmental conditions (e.g., wind, topography).”

■ **Biological disasters**

Biological disasters are causative of process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Examples of biological disasters include outbreaks of epidemic diseases, plant or animal contagion, insect or other animal plagues and infestation.

Appendix B – Terms for Reference

■ **Chairman**

General Director of the Authority – takes the key decisions when required. Also notifies and maintains communication channel with other relevant government bodies for information flow as and when required.

■ **Common Alerting Protocol**

Common Alerting Protocol is a digital format for exchanging emergency alerts allowing consistent alert messages to be disseminated simultaneously over many different communications systems.

■ **Emergency Telecom Infrastructure**

The temporary telecom systems that can be deployed quickly to replace the damaged the telecom infrastructure and restore the telecom services during the Telecom Emergency. It ranges from portable base stations, Emergency Mobile Network, Instant MSCs etc.

■ **Internal Drills**

Licensees should conduct Internal Drills in their own individual capacity in a controlled environment to test and verify their Business Continuity Plan and Emergency Response and Restoration Plan against a disaster or threat event. Crisis Management Team should be trained prior to any drill to make sure they know what is expected.

Licensee many choose to invite the Authority to observe the drill. Licensee shall submit the detailed report and confirm readiness to handle the Telecom Emergency.

■ **Full Scale Exercise**

A joint exercise that closely mirrors the real event of Telecom Emergency will be conducted under the supervision of the Authority comprising of various licensees to verify if the Sector is able to respond and recover from the Telecom Emergency in a coordinated manner. The ERC meeting shall be arranged to agree on the action plan with the relevant Authority Staff and Licensee Representatives.

Authority may choose to inform other relevant government bodies regarding this Exercise.

■ **Logbook**

A logbook is a book which contains all the records of events, decisions, activities and tasks and information regarding the incident along with the time stamp to be managed by the Log keeper of the Licensee during the Telecom Emergency.

Appendix C - Emergency Response Meeting Framework

The following section provide the framework for enabling a suitable meeting to take place.

■ Meeting Agenda

ERC meetings must be conducted in a structured and time-efficient manner with the objective to:

- Identify priorities related to the Sector arising from the Telecom Emergency.
- Identify any consequences for other sectors due to failure of Critical Telecommunications Infrastructure or Services.
- Develop and make recommendations on strategic options (when required).
- Request special measures to manage the Telecom Emergency (as appropriate).

The starting point is to determine the information about the incident (Differentiate what is known for sure (Facts) versus what is thought known (Assumption), and what it needs to know to effectively commence mitigation action. Establish the extent of the impact on the Kingdom or the Sector so far.

Draft an action plan based on the information gathered and focus the team on the task ahead through the effective delegation of responsibilities and map the initial response.

DEFINITIONS

Throughout this document, unless the context otherwise requires, any word, phrase or expression shall have the meaning given to it in Article 1 of the Telecommunications Law or Article 1 of the Critical Telecommunications Infrastructure Regulation and the following terms shall have the following meaning:

Affected Licensee	Any Licensee to which the Risk Management Determination has been issued as per Article (4) of the CTI Risk Management Regulation.
Authority	Telecommunications Regulatory Authority
Business Continuity	Ability to provide and maintain acceptable levels of communications during disruptions in operations.
Business Continuity Plan	A best practice framework to minimize disruption during unexpected events that could bring business to a standstill.
Critical Telecommunications Infrastructure or Services	A best practice framework to minimize disruption during unexpected events that could bring business to a standstill.
Disaster Management	The organization, planning and application of measures preparing for, responding to, and recovering from disasters.
Domestic Roaming	The ability of the Subscribers of a mobile telecommunications Licensee to use their handsets while attaching to another Licensee's Public Telecommunications Network.
Early Warning System	An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses, and others to take timely action to reduce disaster risks in advance of hazardous events.
Emergency Telecommunications Infrastructure	A best practice framework to minimize disruption during unexpected events that could bring business to a standstill.
ERC Chairman	The General Director of the Authority
Head of ERC	The Director of the Cyber Security and Technical Affairs Directorate of the Authority.
Incident	A situation or an event that impacts Critical Telecommunication Infrastructure or Services
Internal Drills	Activities conducted by the Licensee in a supervised & controlled environment to test & verify their Business Continuity Plan & Emergency Response and Restoration Plan against an Incident.
Mitigation	The act of causing an Incident to be less severe.

NCSC	National Cyber Security Centre
Place of Significant or Special Interest	Includes any of the Royal Palaces or the Royal Courts and any other venue that is of strategic importance to the Kingdom
Public Telecommunications Network	A Telecommunications Network used, in whole or in part, for the provision of Public Telecommunications Services provided either by a Licensed Operator of the Telecommunications Network or a third party.
Public Telecommunications Operator	A Licensed Operator authorized to provide Public Telecommunications Services or to operate a Public Telecommunications Network under an Individual License.
Public Telecommunications Services	Fixed or mobile Telecommunications services available to the public.
Response	Actions taken directly, during or immediately to address an Incident.
Recovery	Activities aimed at restoring Critical Telecommunications Infrastructure or Services to their original state following an Incident.
Safeguard	A measure or control that provides protection from damage to ensure the security and availability of the Critical Telecommunications Infrastructure.
Sector Emergency Response Committee	The committee comprising of members from the Authority and Licensees to oversee Response and Recovery efforts during, or after the Telecom Emergency.
Telecom Emergency	Critical Telecommunications Infrastructure or Services are severely impacted potentially leading to a complete loss of Internet / data or voice services for an extended duration for a Licensee or Licensees
Telecommunications Law	The “Telecommunications Law” Promulgating the Legislative Decree No. 48 for the year 2002.

ABBREVIATIONS

BCP	Business Continuity Plan
CAP	Common Alerting Protocol
CMT	Crisis Management Team
CRED	Centre for Research on the Epidemiology of Disasters
CTI	Critical Telecom Infrastructure
EOC	Emergency Operation Center
EMN	Emergency Mobile Network
ERC	Emergency Response Committee
EWS	Early Warning System
EWS	Early Warning System
GD	General Director of the Authority
ITU	International Telecommunication Union
LBS	Location Based Search
MNO	Mobile Network Operator
MoU	Memorandum of Understanding
NTP	National Telecommunications Plans
PSTN	Public Switched Telephone Network
SMS	Short Message Service
UNISDR	United Nations International Strategy for Disaster Risk Reduction

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4	ITU NETP Global Guidelines - https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Documents/2019/NETP_Global_guideline.pdf
5	Technical Report on Telecommunications and Disaster Mitigation- https://www.itu.int/en/ITU-T/focusgroups/dnrr/Documents/Technical_report-06-2013.pdf
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7	GSMA Disaster Response - https://www.gsma.com/mobilefordevelopment/wp-content/uploads/02/2014/Mobile-Network-Restoration-and-Humanitarian-Response.pdf
8	Next Generation Networks – Emergency telecommunications – Technical considerations https://www.itu.int/rec/dologin_pub.asp?lang=e&id=T-REC-Y.201105-2205-1!!PDF-E&type=items
9	https://www.itu.int/rec/T-REC-X.1303
10	https://www.itu.int/dms_pub/itu-d/opb/stg/D-STG-SG2017-02.05.1-PDF-E.pdf
11	https://www.gsma.com/mobilefordevelopment/wp-content/uploads/05/2016/GSMA_Disaster-Response_Business_Continuity_Management_Report.pdf
12	https://www.gsma.com/mobilefordevelopment/wp-content/uploads/01/2014/Preparing-for-Disaster_Analysis-of-Turkcells-Disaster-Management-System.pdf
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17	https://eird.org/americas/docs/unisdr-annual-report-2018-e-version.pdf
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