

RESOLUTION ITU-R 55-4

ITU-R studies of disaster prediction, detection, mitigation and relief

(2007-2012-2015-2019-2023)

The ITU Radiocommunication Assembly,

considering

- a)* the importance of radiocommunication systems in early warning and alerting for disaster management, as well as disaster prevention, mitigation and relief;
- b)* that ITU-R study groups play an important role in disaster management, particularly in the prediction, alerting, detection, mitigation and relief activities necessary to survive the event and to minimize the loss of life and property;
- c)* that each ITU-R study group brings expertise to the complex mechanisms required to provide relief for the affected area;
- d)* that it is vital for the radiocommunication systems used for disaster communications to have access to the necessary radio spectrum in order to effectively predict, detect, provide alerts in, mitigate and relieve disaster event situations,

noting

- a)* Resolution 34 (Rev. Kigali, 2022) of the World Telecommunication Development Conference, on the role of telecommunications/information and communication technology in disaster preparedness, early warning, rescue, mitigation, relief and response;
- b)* the World Summit on the Information Society (WSIS) Forum 2023: [Outcome Document](#) (draft as of 14 August 2023), “ICTs and Clean Technologies for Climate Change special track: Climate change and how to promote disaster risk reduction” (United Nations Office for Disaster Risk Reduction);
- c)* Resolution 136 (Rev. Bucharest, 2022) of the Plenipotentiary Conference, on the use of telecommunications/information and communication technologies for humanitarian assistance and for monitoring and management in emergency and disaster situations, including health-related emergencies, for early warning, prevention, mitigation and relief;
- d)* the related ITU Recommendations, Handbooks and Reports listed in the Annex to this Resolution,

taking into account

- a) Resolution **646 (Rev.WRC-19)**, on public protection and disaster relief;
- b) Resolution **647 (Rev.WRC-19)**, on radiocommunication aspects, including spectrum-management guidelines, for early warning, disaster prediction, detection, mitigation and relief operations relating to emergencies and disasters;
- c) other relevant resolutions of world radiocommunication conferences,

emphasizing

that ITU-R study groups have an important role in addressing disaster management through their technical and operational studies and through Recommendations that support disaster prediction, detection, mitigation and response activities, which are critical for minimizing loss of life and property and for providing relief to disaster-affected areas,

recognizing

- a) the importance of the effective use of the radio-frequency spectrum for radiocommunications in disaster prediction, detection, alerting, mitigation and relief;
- b) that disaster management in the field of radiocommunications comprises the following, equally important, aspects:
 - 1) early warning and prevention, through:
 - disaster prediction, including the acquisition and processing of data concerning the probability of future disaster occurrence, location and duration;
 - disaster detection, including the detailed analysis of the topical likelihood and severity of a disaster event;
 - 2) alerting the public and the relevant authorities;
 - 3) disaster mitigation, including the rapid promulgation of imminent disaster information and corresponding alerts to disaster relief agencies;
 - 4) post-disaster relief radiocommunications, including the provision of *in situ* terrestrial and satellite communication systems to aid in securing and stabilizing life and property in the affected area,

resolves

- 1 that the concerned ITU-R study groups undertake studies and develop Recommendations and Reports, as necessary, related to the management of radiocommunications in disaster prediction, detection, alerting, mitigation, and relief;
- 2 that the relevant ITU-R study groups continue studies on new emerging technologies that could support disaster prediction, alerting, detection, mitigation and relief,

invites the study groups

to take into consideration the scope of ongoing studies/activities outlined in the ITU-R webpage on Emergency Radiocommunications¹ and information provided by the Bureau on related activities of the other two Sectors and the General Secretariat, in the development of their work programmes in order to avoid duplication of effort.

ANNEX

List of related ITU-R Recommendations

- Recommendation ITU-R BO.1774/BT.1774, “Use of satellite and terrestrial broadcast infrastructures for public warning, disaster mitigation and relief”
- Recommendation ITU-R BS.2107, “Use of International Radio for Disaster Relief frequencies for emergency broadcasts in the High Frequency bands”
- Recommendation ITU-R F.1105, “Fixed wireless systems for disaster mitigation and relief operations”
- Recommendation ITU-R M.1042, “Disaster communications in the amateur and amateur-satellite services”
- Recommendation ITU-R M.1637, “Global cross-border circulation of radiocommunication equipment for use in emergency and disaster relief situations”
- Recommendation ITU-R M.1826, “Harmonized frequency channel plan for broadband public protection and disaster relief operations at 4 940-4 990 MHz in Regions 2 and 3”
- Recommendation ITU-R M.1854, “Use of mobile-satellite service in disaster response and relief”
- Recommendation ITU-R M.2009, “Radio interface standards for use by public protection and disaster relief operations in accordance with Resolution **646 (Rev.WRC-15)**”
- Recommendation ITU-R M.2015, “Frequency arrangements for public protection and disaster relief radiocommunication systems in accordance with Resolution **646 (Rev.WRC-15)**”
- Recommendation ITU-R RS.1859, “Use of remote sensing systems for data collections to be used in the event of natural disasters and similar emergencies”
- Recommendation ITU-R S.1001, “Use of systems in the fixed-satellite service in the event of natural disasters and similar emergencies for warning and relief operations”

¹ <https://www.itu.int/en/ITU-R/information/Pages/emergency.aspx>.

List of related ITU-R Reports

- Report ITU-R BT.2299, “Broadcasting for public warning, disaster mitigation and relief”
- Report ITU-R F.2061, “HF fixed radiocommunications systems”
- Report ITU-R F.2087, “Requirements for high frequency (HF) radiocommunication systems in the fixed service”
- Report ITU-R M.2085, “Role of the amateur and amateur-satellite services in support of disaster mitigation and relief”
- Report ITU-R M.2149, “Use and examples of mobile-satellite service systems for relief operation in the event of natural disasters and similar emergencies”
- Report ITU-R M.2291, “The use of International Mobile Telecommunications (IMT) for broadband Public Protection and Disaster Relief (PPDR) applications”
- Report ITU-R M.2377, “Radiocommunication objectives and requirements for public protection and disaster relief”
- Report ITU-R M.2415, “Spectrum needs for Public Protection and Disaster Relief (PPDR)”
- Report ITU-R M.2441, “Emerging usage of the terrestrial component of International Mobile Telecommunication (IMT)”
- Report ITU-R RS.2178, “The essential role and global importance of radio spectrum use for Earth observations and for related applications”
- Report ITU-R S.2151, “Use and examples of systems in the fixed-satellite service in the event of natural disasters and similar emergencies for warning and relief operations”

Related ITU-R Handbooks

- “Handbook: Earth Exploration-Satellite Service”, chapter 6.1
- ITU/WMO, “Handbook on Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction”

Related ITU-D Report

- Output report of ITU-D Study Group 2 for the study period 2018-2021, Question 5/2: “Utilizing telecommunications/information and communication technologies for disaster risk reduction and management”(https://www.itu.int/hub/publication/d-stg-sg02-05-2-2021/).