INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

ITU-D STUDY GROUPS

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SECOND MEETING OF ITU-D STUDY GROUP 1: GENEVA, 18-21 SEPTEMBER 2007
SECOND MEETING OF ITU-D STUDY GROUP 2: GENEVA, 24-27 SEPTEMBER 2007

FOR ACTION

Question 22/2: Utilization of ICT for disaster management, resources, and active and passive space-based sensing systems as they apply to disaster and emergency relief situations

STUDY GROUP 2

SOURCE: TELECOMMUNICATIONS DEVELOPMENT BUREAU (BDT)

TITLE: BACKGROUND DOCUMENT FOR THE STUDY GROUP MEETING ON QUESTION 22/2, 26 SEPTEMBER 2007

Action required:

The document is presented for discussion.

Abstract:

The document contains an update of the work that has been carried out by ITU-D since the last meeting of the Rapporteur's Group (9-11 May 2007), with 2 Annexes.

Annex 1: Terminology on emergency Communications.

Annex 2: Minutes of the third meeting of Intersectoral Emergency Communications Team.

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1. Background

Study Group 2 Question 22/2 Rapporteur's Group Meeting last sat in Geneva, 9(PM)-11 May 2007.

2. Recent work in this area by ITU-D

2.1 BDT Programme 6 organized a meeting on Emergency Telecommunications in Yaoundé, Cameroon that was hosted by the Cameroon Government from 31 May to 1 June 2007. The meeting was attended by all the Central African countries. The full report of the event is available at: www.itu.int/itu-d/emergencytelecoms.events.html

The event focused on the ratification and implementation of the Tampere Convention. The workshop provided legal advice to national stakeholders of the participating countries to include government officials from relevant ministries such as from ministries of foreign affairs, justice, telecommunications, and finance (to include customs and immigration officials).

2.2 Preparations for a major ITU event on Emergency Telecommunications scheduled to be held in Geneva from 10 to 12 December 2007 are ongoing. A number of Cooperation Agreements are due to be signed by ITU Secretariat and partners. ITU Secretariat will launch a number of new initiatives during the event. Invitation letters will be dispatched in due course.

2.3 Work on a case studies' publication looking at national emergency telecommunications plans has reached an advanced stage.

2.4 Responses are still being received from ITU Member States and ITU Sector Members on the questionnaire sent out to assess the relevance and use of ITU-R and ITU-T Recommendations related to Emergency Telecommunications. The outcome of the ongoing analysis related to the questionnaires will be sent to the Membership for their information and it will be used by ITU to address gaps and concerns expressed by the Membership.

2.5 As requested during the last Rapporteur's meeting that was held in Geneva, the Head of Programme 6 mandated to deal with Emergency Telecommunications issues and to coordinate this work by the three Sectors has prepared a list of key definitions of commonly used terms in Disaster Management for discussion and possible adoption by the Study Group. See Annex 1.

2.6 On 20 June 2007, ITU Secretariat signed a Memorandum of Understanding with ICO Global Communications. ICO brings to ITU and to other humanitarian organizations free airtime for disaster preparedness and upon request will provide airtime through its satellite for disaster relief/response. For details:

www.itu.int/itu-d/emergencytelecoms/partnerships.html

2.7 The total number of countries that have ratified the Tampere Convention has risen to 36 with Argentina ratifying on 6 July 2007.

3. Joint Inter-Sectoral Emergency Telecommunications work

Work has reached an advanced stage in the following areas:

- Preparation and publication of a compendium on work related to the three sectors. All materials are now in BDT (Unit for Least Developed Countries, Small Island Developing States, and Emergency Telecommunications) pending finalization before publication. The publication will include the findings of the questionnaire sent out on ITU-T and ITU-R Recommendations taking into account that ITU-D has its own recommendations; however, this compendium will include also Recommendation 13.1 (Revision to Recommendation ITU-D 13 Effective utilisation of the amateur services in disaster mitigation and relief operations) of the ITU-D.
- The inter-sectoral emergency communications team (IECT) met on 18 July 2007. See Annex 2.

ANNEX 1

TERMINOLOGY ON EMERGENCY TELECOMMUNICATIONS

Introduction

Emergency Telecommunications is one of the key priorities of ITU pursuant to Article 40 of the ITU Constitution that addresses the "priority of telecommunications concerning safety of life"; it is become necessary to provide definitions of key terms that are commonly used by disaster management practitioners including telecommunications/information and communication technology providers. Some secondary sources have been used and acknowledgement is hereby extended to the International Strategy for Disaster Reduction, and the United Nations Department of Humanitarian Affairs.

1. **Alert:** Advisory that hazard is approaching but is less imminent than implied by warning message.

2. **Assessment:** Survey of a real or potential disaster to estimate the actual or expected damages and to make recommendations for prevention, preparedness and response.

3. **Avalanche:** Mass of earth, snow and ice falling suddenly down a mountain slope and often taking with it rocks and rubble.

4. **Calamity:** A massive or extreme catastrophic disaster that extends over time and space.

5. **Civil Defence:** The system of measures, usually run by a governmental agency, to protect the civilian population in wartime, to respond to disasters, and to prevent and mitigate the consequences of major emergencies in peacetime.

6. **Disaster/Calamity:** A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.

7. **A disaster is a function of the risk process**. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

8. **Disaster legislation:** The body of laws and regulations that govern and designate responsibility for disaster management concerning the various phases of disaster.

9. **Disaster management:** The body of policy and administrative decisions and operational activities which pertain to the various stages of a disaster at all levels.

10. **Disaster Risk Management:** The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

11. **Disaster Risk Reduction (Risk Reduction):** The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

12. **Disaster Risk Reduction:** The systematic development and application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, within the broad context of sustainable development.

13. **Early Warning:** The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response.

Early warning systems include a chain of concerns, namely: understanding and mapping the hazard; monitoring and forecasting impending events; processing and disseminating understandable warnings to political authorities and the population, and undertaking appropriate and timely actions in response to the warnings.

14. **Earthquakes:** Earth vibrations produced when the stability of rock masses under the surface of the earth is disturbed. These disturbances usually occur along existing fault lines.

15. **Emergency:** A sudden and usually unforeseen event that calls for immediate measures to minimize its adverse consequences.

16. **Emergency Telecommunications**: Telecommunications/ICT infrastructure, policies, laws, and regulations, and services and applications used to prepare for and respond to hazards and disasters.

The measures taken extend from disaster prevention, preparedness, and relief/response to network rehabilitation or reconstruction.

17. **Emergency Telecommunications Services (ETS):** Capabilities of public telecommunication services (supplementary services) made available to national authorities to facilitate communications between and from authorized users in specific situations (emergency and disaster situations).

18. **Emergency Telecommunications User:** A user authorized to obtain priority telecommunications in national and/or international emergency situations.

19. **Emergency Management**: The organization and management of resources and responsibilities for dealing with all aspects of emergencies, in particularly preparedness, response and rehabilitation.

Emergency management involves plans, structures and arrangements established to engage the normal endeavours of government, voluntary and private agencies in a comprehensive and coordinated way to respond to the whole spectrum of emergency needs. This is also known as disaster management.

20. **Emergency operations center (EOC):** Officially designated facility for the direction and co-ordination of all activities during the response phase of a disaster.

21. **Emergency Public Information:** Information which is disseminated primarily in anticipation of an emergency or at the actual time of an emergency and in addition to providing information as such, frequently directs actions, instructs, and transmits direct orders.

22. **Geographic Information Systems**: Analysis that combine relational databases with spatial interpretation and outputs often in form of maps. A more elaborate definition is that of computer programmes for capturing, storing, checking, integrating, analyzing and displaying data about the earth that is spatially referenced.

Geographical information systems are increasingly being utilized for hazard and vulnerability mapping and analysis, as well as for the application of disaster risk management measures.

23. **Ham radio network:** An international amateur radio network which is frequently a valuable contribution by the community to disaster response.

24. **Hazard:** A potentially damaging physical event, phenomenon or human activity that may cause loss of life or injury, property damage, social and economic disruption or environmental degradation.

Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydrometeorological and biological) or induced by human processes (environmental degradation and technological hazards). Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterised by its location, intensity, frequency and probability.

25. **Hazard Analysis:** Identification, studies and monitoring of any hazard to determine its potential, origin, characteristics and behaviour.

26. **Lead time:** Period of a particular hazard between its announcement and arrival also used for the mobilization of resources needed in relief operations.

27. **Mitigation:** Structural and non-structural measures taken in advance of a disaster aimed at decreasing or eliminating its impact on society and environment**.**

28. **Monitoring (syn. surveillance):** System that permits the continuous observation, measurement and evaluation of the progress of a process or phenomenon with a view to taking corrective measures.

29. **Natural Hazards:** Natural processes or phenomena occurring in the biosphere that may constitute a damaging event. Natural hazards can be classified by origin namely: geological, hydro-meteorological or biological. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.

30. **Prediction:** A statement of the expected time, place and magnitude of a future event (for earthquakes and volcanic eruptions).

31. **Preparedness**: Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

32. **Prevention:** Activities to provide outright avoidance of the adverse impact of hazards and means to minimize related environmental, technological and biological disasters. Also encompasses activities designed to provide permanent protection from disasters. It includes engineering and other physical protective measures, and also legislative measures controlling land use and urban planning

See also "preparedness". Depending on social and technical feasibility and cost/benefit considerations, investing in preventive measures is justified in areas frequently affected by disasters. In the context of public awareness and education, related to disaster risk reduction changing attitudes and behaviour contribute to promoting a "culture of prevention".

33. **Public awareness:** The process of informing the community as to the nature of the hazard and actions needed to save lives and property prior to and in the event of disaster.

34. **Public protection and disaster relief (PPDR):** Public protection and disaster relief (PPDR) radiocommunication systems aim to achieve the following general objectives:

a) to provide radiocommunications that are vital to the achievement of:

- the maintenance of law and order;
- response to emergency situations and protection of life and property;
- response to disaster relief situations;

There are terminology differences between administrations and regions in the scope and specific meaning of PPDR. The following terms are appropriate for the purpose of discussing this issue:

- *Public protection (PP) radiocommunication*: Radiocommunications used by responsible agencies and organizations dealing with maintenance of law and order, protection of life and property, and emergency situations.
- *Disaster relief (DR) radiocommunication*: Radiocommunications used by agencies and organizations dealing with a serious disruption of the functioning of society, posing a significant, widespread threat to human life, health, property or the environment, whether caused by accident, nature or human activity, and whether developing suddenly or as a result of complex, long-term

35. **Recovery/Rehabilitation:** Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk. Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply disaster risk reduction measures.

36. **Relief/Response:** The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration.

37. **Remote sensing:** The observation and/or study of an area, object or phenomenon from an aerial distance, frequently using data collected by satellite.

38. **Resilience/Resilient:** The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.

39. **Risk:** The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions. Conventionally risk is expressed by the notation Risk = Hazards x Vulnerability. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability. Beyond expressing a possibility of physical harm, it is crucial to recognize that risks are inherent or can be created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risk and their underlying causes.

40. **Risk Assessment:** A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they

depend. The process of conducting a risk assessment is based on a review of both the technical features of hazards such as their location, intensity, frequency and probability; and also the analysis of the physical, social, economic and environmental dimensions of vulnerability and exposure, while taking particular account of the coping capabilities pertinent to the risk scenarios.

41. **Risk:** awareness and assessment including hazard analysis and vulnerability/capacity analysis; Knowledge development including education, training, research and information; Public commitment and institutional frameworks, including organizational, policy, legislation and community action.

Application of measures including environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership and networking, and financial instruments; Early warning systems including forecasting, dissemination of warnings, preparedness measures and reaction capacities.

42. **Satellite applications:** The use of satellite technology for the purpose of communications or data transmission for monitoring, warning and dissemination of information pertinent to emergency response and/or disaster management.

43. **Search and rescue:** The process of locating and recovering disaster victims and the application of first aid and basic medical assistance as may be required.

44. **Simulation exercise:** Decision making exercise and disaster drills within threatened communities in order to represent disaster situations to promote more effective coordination of response from relevant authorities and the population.

45. **Telecommunications for Disaster Relief (TDR):** Provision of telecommunications capabilities for disaster relief and mitigation.

46. **Telemetry**: The use of data communications devices from the sensors in situ, to a receiving station.

47. **Telemedine:** The set of organizational, technological and commercial arrangements which together permit the operation of a system of consultative, diagnostic and medical assistance whereby medical personnel engaged in the examination of a patient is able to obtain a remote consultation with a specialist with the aid of specialized equipment and telecommunication/ICT channels.

48. **Tornado:** A violently rotating storm of small diameter; the most violent weather phenomenon. It is produced in a very severe thunderstorm and appears as a funnel cloud extending from the base of a Cumulonimbus to the ground.

49. **Thunderstorm:** Sudden electrical discharges manifested by a flash of light (lightning) and a sharp or rumbling sound (thunder). Thunderstorms are associated with convective clouds (Cumulonimbus) and are, more often, accompanied by precipitation in the form of rain showers or hail, or occasionally snow, snow pellets, or ice pellets.

50. **Tsunami:** A series of large waves generated by sudden displacement of seawater (caused by earthquake, volcanic eruption or submarine landslide); capable of propagation over large distances and causing a destructive surge on reaching land. The Japanese term for this phenomenon, which is observed mainly in the Pacific, has been adopted for general usage.

51. **Typhoon:** Name given to a tropical cyclone with maximum sustained winds of 64 knots or more near the centre in the western North Pacific.

52. **Volcano:** the Mountain formed by local accumulation of volcanic materials around an erupting vent.

53. **Volcanic eruption:** The discharge (aerially explosive) of fragmentary ejecta, lava and gases from a volcanic vent.

54. **Vulnerability:** The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. For positive factors, which increase the ability of people to cope with hazards, see definition of capacity.

55. **Warning:** Dissemination of message signalling imminent hazard which may include advice on protective measures.

ANNEX 2

THIRD MEETING OF THE INTER-SECTORAL EMERGENCY COMMUNICATIONS TEAM (IECT)[1]

The third meeting of the ITU IETT was convened on 18 July 2007 under the chairmanship of Mr. Houlin Zhao, ITU Deputy Secretary-General. The following were in attendance:

Names	**Bureau**
Mr. Fabio Leite	Radiocommunication Bureau (BR)
Mr. Simao Campos	Telecommunication Standardization Bureau (TSB)
Mr. Cosmas Zavazava	Telecommunication Development Bureau (BDT)

Date: 18 July 2007
Time: 1600 hours – 1745 hours
Venue: Secretary-General's Conference Room (14th Floor)

Summary Record of the Proceedings

1. In his opening remarks, the Deputy Secretary-General welcomed the participants and requested Cosmas Zavazava to brief the meeting concerning the following issues:
   - Progress on the preparation and publication of the ITU Compendium on Emergency Telecommunications;
   - Outcome and status of the Questionnaire that was sent out to ITU Member States and ITU Sector Members on ITU-R and ITU-T Recommendations;
   - Progress on the preparations for the upcoming ITU Global Event on Emergency Telecommunications.
2. In response, the following update was given:
   2.1 ITU Compendium on Emergency Telecommunications: The cover of this publication was ready and the content was now available except the finalization of the Common Alert Protocol (CAP) which was still pending. The idea was to include CAP as an ITU Recommendation in the publication. However, if the issue is not finalized by end of August 2007, the publication would go to press. A proposal was made and accepted to launch the Compendium at the December event on Emergency Telecommunications.
   2.2 Questionnaire on ITU-R and ITU-T Recommendations: A total of 28 responses had been received from ITU Member States and ITU Sector Members. The

[1] This is an ITU inter-sectoral coordination mechanism established to bring together the three designated Sector focal points under the leadership of the Deputy Secretary-General.

analysis of the responses was in progress. It is hoped that by end of the week ending 27th July 2007, the Director, BDT will share the results with the other Elected Officials. A few Member States and other entities had indicated that they were behind schedule but would be submitting their input in due course.

Mr. Houlin Zhao requested that the results of the questionnaire analysis be included into the ITU Compendium which is to be published. The meeting decided to also provide the respondents with information pertaining to the outcome of the survey.

2.3 ITU Global Event on Emergency Telecommunications: The ITU Global Event on Emergency Telecommunications will be held from 10 to 12 December 2007 in Geneva at the CICG. The event is meant to re-position the organization as the leader in telecommunications/ICT for disaster management. ITU will launch a number of key initiatives and will also sign with key partners a number of Cooperation Agreements and Memoranda of Understanding. Reservations for the venue have been done. (It was noted that the Draft ITU-GEO Cooperation Agreement has been circulated among the members of IECT for comments). The programme and flyer for the event is near completion and is expected to be ready by 31 July 2007. Invitations to this event will be dispatched in August 2007. BDT had also successfully held three regional events meant to promote some of the initiatives to be launched in December 2007. BR and TSB were invited to defer the signing of any pending agreements on the subject matter so that this could be done at the event to be held in December later this year.

The meeting resolved that the BDT will be responsible for the organization of this event including the preparation and handling of the invitation letters. Where necessary, the Secretary General would provide any needed facilitation.

3. The Deputy Secretary-General requested the BDT to prepare a brief document explaining the procedures / policy followed by ITU in order to provide telecommunications/ICT assistance to Member States in the event of disasters.

The document will be prepared and ready before the ITU Council meets in September 2007.

4. The Deputy Secretary-General sought comments from representatives of BR and TSB in relation to activities in their respective Sectors.

Fabio Leite expected a positive outcome to the World Radio Conference that will be held in October and November 2007 in relation to new roles to be assigned to BR regarding spectrum management functions in disaster situation. He noted also that the Radiocommunication Assembly, which will take place the week before WRC-07, will certainly establish a solid framework for ITU-R studies on emergency radiocommunications, possibly creating a special Study Group for that purpose.

Simao Campos indicated that the CAP was finalized and to become ITU-T Recommendation X.1303 within the next few months, after coordination with OASIS is completed, which is the originator of the specification.

5. Finally, the Deputy Secretary General requested whether there would be follow-up meetings after the December ITU Global event and whether the agreements to be signed would be translated into projects. The BDT representative responded in the affirmative by noting that a series of regional meetings were expected to be held aimed at promoting the outcomes of the Geneva event and translating the agreements reached into something

concrete and tangible. Mr. Houlin Zhao also suggested and the meeting agreed to post the minutes of the IECT on the external web to ensure that information would be readily available to all stakeholders.

6. Follow-up Actions

Action	Action to be taken by
Guidelines on Disaster Response Effort	Cosmas Zavazava
Finalization of outstanding work on the Compendium Publication	Cosmas Zavazava
Listing of relevant ITU-T/ITU-R Recommendations in the websites	Fabio Leite, and Simao Campos
Analysis of responses on the Questionnaire on use of ITU-T and ITU-R Recommendations	Cosmas Zavazava
Drafting of Programme on the December Event, invitations and other preparations	Cosmas Zavazava
Focus on WRC-07 & RA-07	Fabio Leite
Follow-up on CAP	Simao Campos