

## A REVIEW ON EFFECTIVENESS OF EMERGENCY TELECOMMUNICATION SYSTEMS IN IRAN

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Emergency telecommunication systems play fundamental role in disaster risk management, before, during and after the crisis. In fact, any data about observed anomalies and all the information about damages and casualties should be collected and transmitted through reliable telecommunication channels to relevant authorities in appropriate time, to be used for decision making and planning for providing necessary responses. Therefore, developing a comprehensive emergency telecommunication network and empowering the capacity of the existing systems should be considered as one of the DRM priorities in all countries subjected to natural hazards. Furthermore, resiliency of telecommunication services should be considered as the main goal for assuring proper data transmission at the time of disaster. In this line, besides of robustness of the physical instruments and redundancy in providing necessary services, it is essential to develop relevant telecommunication protocols for the time of crisis (such as ETSI in Europe) and provide basic training to people and authorities. In addition, having appropriate autonomy in implementing the plans at the time of crisis is another requirement of reliable emergency telecommunication.

In this paper, having a look on the importance of telecommunication services in earthquake risk mitigation and management, the challenges observed in these sections in recent important earthquakes in Iran will be discussed. For this purpose, Manjil (1990), Bam (2003) and Silakhore (2006) Earthquakes have been considered due to their importance in developing emergency telecommunication systems in Iran. This review may depict the gradual progress in these fields in Iran, however will also show the necessity of making specific plans and procedure for information dissemination and telecommunication at the time of an earthquake. Accordingly, the experiences of some developed country in these fields (including Japan, European Union and The United states) will be reviewed.

In the next step, having a look on the existing fixed and mobile telecommunication systems in Iran, the main deficiency of the systems will be presented and discussed. For this purpose, the vulnerability of relevant structures and non-structural elements of existing systems will be presented and based on experiences in Iran and other countries, some strategies to improve the existing situation will be presented as follows (Amini-Hosseini et al., 2009):

- Empowerment of existing network to provide telecommunication services at the time of crisis after the earthquake;
- Developing special redundant emergency networks capable for using in emergency response management with necessary channels to support relevant authorities and in-field staffs;
- Developing and establishment of emergency communications standards and protocols for different target groups from top level authorities to ordinary people;
- Using new advanced technologies for facilitating emergency telecommunication, such as satellite systems, wireless networks, mobile phones, etc. based on their advantages and shortages (Figure 1).

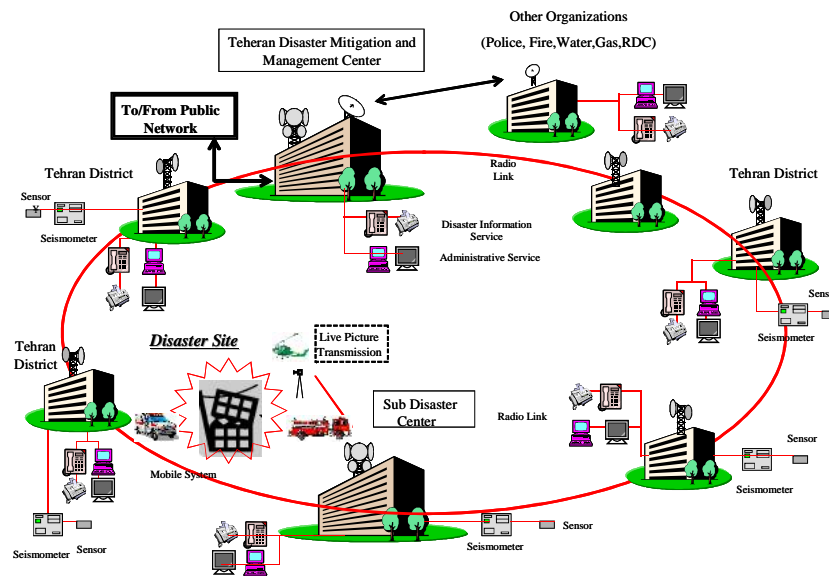


Figure 1. Proposed emergency telecommunication system for Tehran (JICA and TDMMO, 2004)

Finally and according to the indicated strategies, some of the applicable plans for developing emergency telecommunication systems in Iran will be presented. Such plans can be applied in other developing countries having similar challenges.

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