

Adapting New Communications Systems to Disaster Reduction in Urban Systems

WHEN ESSENTIAL COMMUNICATION SERVICES ARE DISRUPTED, INTEGRATING AND COORDINATING EMERGENCY OPERATIONS DURING A DISASTER CAN POSE MAJOR PROBLEMS. THIS IS A SOURCE OF GROWING CONCERN IN SEISMICALLY ACTIVE URBAN AREAS SUCH AS THE VANCOUVER REGION ON THE WESTERN COAST OF CANADA. THE FOLLOWING TEXT, EXCERPTED FROM THE UN-IDNDR AND QUIPUNET INTERNET CONFERENCE, "SOLUTIONS FOR CITIES AT RISK," WHICH TOOK PLACE FROM 26 AUGUST TO 25 OCTOBER 1996, DESCRIBES THIS PHENOMENON.

Although only few of some 200 earthquakes which occur here every year are strong enough to be felt, historically this area has been subject to some of the largest recorded earthquakes. Yet, although the region has been experiencing rapid population growth, little concern has been shown for ensuring adequate protection from these disasters.

Most disaster arrangements - including communication - have been designed to support locally-based events which might escalate to invoking mutual aid with adjacent communities. Few arrangements are in place and tested for major events requiring full-scale regional, federal, and international support and coordination.

Consequences

From a physical perspective, significant damage may be sustained by basic infrastructure such as transportation network, utilities and buildings, including some emergency operations centers.

From a communications perspective, it is anticipated that the telephone service will be severely degraded because of network congestion and physical damage. Broadcasting services will not reach the public in areas where cable television network is damaged. Two-way radio communication will also be impacted by physical damage, loss of power and congestion.

Especially problematic is the lack of technical inter-operability among agency radio systems which operate on unique radio frequencies and share few common ones to support inter-agency coordination. The basic telephone still remains the common communication medium with mains power from a central utility source often serving as the sole

source of electricity.

Implications for disaster managers

These factors will likely result in disaster managers being unable to reach designated emergency operations centers for considerable periods of time, and thus being kept out of information flows and decision-making structures in which they play critical roles.

The public may experience difficulties in responding to situations where there is no direction or contact with local authorities.

Role of new communication and information technologies

Notwithstanding these issues, new communication and information technologies are bringing about widespread change to disaster management practices. Few disaster management organizations in the region are not using automated information processing techniques or relying on electronic monitoring to support both intra- and inter-agency communication needs.

These changes are not only due to conscious decisions by disaster managers to embrace these technologies, but are also influenced by governmental considerations which are viewing investments in national information infrastructure (highways) as strategically important to achieving broader social and economic goals.

Opportunities for disaster mitigation

A key consideration is determining how to apply these advanced systems in disaster mitigation. In this regard progress is being made to ensure priority access to telephone circuits during emergencies, as are plans for new regionally integrated radio communica-

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