tion systems.

However, better technical design of systems alone is not a guarantee of achieving this goal. Many other factors need to be considered as well, such as a conducive telecommunications policy environment which encourages open system development; training; on-going technical support and other technology transfer considerations; establishing trust arrangements among organizations for information and cost sharing, and developing organizational and individual abilities to adapt to new concepts and communication techniques.

To achieve this, disaster management must recognize the importance of communication and information exchange, as well as the supportive role that integrated networks play in disaster reduction. Secondly, network developers and communication providers must realize that their facilities represent important community resources in mitigation of disasters.

Virtual Emergency Management Information System - V E M I S

During emergencies, when telecommunication networks are inoperative, reliable alternative networking arrangements must be available to ensure effective coordination of emergency response and relief efforts. Virtual Emergency Management Information System (VEMIS) ensures that emergency information management and decision-making support systems can be integrated through appropriate network infrastructure. A web site in British Columbia, Canada, VEMIS can be reached via a 56 Kbps TCP/IP-based packet radio link. Data to and from the Internet is being relayed to this system on 430.750/439.750 MHz.

This web site provides background information and on-line demonstrations of work at Simon Fraser University's Telematics Lab to establish an experimental virtual emergency operations center where wireless information networks, interconnected to other fixed and mobile networks, allow managers to remain on the information loop, either until they can reach their emergency operations centers, or as a substitute for physical presence there. The ultimate goal of the project is to develop low-cost, robust, and field-deployable wireless emergency information networks so that emergency management staff can follow the information flow and participate in decision-making structures in which they play critical roles.

The radio network permits access to a variety of Internet applications that are customized for emergency management purposes. Such a facility enables interested groups to experiment with these applications or to couple these efforts with those underway elsewhere using Internet and satellite-interconnected sub-networks.

Information technologies

The application of digital communication techniques and the adoption of common communication protocols are bringing about a revolution in communication networking and electronic information sharing. These developments are also spawning the convergence of previously independent communication media, such as radio and television broadcasting, computers, and wired as well as wireless telecommunications systems, to forge new forms of communications services laying foundations for new information highways.

Traffic over these networks is translated into packets of data which are controlled electronically and flow over "virtual" networks created and flexibly managed by computer software. The result is that the same information can now be addressed and sent with a high degree of accuracy and speed over a variety of communication media.

Potential problems

Poorly designed and implemented systems, however, can also increase the vulnerablity of societies. Increased reliance on electronic communication and information systems opens opportunities to breakdowns and loss of critical information. Equally troublesome are the consequences of human error, the physical impact of disasters, a lack of redundancy and/or diversity in circuit routing. As a consequence, a single point of failure can easily bring down large segments of a network.

Simon Fraser University Contributions

Through the Centre for Policy Research on Science and Technology and the Telematics Lab, the University is engaged in a number of projects focusing on how the development, interconnection and use of new forms of distributed local and wide-area digital networking can improve interactive decision-making in emergency management programs. Besides VEMIS, the University also is working on the design

http://hoshi.cic.sfu.ca/epix/vemis ....▶