Disasters and the Information Technology Revolution

Robin Stephenson
Independent Consultant

Peter S. Anderson
Simon Fraser University

This paper, the second in a series of state-of-the art reviews, examines the evolution and possible medium-term future of information technology (IT) in disaster management. Until the end of the 1970s, civilian application of IT to disaster management was confined to a few specialised departments of universities, large companies and government. Between the late 1970s and mid-1980s, microprocessor-based devices brought limited, though rapidly improving, computing capacity to a wider range of organisations and individuals. Operational applications included real-time emergency information, management decision support and programme and project planning. Extensive innovation occurred, though operational implementation was often long delayed or limited in scope. During the late 1980s, desktop systems became more powerful, more networked, more portable and generally more mature, with a range of practical emergency-related tools emerging. Computer communications emerged as a practical technology for linking emergency professionals on a global basis. From the early 1990s onwards, powerful and inter-connectable computer equipment has evolved to become an indispensable component of disaster operations worldwide. There are presently major changes under way in emergency-related global information access and networking — the implications of which have yet to be played out. The last part of the paper highlights a set of key technologies which seems likely to shape disaster planning, management and research over the next 10 years, and draws out some operational and organisational implications.

Introduction

The mid-1990s have seen increasingly ubiquitous application of information technology (IT) to emergency planning and management. The convergence of computers and communications, and the accelerating growth of global information networking is beginning to have a profound impact on the organisation of disaster mitigation, planning and response and on the underlying matrix of research and knowledge transfer.

In this paper we look back at some of the key stages in the evolution of IT applications for disaster management. We then go on to highlight some of the ways in which the future of disaster management might be shaped by the burgeoning growth of computer and communications technologies.