Technology's Role in Disaster Preparedness

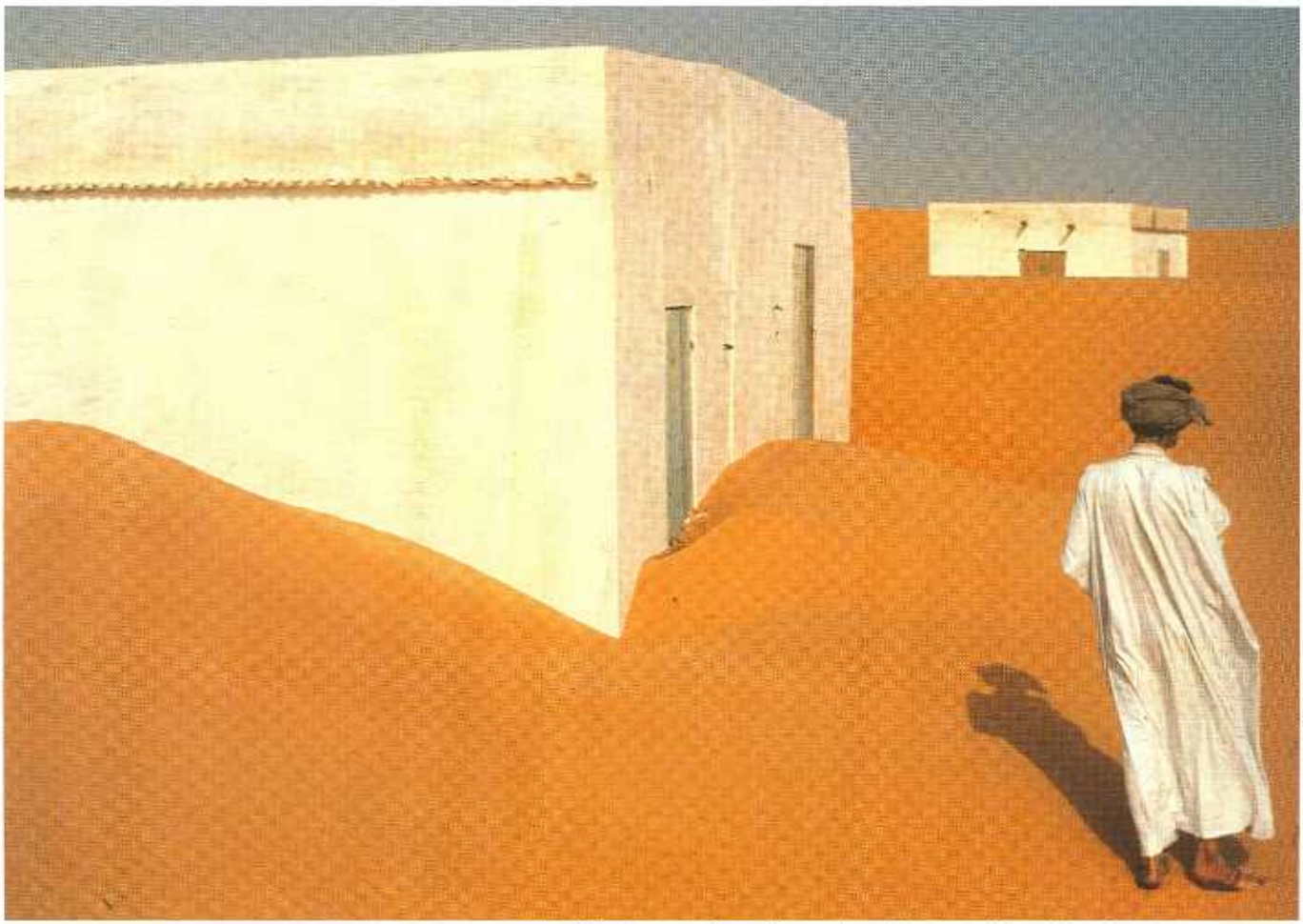
From satellites to data bases containing disaster histories, technology has an important role to play in disaster detection and prevention. The following are two examples of how technology can have a significant impact on disaster reduction.

Remote Sensing

Remote sensing satellites using infrared photography techniques can be used to detect changes in the density of vegetation in drought-prone areas, thereby alerting officials to the potential of drought.

Hazard mapping is another useful tool of satellite technology. For example, maps outlining watersheds, rivers, streams and coastal delta plains can help determine areas that are vulnerable to flooding

Meteorological satellites and their ground-based crews have saved many lives by the timely prediction and tracking of tropical storms. Darwin, Australia, was razed by a tropical cyclone in 1974 but suffered few casualties because an early warning system had given the population time to evacuate the city.



The desert is encroaching on human settlements in many parts of the world, as in this Mauritanian town

When a series of six satellites now under development – the Earth Observing System (EOS) – is deployed, the earth will be monitored in unprecedented detail, enhancing observations and prediction capabilities.

Computer Technology

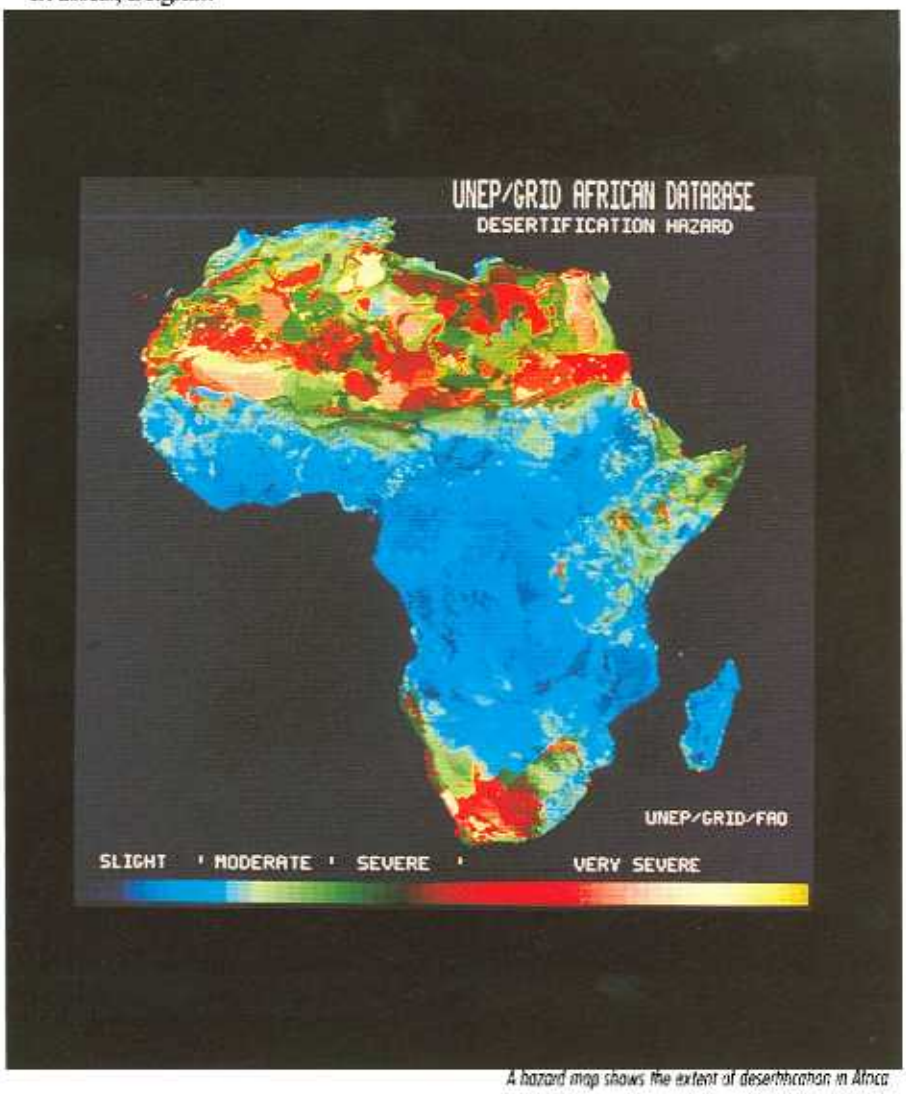
The United Nations sponsors two computer networks related to disaster reduction: UNIENET and the Disaster Events Database.

UNIENET is a network of computers linked together electronically. It places members of the worldwide disaster management community in direct contact with each other, and provides them instantaneously with both background and operational disaster-related information. UNIENET operates as a joint venture with United Nations agencies and other intergovernmental and nongovernmental organizations.

For more information about UNIENET, contact United Nations Office of the Disaster Relief Co-ordinator, Palais des Nations, 1211 Geneva 10, Switzerland.

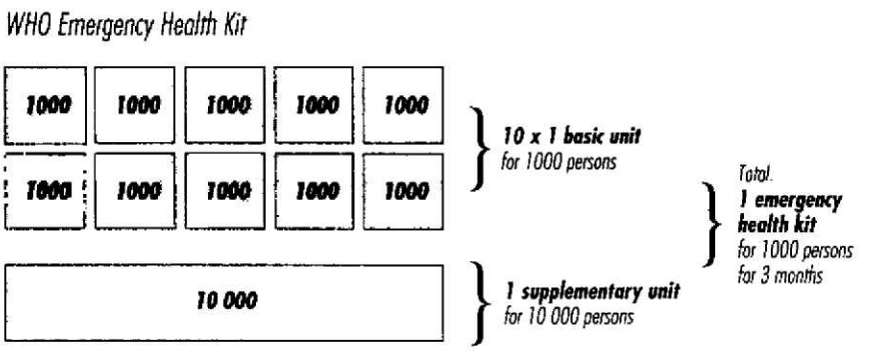
The Disaster Events Database is designed to create a data file of disaster history for use in epidemiological and operational research. The base contains over 5000 disaster events (1900-present) and is being enlarged constantly. Any user (institutions, organizations or governments) can request information by contacting the WHO Collaborating Centre for Research on Epidemiology of Disasters (CRED) at the Catholic University of Louvain, Brussels, Belgium.

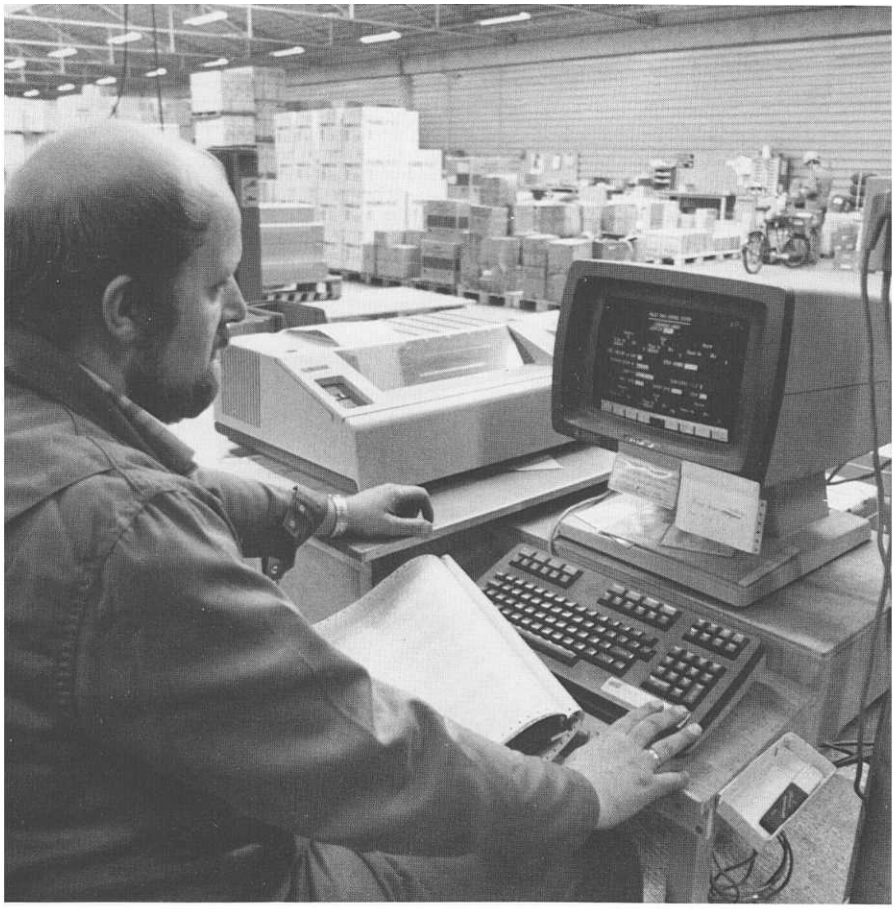
The Disaster Events Data Base is conceived as part of the Emergency Management Information System (EMIS) being prepared by WHO's Emergency Preparedness and Response unit in Geneva. When fully operational, EMIS will help prepare and manage national emergency planning.



A hazard map shows the extent of desertification in Africa

WHO's Emergency Kit





Emergency health kits, designed to meet the needs of 10 000 people over a 3-month period, are kept ready to ship in a warehouse in Copenhagen

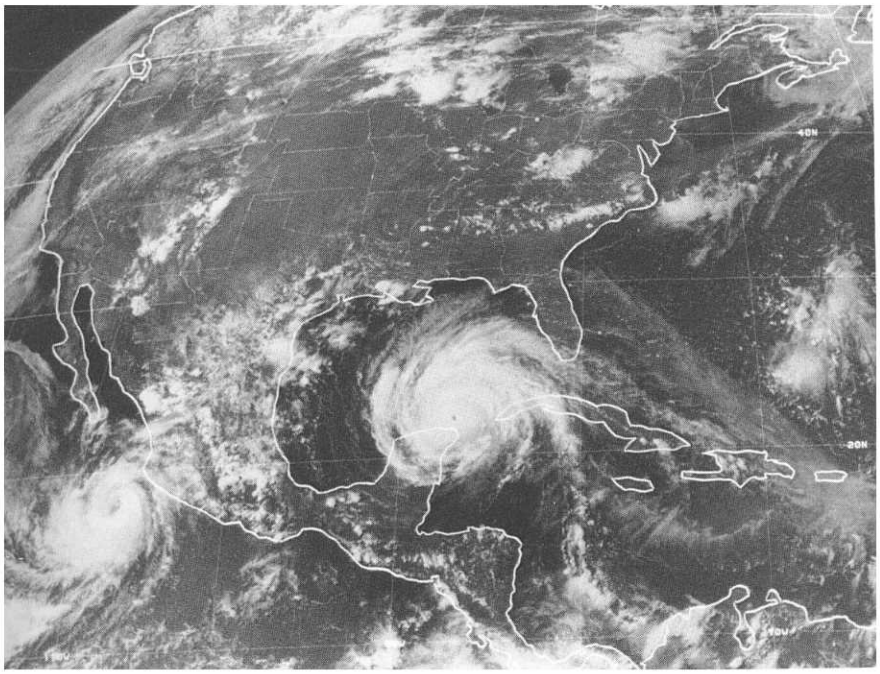
Much of the assistance provided during disasters by donor agencies, governments, voluntary organizations and others is in the form of drugs and medical supplies But the practical impact of this aid is often diminished because requests do not reflect real needs or because the needs have not been adequately assessed. Donations of unsorted, unsuitable and unintelligibly labelled drugs, or the provision of products which have passed their expiration date, are the unfortunate result. Such problems are often compounded by delays in delivery and customs clearance.

To alleviate this logistical problem and standardize the types of drugs and medical supplies used in emergencies, WHO developed the WHO Emergency Kit in collaboration with the United Nations High Commissioner for Refugees (UNHCR), the London School of Hygiene and Tropical Medicine, UNICEF, Medecins sans Frontières, the League of Red Cross and Red Crescent Societies, the International Committee of the Red Cross, and the World Council of Churches.

The Kit's contents are calculated to meet the needs of 10 000 people for three months. It is designed to be prepared in advance and kept in readiness should disaster strike. It can be provided by several major pharmaceutical suppliers, some of which have a permanent stock of kits ready for shipment within 48 hours.

The Kit has been adopted by many organizations and national authorities as an appropriate, inexpensive, and quickly transported source of the medical supplies and equipment needed in a disaster situation

A WHO Preparedness Checklist



A hurricane gathers force in the Gulf of Mexico

How do countries and communities assess their level of disaster preparedness? The following questions can help assess disaster preparedness and provide a focus for health preparedness activities at regional, district and community levels.

Key Health Preparedness Questions

1. Is there a national health policy regarding emergency preparedness and relief? Is this policy being implemented?
2. Is there a person within the ministry of health in charge of promoting, developing and coordinating emergency preparedness and relief activities?
3. Are emergency preparedness activities coordinated with the health sector, civil defence authorities and key ministries such as the ministry of interior or agriculture?
4. What joint activities in emergency preparedness and response are undertaken between the ministry of health, United Nations agencies, bilateral organizations and nongovernmental organizations?
5. Are there operational plans for health response to natural, man-made or other emergencies?
6. Have mass casualty management plans been developed (both before and after hospital admission) at the national level as well as for individual hospitals?
7. What health and nutrition surveillance measures have been taken for the early detection and response to health emergencies? For example, have disaster-prone geographical areas and high-risk seasons been identified? Are early-warning and surveillance systems established and working? Has a national reference laboratory been established?
8. What preparedness steps have been taken by environmental health services to respond to emergencies and disasters?
9. Have facilities been identified and have safe areas been designated as temporary settlement sites in the event of disasters? What provisions have been made for health care? Specifically, what provisions have been made for general or special health services, staffing, supplies, water and sanitation?
10. What training activities are devoted to emergency preparedness and response in the health sector at national, regional and district levels? What other institutions or organizations involved?
11. What resources are available to facilitate a rapid health response? Is there an organized communications centre in the ministry of health? Is there an emergency budget? Is access to transport or emergency medical supplies assured in the event of disaster?
12. Is there some kind of system for updating information on the key human and material resources needed for an emergency health response – for example, updated inventories of essential drugs, four wheel drive vehicles, etc.?
13. What opportunities exist to test the effectiveness of emergency plans through simulation exercises and drills?