THE MACEDON DIGEST

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GREENHOUSE CONFERENCE PREDICTS MORE CYCLONES

The Greenhouse '87 Conference, held at Monash University in early December 1987, was told that climate changes within 50 years may double the number of tropical cyclones. Professor Kevin Stark from the James Cook University of Queensland, said that in addition to a greater frequency, the intensity of cyclones could increase by as much as 20% and they could reach as far south as Port Macquarie.

Professor Stark indicated that coastal and marine structures will be subjected to cyclonic storm surges and wave attacks, at levels considerably higher than allowed for in current designs. Inundation of low lying coastal developments and of port infrastructure can be expected. Professor Stark saw the need to design and plan now to cope with these long term changes. As the design life of important structures and some of the major coastal developments now underway in tourism and offshore projects, will be at least 50 years and in some cases more than 100 years, these changes must be incorporated in current designs.

In Queensland, some developers were already planning for the impact of the warming effect on their coastal resorts. For example, some plans had raised ground floor levels, to protect against flooding and storm surges, caused by the intensified cyclones.

Continuing the theme of the nexus between the greenhouse effect and cyclones, Mr. Brian Peele of the Insurance Council of Australia, told the Greenhouse '87 Conference that house insurance premiums against super-cyclones, would rise sharply. People in cities as far south as Perth, would be paying four times their current levy. He said that the insurance industry had closely monitored the scientific studies on the greenhouse warming of the earth; they accept that it probably would occur within 50 years. At least, the long lead-time would give the community time to plan and adapt for the changes. If as predicted, cyclones became more intense and more widespread, insurance companies would require new standards of housing construction and design. But because of new technology and materials, they need not be much more expensive. Existing houses could be easily modified.

Other papers presented at the Greenhouse '87 Conference which are of interest to the Australian counter-disaster community included :

- ★ The suggestion by Dr. Andrew Short of the University of Sydney that a 1 m rise in sea levels will produce shore line retreats of up to several kilometres, in parts of northern and southern Australia, especially tidal flats and beach ridge plains.
- ★ Research conducted by the CSIRO Division of Water Resources Research, which indicates that lower water table levels will result from decreased precipitation, which would ultimately reduce areas of saline land; higher precipitation would increase saline areas.
- ★ Work done by the Sydney Water Board which concluded that changes in temperature and rainfall could lead to a higher risk of structural failure within the Boards headworks.
- ★ Research by the CSIRO National Bushfire Research Unit and Division of Plant Industry, which suggests that any decrease in relative humidity would result in a markedly increased Australian bushfire occurrence.

Prior to the Conference, the *'Monash Reporter'* of 16th November 1987 reports that a researcher from the Geophysical Fluid Dynamics Laboratory at Monash University, Dr. David Karoly, who has been working on global atmospheric circulation, claims to have found persuasive evidence of the existance of the greenhouse effect. Dr. Karoly said his findings stemmed from a check of the reliability of temperature data, gathered in the southern hemisphere over the past 20 years.

In recent years scientists have become concerned that the measured increasing level of carbon dioxide in the atmosphere, will trap heat in the earth's lower atmosphere (troposphere), raising the global temperature. Accompanying this, Dr. Karoly said, one would expect a drop in temperature in the upper atmosphere (stratosphere), because less radiation would penetrate the carbon dioxide blanket in the lower atmosphere.

Dr. Karoly reports that data taken from two independent sources, show that the southern hemisphere troposphere has been warming. At the same time the stratosphere has been getting colder at most stations in the southern hemisphere. He felt that the effect was not all due to the build-up of carbon dioxide, but also to other causes including ocean warming and increases in other heat absorbing gases such as methane.

ACDC STAFFING

After 35 years of distinguished service in the Australian Regular Army, Ian Gilmore joined the Australian Counter Disaster College in May 1978 as its third Director.

Ian brought to that appointment a range of experience and skills which would be difficult to match. His army service took him to Japan, Korea, UK, USA, Vietnam, Singapore and Malaysia; he studied at major Australian and US management institutions, and held senior service management appointments in Australia and overseas. In the three years prior to assuming the College appointment, he had been Commandant of the Australian Staff College, and during his College years he served with distinction in a number of honorary service appointments.

He took up the appointment at a particularly critical time for the College - instructionally, it was making the adjustment from the classical 'civil defence' orientation of its earlier days to its current 'counter disaster' philosophy, while administratively it was making the transition from the 'laissez faire' style of the old Department of the Interior (which on one memorable occasion managed to 'mislay' the College ledgers for a period of years!) to the highly-systematised procedures of the Department of Defence.

He was, undoubtedly, the man for that time. He had, perforce, to serve a bewildering variety of masters in satisfying the demands of his appointment, but serve them he did - and in so doing, he protected and fostered those who worked for him. For this, in particular, he will be remembered.

Ian Gilmore separated from the College in December 1987. He leaves behind him, as tangible evidence of his leadership and concern, a College which has demonstrated its capacity for fulfilling its charter, by making an active contribution to the development of an efficient Australian counter disaster capability. All at the College join in wishing Ian and Alison the best in what will undoubtedly be an active retirement!

Newcomers to the College include :

Leon Whittaker - the new Deputy Director (vice David Packham), after 25 years service with the Melbourne Metropolitan Fire Brigades Board;

Major Glen Akers - the new military instructor, vice Major Chris Lee; and

Merrick Chatfield and John Salter - new senior instructors.

Roger Jones, Director

EDUCATION

ACDC Program - 10 April to 1 July 1988

Reserved (1098)	11 - 15 April
Hazard Management (1099)	17 - 22 April
Special Needs Group Workshop (1100)	26 - 29 April
Evacuation Management (1101)	1 - 6 May
Research Clinic (1102)	1 - 6 May
Disaster Skills Training Workshop (1095)	9 - 13 May
Professional Development for Disaster Managers (1104)	15 - 27 May
Research Clinic (1105)	29 May - 3 June
Introduction to Disaster Management (1106)	29 May - 3 June
Reserved (1107)	5 - 10 June
Counter Disaster Planning (1111)	12 - 17 June
Disaster Response Management (1109)	19 - 24 June
Hazard Management (1086)	26 June - 1 July

Details about these activities are contained in the 1987/88 ACDC Handbook; or contact the College direct on (054) 26 1205.

First World Congress on Risk and Insurance Management — Brisbane, Australia 23 - 28 October 1988

This Congress provides the first opportunity for all member associations of the International Federation of Risk and Insurance Management Associations (IFRIMA), to meet, discuss and learn about the issues which affect risk and management practitioners, worldwide. The Congress programme will embrace the theme, 'Leisure in the Age of Technology', with delegates inspecting technically innovative theme parks. Presentations will be made by site personnel, on how they manage and cater for risk and public liability.

The technical programme will include the examination of public liability and the maintenance of property and profits, while dealing with large crowds in a high technology environment.

Prominent keynote speakers have been invited and professional development seminars and workshops will be held, for topics requiring specialist attention. Topics include general risk management, law and legislation, exposures, risk management information system and international risk management.

For further information about the Congress, contact :-

Secretariat,
Risk 88,
PO Box 731,
TOOWONG, QLD 4066,
Australia.

International Conference on Dealing with Stress and Trauma in Emergency Services - 26/28 August, 1988, Melbourne, Australia.

The purpose of this conference is to bring together people with expertise and interest in assisting emergency personnel who are exposed to stress and trauma in the course of their work. This conference follows on from different series conducted in both the U.S.A. and Australia, addressing the broad topic of 'helping the helper'. This is an area in which emergency services have shown initiative to others in the health/welfare field.

This conference will explore the roles of education, counselling and research in understanding and combatting emergency service stress. Emphasis will be given to practical approaches and useable strategies. Cross cultural information will be encouraged.

The conference is designed for people involved in emergency work, eg. police officers, ambulance officers, fire fighters, SES workers, medicos, nurses, counsellors (psychologists, social workers, clergy), administrators and emergency support staff.

The conference format will comprise:

★ keynote and invited speakers;
★ individual paper sessions and workshop presentations; and
★ informal activities.

The conference will emphasize and facilitate opportunities for liaison and communication between delegates.

Invited speakers will include:

Dr. Sandy McFarlane Flinders University S.A., Australia	★ Long term effects of Ash Wednesday on firefighters.
Professor Jeffrey Mitchell University of Maryland, U.S.A.	★ Major educator and innovator of this field in the world. ★ Creator of critical incident stress debriefing teams.
Professor Beverly Raphael University of Queensland Australia	★ The effects of disasters on victims and emergency workers in Australia.

Address all correspondence and enquiries to:

Dr. Robyn Robinson
Conference Co-ordinator
Social Biology Resources Centre
139 Bouverie Street
CARLTON 3053
Telephone: (03) 347 8700
International: 613 347 8700

FEATURES

THE NATIONAL REGISTRATION AND INQUIRY SYSTEM (NRIS)

In this article, Robin Herron, Senior Executive Officer (Plans and Operations) at the Natural Disasters Organisation in Canberra, outlines the background to and operational aspects of the National Registration and Inquiry System.

History :

In April 1975, a seminar was held at the Australian Counter Disaster College (ACDC), to clarify responsibilities for registration and tracing functions during a disaster response operation and to agree on a unified national system. The Natural Disasters Organisation (NDO) then co-ordinated the development and implementation of the first NRIS, which came on-line using the Customs Service mainframe computer network, in January 1979. For a variety of justifiable reasons, that system's programme could not be regularly updated and as a result, its capabilities were progressively diminished. Nevertheless, within its limitations it served users well. Its first real test came with Ash Wednesday in 1983, when it was activated for the South Australian and Victorian bushfires. That activation highlighted already known deficiencies, both in the programme and in user procedures. These deficiencies, coupled with a Customs Service intention to change main frames (and in so doing, drop the NRIS capability), provided the catalyst for the development of a new NRIS.

Accordingly, in December 1983, the NRIS National Working Party convened at ACDC with a view to defining the parameters for the new system. That Working Party comprised the users of the system, an amalgam of Red Cross, Police, State/Territory Emergency Services, State/Territory Welfare authorities and appropriate Commonwealth officers. The aim was to produce a simple, reliable and readily accessible system, capable of manual or computer operation.

NRIS Version II

Two years and many sub-committee and evaluation meetings later, the new programme was ready for implementation. Funded by the Department of Defence (NDO) and managed by the then Department of Health, it had been carefully researched and written by Logica Pty Ltd, acting as a consultant to the Department of Health. It was designed to function on Health's mainframe IBM system, using an IMS/FOCUS combination.

Initial training for key State and Territory personnel was conducted in Canberra in October 1985. Due to delays in the production of the new registration and inquiry cards, plus a need to complete a link between Health in Canberra and the Northern Territory Police in Darwin, the new NRIS could not be declared operational until 1 March 1986. Since that date it has been in use, to varying degrees, by all States and Territories for operator training.

Responsibilities

NDO is responsible for:-

a. total NRIS oversight;
b. directing that the NRIS be activated and allocation of disaster codes;
c. vetting of all ad-hoc report requests;
d. co-ordination of programme modifications, alterations to procedures and national level exercises;
e. provision of an initial quantity of NRIS registration and inquiry forms and supporting documentation such as multi-lingual posters; and
f. funding of future programme modifications and of costs associated with adoption of alternate mainframe and network facilities.

The Commonwealth Department of Community Services & Health (DCSH) is responsible for:-

a. activation of the NRIS when so directed by DGNDO;
b. production and distribution of all associated reports;
c. operational maintenance of the NRIS programme for so long as it uses the department's ADP network;
d. on-line operation of the NRIS;
e. provision to all users of all necessary user documentation to permit easy access to and use of, the NRIS programme;
f. provision of access to the network by users for training on the system at least once per month;
g. in the event of an operational activation, provision of reasonable access to additional terminals by users, where such users lack a State/Territory compatible operations centre. 'Reasonable' access is defined as use of existing on-site departmental computer network facilities; and
h. co-ordination of direct liason with all users on operational use of the network, including advice on installation of compatible equipment in State/Territory centres and the linking of such to the department's regional terminal facility, plus scheduling of training.

The States and Territories are responsible for:-

a. the establishment of State/Territory centres for registration and inquiry;
b. the equipping of such centres with all necessary communications and terminal facilities to permit full use of the NRIS;
c. prompt advice to DGNDO on the probability of activation of the NRIS;
d. prompt advice to NDO of contact telephone numbers for registration and inquiry centres;
e. maintenance of trained NRIS personnel, capable of 24 hour use of the system;
f. in the case of the disaster State/Territory, input of the initial batch of registrations and subsequent modifications to those and others as the situation clarifies;
g. accurate estimation of the probable total on-line period required and early advice of such to both DGNDO and the department's affected regional office; and
h. immediate advice to all concerned when the system can be taken off-line.

System Activation:-

The NRIS is a computer-based filing and retrieval system, designed to furnish relations and close friends with basic details on the whereabouts and safety of disaster victims. It is capable of either manual or computer operation. It is designed to complement a similar State or Territory system. It is not intended for use in the monitoring of post-disaster relief payments and although release of the data is controlled by each appropriate State and Territory registration authority, such release will be carefully controlled to ensure the privacy of the individual registrant is protected.

In the early stages of a disaster requiring the registration of victims, the State or Territory concerned would implement manual procedures until such times as these proved to be inadequate. At this point a decision would be made to request activation of the NRIS (the programme for which is running continuously). Once activated, the NRIS provides not only the facility for computer input and manipulation of registrations by the disaster State or Territory, but also on-line nation-wide inquiries via authorised inquiry centres.

On direction from NDO, DCSH will activate the system and so advise its network users, adjusting or terminating normal departmental programmes as the circumstances dictate.

Once the system has been activated, registrations will be inputted, either on-line or as batch-processed tape/s. Either way, the data base will be unuseable for inquiries for at least the first twelve and probably twenty four hours or more. During this period, callers are advised to hold their inquiries until a sufficient number of registrations has been effected. NDO, acting on advice from the affected State or Territory registration authority, will not promulgate the fact that the NRIS has been activated until the data base is useable. At that point NDO will promulgate brief details of the activation, together with nominated State and Territory inquiry centre contact telephone numbers.

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The system will remain on-line for as long as the disaster State or Territory requires. The activation will be continually monitored by the National Emergency Operations Centre (NEOC) in NDO, with DCSH providing regular advice on programme useage.

On request, the Director General NDO will direct DCSH to terminate the activation. The department will subsequently complete all final reports, forwarding these automatically to the authorised recipients. The disaster State or Territory will also submit a post-activation report to DGNDO, with an information copy to DCSH. It will be for DGNDO to decide whether or not to issue a national summary following each activation.

System Status/Development:-

As presently configured, the programme is a robust and 'user friendly' package which will handle small (up to 25,000), medium (up to 100,000) and large (over 100,000) registration totals.

Registrations may be effected on-line, using an IBM 3270-compatible terminal to access the DCSH mainframe in Canberra. Alternatively, batch-processing, using commercial data processing agencies, is available, the completed tape being despatched to Canberra either on-line or more probably, by courier. This latter option is particularly attractive in the case of a large-scale disaster, where on-line input would be unable to keep pace with the flood of registrations and inquiries.

Inquiries may also be effected on-line, using either an IBM-compatible terminal or, a significantly cheaper option, a 'glass terminal'. In the latter case, manipulation of displayed data is restricted by the current software programme.

Subject to the availability of funding, the NRIS will be progresively improved. Areas wherein improvements might be possible include:

a. development of a more sophisticated phonetic search, a highly desirable improvement in view of the multi-lingual character of today's population;
b. expansion of the scope of available daily and final reports and means of transmission of these;
c. research and development work on the applicability of optical character readers; and
d. use of IBM-look-alike micro-computers, thereby allowing access through less expensive and non-dedicated terminals.

A major drawback with the system as presently configured, is the fact that the IMS/FOCUS package is relatively rare and expensive. This, coupled with our total dependence on the DCSH mainframe in Canberra, means that NDO must continue to explore other potential mainframe 'hosts' for what is an important national counter-disaster system.

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DECISION ENHANCEMENT FOR COUNTER-DISASTER PERSONNEL

In this article, Professor Alan Hofmeister from Utah State University in the United States, postulates on the usefulness of expert systems to those in the counter-disaster field. Professor Hofmeister, who undertook a speaking tour of Australia in later 1987, heads the Artificial Intelligence Research and Development Unit at Utah State University.

The effectiveness of efforts to counter disasters is directly related to the quality of decision making by those involved. Expert systems technology, a field within the larger and rapidly developing field of artificial intelligence, is concerned with the enhancement of decision making. Expert systems are computer programs designed to capture and disseminate human expertise. These programs have already proven effective in medicine, geology, chemistry, engineering, business and education.

The term 'knowledge engineering', describes the process of capturing human expertise and developing and progressively refining expert systems, through field testing and reviews by experts. In order to provide solutions to problems, the typical expert system gathers information on the specific characteristics of the problems, through a dialogue format that simulates a consultation with a human expert. During this dialogue, the problem is clarified, relevant characteristics of the problem are identified and solutions are posed. In the process of seeking a solution, an expert system may access other computer programs and computerized data bases for needed information.

An expert system has three major components:

1. An inference engine that manages the reasoning processes;
2. A knowledge base that holds the expertise; and
3. A memory cache that stores the details of the specific problem under consultation.

To facilitate interaction with the inference engine, the knowledge base is organised into 'if-then' rules. A typical rule might be:

IF

a. the victim/s shows no sign of movement, and
b. there is no evidence of external harm, and
c. the space is enclosed

THEN

the certainty of toxic gases is above 70%.

These rules are the building blocks of knowledge bases and serve as the primary vehicles for capturing and storing knowledge. A knowledge base may contain several hundred to several thousand such rules. An expert system will only use what rules are needed for an individual problem. Expert systems are not general problem solvers; they can only generate advice in the specific knowledge domain defined by the knowledge base. In the early days of artificial intelligence, research emphasized problem solving through the speed and power of the computer. Modern expert systems now stress the quality of specific knowledge bases, rather than 'raw' computing power.

When a user operates an expert system, the communication can go both ways. For example, if the computer posed the question: 'Are the victims in an enclosed space?', the user could ask: 'Why are you asking that question?'. The computer might respond, 'This information is needed, (1) to determine if there is a high probability of toxic gases, and (2) for recommending procedures for removing victims.'

A well designed expert system should make all its decision making procedures explicit upon request. The expert system should provide the rationale for the conclusions, as well as the rationale for the questions posed during the consultation. As a part of this explication process, the expert system should provide the user with a 'trace' of the decision making process used for each problem. The user should also be able to retrieve the characteristics of the specific problem from the memory cache.

One of the attributes of an expert system, is a facility to continue even when information requested by the expert system is missing or incomplete. If the expert system determines that missing information is important, then the certainty of a conclusion will be reduced. The conclusion may also be accompanied by a recommendation that the user try to collect the missing information, to improve the quality of the decision making.

Because expert systems are used in areas where information is often incomplete and decisions complex, 'certainty-computing' procedures become necessary. 'Certainty factors' are applied to the quality of the information received and recommendations given by an expert system. 'Certainty factors' are usually based on a scale from 0 to 100. A 'certainty factor' of 30 would indicate low confidence in the associated conclusion, while a factor of 80 would indicate a relatively high confidence level in the information.

Expert systems serve a range of roles including that of 'on-line' field consultant, trainer, and knowledge clarifier. The original role of the expert system was that of the on-line consultant. Expert systems are now proving to be excellent tools for

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training in complex decision making. An expert system can model problem solving, one of the most difficult of training activities. Too often training consists of large amounts of background and related theory, but only modest amounts of practice in applying the background theory to problem solving. These first two roles of expert systems have been further enhanced by software developments that allow very practical expert systems to run on microcomputers. A microcomputer of 512k of memory or more is usually needed.

The third role, that of 'knowledge clarifier', is becoming more appreciated as expert systems technology develops. The knowledge base of an expert system has value, even if it is not used as a component in an expert system. The knowledge engineering process associated with the development of a knowledge base for an expert system, forces the knowledge engineer to search for only the most problem relevant knowledge. In the process of designing the knowledge base, one is required to clarify the problem as well as the problem solving processes. All this information is carried by the knowledge base and is available for other purposes.

If leaders in the field of disaster control choose to exploit expert systems technology, they will find a tool that should help in the crystalization of essential knowledge, serve as an advanced training tool, and enhance decision making as an on-line consultant.

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VICTORIA'S STATE DISASTER RECOVERY PLAN

Philip Buckle, Assistant Manager, Disaster Support and Recovery Unit of the Victorian Department of Community Services, provides this outline of the Disaster Recovery Plan for the State of Victoria.

Late in 1987, the State Disasters Council, chaired by the Minister for Police and Emergency Services, and as the peak public counter-disaster planning body in Victoria, approved the new State Disaster Recovery Plan. This plan is an outcome of a series of reviews conducted by the Victorian Government since the bushfires of Ash Wednesday, February 16, 1983 and it marks a radical advance in the management of recovery from disaster. It also follows the Emergency Management Act 1986, which established the broad structure for disaster management in the areas of prevention, response and recovery.

The plan outlines State and regional arrangments for planning for, and management of, recovery operations. These arrangements incorporate a number of innovative approaches, which recognise the need for affected individuals, families and communities to receive appropriate assistance in a timely fashion, and include:

- ★ separation of planning and management activities;
- ★ management of recovery on the basis of the area directly affected;
- ★ recognition that recovery extends over a considerable period of time and therefore requires co-ordination and management in its' own right; and
- ★ acknowledgement that recovery is best achieved when communities are involved in the decision making process from the earliest possible time.

Planning will be conducted at regional levels (the key level for the delivery of assistance provided by the Victorian Govenment), on the basis of Community Services Victoria's (CSV) regions. The planning body will be a regional recovery planning committee, convened by the CSV Regional Director and comprised of representatives of public and private agencies and municipalities.

Each committee will be responsible for preparing a recovery plan for its' area and will report, through CSV, to the State Disaster Recovery Planning Committee, a sub-committee of the State Disasters Council.

Management, however, will be conducted on the basis of the affected area, that is the entire geographical area directly affected by a disaster. This recognises that disasters frequently cross the administrative boundaries of municipalities and government departments and that people affected by a disaster, have common interests not shared by others within the same municipality or region.

CSV will co-ordinate the provision of recovery services and measures, although individual agencies and municipalities will still be responsible for the effective administration of their own services.

Area Recovery Committees, serviced by the CSV but probably chaired by a municipal representative and including representatives of local communities and municipalities, will oversee the recovery process, make recommendations to CSV for any additional recovery measures considered necessary and represent affected people to government.

At State-level CSV will co-ordinate the management of the recovery process, although there is provision for a recovery management committee and a recovery policy committee, to be convened in the event that further inter-agency co-ordination or additional types of assistance are required In extreme circumstances, the Minister for Police and Emergency Services may appoint a State Recovery Co-ordinator to carry out specified tasks.

The State Disaster Recovery Plan is considered a marked advance on previous plans for a number of reasons, prominent amongst which are:

1. recovery is now a management area in its own right and is no longer subordinate to, or a part of, the response (combat and emergency relief) arrangments;
2. co-ordination of recovery planning and management is the functional responsibility of a human services agency, Community Services Victoria; in this respect, the plan is unique in the world;
3. local communities have a direct involvement in planning and management and have a formalised process, through the Area Recovery Committee, to approach government;
4. the management arrangements embodied in the plan are based on previous, successful practice and have there fore already been tested for their efficacy; in turn they now ratify practical arrangments which previously lacked proper authority;
5. the plan incorporates a planning and management response, that can be applied to disasters of different types and magnitudes and which avoids the schismatic, and often confusing, approach which fails to recognise the characteristics common to all disasters and unnecessarily sets up a multiplicity of management arrangements; and
6. the plan has a specific package of recovery measures, approved by Government, which facilitates planning, advises affected people of the range of services to which they may have access and which encourages public accountability.

This plan is seen as a major advance for disaster management in Victoria; it represents significant and considered developments. However, also built into the plan is the capacity for review, refinement and further development. Indeed, several subjects have already been identified as needing further exploration, including:

1. Disasters which affect groups of people who belong to different and separate communities; dispersed population disasters of this type are exemplified by the mass killing at Queen Street, Melbourne, late in 1987 where the victims and their families came from across the metropolitan area.
2. The need to link recovery from disaster with disaster prevention, so that the recovery process can incorporate measures to reduce the likelihood of recurrence and prevention, can capitalise on community, media and political attention generated by a disaster.
3. Review of the definition of disaster to perhaps include such phenomena as social dislocation, caused by environmental modification and to assist in the assignment of the costs of recovery to individuals, the

insurance industry or a part or the whole of the community.

Despite these issues which are still to be concluded, it is expected that with the new planning and management arrangements in place, the process of recovery from disasters will occur more smoothly and with greater efficiency, than has often been the case previously.

Copies of Victoria's State Disaster Recovery Plan are available from:
The Disaster Support and Recovery Unit,
Community Services Victoria,
4th floor,
55 Swanston Street,
Melbourne, 3000.
Victoria.
Telephone : (03) 653 6341

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HUMAN RESPONSES TO NATURAL DISASTERS

The eighth article in this series, by Ruth Wraith and Rob Gordon from the Royal Children's Hospital in Melbourne, has been held over until the June edition of TMD. In June, Ruth and Rob will examine community responses to natural disaster.

INTERNATIONAL

Emergency Medical Service Employee Organisation Network

In the United States, representatives of several urban municipal emergency medical service employee organisations, met late in 1987, to establish the National EMS Employee Organisation Network. The purpose of the network is to provide a basis for the exchange of information and data, regarding EMS labour/management and human resource issues. Employee organisations which are currently a part of the network include the American Federation of Government Employees, the Fraternal Association of Professional Paramedics and the Emergency Mobile Medical Technicians and Trainees Association. Representatives of EMS employee organisations which are now part of the network, have scheduled their next meeting for early 1988. These organisations would like to make this an international EMS organisation; England and Canada have already expressed interest.

Individuals or EMS employee organisations interested in more information about the EMS Employee Organisation Network, should contact:
United Paramedics of Los Angeles,
611 S. Catalina, Suite 200,
Los Angeles, CA, 90012.
USA.

British Response to Chernobyl

James Lewis, in an article for the British Local Government Studies publication (July/August 1987), on "Risk, Vulnerability and Survival", outlines aspects of British response to Chernobyl. He writes that "...the Chernobyl nuclear accident of April 1986 has conferred awesome reality upon local authority emergency planning, which is not now confined to internal, hypothetical or projected nuclear conditions. Accidents at nuclear power installations would have direct effects again upon areas of the United Kingdom - almost wherever an accident in Europe occurred. Chernobyl has brought a reality of nuclear accident to the forefront of the nuclear risk arena; risk is now seen to exist, whatever the risk is said to be.

The level of our perception of risk has been raised and realistically remoulded.

Local authorities (or other authorities acting locally) were involved at the immediate Soviet zone of the Chernobyl accident in fire-fighting and other emergency operations, evacuation, rehousing, decontamination, care of the injured, sick and evacuees, food distribution, dust eradication, chemical film application and information promulgation. Within the United Kingdom, the Chernobyl accident caused local authorities to be involved in environmental, food and water monitoring, livestock control, medication (potassium iodide) distribution and fallout resurvey.

Chernobyl has changed the perception of nuclear risk. Nuclear accidents will recur; they require local and small scale planning and preparedness measures as well as national level co-ordination. Activities undertaken by Soviet and at local levels of Scandinavian and European countries including the United Kingdom, were after the event. Information was the greatest public need. The National Radiological Protection Board was inundated with requests for information from the public. Emergency and preparedness planning by local authorities for the improved future undertaking of similar activities will be required, as will efforts to disassociate over time, communities from identifiable indigenous sources of risk. In addition to these crucially important undertakings, local authorities could create and apply their planning functions to a wider range of activities for incorporation into a survival strategy for all communities and populations and for a comprehensive spectrum of hazards and risks at all levels."

DISASTER PLANNING

The Health Surveyor's Role

The Health Surveyor's role in community assistance and maintenance of public health, should now be readily recognised as having increased importance in times of disaster or emergency. As a professional member of the health team, the Health Surveyor is generally in close and continuous interaction with community members. The Health Surveyor is not only a logical, but an essential choice, for participation in formulating the counter-disaster plan and any preparations, which are required to safeguard the health of the community. It is essential that the Health Surveyor be fully aware of and understand the responsibilities of the Counter Disaster Planning Committee and other counter-disaster personnel; and conversely that this Committee and other counter-disaster personnel be fully aware of and understand, the responsibilities of the Health Surveyor. Clearly, this can only be achieved through participation at the planning stage.

It follows that the Health Surveyor, as a member of the health team, should develop a feasible Public Health Sub-Plan of the main Counter Disaster Plan. Alternatively there should be a detailed public health section in a Health and Medical Sub-Plan. This Sub-Plan should indicate:

(a) who is responsible for the co-ordination of local public health responsibilities and who will assume the role in this person's absence;

(b) the names, addresses, and after hours telephone numbers of municipal health staff, district health staff, and vital contacts, also of other persons who may be useful in an emergency;

(c) details of what technical advice is available from specialist officers of the Health and other government departments;

(d) how municipal or local health staff can be supplemented during counter-disaster operations;

(e) procedures relating to the numerous facets of the health surveyor's responsibilities; for example, the safety of food and water supplies, his involvement in the disaster affected area, the health aspects of evacuation and accommodation centres;

(f) the availability of equipment resources; for example, power generators, water tankers, refrigerated food transport, vehicles, sanitary pans and vehicles, garbage bags, trench digging equipment, chemicals, chlorination equipment, mobile kitchens; and

(g) a sample of a public health report proforma.

Source: David Preece, A.C.T. Health Authority

DISASTER PLANNING

Review of Disaster Planning for the Altona Area

A review was recently undertaken by the Victorian Department of labour and the Victorian Ministry for Police and Emergency Services, to examine key issues in disaster planning for the Altona industrial area in Melbourne. The review follows a Risk Assessment Study of the Altona Petrochemical Complex, which was completed in late 1986.

The review defines the hazards, then proceeds to survey the planning and response arrangements for incidents within the complex. This is done within the context of the State's emergency management arrangements and the State Disaster Response Plan (DISPLAN). The review identifies issues in the areas of community safety and awareness, and training and exercising.

The review concludes that emergency planning and preparedness for the complex, by the companies concerned and by the responsible authorities, is generally satisfactory. The arrangements presently in place, are assessed as ensuring that incidents will be effectively managed, taking all reasonable scenarios into consideration. However, the review identifies three areas in which further examination or action is considered necessary, these being community evacuation, the training and exercise program and public information needs. Free copies of the review are available from the Ministry of Police and Emergency Services (Fire & Emergency Services Division), Spring Street, Melbourne, 3000; or Altona Council, Civic Offices, 115 Civic Parade, Altona, 3018.

OZONE DEPLETION

Chlorofluorocarbons (CFC), which recent scientific evidence links to the breakdown of the ozone layer, have a very long lifetime in the atmosphere. Even if production ceased now, CFC levels in the stratosphere will continue to rise and deplete the ozone layer for many decades. NASA scientists have calculated that a 50% reduction in CFC production by the end of the 1990's would still result in a significant increase in ozone depletion - 5% by 2050 and 8% by 2060.

The British medical journal *'Lancet'* indicates that as the global ozone layer has declined over the past decade, the incidence of skin cancer has increased. The Australian death rate for skin cancer is now five times greater than 50 years ago. If the NASA calculations are correct, by the middle of the next century, the incidence of skin cancers could increase by 20 - 48%.

Other impacts of increased ultraviolet radiation levels, as a result of ozone depletion, may be firstly severe damage to the oceanic food chains leading to reduced oxygen output, and secondly declines in crop production.

Source: ACF Newsletter, November 1987

BUSHFIRE VIDEO

The CSIRO Film and Video Centre have available a 28 minute video on VHS, called "Project Aquarius", which records the progress of a CSIRO bushfire research study, which was carried out during 1983 and 1984.

The study was designed in the first place, to test the effectiveness of large aircraft in controlling bushfires, through bombing them with water and fire retardents. It also researched the nature of wildfire and its effects on the bush and the firefighters.

The video costs $58; enquiries should be directed to the CSIRO Film and Video Centre, 314 Albert Street, East Melbourne 3002, or telephone (03) 418 7333.

PUBLICATION

EMERGENCY PUBLIC RELATIONS MANUAL: THIRD EDITION (234) PAGES

This text covers the subject of emergency communications and press relations. It has been written for public relations professionals, amateur communicators, counter-disaster executives and crisis planners. It will be useful to those who need to maintain trust and credibility with audiences during disasters. The book includes information on how to write an emergency public relations plan, how to react to unexpected events, how to predict press behaviour, how to predict and prepare for emotional responses of audiences and how to establish and equip an information centre. This book guides the reader through development of plans, strategies and tactics, for providing information to radio, television, victims, families, employees, community leaders, elected officials and a range of other audiences.

The Emergency Public Relations Manual is available from PASE Incorporated, PO Box 1299, Highland Park, NJ08904, at a cost of US $149.95.

BOOK REVIEWS

Beyond Darkness, Nuclear Winter in Australia and New Zealand,
by Dr A Barrie Pittock, published by Sun Books and available from MacMillan in Sydney or Melbourne
ISBN 0 7251 0536

The idea that nuclear winter might follow a major nuclear war was first discussed by scientists as recently as 1982. Nuclear winter arises from smoke released in fires, which would follow nuclear strikes, and dust that would be injected into the atmosphere. The burning of 100 major cities or industrial centres in the northern hemisphere, would produce enough smoke to blot out the sun over most of the northern hemisphere for weeks, or longer.

Without sunlight and because smoke is relatively transparent to heat radiation given off by the earth's surface, the ground in inland areas would cool continuously, until it reached a temperature some tens of degrees below normal.

Without the heating of the surface, due to solar radiation, much of the energy driving the weather systems would be lost, particularly those driving the summer monsoons of Asia and Africa. This would lead to a failure of the monsoons and generally reduce rainfall in other areas.

Plants would cease to grow, due to reduced photosynthesis caused by loss of sunlight. If the darkness was severe enough and lasted long enough, plants would die. Those that survived would have to face low temperatures, frosts, lack of rain and possible radioactive fallout.

The smoke would change the atmospheric circulation and some computer models indicate that within 2 or 3 weeks, smoke would be over Australia and New Zealand. The majority of countries will be affected in some way; those affected most will be the more populous non-combatant ones.

Dr Pittock states that the nuclear winter hypothesis involves a large number of complicated calculations and processes, which are subject to varying degrees of uncertainty. Some of these uncertainties are irreduceable, because they involve human behaviour, but are capable of being reduced by further research. No matter how accurate the information is, the fact still remains that the threat of nuclear winter is with us and must be looked at.

Beyond Darkness is an easy to read, well laid-out book that is understandable to the layman. Dr Pittock discusses the background to nuclear winter and how the data is modelled, to support his theory. The book however is not all doom and gloom. Besides looking at how we in the southern hemisphere will be affected by a nuclear war fought in the northern hemisphere, he discusses global policy implications and the

morality of war. He finishes up looking to the future, with the view that all is not lost and that with a sense of purpose and dedication we, the peaceful public, should be able to campaign for peace.

The book is very entertaining and clearly outlines the arguments in support of the theory that nuclear winter is a threat we all face.

Major Chris Lee.

The Complete Australian Bushfire Book
by Joan Webster, first published by
Nelson (1986), Melbourne.
ISBN 0 17 006759 9

This is a reasonably compact book of 269 pages, which contains copious information over a wide range of bushfire aspects, in a very easy-to-read style with numerous illustrations, tables and photographs. Its fifteen chapters cover such topics as the background to the Australian bushfire phenomenon (aboriginal, historical and evolutionary aspects); types of bushfire and associated weather; bushfire behaviour and its relation to such factors as temperature, humidity, wind, topography and slope; the so-called killer factors and survival factors; house design and layout for maximum bushfire protection, including a list of suggestions for effectively proofing a house against fire entry; survival kits, survival techniques, planting layouts to reduce hazard, and in general how to prepare for the bushfire season. The decision to evacuate or to stay is discussed at some length. A strong case is presented for remaining in the shelter of one's house, rather than evacuating and being subject to the vagaries and capriciousness of bushfire behaviour. Conflicting advice from various authorities in the event of fire is also discussed, together with disparate State legislations on these matters. There is a chapter on travelling in the bushfire season (motoring, holidaying, camping, walking), and how to be prepared in these circumstances. The final chapters tell what to do when bushfire threatens, and after the bushfire has passed. They deal with the smoke appearance phase through to the falling embers, to the passing of the front, with details of expected radiant heat period, flame front period, and the likely extent of ember showers. There are also the problems after the fire, such as dealing with injured animals and mopping up procedures, aspects of medical and welfare aid; and one's rights and responsibilities during the bushfire season. There is a section on emergency checklists; and indeed every chapter contains point summaries to reinforce aspects covered.

The general reader will be impressed by the many statements made on bushfire behaviour and related aspects. A few are quoted here.

With reference to the intense radiant heat:

> *"people who die in bushfires are seldom killed by the touch of flames. They die many metres away because they wear shorts and thongs, summer dresses..."*

The safety of being indoors:

> *"radiant heat which, though it kills exposed humans and animals, does not pass through walls."*

On evacuation:

> *"Evacuation isn't going to make the bushfire go away. You may be closer to it, en route."*

It is difficult to convey, through this brief review, just how much bushfire relevant detail is contained in the book. It is both a guide and an extensive compendium of what to do before, during and after a fire. Its succinct and well structured layout would make it an ideal text for course work in school classes, particularly in bushfire prone areas, and for welfare, planning and governmental aspects. It is strongly recommended for the bookcase of the lay reader who has an interest in bushfires in the Australian context, or who lives in a fire prone area.

Ian McDermott

DATABASE

Worldwide Offshore Accident Databank (WOAD)

This database, located in Oslo, Norway, contains details of over 1,300 offshore accidents, which occurred between 1970 and 1987. WOAD also holds information on a further 4,000 potentially hazardous offshore incidents. New incidents are added to the database at the rate of around 50 per year, plus 100 potentially dangerous incidents.

Accidents involving material damage to fixed and mobile platforms, barges, offshore helicopters, pipelines and other equipment are included on WOAD.

For further information on WOAD, contact:

Veritec,
Safety and Reliability Dept.,
PO Box 300,
N-1322 Høvik,
Norway.

Additional copies of TMD or changes of address; please complete and return the following to the College

NAME.....

ADDRESS.....

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Contributions are welcomed and should be addressed to:
The Editor, "The Macedon Digest", Australian Counter Disaster College, Mt. Macedon 3441, Victoria, Australia. They should reach the College at least 1 month prior to the date of publication which is the first day of each quarter.

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