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COMBATting HAZARDOUS MATERIALS INCIDENTS

Three significant initiatives have arisen, which will further improve Australia's ability to combat hazardous materials incidents.

In Victoria, the State Government has produced a Hazardous Materials Incidents Management Guidebook. The booklet, which resulted from two years work by various hazmat experts, has been designed to ensure the safety and well-being of the general public and emergency services personnel, in the event of an incident involving hazardous materials. It will act as a guide to combatting and co-ordination procedures appropriate to such incidents, and will cover on-site control, areas of responsibility and support agencies responsibilities. The Minister for Police and Emergency Services, Race Mathews, in launching the guidebook in early August, commented that Victoria's capacity for dealing with these incidents, had greatly improved in recent times. The Hazmat plan is now in place and a core of personnel have been trained and are on standby to respond, if needed.

The Minister observed that an effective partnership had been developed between government and private agencies, which had led to improved procedures being applied to the problem. Many at the launching felt that although the guidebook was designed specifically for Victorian circumstances, it could also provide a valuable model for other States and Territories. Copies can be obtained from the Department of Police and Emergency Services in Melbourne.

The second hazmat initiative, which was combined with the guide-book launching, was the presentation of a training video for emergency services attending tanker and petroleum products incidents. The video was produced by the Australian Institute of Petroleum and is being made available to emergency services, as a public service. In introducing the video, Roger Nicholson, Executive Director of A.I.P., stated that his organisation recognised the need for a training video, to help responders deal more effectively with incidents involving rail or road tankers carrying petroleum products. It would supplement and be used in conjunction with the successful A.I.P. guidebook, 'Petrasafe', first published in 1982, which provides guidance on how to prepare for and deal with such emergencies.

Mr. Nicholson commented that the oil industry is now devoting greater resources to the fields of risk management, loss prevention, accident prevention, occupational health and safety, and environmental protection. Very high priority is given to training people to deal competently with emergencies (especially fires), involving crude oil or refined products. The video was produced for two reasons, firstly to supplement company training aids and libraries, and secondly as a follow-up to 'Petrasafe'. The video, which very effectively simulates petrol tanker fires, shows disasters need not occur and won't on most occasions, if the situation is dealt with quickly and properly. The video will be widely distributed by A.I.P. to emergency services around Australia, and through individual oil companies to the Pacific region. Enquiries regarding the video should be made to A.I.P., 227 Collins Street, Melbourne (03-654 1411).

Another important initiative, which will add to Australia's effectiveness to respond to hazardous materials' incidents, is a Symposium on Toxic Chemicals Incidents, to be held at the Australian Counter Disaster College in early October.

The aim of the Symposium is to study selected aspects of a dangerous goods incident in Australia. The scope of the activity will include acquainting participants with the current arrangements for the management of dangerous goods in Australia, overall control, co-ordination, communications and warning aspects, toxicities of dangerous goods and problems of the safety of responders. In addition, medical aspects will be considered, such as the problems of being prepared to handle and treat casualties resulting from a dangerous goods incident in urban areas. Other considerations will be measures to contain or minimise contamination, identification of post disaster recovery issues and special training and equipment needs. The Symposium will concentrate solely on the problems of toxicity.

The program includes speakers from a wide variety of counter-disaster response agencies and the medical profession. The keynote speaker will be the eminent Swedish consultant physician and toxicologist, Dr. Per Kulling, who has had extensive experience in dealing with chemical incidents.

STANDARD EMERGENCY WARNING SIGNAL

For some years, the idea of an emergency warning system has been under consideration by the Conference of Directors of the State and Territory Emergency Services. As a first step, the Director General, Natural Disasters Organisation, Chairman of the Conference, agreed to develop a sound or signal, which could be used to warn communities of a life threatening situation. The sound would be an 'attention-getter', used prior to any authorized broadcast warning of an emergency or hazardous event. In Northern Australia, the cyclone warning sound has been in use for many years and has been most effective in optimizing pre-cyclone preparedness. The cyclone sound will continue to be used, but only for cyclones. With the painstaking assistance and expertise of the National Acoustic Laboratories in Sydney, a sound to be known officially as the Standard Emergency Warning Signal (SEWS), has been developed. The signal can be transmitted over radio, television or a power-amplifier system.

For the technically minded, SEWS contains both variation of frequency and pulsation of tone, in order to be distinguishable through the masking effects of a wide variety of ambient sounds. It differs recognisably from the swept, interrupted and two-tone alarm signals used for most other purposes. The frequencies used, lie within the range of radio broadcast transmitters and receivers; most of the signal lies below the frequency band in which most deafness occurs.

Over the past few years, there have been severe bushfires, storms and floods in various parts of Australia, and also a number of incidents involving toxic chemicals. There was an obvious, and sometimes urgent need, for the public to be warned about these events. The mobility of the Australian population during the Christmas holiday period, which coincides with the 'disaster season', is a further reason why a standard signal is a practical measure, to alert visitors to a community that they may be at risk.

NDO holds the master-copy of the tape recording of SEWS and copies have been supplied to each State and Territory.

LEGISLATION

Emergency Management Arrangements in Victoria - an update

By 2 December 1986, all provisions of the Emergency Management Act 1986 (Acts 1986 No. 30, assented to on 20 May 1986) and of the Emergency Management (Amendment) Act (Acts 1986 No. 75, assented to on 18 November 1986) had been proclaimed.

The amended Act repealed the State Disasters Act 1983, which had been introduced with a 'sunset clause' to provide interim management arrangements, pending the completion of the various reviews which were undertaken following the 'Ash Wednesday' fires in February 1983.

The purpose of the Act is "to provide for the management and organization of the prevention of, response to and recovery from emergencies", and the Act embodies the concept of comprehensive and integrated emergency management. The provisions in the 1983 Act for the Minister for Police and Emergency Services to have overall responsibility in his capacity as 'Co-ordinator in Chief of Disaster Control' and for the declaration of a 'state of disaster' have been retained but modified. The 'peak' policy advisory and consultative body under the Act is the State Disasters Council, which is chaired by the Co-ordinator in Chief, and provision is made for the establishment of such other committees "as are necessary to ensure comprehensive and integrated emergency management".

The Act establishes a legal head of power for the State Disaster Response Plan (DISPLAN), and for the role of the Victoria Police as co-ordinators in all emergency response situations. In this regard, it is important to note the use of the term 'emergency' rather than 'disaster' in this and most other sections of the Act - an 'emergency' is "the actual or imminent

occurrence of an event which in any way endangers or threatens to endanger" life or property and embraces all types of natural and man-made hazards at all levels of severity. Thus the arrangements established under DISPLAN and the co-ordinating role of the police apply across the whole range of possible situations from the single-vehicle 'incident' to the 'catastrophe'.

The term 'disaster' is used in the Act only in relation to some titles which it was felt should retain the term (for example, the State Disaster Response Plan and its abbreviation 'DISPLAN') and to the provision for the declaration of a 'state of disaster' which allows for the application of additional powers in a situation which calls for them.

Other sections of the Act address the role of municipalities and the compensation of registered and casual emergency workers who are not covered by other statutory compensation provisions.

Since the Act was proclaimed and the new provisions have been implemented, there have been significant developments in Victoria's emergency management arrangements, including:

- * the State Disasters Council, which is representative of 16 Government departments and agencies and the Municipal Association of Victoria, was constituted in November 1986 and has met regularly since;
- * the original DISPLAN Committee has been re-constituted as the State Disaster Response Planning (DISPLAN) Committee and reports to the State Disasters Council, as do the newly-established State Disaster Prevention Committee and State Disaster Recovery Planning Committee - all three committees have been active, with a major revision to DISPLAN, the production of hazard-analysis material related to prevention and the development of a new State Disaster Recovery Plan all currently in hand;
- * in relation to response matters, a Heads of Agency group on Search and Rescue is overseeing the work of a number of working parties examining aspects of search and rescue - in road accident rescue, an accreditation system for road accident rescue units is in the process of being introduced under the police DISPLAN co-ordination arrangements (a key element of these arrangements is that where two or more agencies are statutorily empowered to perform a response role in a region, the police regional DISPLAN co-ordinator is responsible for determining which agency will perform that role in the region or in an area of the region);
- * in relation to recovery, the Government has published a 'package' of basic post-emergency relief measures which can be applied by Government agencies, and provision has been made for establishing an appointment of State Disaster Recovery Co-ordinator which can be invoked at need; and
- * new guidance on planning for and managing emergencies at municipal level has been published and introduced through a series of seminars for municipal representatives.

New legislation to replace the State Emergency Service Act 1981 is currently before Parliament, and the resourcing of the Service along with a rationalisation of its administrative and support services with the Victoria Police is at present under consideration. Later reports will cover other developments.

Source: Victorian Ministry for Police and Emergency Services.

FEATURES

LONG TERM RESPONSES TO DISASTER

This is the sixth article in a series on Human Responses to Natural Disasters, by Ruth Wraith and Rob Gordon from the Department of Child and Family Psychiatry, at the Melbourne Royal Children's Hospital. In this article, they look at long term responses to disaster.

The impact of a disaster on adult's and children's lives, is a complex process and continues to have repercussions over a considerable period of time. In two earlier articles, we have described short term responses occurring in the immediate aftermath and the first few weeks, and the medium term responses evident from the early weeks to the 12-18 month post-disaster period. In this article, we are concerned with responses that become evident after this time, predominantly in the second, third and fourth years. It should be emphasised, however, that the responses outlined do *not* always mean that the people concerned are in need of formal mental health services; in fact, the more awareness there is about human responses to disaster in the community, the less these services are likely to be required. Support from community and personal networks may be sufficient, although mental health consultation should be an integral part of recovery services. Although the responses themselves are likely to be widespread among members of the affected community, it is their *intensity* and *pervasiveness* within the life of the individual or family, that indicates the type of help required. In principle, it should be emphasised that *there is no limit to the time in which adverse reactions to a severely disruptive life event may appear, or continue to operate.*

The Disaster Setting in the Long Term

In the first few years following the disaster, there are a number of features which provide a particular character for the social and personal environment of those involved.

1. *The Physical Setting.* By this time much of the physical damage and disruption is overcome, buildings are being constructed, the landscape is being re-developed, and new developments are occurring. This activity has a normal optimistic character and may be taken by outsiders as evidence of a phoenix-like community rebirth. However, for many residents, the experience is more complex and confusing. The changes have been forced upon them, and are associated with loss, fear, helplessness and other powerful emotions. Some people feel they have lost the community they belonged to, others that they would prefer the old, less adequate facilities to these new ones. It is not uncommon for people to feel they have lost their roots, or become separated from their past. People whose houses were destroyed may ask friends not to visit them as their new house 'feels like a motel', they want to wait until the walls get dirty and it feels lived in. This is a long way from the pride usually felt on moving into a new house. Such experiences are common and indicate that recovery and reconstruction, can be associated with many complex feelings that are not obvious or easily understandable to outsiders. It is this complex of conflicting feelings that may be a prominent feature in loosening people's sense of attachment to the community, so leading to the many departures during the years after the disaster.
2. *The Social Setting.* In the years after the disaster the community goes through considerable change, all of which serves to alter the personal support networks. Tensions arise between those who have suffered loss and those who have not. The latter feel envious of the relief and assistance given and the new houses of the former. Some people, whose houses were singed by bushfires, have said they wished they had been burnt out, so they could start again. However, those who did lose their house, preferred their old smaller house to the new big one. Strong antagonisms and conflicts develop, leading to disruptions in old friendships and networks.

People tend to relate to those who have been through similar experiences. This is just one of the factors that cuts across the pre-disaster personal networks. Other factors are, chronic stress effects leading to conflict between neighbours, disagreements about redevelopment, grievances about behaviour during and after the disaster, and disappointments and disillusionments with the recovery process. In the highly charged emotional context of the aftermath, these issues tend to polarize people. However, the changes in personal networks only become evident in the long term, as the community attains a degree of normal functioning.

Another social disruption is caused by the tendency for people to leave the area after the disaster. Many people feel their attachment to the locality so changed by the disaster, that they no longer want to stay, even if this takes one, two or three years to clarify. Some only make the decision to leave, after they have rebuilt and settled back. New people come into the community and add to the sense of change.

People tend to be thrown back on their own personal and family resources under these circumstances, and instead of having a broader support network, it becomes narrower.

3. *The Domestic Setting.* The disaster changes people's feelings about the place, the people and their own houses. Those who did not lose their homes feel dissatisfied, some respond by building extensions, others lose interest. Those in new homes have difficulty adjusting; some never feel the same attachment as they had for the old house. Some feel the continuity of life is disrupted and that they cannot connect with their pre-disaster life. People say such things as 'It's as though I never lived before the disaster'. Life goes on, but people become isolated in the demands they have to meet. Marriages come under increasing stress and it is common for each partner to feel that the other is not appreciating all that is being done.

Parents are often so preoccupied with reconstruction, that the developing needs of their children are not identified and responded to. Many families are able to tolerate such stresses for a year or more, but in the second or third years, the disruption begins to show in marital and family problems.

4. *The Personal Setting:* The basis for anyone's adaptation to severe stress is their own continuum of life, in which past and future meet in the present. Past experience is integrated with present realities and directed toward future goals. When severe stress occurs, it disrupts this process. People become pre-occupied with their past experience, which throws its shadow over the present, making future goals seem remote, unattainable or no longer relevant. When this continuum breaks down, and the flow of life is interrupted, problem solving capacities, motivation and purpose are undermined. The future no longer seems to hold promise and the present becomes a harsh, unrewarding obligation.

Figure 1 shows diagrammatically, the process by which experience is progressively integrated in a social context into the life continuum.

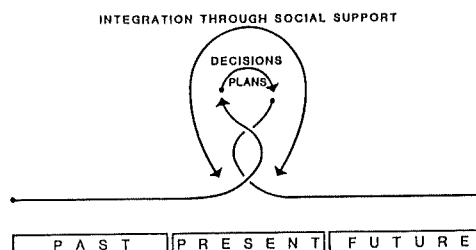
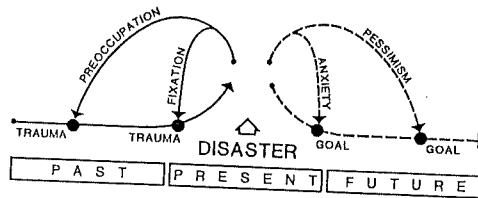


Figure 2 illustrates the breakdown of this process, under severe stress with the consequent preoccupation with the past and loss of contact with the future.



The personal setting in the long term aftermath, is therefore one where excessive external demands are often met at the expense of the internal integration of the disaster related experiences into the life continuum.

Longer Term Personal Responses

The common feature to the various settings described above, is the loss of the known familiar context of life and its replacement with a new, changing one, with a variety of tensions and the lack of positive emotional investment, which follow when people make decisions at their own pace. Simultaneously, there is a high demand for the very human functions which rely on a stable context, namely, the integration of past and future into effective planning and problem solving in the present.

The personal responses evident in the longer term, can be understood against this background. They can be divided into four groups.

1. **Effects on Personal Functioning:** These include changes in the person's ability to cope with both their inner and outer environments.
 - (i) Chronic Stress Effects - lowered efficiency and effectiveness, changes in drinking, smoking and recreation patterns, increased psycho-somatic illness and susceptibility to infection, greater chance of accidents, increased vulnerability to serious illness.
 - (ii) Emotional Maladaptations - depression, anxiety, phobias, feelings of helplessness, insecurity and inferiority, lowered self worth.
 - (iii) Personality Changes - some people suffer limited but important changes in their personality, which appear to be long lasting, becoming bitter, envious, disillusioned, demanding and dissatisfied.
2. **Effects on Personal Identity:** These include:
 - (i) Loss of relationship to the past, feeling displaced and having lost one's roots or heritage, feeling adrift and unrelated to the environment.
 - (ii) Loss of relationships, constriction of social contacts, lack of interest in others, loneliness, withdrawal, rejection of others.
3. **Effects on the Life Continuum:** These can appear in many areas of the person's life.
 - (i) Deviations in the developmental process, where important life changes are not dealt with appropriately, but become confused with the other problems. For example, young children commencing school, adolescents, young adults seeking work, inexperienced parents with very young children, or older people facing retirement, are likely to find these normal challenges too demanding, leading to unsuccessful adaptations.
 - (ii) Postponed issues re-emerge. The needs of children, adolescents, spouses or other family members, which are postponed during the short and medium term crisis conditions, now re-appear and require attention. But they often do so in the form of conflict, hostility and relationship breakdown. Postponed personal needs also re-appear, such as for recreation, privacy or humour.
 - (iii) Preoccupation or fixation on past events. Some people with traumatic events in their past, which

had been adequately dealt with, suddenly find themselves constantly remembering to the point where they are unable to concentrate on the present. Examples are serious illnesses, life threatening events, rape, violence, marital trauma, childhood events.

4. **Effects on Social and Family Life:** These can be anticipated from the above and include:
 - (i) Chronic family and marital problems, disharmony, conflict, loss of cohesion, mutual resentment.
 - (ii) Interpersonal conflict and dissatisfaction with acquaintances, neighbours and friends.
 - (iii) Disillusionment, loss of attachment and belonging to the community, wanting to leave and forget and start again, or withdrawal.

Significance of Long Term Responses

It is important to state that while these responses can be anticipated to be very widespread throughout a disaster affected community, this does not mean everyone becomes a psychiatric invalid. Rather, they should be seen as demands and challenges which most people will rise to and draw on past and present strengths, their capacity to learn and their emotional resilience to find solutions.

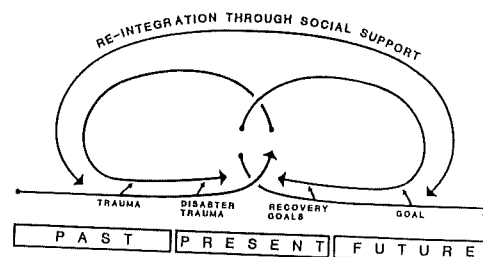
However, it is important that disaster managers, recovery personnel and community workers understand that those for whom they are working, face difficulties that go well beyond the demands of normal life, for a period of years after the disaster. The fact that most people are unable to say exactly how they have coped with the problems, does not mean they have not been serious, rather it is evidence of their robust nature.

While the nature and frequency of these responses should not be overstated, it should also not be forgotten that recovery from disaster involves considerable suffering for those involved, both in ways and time apparently quite removed from the disaster itself. It is this recognition which will enable workers to respond sensitively and promote programmes to assist the coping process.

Helping Long Term Responses

1. **On a personal level.** Everyone who comes in contact with a disaster affected person, can provide immediate and effective help, even if only to a limited extent. This is done through *demonstrating a sincere, respectful interest in whatever aspects of their experience they may wish to share*. Expressing experiences in words to an interested listener, is the most effective way of assimilating them into the life continuum. A sense that the other person cares, provides the 'safe space' in which integrative talking can take place. This does not mean providing a counselling session; even a short discussion in the course of transacting business, will allow the person to go away feeling supported. Such an element can be incorporated into any activity, bringing contact with disaster affected people, and will more than anything, convey to them the sense that they are part of a caring community.

Figure 3 shows in a diagrammatic way, how such social support facilitates reintegration and re-establishment of the life continuum.



2. **On a programme level.** Because of the complexity and variety of long term responses, adequate help involves providing access to a wide range of services and other

activities, so that problems can be dealt with as they arise and healthy functions supported.

(i) *Community Awareness and Education.*

The more people understand about the post-disaster process, the better they can cope with its consequences. In particular, information is needed so that stress effects can be identified and related to the circumstances. There is a tendency for people not to recognize the relationship and problems become more intensified and personalized.

All communication channels should be used, including the media, newsheets and pamphlets. Trained mental health workers can also assist by providing contributions to meetings, planning groups and other committees, to develop the community's awareness of personal responses. Another important facet, is to help people anticipate and prepare for future difficulties, in a non-alarmist manner. Such information, together with suggestions for self-help and referral, need to be repeated frequently, as people differ in when they are ready to receive it.

(ii) *Primary Care Services*

The full range of community services will become increasingly important in the years after the disaster. Many smaller problems become more important, when there are so many other difficulties. Medical, financial, legal, senior citizens, welfare, education, family and counselling services may be called upon. They will work most effectively in helping long term personal responses, if they see themselves as part of an integrated network. The presenting problem may not be the most important one; cross-referral within the network is often a crucial service. Such co-operation maximizes the quality of care and does much to convey the sense of support that is most important in dealing with personal responses.

(iii) *Community Network Building.*

The facilitation of new groups and activities and their integration into old community structures, will help combat the process of change within personal networks outlined above. New needs and interests can provide the basis for new groups to offer a sense of belonging to people, who have withdrawn from their former circles. Pre-existing groups can be encouraged to participate in community activities in new ways, to avoid isolation and disengagement. Community development officers and other local government and voluntary workers, can provide a co-ordinating role and bridge the gap between formal and informal groups. The community needs people who will work to promote a new sense of cohesion and identity, which does not try to go back to the pre-disaster situation, but rather includes the disaster as a crucial piece of on-going history. This then serves as a basis for people to resolve their own personal identity issues.

(iv) *Group Work*

Groups of all sorts provide fruitful opportunities for people to express their feelings, gain better understanding of themselves and others, and receive support. Often, hearing others explain their feelings does more to overcome conflicts and divisions, than more formal problem-solving activities. Not everyone will want to participate in group activities; but if meetings are convened to discuss problems, make decisions or provide information, opportunities can be offered for more informal sharing. Often, the presence of a trained mental health worker can assist in making maximum use of meetings and groups. A further benefit is to establish a sense of involvement and responsibility for the community, which helps combat the loss of interest and detachment, that leads people to leave

the area.

(v) *Cultural Activities*

Artistic and theatrical events, remembrance services, anniversary celebrations, street parties and other activities of a symbolic nature, are powerful expressions of a new life and optimism. They help people stand back and survey their community, and become clearer about its strengths and weaknesses. Feelings and attitudes can often be freely expressed in an artistic or dramatic form, even though not readily on a personal basis. All those involved, however, will benefit from such expressions. Services and celebrations offer a sense of belonging and survival, that is important in dealing with many of the long term personal responses.

(vi) *Participation in Planning and Redevelopment*

This is a crucial activity to help people feel the community is still theirs, and to minimise the frequent experience that others have come in and taken over and rebuilt it for them. Then it is easy to feel it is no longer theirs. People do not necessarily need to be directly involved, but as long as they can see how the community voice is being heard, they can feel part of the process.

In the post-disaster period, there may be many benefits in relaxing the formal procedures of some processes at all levels, to offer increased involvement to community members, and to convey a sense that the recovery system is sensitive, responsive and human.

Continued in December TMD—'Workers' responses to disaster'.

PREPLAN

In this and the next edition of TMD, Roger Good from the New South Wales National Parks and Wildlife Service, outlines PREPLAN. PREPLAN, developed by Roger and Dr. Steve Kessell of the Parks Service, incorporates an integrated resource management data base, models for predicting site-specific vegetation, fuels, animals, fire behaviour and fire effects. It provides computer management techniques for bushfire hazard and risk assessment, at the bushland/urban interface.

Introduction

In New South Wales and other States, urban areas exist adjacent to extensive tracts of native forest and bushland. Many of these urban developments are under constant threat from bushfires, which poses a major problem for both the managers of the natural areas and the local government planners.

The National Parks and Wildlife Service of N.S.W. has developed a fire management system for land under its control and management, which enables planning of fire suppression activities in the areas within each park, where fire hazard areas exist and are defined.

Local government Councils have many hazard factors to consider in the urban planning, and development approval process, but the quantification of hazard is difficult, especially that of bushfire hazard and risk. Appeals against rejection of development proposals because of bushfire threat, are likely to be successful, while Councils are unable to fully assess and quantify bushfire hazards. The problems of bushfires and their impact on urban areas, has existed since urban development first intruded in bushland areas, but the demands upon land for further urban development is forcing the urban sprawl into more and more areas of natural bushland. This has occurred in the Sydney environs, the Blue Mountains, Adelaide Hills in South Australia and the Dandenongs in Victoria; a consequence of this has been destruction of housing during 'Ash Wednesday' type fire events. The impact of fires is increasing, as the desire and demand for housing in 'natural areas' increases and approvals for developments in areas of high wildfire risk continues.

The risk of urban impact by wildfire is generally recognised by land developers, and by people who wish to live in natural bushland settings, but their perception of the levels of risk are masked by their individual desires and aspirations. Land developers generally consider any risk factors can be alleviated by mechanical and structural means, or fail to appreciate that any risk existed at all. The general public on the other hand, tend to accept the risk of wildfires, as their desire to live in bushland environments overrides any consideration of the consequences.

Local government Councils are now in the unenviable position of having to determine the risk to any proposed development, and as the approving authority, to accept responsibility commensurate with the risk potential, if the development is approved.

Some guidelines for hazard and risk rating have been prepared for Councils by the Department of Environment and Planning (Rural Land Evaluation Manual), covering fire, flood and geological hazards. But these assume that hazard and risk ratings remain the same through time.

The resource management model developed by the National Parks and Wildlife Service is now commonly referred to as PREPLAN (Pristine Environment Planning Language), but PREPLAN is a number of computer programmes linked together to provide various printouts of resource data and predictions. The programme has gained wide acceptance by many land management authorities; the benefits to planning of the system have been recognised by a number of local government Councils.

The PREPLAN Programme

PREPLAN was developed to provide managers and planners with information in a readily accessible form, and to facilitate the integration of all resources which influence management and planning, in such a way, that simulations of management strategies can be made before actual implementation. More specifically, it is a computer based system, that combines a natural resource inventory and models of vegetation, fuels and fire, into a single integrated package. Information is retrieved and simulations performed, in response to very simple user commands. PREPLAN can be used simply as a basic geographical information system (G.I.S.), for the storage and retrieval of resource data. The retrieval of data may be in the form of vegetation, soil, geological, terrain and development maps, but the real value of PREPLAN is the ability to simulate the potential results of any planning and management strategies and the prediction of the impact of a major event such as wildfire.

Therefore, once an adequate data base has been established, PREPLAN enables land managers and planners to draw inferences and to test strategies, without incurring the costs of implementation of the strategies and plans; to consider alternatives and to predict and assess in the case of bushfire; fire behaviour, the hazards existing and risk potential of impacts upon the urban/bushland areas of any bushfire.

The PREPLAN programme has been developed for use by personnel, having little or no previous contact with computing facilities. The various modules with the PREPLAN programme are accessed by a standard set of words (sixty), which provide an extremely simple means of requesting information, such as site descriptions, vegetation types, etc., and for prediction of fire behaviour under any range of weather conditions. For example, a user who wants information simply accesses the machine, by entering the login name PREPLAN and then when prompted to do so by the computer, enters requests for the data or predictions required, using the key words print, describe, area, grid, etc. With the entry of actual weather data, fire behaviour predictions for any area can be obtained. The machine may link together thousands of such predictions of rate of spread and flame length of a fire, to generate hazard levels over an entire bushland area. Through the use of the RESOURCE MAP or PARKMAP programme within PREPLAN, a hazard map can be generated for any set of conditions. These maps are of benefit in appreciating the full hazard 'picture', but of greater significance is the ability to generate fire perimeter growth maps during a major wildfire event. From

these fire perimeter maps, fire control authorities are able to visualise where a fire front will be at a particular time in the next 2 to 24 hours, and so provide a warning of pending impact on urban areas, if the weather conditions under which the predictions and maps were generated, continued to prevail. The capacity to carry out such hazard and fire perimeter growth mapping for the Adelaide Hills, prior to 'Ash Wednesday', could have reduced the extent of devastation and destruction of housing and other developments in that very fire prone environment.

REFLECTIONS

The Perth Daily News of 26 July 1961, reported that welfare workers with the Seventh Day Adventist Church in Western Australia, would be adopting a distinctive uniform, for use during emergencies. The News commented that this would assist with quick identification during disasters. Since that time, a range of colours have been generally used by response agencies at emergency sites. These include green (medical services), orange (State Emergency Services), blue (police) and red (fire services). In addition, within each service, key personnel are usually identified by a tabard or fluorescent vest.

EDUCATION

ACDC Program—5 October - 11 December 1987

Symposium on Toxic Chemicals Incidents (1080)	5-9 Oct
Disaster Research Clinic (Curriculum Material for Schools (1082)	29 Oct-1 Nov
Disaster Recovery Management (Community Welfare Service) (1084)	15-20 Nov
Introduction to Disaster Management (1085)	22-27 Nov
Counter Disaster Planning (1096)	29 Nov-4 Dec
Program of Activities Development Workshop (1087)	29 Nov-4 Dec
Evacuation during Disaster Workshop (1088)	7-11 Dec
Disaster Research Clinic (Development of Disaster Consequence Assessment Technique) (1108)	7-11 Dec

88/89 Curriculum

User suggestions for activities to be included in the 1988/89 curriculum, are being sought for:

- those activities aimed at developing State/Territory counter-disaster capabilities; and
- those activities aimed at improving a particular aspect of the national counter disaster scene.

Copies of the appropriate pro-forma may be obtained from the Head Office of the relevant State or Territory Emergency Service, or by phoning the College Planning Officer on (054) 26 1205.

Lighting Detection Workshop

On the 12 and 13 November 1987, a Lighting Detection Workshop will be held at Thredbo Village in New South Wales. The Workshop is intended to update and/or familiarise those wishing to utilise modern lighting detection systems, for operational and safety purposes associated with their activity. The users of this lighting include weather services, forestry, fire fighting and aviation. The Workshop will provide a forum to discuss common applications, problems and new advances. All enquiries regarding the Workshop should be directed to the Australian Workshop Co-ordinator:

Noreen Golightly
Brown and Dureau Ltd.
Aviation Division
PO Box 24
South Melbourne VIC 3205
Australia
Phone: International (613) 62 7581
STD (03) 62 7581
Fax (613) 614 4282

Displan Seminar - Medical Co-ordinators and the Ambulance Service

A country Seminary/Training Weekend for Medical Co-ordinators and the Ambulance Service, is to be held in Swan Hill, Victoria, on Saturday 10 and Sunday 11 October, 1987. The aim of the weekend is to ensure co-ordination between Area Medical Co-ordinators and the Ambulance Service in particular. It will also involve other emergency services, such as Police, SES and CFA, so that in times of emergency or disaster, a co-ordinated effort will ensue.

For further details of this activity, contact:

Dr. J. Christie,
Director of Medical Services,
Swan Hill District Hospital,
Splatt Street,
Swan Hill, VIC. 3585
Phone: (050) 32 1111. Fax: (050) 32 9528.

Third Annual Meeting of the Society for Traumatic Stress Studies, October 23-26 1987, Baltimore, Maryland, USA.

As a way of further expanding the conceptual framework which clinicians and researchers use in the field of traumatic stress work, the Third Annual Meeting of the Society for Traumatic Stress Studies, will focus on the similarities and differences in traumatic stress reactions. It will also examine the treatment of them, with regard to race, gender, rationality and culture. During the meeting, contrasts will be made with the application of theory and clinical technique in the US, with their use in other countries. An examination will also be made of the political and social aspects of traumatic stress studies, in relation to these issues. The keynote Speaker, Beverley Raphael, is Professor of Psychiatry at the University of Queensland. Her latest book, 'When Disaster Strikes', is previewed in this edition of TMD.

For further information about this meeting, the Australian representative is:

Ruth Wraith,
Royal Children's Hospital,
Melbourne.
Phone: (03) 345 5511.

The U.S. contact address is:

The Society for Traumatic Stress Studies,
PO Box 2106,
Dayton, Ohio. 45401-9990,
U.S.A.

Greenhouse 87 - 30 November to 4 December 1987 Monash University, Victoria

Greenhouse 87 is an Australian National Conference on the impacts of climate and sea-level change, resulting from the changing composition of the global atmosphere.

The objectives of the conference are to:

- encourage further research into the impact of climate and sea-level change in Australia;
- establish a basis for a rational approach to the changes, in order to minimise undesirable impacts and optimize the potential benefits; and
- communicate the scientific knowledge about the changes to policy makers, engineers and planners.

Some 50 invited speakers from the CSIRO, Universities, government agencies and the private sector, will review the current knowledge of the anticipated climate and sea-level changes, and address the implications of these changes for a large number of impact areas. These areas include the coast, hydrology and water resources, the natural environment, agriculture and social patterns.

Papers presented at Greenhouse '87, will be published following the meeting.

For further details contact:

Ms V. Jemmeson,
Greenhouse 87,
CSIRO Division of Atmospheric Research,
Private Bag No. 1,
Mordialloc, VIC. 3195.
Phone: (03) 586 7666
Fax: (03) 586 7600

BOOK REVIEW

When Disaster Strikes

A Handbook for the Caring Professions, by Beverley Raphael, published by Hutchinson, London 1986. Priced at \$54.95, it is available from Hebook Distributors, PO 133 Richmond, VIC 3121.

Michael Trimble in The Lancet of 28 February 1987, says that Professor Raphael is one of a growing number of physicians, who has taken an active interest in disaster and their sequelae, from both practical and research points of view. In the first half of her book, she outlines the stages of disaster experience and the effect of the impact on victims. The consequences are not only psychological: over time, survivors show an increased incidence of physical illness and death. In the second half, treatment aspects are discussed. The troubles of those who help or are present at disasters, are specifically brought to attention. Mr Trimble describes the book as good, if sometimes gory reading and feels it will be of interest to those dealing with post-traumatic syndromes.

Edvard Masson in the 'West Australian' (June 13, 1987), says that Professor Raphael has set herself an awesome agenda, to bring together what is currently known about the nature of psychological response to the various components of disaster; he feels she has succeeded. He views it as a moving and thoroughly documented book, which offers fresh insight into what helps people and communities to cope in disasters. David Harris in the 'Adelaide Advertiser' (April 4, 1987), sees the book as a comprehensive study of the emotional and social realities of disasters. Her argument is that a systematic examination of the trauma of these events, will help survivors to master their reactions and will lead to the provision of better services by professionals, when the next disaster strikes. Harris comments that despite the deaths and defeats, the theme of this book is hope. Professor Raphael denies the cynical view that altruism is an illusion.

PUBLICATIONS

Technical Papers from a Symposium on Computer Modelling and Remote Sensing in Relation to Bushfires in Australia

This Symposium, which was held in Canberra on 3-4 June 1987, was organised by the Division of National Mapping, Department of Resources and Energy, in conjunction with CSIRO and other related organisations.

Sessions included data sources, computer modelling, modelling fire response of Eucalyptus, remote sensing, modelling software demonstration management, models of vegetation dynamics after fire, and the future of computer modelling and remote sensing in relation to bushfires in Australia. Organisations represented included SEC (Victoria), Bureau of Mineral Resources, CSIRO Divisions of Mineral Physics and Mineralogy, National Bushfire Research Unit, Plant Industry, and Water and Land Resources; ANU, CFA, Victorian Department of Conservation, Forests and Lands, NSCA, University of NSW, NSW Forestry Commission, NSW National Parks Service and the SA Department of Environment and Planning.

Copies of the Technical Papers can be obtained by contacting Paul Wise at the ACT Belconnen Offices of the Department of Resources and Energy on (062) 52 7911. A small photocopying fee will be applicable.

Atlas of Australian Resources (Volume 4)

This volume of Australia's national atlas, provides a comprehensive guide to the continent's climate. After a brief introduction which explores the relationships between atmospheric circulation and day-to-day weather, each of the major climatic elements - Rainfall, Temperatures, Wind, Sunshine and Cloud, and Humidity - are covered in detail. The final section of the volume describes the pervasive influence climate has on land use and the major climatic hazards, such as droughts, cyclones and floods, which are so much a part of Australian life. It also includes maps and descriptions of the climate of each of Australia's capital cities, where nearly two-thirds of the population live. It contains 70 maps plus many

diagrams and photographs and retails at \$A14.95.

It is available from the Division of National Mapping of the Department of Resources and Energy, in Canberra.

Exotic Animal Disease Control Legislation in Australia

An exotic animal disease outbreak would not only severely test Australia's veterinary and scientific skills, but severely test Australia's various livestock disease control laws.

A report pointing out Commonwealth and States' legal problems involved in controlling an outbreak of foot-and-mouth, has been presented to the Commonwealth Minister for Primary Industry, Mr John Kerin.

The report, prepared by Professor Douglas J. Whalan, Professor of Law at the Australian National University on 'The Adequacy of Exotic Animal Diseases Legislation', was sponsored and funded by the Commonwealth Department of Primary Industry's Bureau of Rural Science.

According to Profesor Whalan, legal deficiencies were identified in existing exotic animal disease control laws, in all Australian jurisdictions. The extent and seriousness of these deficiencies varied from State to State. Queensland was considered to have the most satisfactory of all existing legislation.

The report recommends measures to correct deficiencies identified in State and Territory exotic animal disease control legislation. It also recommends that a proposed re-drafting of the Australian Quarantine Act should complement that of the States, and that substantial consultation must take place between the Commonwealth, the States and the Northern Territory as it directly affects exotic disease control in Australia.

For copies of the report, contact:

Department of Primary Industry,
Broughton Street,
Barton, A.C.T. 2600
Phone: (062) 72 3933
Fax: (062) 72 5161

Bushfire Research Report

A detailed report aimed at increasing awareness of the extent and diversity of bushfire research in Australia, was issued in May, by the Minister for Primary Industry, Mr. John Kerin.

The report, *Australian Bushfire Research*, was prepared for the Australian Forestry Council (AFC) by its Standing Committee and fulfills an undertaking made after the disastrous bushfires of 1983.

Mr. Kerin, who is Chairman of AFC, said that as well as being an information document, the report would improve collaboration and implementation of research results. The report describes the effects of wildfire on the environment, particularly since European settlement. Also, it details the aims of rural fire managers and researchers and outlines current knowledge of

fuels and fire behaviour, as well as identifying areas which require further research and suggests research priorities.

The report includes a directory listing the main bushfire-related topics being studied at 130 centres in Australia, together with the names of the principal researchers.

The report is to be complemented by an information statement on the use of fire in the management of Australia's public land.

For further information, contact:

Lionel Wood (062) 72 3733
Lin Enright (062) 72 6649

Limited copies of the report are available from the Minister's office. Copies are also available from the Forest Services in each State.

INTERNATIONAL

The After-Effects of Chernobyl

A new report from the US government, estimates that there will be 4,000 excess cancer deaths in Europe and 10,000 in the Soviet Union, as a result of the Chernobyl disaster. The report was prepared by the Nuclear Regulatory Commission in the United States. The excess cancers will probably be indistinguishable from the 70 million cancer deaths that are predicted in the European area, affected by the fallout over the next 70 years. Chernobyl-induced cancers might be more noticeable in the Soviet Union, where 9.5 million deaths from cancer are otherwise predicted. Estimates of the number of deaths have varied widely; these figures lie at the conservative end of the spectrum.

Source: Nature Vol. 325, 12 February 1987.

British Plans for Nuclear Plant Accidents

In the aftermath of Chernobyl, the British Government has set-up a special Whitehall committee known as the civil contingency unit, to assess the way in which government departments and their agencies, handled the emergency. It has also been reviewing the arrangements for dealing with accidents at British nuclear power plants. The government has decided, that planning needs to provide more specifically for the response to a nuclear accident outside the U.K. Detailed planning will need to ensure nationwide monitoring coverage, and in the light of expert assessment of the results of monitoring, for dissemination of appropriate advice and information to the general public. The Department of the Environment is to be the lead department, as far as co-ordinating the response to overseas accidents.

Source: New Scientist, 23 April 1987.

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

NAME

ADDRESS



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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