The Australian Journal of Emergency Management

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The Australian Journal of **Emergency Management**

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The journal endeavours to provide an information-sharing forum for all those involved in emergency management. Contributions relating to Australian and international emergency activities, articles identifying and discussing issues, policies, planning or procedural concerns, research reports and any other information relevant to the emergency/disaster management community are welcome. The aim of this publication is the exchange of information and views across the Australian emergency management community, therefore, the views expressed in this journal should not be taken to be the views of Emergency Management Australia.

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Recovery management

This edition of the Journal is the first of a number, that will feature articles on recovery management.

A selection of papers from the Emergency Recovery Forum, held in Victoria during November 1997, appear in this edition. The Spring 1998 edition will include a number of papers on recovery issues from the Port Arthur shootings. These papers were presented at the Australian Association of Social Workers Conference, held in Canberra in September 1997. Finally, the Summer 1998 edition will include a selection of papers presented in a session on recovery management in Australia, to be held as part of the Disaster Research Committee of the International Sociological Association Conference, Montreal, July 1998.

Emergency Recovery Forum

Two of the papers from the Victorian Emergency Recovery Forum provide perspectives on the recovery process following fires in the Dandenong Ranges, Victoria, in January 1997. These papers highlight the approach taken to recovery management at the local level featuring the work of:

- Lyn Hayes as a recovery manager with local government
- Helen Wositzky as a community development officer.

In the third paper from the forum, Syd Smale provides a history of the role of the Church in providing support services during and after disasters. This is coupled with reflections on the Church's role in the aftermath of the Dandenong Ranges fires, written by one of the convenors of the local outreach program, Peter Crawford.

While the background and approach of each of these people and the organisations they represent may differ, their papers provide a valuable insight into the importance of community involvement and leadership during the recovery process.

In the fourth article from the forum, Rosemary White provides further insight into community involvement through discussion of her role as a community development officer in a community affected by an outbreak of anthrax.

Recovery Management

Given this context it is timely to reflect on the evolution of recovery management over the last decade and consider some important issues that need to be addressed as we approach the new millennium.

The Principles of Recovery Management were drafted in the late 1980s. They detail the fundamentals of recovery management and are featured in the Australian Emergency Manual (AEM) —Disaster Recovery.

Underpinning these principles is the concept that individuals and communities should be supported in the management of their own recovery. It is interesting to note the developing importance of this concept of individual and community empowerment in other areas of emergency management. A prime example of this is the very successful Community Fireguard strategy of the Victorian Country Fire Authority, which is also built on individual and community self reliance, supported by education and information.

After more than a decade, the Principles of Recovery Management continue to provide the cornerstone of recovery management in Australia. However, while the theory may remain intact, its application is continually being developed.

Risk Management

The relationship between recovery and a risk management framework for emergency management is currently being debated. While it would be simple to label recovery as 'just another treatment option', it is worth considering the length and complexity of the recovery process following a disaster.

As identified in the Principles, recovery begins as an event unfolds and continues almost indefinitely, as affected communities come to terms with individual and shared experiences. As I write this editorial, this week's newspapers (29th April) include a number of reports on the second anniversary of the Port Arthur shootings. What better reminder of the duration and complexity of the recovery process than such an event?

The challenge for recovery managers and practitioners remains how best to tailor their activities to support such a community, from the frenetic activity of the event and the immediate aftermath, through the ongoing needs for many months and years to follow. Key considerations include:

- continuing privatisation of services
- more sophisticated assessment of need through development of vulnerability and resilience measures
- development of performance criteria to measure the success of recovery programs
- continued integration with other aspects of emergency management.

The risk management methodology needs to encompass these issues.

Australian Emergency Manual — Disaster Recovery

Disaster Recovery Coordinators from each State and Territory and EMA continue to work towards refining and updating recovery management strategy and service delivery. The AEM—Disaster Recovery is to be reviewed in the second half of 1998. Events such as the Port Arthur shootings, Thredbo Landslide and Katherine Floods have taken place since the original draft of the manual. No doubt the lessons from these and other events will enhance the revised manual.

National Studies Program

EMA's National Studies Program has also provided a significant opportunity to address specific issues in recovery management. Guidelines for the delivery of community and personal support services were developed during a workshop at AEMI, where practitioners with experience in a range of disasters pooled their knowledge of issues facing workers responsible for the delivery of these services. These guidelines will be published shortly. The process was funded under the National Studies Program.

A similar workshop on the delivery of psychological services in the disaster context is scheduled for March 1999.

Through activities such as these recovery management continues to fulfil its fundamental and indispensable role in emergency management.

Andrew Coghlan, National Training Consultant, Disaster Recovery.

The community: central to emergency risk management

by Associate Professor Geoff Boughton, School of Civil Engineering, Curtin University of Technology, Perth, Western Australia

Presented at the Developing Strategies and Partnerships Workshop, Australian Emergency Management Institute, Mt Macedon, 18–19 November, 1997

Introduction

Emergency management can be defined in many ways, but ultimately it means that some people are making and implementing decisions that impact on community or public safety. As a management activity, it can draw on accepted management principles and practices and apply them in an emergency management context.

There are many books and courses run on management, and they tend to share a common theme for the process, summarised in *Table 1*. Recently there has been a steady increase in interest in a particular management tool known as risk management, and it seems at first sight to be appropriate for those who deal with emergency management. This generic risk management process is widely used in industry to minimise works exposure to risk of injury, accident or breakdown, and also in the financial institutions to minimise exposure to financial loss. Standards Australia has published a standard on Risk Management that details a number of significant steps in the process.

However, the concept of risk adopted by the financial sector and that adopted by the heavy industry sector is a little different to that readily understood in the area of public safety and emergency management. A series of guidelines for the use of Emergency Risk Management is currently being prepared that will enable uniform application of the generic principles of risk management to the emergency management sector. *Table 1* compares the terms used in:

- general management practice
- risk management as presented in AS 4360
- Emergency Risk Management as defined in the guidelines.

This paper addresses the role of community in satisfactorily implementing emergency risk management.

Community

Community is a term that can have a wide range of meanings. Nearly all of them are applicable in the emergency management context.

A community is a group that has a number of things in common, generally defined by location, but which may include such things as shared experience or functions.

This general definition of community means that it may be applied to a wide number of groupings in which people may need to interact with emergency management.

- Community can be defined *geographically*. Households, neighbourhoods, suburbs or towns, local government areas, metropolitan areas, regions, states, and the nation are all ways of defining ever-increasing communities based on location.
- Community can also be defined by *shared experience*. Particular-interest groups, ethnic groups, professional groups, language groups, age groupings, those exposed to a particular hazard are all ways of defining different groupings of individuals based on commonalities other than location.
- Community can be defined in other ways including *sector-based* groups.
- It is also possible to define community in terms of all three—'farmers in the Little Desert area in the age group 50 to 60 years'.

'Community' can be used to refer to groupings that are both affected by and can assist in the mitigation of hazards. The reason for the existence of emergency management is to minimise the adverse effects of hazards on the community.

Risk

Risk is a concept. It is quite intangible, yet it is something that most people understand intuitively. Risk couples a consequence or an outcome that we may be able to imagine, with a set of circumstances that may assist in the development of the consequence.

For example, most people acknowledge that there is a risk associated with flying in an aircraft. The consequence is death because of a crash, and the hazard may be a set of circumstances that give rise to the crash. These may include pilot error, mechanical malfunction, traffic control error, extreme weather conditions, terrorist activity, administrative errors e.g. asking for the wrong quantity or type of fuel etc.

The risk of dying in a 'plane crash is remarkably low, but the risk gives meaning to the likelihood that the dreaded consequence will happen.

Generic management term	Risk management term (from AS4360)	Emergency risk management term (from Guidelines)
Problem definition	Establish context	Establish emergency risk management context.
Analysis	Identify risks	Characterise hazards, community and environment. Determine evaluation criteria.
Decision making	Analyse risks Evaluate risks	Analyse risk. Evaluate and rank risks.
Implementation	Treat risks	Identify, evaluate and implement interventions.

Table 1: Management and risk management terms

Risk is a concept used to describe the likelihood of a consequence arising from a set of circumstances.

This concept is central to emergency risk management. In applying emergency risk management, we are trying to change our environment to reduce the likelihood of an undesirable consequence for a community.

Risk then represents an interaction between a *hazard* that has the potential to do some damage, a *community* that may be damaged and an *environment* that may make the hazard more serious, or in other circumstances, less serious in order to produce a given consequence. *Figure 1* illustrates the elements.

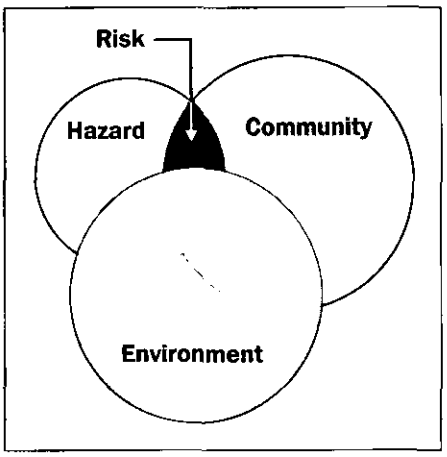


Figure 1: Elements of risk

Emergency risk management

The emergency risk management process is illustrated in *Figure 2*.

Emergency risk management enables emergency managers to:

- make predictions about the likelihood of disruption or damage in a community
- rank outcomes from emergencies in terms of likelihood,
- try various intervention strategies to determine effectiveness,
- monitor the effectiveness of emergency plans as circumstances change.

'Establish the emergency risk management context'

The problem is defined including the detail of the scope and constraints. The Emergency Risk Management structure is defined—the operating rules and policies in which the solution will be sought. The stakeholders will be identified and invited to participate.

The outcome of this process will be a clearly defined brief for the Emergency Risk Management Model. It will list the boundaries, note and describe the constraints and give detail on the environment in which the Emergency Risk Management model will have to operate.

This is the first stage of the process and in the identification of the stakeholders, the community will have been involved. The community has stake in the solution, as the possible consequences involves the community as potential victims. As well, any intervention to be implemented will inevitably affect the life and function of the community in some way. Many interventions will require the community to implement the plan.

In establishing the emergency risk management context, the community should have been identified, invited to participate, and had some input to the structure in which a solution will be sought. (*It is their problem—the* emergency risk management process is assisting them to solve it!)

'Characterise hazards, community, and environment'

While the previous step defined the boundaries and the nature of the problem, this step focuses on the main elements of the risk analysis itself:

- hazard
- community and the potential consequences
- environment.

The outcome of this process will be clear definitions of the hazards used in the risk analysis process and the anticipated consequences. The affected community will have been defined and the environment in which the consequence may arise is also defined and described.

A ***hazard*** is any situation, condition or thing that has the potential to disrupt, damage or bring loss to things that people value.

This is a very wide definition of hazard and includes:

- *natural hazards* — bushfire, storm, flood, cyclone, earthquake etc.
- *technological hazards* — dam failure, systems failure, food contamination, industrial accidents, transportation accidents etc.
- *biological hazards* — spread of disease among plants, animals, people etc.
- *civil and political hazards* including war, terrorism, sabotage.

The ***community*** has already been defined earlier in this article.

The ***environment*** comprises conditions or influences that surround or interact with a community, including social, physical (natural) and built elements.

This definition includes much more than just the natural environment.

- *built environment* — buildings, infrastructure, systems for transporting people, goods and services
- *natural environment* — topographical features, ecosystems, vegetation, climate, water

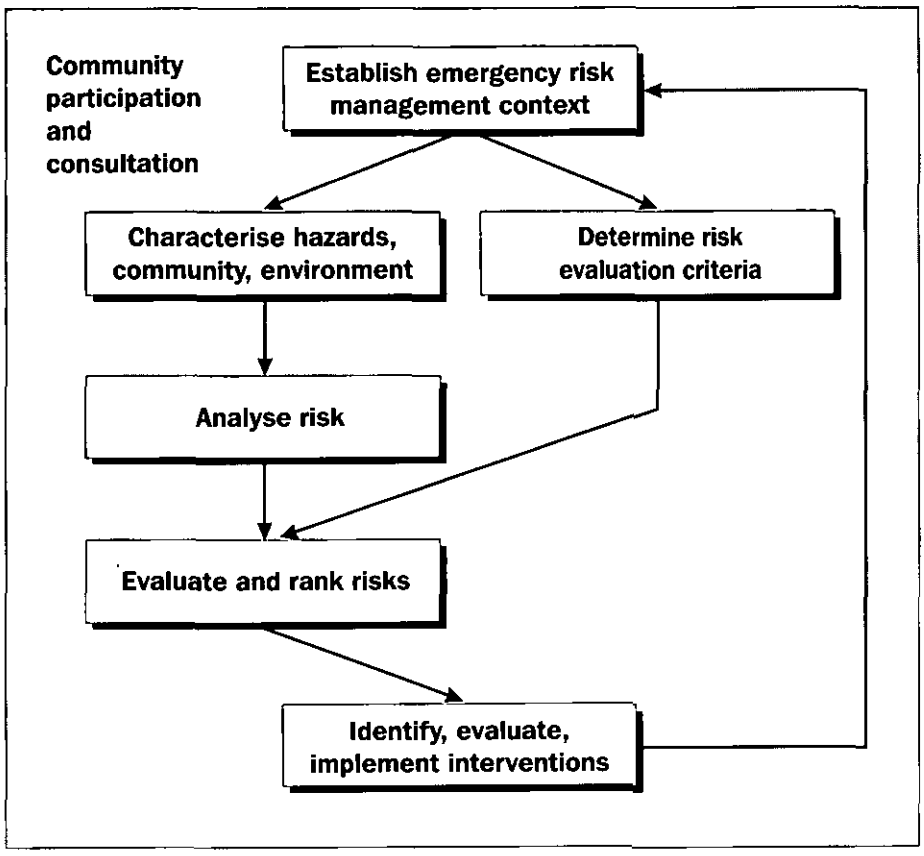


Figure 2: Emergency risk management process

- *social environment* — politics, economics, commerce, culture.

Funding cuts can dramatically influence a community's ability to prepare for and cope with a potential hazard. The economic environment can have a significant influence on the risk that communities have to bear. This environment can change rapidly and somewhat arbitrarily. It needs particularly careful monitoring.

The community will have a strong involvement in this step as well. It is their perception of the *hazard* that is important. The community is uniquely positioned to assist in characterisation of the *environment*.

It is the community's environment, and the people in it often understand it and the processes very well. The range of expertise in the community can often make a useful contribution to the characterisation of hazards, community and the environment.

'Determine risk evaluation criteria'

The risk evaluation criteria is a measure of the risk that could be accepted by the community. It is impossible to envisage performing this step without the assistance of the affected community.

Perceptions of acceptable losses change with time. They are complex functions of legal, technical, economic, social and humanitarian issues.

It is vital that the risk evaluation criteria are those that are put forward by the community. If the community do not own the criteria against which a solution is found to be good, then they will not own the solution either.

'Analyse risk'

Analysis of risk is the step of modelling the linkage between a hazard and consequence. It can be done using many different types of modelling:

- *physical model* — a scaled replica is used for prediction
- *mathematical model* — a mathematical relationship between cause and effect is used
- *intuitive modelling* — an intuitive understanding of the behaviour is used.

The modelling processes is used wherever we make predictions. It does not have to be mathematically based, in fact we most often use an intuitive modelling of the problems we solve. Risk analysis can produce:

- *quantitative results* — the answer will be a number or probability
- *qualitative results* — the answer will be relative e.g. low or high.

In modelling the whole of the process (from *hazard* which may consist of a number of different situations that interact with a complex *environment*) a number of steps must be taken:

- the likelihood of the hazards arising must be assessed
- the likelihood of the hazards occurring simultaneously with the environment that will cause it to become a serious situation must then be found
- finally, the processes that will lead to the consequences must be modelled to derive the likelihood of the consequences arising.

The modelling steps used in the analysis require expertise, which in some cases must be brought in from external sources. In many cases the expertise, experience of similar situations in the past and the intuitive understanding of the processes can be found in the community. If nothing else, the community will have the experience to calibrate any model used and hence validate the analysis step.

'Evaluate and rank risk'

After the risk has been determined, it must be compared with the evaluation criteria previously identified by the community.

Where the risk is within the evaluation criteria, then clearly the community is prepared to accept its current risks, and no further action is required.

Where the risk exceeds the evaluation criteria, then the model indicates that the performance is not satisfactory and some changes will have to be made.

The extent of the problem that must be addressed is given by the shortfall between the risk obtained in the analysis and the level that was the basis of the evaluation criteria. In cases where the risk is much higher than the risk that the community had identified as acceptable, then the problem is more serious than in cases where the discrepancy between risk and the criteria was small.

This gives the community a basis for ranking their risks. As the concept of risk is associated with perception of exposure, the ranking process must involve the stakeholders.

Only the affected parties can really rank the risks, as so much of risk is associated with perceptions, dread and worry. It is often hard to describe what worries us and why. It is nearly impossible to describe what worries someone else. Let the community rank its own risks.

'Identify, evaluate and implement interventions'

Figure 1 showed that risk is a function of the properties of the hazard and the way they interact with the community. It can be modified by varying the properties of the hazard, or in some cases, the characteristics of the community. These changes in the basic elements of risk are known as interventions. However the most common intervention is the modification of the environment to reduce the impact of a hazard on the community. *Figure 3* illustrates the concept of using intervention to change the environment and reduce the risk.

Intervention is a systematic change with the potential to reduce risk. The process of identifying and refining interventions is one that draws on experience, creativity and understanding of the principles underpinning the problem. It presents great opportunities for innovation, and for community involvement.

In this step

- Interventions that have the potential to reduce the risk are identified.

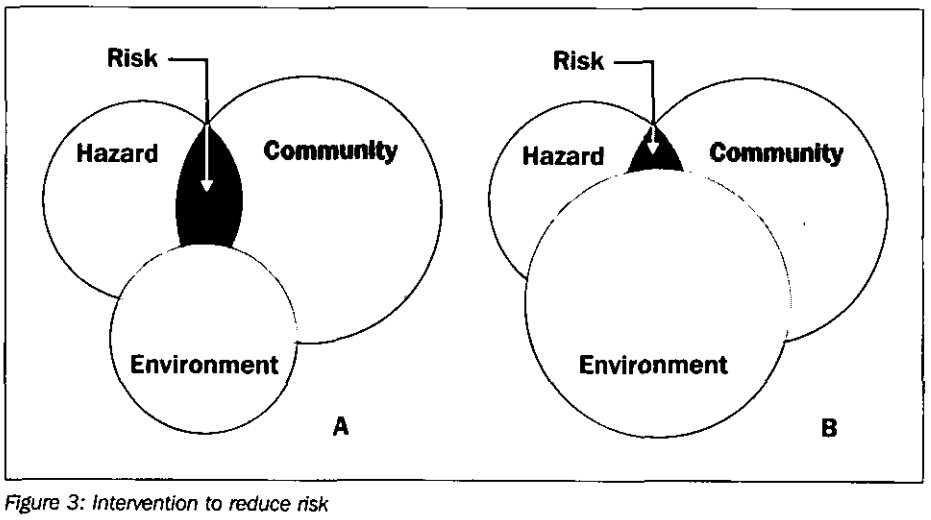


Figure 3: Intervention to reduce risk
***A:** large risk before intervention* ***B:** smaller risk with changed environment.*

- Potential interventions are evaluated for their effectiveness in reducing the risk. The easiest way of achieving this is to run the risk analysis again, but this time with the changed conditions that represent the intervention.
- Interventions may have to be refined. This involves tailoring the intervention to fit the particular problem being addressed. Any solution should be robust. Small changes in the environment should not make radical changes to the effectiveness of the intervention. This part of the refinement of the intervention is known as a sensitivity analysis. In this, random changes in some aspect of the environment are made, and the risk analysis with the intervention is run again. Where the random changes to the environment have little effect on the risk, then the intervention is robust. Where the intervention is only successful under very particular combinations of environmental factors, then the intervention is unacceptably sensitive to the environment and will need further refinement.
- Interventions are put forward for funding and adoption.
- Finally interventions are adopted and implemented.

Because the environment and the community are continually changing, the Emergency Risk Management process should be repeated to ensure that the current interventions are still relevant and effective in producing acceptable risks for the community.

In this step, community involvement will assist in the development of interventions that are specifically directed to local circumstances. The community that develops their own solutions will also have ownership of the solutions and be very supportive in their implementation. The interventions that are put together by the people who are most affected by the problem will be the ones that will be most fiercely defended and vigorously implemented.

Conclusions

Emergency risk management is a powerful tool for reducing risk. It uses well-established generic management processes, that have been incorporated in the Australian Risk Management Standard, and interpreted in an emergency risk management context in the Emergency Risk Management Guidelines.

An under-pinning principle of emergency risk management is that the solution to a problem that affects a community will be found with their active participation at all stages of the process. Communities should be involved in:

- the establishment of the scope of the problem
- the characterisation of hazards, community and particularly environment
- the analysis of the processes that cause the consequences
- the ranking of the risks that affect themselves
- the identification and refinement of interventions
- the implementation of the selected interventions.

Not only does this participation make the solution one that the community will own, but they will also own and defend the process by which the decision was made. As well, the expertise and experience of the community has been harnessed to find the solution, and this has the potential to make the solutions better than those selected by individuals or organisations acting in isolation.

Emergency Expo '98

Werribee Racecourse, Victoria, October 2nd–3rd, 1998

'Bigger and better in '98'

Emergency Expo '98 will be held on Friday 2nd and Saturday 3rd of October 1998 at the Werribee Racecourse, Victoria.

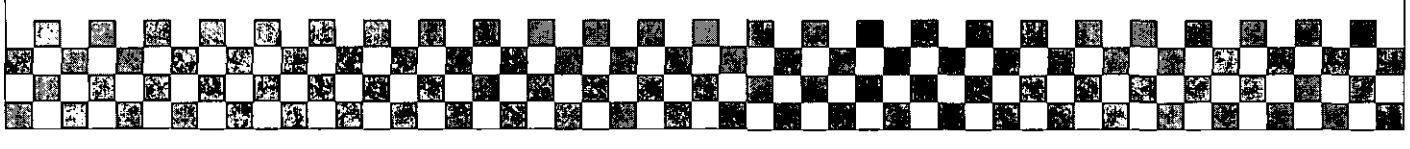
Organisers say the event promises to be the 'biggest, best and most comprehensive trade and emergency services expo ever held in Australasia'.

It is expected that over 150 trade exhibitors will be attending, displaying and demonstrating some of the latest equipment for emergency service operations.

An extensive range of workplace safety equipment, fire protection and suppression equipment will also be displayed. In addition, emergency services and others incorporated under the Victorian Emergency Management Plan will participating. The defence forces will also be attending.

The two-day event commences with a 'trade day' on the Friday, followed by a 'family day' on Saturday. Both days will feature continual displays, a carnival and an array of interactive activities.

For exhibitor or emergency service information contact the expo organisers:
Hoppers Crossing Fire Brigade
Tel (03) 9748 0829
Fax (03) 9748 8341.
E-mail: hcrossing.fs@cfa.vic.gov.au
Further information can be accessed on the Emergency Expo '98 web page:
www.vicnet.net/~hxfb
Correspondence can be made to PO Box 1126, Hoppers Crossing, Victoria, 3029, Australia.



Community involvement in environmental management: thoughts for emergency management

by Dr Stephen Dovers, Research Fellow, Centre for Resource and Environmental Management, Australian National University

In recent years, there has been a startling increase in community involvement in environmental management. (For the purposes of this article, environmental management includes natural resource management, and the broader notion of sustainable development.) This field of policy includes traditional concerns of environmental protection and nature conservation, larger problems such a greenhouse, biological diversity and land degradation, and the integration of these with social and economic policy (it is this integration—or rather the aim for it—that defines sustainable development). The aim of this article is to draw some lessons from environmental management that may be of use to emergency management, although I suspect the reverse might be easier. In such a short space, the treatment will clearly be a slight commentary rather than a sustained analysis.

While lessons can often be profitably drawn from one policy area to another, I believe that with environmental management and emergency management the case for doing so is stronger. The two can be viewed as closely related policy fields. The first and most obvious reason is that environmental and emergency managers cross paths often, as they operate in common substantive situations—fire, flood, sharp pollution episodes, and so on—although often with perhaps quite different agendas, goals and even cultures. The second reason is more important from a policy perspective. Emergency and environmental management face policy and management problems displaying a number of difficult attributes found less commonly, and less commonly in combination, than in most other fields of public policy, including (Dovers 1997a):

Presented at a workshop 'Putting the Community into Emergency Risk Management', Australian Emergency Management Institute, 18–19 November 1997

- difficult scales of space and time
- irreversible impacts on natural and human systems
- cumulative effects over time
- occasionally urgent imperatives
- high levels of complexity within and connection between problems
- pervasive risk and uncertainty
- 'systemic' problem causes (rooted in patterns of production, consumption, settlement and governance)
- increasing demands for and expectations of greater community participation, both in policy formulation and in actual management.

So environmental and emergency managers not only must deal with each other in a practical sense, they have common cause in that they deal with, on behalf of society, a suite of problems requiring particular and often not well-developed methods of policy analysis and management prescription. Standard approaches to public policy and administration, usually drawn from experience in fiscal policy or service delivery, may not be too relevant. Environmental and emergency managers should develop closer linkages.

Trends in participation in environmental management

Public participation in environmental management has both the status of an officially stated goal of current policy, and a longer history than many realise. Recent policy (and in some cases even law) arising in the post-1987 era of sustainable development issues a clear call for great participation. The 1992 *Rio Declaration* and related plan of action, 'Agenda 21', were accepted by 179 countries via the UN Conference on Environment and Development, and both call for the involvement of local communities in achieving sustainable development. Australia's response to the global sustainable development agenda, the 1992 *National Strategy for Ecologically Sustainable Development* (ESD), advances community involvement as a guiding principle, as do the numerous national and state-territory policies and programs adhering, at least rhetorically, to the principles of ESD.

Actual policies and programs in resource and environmental management are reflecting this call, with a number of broad kinds of participation discernible (generally, see State of Environment Advisory Council 1996):

- Statutory rights to comment on or object to policies or development approvals, codified in planning, development and heritage law since the 1970s (Robinson 1993).
- Involvement in policy formulation at a more general level, an outcome of the 'consensus-corporatist' mode of recent federal and state Labor governments, as well as of a realisation that there are inherent advantages to wider involvement in policy formulation targeting new or difficult problems. (The current federal government seems less enamoured of this approach, with an apparent return to the in-house, green or white paper mode of policy development. However, I suspect that stakeholder consultation on broad policy is a trend that will not diminish over time.) Major national (i.e. not just Commonwealth) policy emerging in recent years has been constructed in a reasonably inclusive manner, and this is mirrored in state and local jurisdictions. Although slower, often more costly, and

usually somewhat bland in a lowest common denominator sense, these policies stand a greater chance of surviving over time given the investment in them by major players. Examples include the *National Strategy for the Conservation of Australia's Biological Diversity* and the (draft) *National Rangelands Strategy*. In some cases, the joint actions of non-government players provide the impetus for public policy action, with governments then proceeding in an inclusive fashion (e.g. the NFF-ACF's successful push resulting in national support for Landcare; see below). In other cases encouraging moves forward have been made in the absence, or even in spite, of government, such as with the (now-threatened) Cape York Heads of Agreement.

- Regional planning and development activities, that are growing apace. While initially focusing on economic development, a number of regional planning initiatives now grapple with the integration of environment, social and economic aspects in the longer term (the prime aim of sustainable development). Some of these are 'bottom-up' initiatives, borne of local concern, whereas others are government sponsored, and many a combination of both.
- In some cases, inclusion of stakeholders in formalised management arrangements, regionally or sectorally. Examples include the Great Barrier Reef Marine Park Authority and the arrangements overseen by the Australian Fisheries Management Authority. In Victoria, the Land Conservation Council from 1970 has operated a moderately inclusive approach to regional and sectoral inquiry in environmental management, with a deal of success relative to other jurisdictions, although recent changes diminish both the scope of participation and the agency's autonomy.
- Integrated, whole or total catchment management arrangements, varying from informal linking mechanisms to formal trusts with statutory backing. The degree of community involvement varies, with some dominated by government agencies and others by community groups (the 'representativeness' of the latter can be debated in some cases).
- Last, but most apparent, involvement in local scale, on-ground environmental management and monitoring. Hundreds of groups across the country are engaged in environmental monitoring activities (Alexander et al. 1996). More than 3000 district-scale Landcare groups are engaged in education, investigation and demonstration activities. In addition, numerous other 'care' and 'watch' programs and movements have been established, focusing on coasts, fish, soils, water quality, frogs, dunes and so on. Broadly, such groups attract government support on a short-term basis, mostly to cover administrative costs, employ facilitators or to fund demonstration projects. The routing of some Telstra privatisation moneys through the Natural Heritage Trust guarantees that some such programs will continue to be reasonably well-lubricated for a few more years at least (the longer-term prospects are less clear). In terms of leading edge examples in environmental policy and management, such local-scale Australian programs are being closely examined internationally.

Another relevant trend, although not strictly community involvement, is the growing attention paid by private firms and industry sectors to environmental management, both as required by legislation and under the growing move to self-regulation. The relevance lies in the fact that the bulk of workers are employed in the private sector, and this trend is seeing many more of them engaged in environmental management as part of their working lives. As in most things, the division between work and 'not work' (including the voluntary sphere where community engagement is usually seen as residing) should not be seen as absolute. (One must ask whether the most famous 'community-based' program, Landcare, is in fact more a 'private-sector' program, given that small firms (i.e. family farms) dominate.) With the increased attention to safety and risk issues in the workplace, this link also exists in emergency management.

While the range and amount of community involvement in resource and environmental management has increased and appears to still be increasing, it is a mistake to believe that such arrangements are new or novel. Statutory rights to be notified of and object to development on environmental grounds date to decades-old planning law in most states. More strategic and substantive involvement has a long history in non-urban resource management in Australia (does emergency management share a similar history?). In NSW, Pasture Protection Boards addressed issues such as feral pests and weeds from 1912, and River Improvement Trusts were active from 1948. While these government-enabled but community-run bodies, at times, did things we would now frown upon (like channelising rivers), they were concerned with resource management as defined by their times, and enjoyed greater statutory and administrative support and a longer expected lifespan than many modern equivalents. Such arrangements we might call 'firm'. There is a salutory general reminder in this history, but there may also be real lessons in a policy and institutional sense (Dovers 1996). There is a tendency to write off previous approaches in the fervour of new programs; witness Landcare, where proponents claim the 'old' extension approach to soil conservation failed, and that we need something wholly new, ignoring that that the 'old' approach achieved a good deal and that what we do now relies enormously on past efforts. Building better policy and management capacities over time requires a constancy of attention and preparedness to learn and evolve ('adaptive' approaches) not often enough found in recent environmental policy, where 'ad hocery' and short-term policy fashion have dominated (see Dovers and Mobbs 1997).

Kinds and levels of participation

With such a wide array of more participative arrangements emerging, it is useful to consider the different forms that participation might take, and how this matches with the purpose at hand. Arnstein's (1969, p. 217) well-known 'ladder' of citizen participation (see *Table 1*) can serve as a basis.

This is a useful enough schema to categorise what is happening. If we draw a continuum in environment management between being told after the fact

Citizen control Delegated power Partnership	*(Degrees of citizen power)*
Placation Consultation Informing	*(Degrees of tokenism)*
Therapy Manipulation	*(Non-participation)*

Table 1: Ladder of citizen participation

at one end and fully delegated management responsibilities at the other, most current public participation and community engagement would fall toward the 'lower' end of this scale. Would a similar result be obtained in emergency management? Very often, however, such a ladder is used to argue the case for the 'higher' levels of participation as being preferable at all times. However, while one might agree with such a general proposition as a political ideal (as I do), the strictures of public policy and administration, and sometimes the nature of the problem being dealt with, suggest a more differentiated view. In brief, the following considerations are relevant, and enable a more detailed (and thus more bothersome and complicated) view of the issue.

- At times, 'lower' or more limited forms of participation are inevitable and even preferable. An obvious example is emergency management—when a fire front or flood peak is closing fast there are strong arguments for what Arnstein terms 'manipulation'. This recommends, of course, that community participation should not be left too late. Clarity about the 'stage' or nature of the problem is needed—that is, are we dealing with policy formulation, ongoing monitoring, demonstration, preparedness, management or urgent response, or a combination thereof?
- Consitutional and legal constraints may limit the application of higher levels of participation in some cases, at least if we accept or must operate within the existing political system. Agencies legally responsible for management tasks may find that they must balance statutory responsibility and accountability with the desire or need to include more people in decision making or planning (this also supports earlier rather than later inclusion in a process). There is a tension between representative parliamentary democracy and the delegation of greater power to local communities. This of course raises the matter of political change, to create systems whereby higher forms of participation are possible (e.g. community resource management forums with real powers), which I will not explore here.
- There is the issue of choice—some people may not wish to be engaged, either through trust in the process, lethargy, disinterest, or whatever. This however leaves open the question of allowing people to exercise this choice in an informed manner, recommending open, transparent processes with good information provision. (There are cases, though, where one might suggest coercion rather than choice to participate, such as with disease control or national security.)
- There is the issue of cost, in terms of time and human and economic resources. Real participation does not come cheaply, for either the community or public agencies. A recent comparative policy study covering both environmental and emergency management found that less top-down, more collaborative policies raised additional difficulties in implementation (May *et al.* 1996). If such matters are not attended to in a timely fashion, participatory processes may disintegrate needlessly.
- The different propensities and abilities of groups within society to participate, whatever their desire to do so, should be kept in mind. Arnstein (1969, p. 217) put it that 'each group encompasses a host of divergent points of view, significant cleavages, competing vested interests, and splintered subgroups'. This invites sensitivity to differing cultural preferences, literacy standards, and so on. It also requires recognition that community-based groups are not singularly concerned with environmental management narrowly defined, but with a range of social and economic issues. Landcare groups address problems of salinity, erosion and so on, but also form as a result of population and economic decline in rural areas, and a perceived deterioration of cultural and social institutions and cohesiveness (Carr 1997). Community involvement needs to be viewed as not only addressing tangible needs of environmental protection or resource management, but also intangible 'universal human health needs' such as social and emotional support networks, opportunities and incentives for learning and creative behaviour, short-term goal achievement cycles and aspirations of a kind likely to be fulfilled, and an environment and lifestyle conducive to a senses of belonging, involvement, achievement and challenge (Boyden 1987).
- Allied to this is the issue of representativeness, that begs two considerations relevant here, whether it is a public agency seeking community involvement or a community demanding involvement. First, what comprises a 'representative' group or body? This is an area where different groups within society have different expectations and understandings, and where agencies may find themselves, perhaps unwittingly, engaged in misrepresenting a community. Second, what degree or kind of representation is optimal, in terms of effectiveness of policy or management processes, in the context of a particular situation? This will vary enormously.
- It would seem that shared concerns or causes are, if not necessary, then highly important to purposeful community engagement. Tuan (1979) described common threats as crucial to community cohesiveness throughout human history, be these threats from nature or other people. For instance, there is presently great hope that the enormous success with Landcare (at least in terms of number of groups) can be transferred to other sectors and problems. Yet it is not clear how this will proceed—Landcare operates at a very human (rural district) scale and in a sector with a common cause (land degradation) and where the family farm is the overwhelmingly common unit of management. How this can translate to, for example, publicly-owned forests, sparsely-peopled rangelands, or dense, diverse urban settings is not at all clear. This is an issue given much attention in the intellectual fields of risk perception and risk communication, although to what practical effect in emergency management I will not venture to judge.
- Different levels of participation may be appropriate for different purposes. This not only applies *across* problems, but also *within* the context of a specific problem or process—people will want and need to move up and down the ladder, so to speak. For example, an individual or group may wish to be closely involved in monitoring aspects of environmental management, but less so in later management. Or someone's interest could be served by inclusion in general policy formulation, but not in implementation, or *vice versa*. This requires detailed understanding and wide discussion of the problem being addressed, the community involved, and the process of participation.

- Finally, there are limits to voluntarism. It needs to be remembered that it is not only in the field of environmental management (or emergency management) where people are alternatively being asked to be involved or are asking for involvement—there is the whole voluntary sector (rather large already in Australia) comprising neighbourhood security, schools, sporting associations, service clubs, children and youth activities, charities and so on. There are only so many hours left in a week after work, household activities, raising children and leisure! This raises the matter of the priorities of individuals, communities, governments and society as a whole, and the issue of the kind and degree of coordination across community-based programs, and of public sector support required for these.

All this suggests that identifying different modes of participation and matching these to as comprehensive as possible an understanding of the detail of policy and management processes, and of the affected or interested population, is of great importance. In the simply utilitarian terms of policy instrument choice, community participation is often painted as a singular policy instrument, whereas it clearly is deeply diverse, and this should be reflected in the approach to defining, allowing, encouraging and using it. Similarly required is a matching level of detail and comprehensiveness in delineating the particular sub-sets of environmental management (and emergency management) to which public participation-as-policy instrument should or might be applied. One size will not fit all—a message as valid to those promoting community involvement as it is to those blindly advocating market mechanisms or blanket regulation (Dovers 1995).

Discussion

To consider these issues a little further, we can ask what lies behind the recent increase in community participation in environmental management. What does it mean, and what are the prospects? First, there are the 'good' reasons.

- Community demand for a 'say' in matters affecting them has been recognised, and is progressively becoming an accepted part of the practice of public policy and administration, and of resource and environmental management.
- A genuine move, where it is possible, toward a more participatory form of democracy, entailing a greater level of civil debate between communities, governments, firms and professional groups.
- A realisation that policies and management strategies will be more effective if they are well understood by affected communities who, through involvement in their formulation and implementation, enjoy some sense of ongoing ownership and control.
- Relatedly, a valuing of the contribution of local knowledge and expertise in policy and management, particularly in terms of adapting general goals to local contexts, and ensuring appropriate flexibity in implementation.
- Community involvement is one product of an ongoing search for new and novel approaches to an emerging and difficult area of policy and management, with the aim of building a more comprehensive toolkit of approaches and policy instruments. This is confirmed by the continuing exploration of other, less traditional approaches in environmental management such as interdisciplinary and cross-sectoral research and communication, property rights, economic instruments, industry self-regulation, and negotiative mechanisms.

On the other hand, there are some less good factors that may be operating.

- The search for new approaches might be viewed as desperation on the part of governments who have found that attending environmental issues is difficult, particularly without attending the systemic links between these problems and underlying causes in patterns of production, consumption and governance.
- Then there is the constant problem of shifting policy fashion, where particular approaches become 'all the rage' for a period of time, diverting attention from the failure or disappointment of previously fashionable approaches, but themselves are not persisted with for long before the next fashion is adopted.
- Abrogation of political responsibility in an era of reduction of the state, with community-based initiatives replacing, rather than extending or consolidating, previous, more 'top-down' approaches. 'Community involvement' can be (and in some case has been, I would argue) a veil behind which governments reduce other programs or diminish their own responsibilities (for a general argument, see Dovers and Lindenmayer 1997). This suggests that, in terms of positive environmental change, the result might be zero sum rather than consolidation and advance. A discussion of Landcare in this light is provided by Martin and Woodhill (1995).

I would suggest that none of these reasons dominate, but operate together in a sometimes bewildering and complex fashion—hence the tendency for a mix of optimism and scepticism on the part of many observers. The challenge is to sort through the good and less good factors, and through the many and varied possible contexts, so as to arrive at a more differentiated and thus effective understanding of, and approach to, the issue.

It would be comforting to believe that the better reasons dominate, and we can analyse what is going on through seeking evidence that this is the case or not. To do this, we need to interrogate existing or proposed schemes for public participation and seek to ascertain whether they seem to be:

- designed for permanence
- designed carefully for a given specific context
- constructed to extend and improve existing approaches
- supported with financial, informational and institutional resources sufficient for the tasks they are being expected to undertake.

That is, is community involvement apparently becoming an accepted part of the landscape of public policy and administration, or not? In environmental management, the answer is mixed—some good things seem to be happening, but on the other hand there is a reliance on annual funding rounds, little in the way of coordination across the emerging array of programs, and expectations are often far larger than the commitment of resources. We might call such arrangements 'flaky'. What is the case for emergency management?

Public participation in resource and environmental management is at the point where, although great advances have been made, these need to be consolidated if they are going to last, let alone be built upon. Participation needs to be 'institutionalised'—not in a formal, top-down manner, but in an enabling sense of providing the wherewithal. Without such underpinnings, there is

great potential for public participation to become a source of cynicism and disappointment—another short-lived policy fashion tried but not persisted with, part of a longer history of policy 'ad hocery' and policy amnesia.

Two important obstacles to fuller community involvement stand out and apply equally, I suspect, to both emergency and to environmental management. The first is that community involvement, if undertaken in a genuine and non-cynical fashion, challenges professions and disciplines to accept that their own work and prescriptions should be subject to a 'democratised' peer community, including both other professions and disciplines and the broader community, and to profit from this. Obvious examples of different understanding would be the debate over actual versus perceived risk in emergency management, or the often very different prioritisation of environmental management problems between 'experts' and laypersons (and, indeed, within any particular community). Community involvement represents not only a challenge to government and the public, but to the 'epistemic' (knowledge-based) communities such as ecologists, environmental risk assessment practitioners, or emergency management professionals. We are some way from working out how the various players can most productively work together. Moreover, there is a largely unexplored tension between the move to broader participation on the one hand, and the increasing use of what can be rather arcane and inaccessible information technologies and decision support systems on the other (Healy and Ascher 1995; Wong 1997). This tension should be solvable, but will take considerable time, forethought and cooperation.

The second obstacle is that both environmental and emergency management operate in the face of rising demands and escalating problems, but from a base in a public sector that is at best static, or more often shrinking. Marketisation, downsizing, privatisation, outsourcing, corporatisation and withdrawal of the state are the common manifestations. While this trend is generic, the case can be put that for environmental and emergency management it is particularly difficult, given that they are long-term, collective public projects complicated by poorly assigned rights and responsibilities, pervasive uncertainty, and great complexity. How does the state handle such issues when it is timidly shrinking? (Generally, see Self 1995; specifically, see Dovers 1997b). There are, of course, both pros and cons. For example, marketisation of the water sector offers managerial efficiencies and prices better reflecting the value of the natural resource. However, other aspects may not fare as well under corporatised management arrangements, such as community involvement, cross-catchment integration and (relevantly for emergency management) flooding. The marketising of policy and management arrangements where contingencies are crucial will always be problematic, but precious little discussion has taken place on this.

Conclusion: participation firm or flaky?

The concluding message is straightforward enough: community involvement in environmental management is far from simple, or even unequivocally a good thing at all times. Thus there is a need to be careful and clear, matching the detail of degree and kind of participation in the light of detail of the context, the community and the problem. We have yet to find the balance between 'firm' arrangements (i.e. fire brigades, pasture protection boards, etc.) and 'flaky' ones (unsupported in the longer term). Both of these have their advantages—the firm arrangements are more purposeful and long-lived, but the flaky often more progressive and inclusive. The rational administrative mind prefers the firm, the progressive political mind prefers the flaky. It seems to me that emergency management has more of the former, environmental management more of the latter, and certainly both policy sectors could learn much from each other (and not only regarding participation).

Over the next few years, in a number of policy fields, the tension between these two general styles of public participation will be explored further. Can communities take on more tasks and power in a manner consistent with the accountabilities and controlling instincts of the administrative state?. The benefits of both—genuine, convenient or disingenuous—will doubtless be advanced in an adversarial manner. Hopefully we can move beyond that to a situation where we build broader and genuinely empowering involvement, but sensitively differentiated according to problems and the needs of communities, and supported by sincere informational and institutional infrastructure. Rather than arguing whether we want our participation firm or flaky, we might seek to make the firm a little flakier and the flaky a little firmer, the best of both worlds.

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Rescue team receives awards

Queensland Rescue is part of the Department of Emergency Services in Queensland. The service operates three Bell 412 helicopters covering the entire Queensland coastal region from the Gold Coast to Thursday Island. The helicopters are based in Brisbane, Townsville and Cairns and perform search and rescue, medical operations, bushfire suppression and assist communities affected by disaster such as cyclones through evacuation, re-supply and medical retrieval.

Each helicopter carries a crew of three, consisting of the pilot, and air crew officer responsible for winch operations and assisting with navigation and communications, and a rescue officer, who performs down-the-wire rescue duties. The rescue officer is also responsible for passenger safety and is usually a trained ambulance officer or paramedic.

On March 9 1997, the service performed the rescue of two Canadian sailors, Robin and Maggi Ansell, from their foundering yacht, the *Orca*, in near cyclonic conditions off Townsville. Caught up in Tropical Cyclone Justin, the Ansells were rescued from a rubber dinghy after rescue from the deck was impossible due to the violent pitching of the yacht.

The yacht was located using an EPIRB, a locating device that homes in on a radio distress signal, and through a flashing strobe on the deck of the yacht.

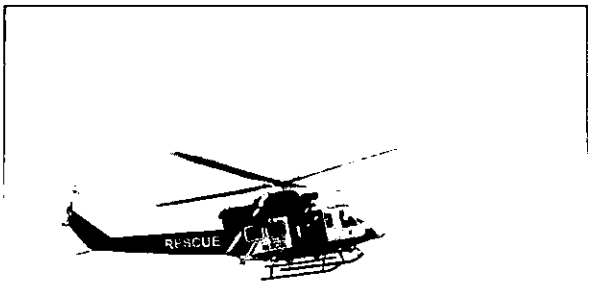
What made the rescue more notable was the distance from shore for a helicopter—about 165 nautical miles—and the narrow window available for the rescue at the site—about twenty minutes due to fuel limitations. On reaching the area, the helicopter located the stricken yacht within three minutes and in another sixteen minutes of often precarious work took the couple on board. The rescue was also fortunate in that the helicopter and crew had only just returned from flood operations at Mt. Isa, in Queensland's interior, that afternoon.

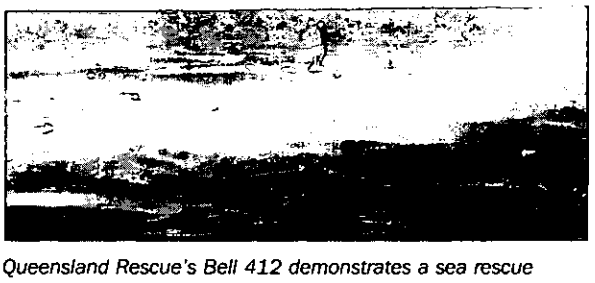
Team members Peter Hope (pilot), Ian Callaghan (air crew officer) and Angus McDonell (rescue officer) were awarded the Eurocopter Golden Hour Award by the US-based Helicopter Association International.

Angus was also awarded the Australian Bravery Medal by the Australian Government for his part as the rescue crewman, while Peter and Ian were given a Commendation for Brave Conduct for their role. The awards were made by the Governor-General.

For information about Queensland Rescue's operations, contact Wayne Ripper, Acting Director of Aviation Services, GPO Box 1425, Brisbane, Queensland, 4001, tel: (07) 3247 4137, fax (07) 3247 4207.

Angus McDonell (left) and Ian Callaghan (picture courtesy of the Townsville Bulletin)





Queensland Rescue's Bell 412 demonstrates a sea rescue

Effective community collaboration in emergency management

by Mark Hennessy, Hennessy Services Pty Ltd, Public Health and Safety Consultants

Why are emergency management organisations and professionals seeking information about effective community collaboration?

Community collaboration has found its way onto the strategic planning agenda of emergency managers over the past couple of years. But why? Emergency services are already well-loved and respected by their local communities. They also have the ear of the local press, and generally receive very positive and prominent treatment by the press.

So, is there a problem? Are there opportunities to gain benefits from greater collaboration with local communities?

To help emergency managers to deal with these questions—which they have set for themselves—they have turned to the field of community-based injury prevention that has acquired almost a decade of practical experience in Australia, and nearly two decades of experience internationally. This article draws out some of the lessons from that field, illustrated with practical examples and anecdotes. The aim is not to present a blueprint for emergency services, but rather to dissect and distill some of the wisdom that has accumulated in the injury prevention field. It is left to the reader to extend and apply the principles and practical lessons to the emergency field, partly because the author has limited practical experience of community based approaches in that field, and partly so as not to impose too narrow boundaries on what emergency management professionals might usefully make of the information.

Case study: Hume City Council's 'Safe Living Program'

Hume City Council is accredited by the World Health Organisation as a member of its prestigious International Network of Safe Communities. The WHO network has about twenty members world wide, including five Australian communities: Illawarra, Hume, Noarlunga, La Trobe and Parkes.

Presented at a workshop: 'Putting the Community into Emergency Risk Management', Australian Emergency Management Institute, 18–19 November 1997.

Hume City Council is located on the north-west fringe of Melbourne, between the Hume and Calder Highways and bounded by the Western Ring Road to the south and the Shire of Macedon Ranges to the north. Hume has been selected as the case study because the author has been closely involved with the Safe Living Program since its inception in 1990 in the former Shire of Bulla (now subsumed into Hume).

The Swedish experience

Hume's Safe Living Program was based on the program in the Swedish rural community of Falkoping, which attracted the attention of the international injury prevention community by reducing injuries at home, in the workplace and in traffic by about 27% in the three years from 1980 to 1982. Monash University Accident Research Centre approached the (then) Shire of Bulla, and a three-year program was funded by VicHealth, VicRoads and the Shire of Bulla. The program is now operated by Hume City Council as part of its core business, and the overall coordination and many elements of the program have been included in service contracts under compulsory competitive tendering (CCT).

Principles of community-based injury prevention

The Safe Living Program is community based and targets all injuries to people of all ages in all settings. It is based on the principles that:

- Community ownership of, participation in and responsibility for the program will lead to progressive commitment to injury reduction.
- The synergistic effect of many interventions will be greater than the sum of isolated interventions.
- The effect of environmental changes will be cumulative over time.

The difference between 'community participation' and 'community involvement'

'Community participation' is generally taken to mean that the community takes responsibility for all stages of the program including planning and implementation. 'Community involvement' is used to refer to a less-ideal situation in which the community is asked to participate in a program that has already been designed by someone else, without consultation, and usually on the terms of (and possibly in the interests of) the outside designer rather than on the community's terms and in the community's best interests.

Program planning

The Safe Living Program is managed by an inter-sectoral committee with community representatives, and has working groups in priority areas such as children's safety, seniors safety and traffic safety. Planning of the program is characterised by the following features:

- the program is planned strategically and works systematically, but is also ready to seize opportunities and run with them as they arise
- priorities are set according to the frequency, severity and preventability of injuries
- multi-faceted approaches are preferred, using several approaches simultaneously and in a coordinated way to deal with particular problems.
- The program seeks intersectoral cooperation, involving different levels of government, community organisations and agencies. Many interventions require the cooperation of organisations outside the health sector.

Examples of interventions

The Safe Living Program implemented about one hundred different interventions during its first three years

(1991 to 1993). These included:

- Collaborating with a local builder to design and build a safe display home. The home was inspected by about 20,000 people in a year and received prominent live national television coverage and good print press coverage. The home won the HIA award for best display home under 16 squares, proving that safety is compatible with an attractive marketable home. This was achieved at no cost to the Safe Living Program.
- Preparing an 8-page *Family Safety Guide* and delivering it to all homes in the municipality, at a net unit cost of 54 cents for production and delivery (assisted by major sponsorship and by a massive volunteer effort to envelope and deliver it).
- Legalising footpath cycling throughout the municipality (except for designated 'no cycling' areas in shopping centres and outside schools).
- Conducting safety audits of arterial roads, footpaths, school playgrounds and other public places.
- Training peer educators to conduct children's safety training for parents and carers in the community.
- Provision of short (3–6 hour) courses in emergency first aid for children, including cardiopulmonary resuscitation (CPR).

Working with the community

Several lessons were learned from working alongside the community.

- Some people participate in activities in several different settings, such as safety in sports, in schools, on the farm and at work.
- Different people prefer to participate in different stages of injury prevention. Some like planning and decision making, others hate meetings and prefer to pitch in when 'arms and legs' are needed.
- It is important to work with people and organisations on their terms. Don't try to impose your needs or agendas onto them, if you want strong and lasting collaboration.
- Form partnerships to prevent injuries, based on mutual respect and trust.
- Seek to empower the community at every opportunity. Provide training and information to enable and encourage others to take on injury prevention roles. Sharing the power can harness enormous community energy.

Forming partnerships

Some points to consider when forming strategic intersectoral partnerships are:

- on whose terms are we forming the partnership?
- whose interests are we serving?
- what does our organisation want to achieve?
- what are we prepared to give?
- what is our common ground?
- who is in charge?
- document the understanding (e.g. minutes, a short letter, joint media release)
- Achieve consensus, avoid fights (no one wins.)

Opportunities for community collaboration

Community collaboration has the potential to strengthen the efforts of emergency services at all stages of disaster management planning and implementation, as set out in *Table 1*.

When collaboration can help

Before	*Prevention, preparation*
During	*Smooth cooperation* *Compliant community*
After	*Recovery, rehabilitation and healing*

Table 1: Benefits of collaboration

Role of schools and pre-schools

Schools and pre-schools have been one of the cornerstones of the Hume City Council Safe Living Program. There are several quite different ways in which schools can collaborate for emergency management, including:

- student education
- community education
- networking
- preparing their own emergency management plans.

Role of Local Government

Local government has a range of different potential roles and can bring to bear a wide range of resources to contribute to local responses to emergency management, including the following examples:

- emergency response and disaster planning
- strategic planning
- infrastructure design and provision
- civic leadership
- Victorian Safer Cities and Shires Program.

The Shire of Yarra Ranges in Victoria has shown leadership by recently appointing a 'Team Leader Emergency Management', with a wide range of duties including strategic planning and coordinating intersectoral collaboration.

Other agencies

In Victoria, for example, there is a range of organisations that are already collaborating in emergency management, including Police Community Consultative Councils (PCCCs), Community Road Safety Councils (for example, 'operation coffee break'), other emergency response agencies, other agencies (post, telecommunications, etc.), workplaces, other community groups, and local community leaders ('movers and shakers').

Community Safety Week 6–12 September 1998

Following its successful introduction in 1997, Community Safety Week will again be celebrated in Victoria from 6–12 September 1998. The theme is *Local Action for a Safer Community*, and the aim is to promote collaboration at local community level right across Victoria. The week offers a rallying point for all stakeholders in the community safety field. The fire services were prominent participants last year. The central contact is the Victorian Community Council Against Violence (telephone 03 9655 5220).

Conclusion

We are beginning to see some resources committed towards a more concerted approach to community collaboration in emergency management. The ground is fertile, but it is important that we properly train and resource the people who are beginning to work in this area. It is also important that a strong culture of collaboration at all levels and right across the emergency services and community safety field be fostered and projected to the community, who are, after all, our sole client and the object of all our work.

About the author

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Dealing with hazards and disasters: risk perception and community participation in management

by Elspeth Young, National Centre for Development Studies, Australian National University.

Introduction

Natural hazards, such as flood and drought, and their likelihood of causing disasters that lead to extreme human suffering, do not stem only from events beyond our control. As Blaikie et al. (1994, p.3) point out '... (disasters) are also a product of the social, political, and economic environment (as distinct from the natural environment) because of the way it structures the lives of different groups of people'.

It therefore follows that risk should not be defined solely by pre-determined, supposedly objective criteria that enable its various levels to be gauged through quantification. It is also a social construct, interpreted differently by all of us. Some find certain events or situations unacceptably risky and will do their utmost to avoid being involved, while to others the same events may offer exhilaration and thrills that stimulate their whole purpose in living. There may even be others to whom the particular event is a non-issue, something to be totally ignored. These differences in perception and response, coupled with differences in people's socio-economic characteristics and circumstances, result in a wide range of vulnerability in any community. Social aspects of risk interpretation must be recognised if risk is to be effectively managed, and community participation in the practical management of the problem faced is a vital component of this approach.

Risk and vulnerability: some definitions

Risk

- Risk includes two elements — the likelihood of something happening and the consequences if it happens (Beer and Ziolkowski, 1995).
- Risk occurs where factors and processes are sufficiently measurable for believable probability distributions to be assigned to the range of possible outcomes (Dovers, 1995).
- Risk is the perceived likelihood of given levels of harm (EMA, 1995).

Presented at a workshop: 'Putting the Community into Emergency Risk Management', Australian Emergency Management Institute, 18–19 November 1997.

These definitions indicate the importance not only of recognising that risk occurs but also of being able to measure its level e.g. severe, moderate, minor.

Vulnerability

- Vulnerability is the susceptibility to harm of those at risk.
- Vulnerability is the coping capacity of those at risk (Handmer, 1995).
- Vulnerability is the degree of susceptibility and resilience of the community and environment to hazards (EMA, 1995).
- Vulnerability depends on the characteristics of a person or group in terms of capacity to anticipate, cope with, resist and recover from the impact of a hazard (Blaikie et al. 1994).

Risk can only be managed if those who are vulnerable are identified. As Salter (1995) comments, risk and vulnerability are inextricably linked and therefore vulnerabiity must be understood if risk is to be managed.

Contemporary approaches to risk and vulnerability assessment

In general earlier approaches to risk assessment, which were primarily quantitative and favoured technical solutions, have been replaced by more holistic approaches which recognise not only the need for technical assessment of risk but also the interlinkages of technical elements with socio-economic and political factors. Social scientific approaches, including the recognition that risk is interpreted as a social construct, now play a vital role in the assessment of risk and vulnerability (Salter, 1995). This fundamental change parallels changes in related philosophies and processes such as:

- *development*—people-centred and sustainable rather than solely economic)
- *impact assessment*—social as well as environmental, and socio-political as well as technical or quantitative
- *planning*—an adaptive process (people-oriented) in which the experience gained in taking part (the process itself) is the goal rather than a prescriptive process in which the plan itself is the goal.

Social constructs of risk and some implications for vulnerability

The following important human attributes (some quantifiable and some non-quantifiable) affect how different people assess risk, and how vulnerable they are.

- *Socio-economic characteristics* (e.g. age, gender, ethnicity, income, education, employment, health). Older people and children may be much more vulnerable than active adults. Poorer people, with fewer capital resources, are likely to suffer far more from the effects of hazards such as flood invasion of their homes. Some specific ethnic groups (e.g. Aborigines, people for whom English is a second language) may be much less able to take advantage of the assistance offered because of communication problems and cultural differences.
- *People's knowledge of the environment and of the hazards that environment poses to them* e.g. traditional ecological knowledge (TEK). TEK may be effectively used to cope with a situation that outsiders perceive to be threatening, and generally provides much more detailed understanding of local environments. It can be valuable in predicting the threats posed by hazards (e.g. when significant floods are actually likely), and can also provide people with alternative food supplies.
- *Their ignorance* (where even the direction of change or broad nature of outcomes are unclear, and where threshold effects, surprise and even chaotic processes may operate (Dovers, 1995). For example, people who

have newly moved into a vulnerable area often lack knowledge of the actual threats posed by hazards such as severe bushfires, and fail to take suggested precautions seriously.
- *Their ability to cope with those hazards (risks)* through technology, financial attributes, education, political power and having a voice. Knowledge, high levels of education and high incomes generally give people more confidence in articulating their feelings and needs and hence they may be able to cope better with adversity.
- *Their ability to access help from outside*. Having confidence (see above) makes asking for assistance much easier.

Attributes such as these highlight some key points:
- Other things being equal, it is generally those living at the margins who are most vulnerable to risk and uncertainty. Marginality in this context is defined in two main ways:
  - *socio-economic*—people who, for social or economic reasons, are outside the mainstream
  - *geographic*— people who live in very isolated locations and who as a result are often socio-economically marginalised.
- The better the understanding of these factors, the more effective are the coping mechanisms.

Coping with risk

The key to coping with risk is being sensitive to differences in people's perceptions of the problem and hence understanding their levels of vulnerability. Working with communities at risk is essential if these ideas are to be incorporated into risk management. In this approach technical knowledge, essential for dealing with many elements of disaster mitigation, is combined with local knowledge, and the administration of risk management plans becomes a shared responsibility, integrated with local institutional structures and tapping into external forms of support.

Example A: managing floods in Australia's rangelands

Periodic local flooding occurs frequently in Central Australian river systems. Aboriginal and non-Aboriginal responses to such flooding differ.
- Aboriginal people's TEK helps them to predict when flooding will occur and hence to plan for it in the short-term (e.g. move camps). Non-Aboriginal people often lack the detailed environmental knowledge that would assist them in predicting flood onset.
- Aboriginal planning for the longer-term consequences of flooding is probably less adequate than formerly. They have become more dependent on external sustenance and technology (e.g. purchased foods, telephones and vehicles) and when these elements of their lifestyle are no longer available they may be in dire need of assistance. Non-Aboriginal people probably plan far more effectively for the longer-term effects of flooding, because their access to relevant technical information is much better.
- Despite recognition of flood threat, many Aboriginal people prefer to use river beds for habitation and more temporary camping, both because the environment is more attractive and water is available. Often, spiritual attachment to sites associated with water is also very high. This cultural factor may take priority over all other factors and may make people physically vulnerable.

Issues such as these are vital in flood management. While many of the Aboriginal–non-Aboriginal conflicts that have arisen over flood management in Alice Springs may have been inevitable, closer community participation, involving all groups, could well have led to workable compromise solutions.

Example B: dealing with the effects of drought and frost in Papua New Guinea

Periodic food shortages caused by drought and frost in Papua New Guinea's highlands—referred to as *'taim hangri'*—are well documented, both in oral and written history. As subsistence farmers in a cashless society, people formerly dealt with these problems by using local knowledge (famine food), and by moving to other areas where food was still available. If everything failed vulnerable members of a group died (old people, children etc). In the contemporary era they have had other alternatives: gaining external help, both from their own government authorities or from external donors, and, if they have access to cash, buying food to tide them through. Papua New Guinea's recent (1997–98) drought and frost event has been the most severe in three decades and has highlighted some important issues concerning the management of this recurring natural hazard.

The severe effects of the 1997–98 drought stem not only from the impact of a particularly strong *El Nino* event, but also from rapid population growth (the population has roughly doubled since 1972, another severe drought year), continued dependence on subsistence farming, and increased demand for material wealth gained through participation in the cash economy.

For rural families (still around 83% of the population), cash-cropping remains the principal avenue to a cash income. Thus pressure to increase the amount of land under cash crops is relentless. Some people have virtually become landless, while others are embroiled in conflicts over access to land and resources. These problems are compounded by a limited and often defective transport and communication network. Apart from food and water shortages in many parts of the country, the effects of the drought have included rural-urban population movement and the closure of schools and health centres.

Donor agencies that provided assistance for drought- and frost-affected areas in Papua New Guinea included the PNG government, the Australian government (through AusAID) and a wide range of NGOs, many of which worked in conjunction with government donors. Their prime task was to improve food and water supplies to those in need—an estimated 500 000 people in October 1997 (compared to 150 000 who received food aid in 1972).

Identification of the most severely affected areas and establishing smooth distributional mechanisms were major challenges. Researchers at the Australian National University, along with teams of PNG fieldworkers, conducted a wide-ranging survey in September–October 1997, and their findings, which mapped areas of the country in terms of immediacy of relief requirements, provided the framework for allocation of aid (Allen and Bourke, 1997).

But provision of aid and identification of areas in immediate need is only one aspect required. Others include:
- understanding of local perception of the problem and of how to deal with it
- understanding of the intricacies of subsistence farming systems and how these integrate aspects of the whole cycle of food production
- understanding of local institutional structures dealing with administration, distribution etc.
- realisation that long term planning, rather than short-term food provision, is required

- as far as possible, involving local communities in delivering food aid.

Involving communities in the management of risk

Practical approaches in risk management should build on both the technical knowhow of professionally-trained people and the knowledge and perceptions of those at risk. Instituting risk management plans that ignore local knowledge, local political structures and local priorities will not be effective. Neither will plans built largely on local knowledge without external technical input where relevant.

A compromise is needed. This means formulating risk management plans into which the community has input and which local people help to implement. Consultation, discussion and negotiation are vital aspects of such an approach. In emergency situations, where speed is essential to save human lives, this might initially have to be very superficial. But immediate action is only part of the management process. Longer-term planning, to make people less vulnerable next time, is also vital and it is here that community participation can have a lasting impact. Risk management is a two-way process that must take into account, on the one hand, the hazard and its impact on people, and, on the other, the people's responses to the situation. Key approaches to risk management are therefore *enhancing coping capacity* and *reducing susceptibility to harm*.

Vital elements in these are:

- *Flexibility*—recognising social and cultural differences in population groups and working within frameworks that allow the impact of such differences to be taken into account.
- *Information on how to cope*— ensuring that people potentially affected are fully informed on all aspects of the hazard which threatens them.
- *Public and particularly community participation in risk management, and especially in planning.*

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New publications

Disaster mitigation

Mitigating the millennium: community participation and impact measurement in disaster preparedness and mitigation programmes
Scobie, Jane (ed.)
Intermediate Technology
Rugby, UK, 1997
F 363.347 MIT

Practitioners working on disaster management issues in both relief and long-term development programs examined ways to promote local participation in mitigation.

Topics include: encouraging community participation in practice, defining a participative approach, evaluating and measuring the impact of mitigation projects, prioritising mitigation, undertaking emergency preparedness in cyclone areas in Madagascar, improving practice, getting donors involved in disaster mitigation, and recommending initiatives to reduce hazards through the promotion of community-based disaster mitigation programs at all levels of government. (74 pages).

Economic assessment of disaster mitigation: an Australian guide, Handmer, John W. and Thompson, Paul, Middlesex University, Flood Hazard Research Centre, Middlesex, UK, 1996, F 363.347 ECO

Major investments to reduce the risk of loss from natural hazards in Australia, as in other countries, are in part justified by assessing the likely economic benefits compared with the costs. However, in assessing the losses from natural disasters—which form the benefits of mitigation measures—there is a lack of guidance on what precisely may be counted. The Australian IDNDR Committee has recognised the need for improved and more consistent economic assessment methods to be applied to disaster mitigation, and has funded this study (91 pages).

Mitigation of disasters in health facilities
O'Connor Bill, Wilson Wendy and Brennan, Bryna
Pan American Health Organisation/ World Health Organisation,
Washington DC, 1996
Video no. 335

Discusses mitigation of natural disasters in health facilities in Latin America and the Caribbean. When a natural disaster strikes, health facilities are often among its victims. Much damage can be prevented beforehand. Retrofitting of existing facilities and vulnerability assessment are major aspects of mitigation.

Disaster preparedness

Escape to safety: the evacuation of a health care facility
Health Dept. of Western Australia,
East Perth, 1991, Video no. 269

The management body of a health care facility is responsible for the safety of its patients and residents as well as its staff, trades people and visitors. Evacuation policies and procedures must cater for all concerned. This video depicts the basic measures necessary to fulfil the important responsibility of getting all those affected by an emergency to a place of relative safety. Intended as a training aid only, produced to initiate discussion on the emergency policies and procedures of individual facilities.

Out of the ashes, a community responds: the Dandenong Ranges Bushfires, January 1997

by Helen Wositzky, Community Development Officer, Shire of Yarra Ranges

Presented at the Emergency Recovery Forum, Darebin, November 27 1997

The Dandenong Ranges, situated 50 kilometres to the east of Melbourne in Victoria, is recognised as an area of high fire risk, rating among the top five in the world.

Much of the range is forested with small communities nestled along the main ridge. On the morning of January 21st 1997, a hot day with high north-westerly winds, five fires were deliberately lit along the base of the western face of the Ranges. Positioned where gullies faced a northerly direction, the steepness of terrain and the forest environment resulted in the fires quickly sweeping up to the residential–forest interface.

With fires burning in other areas of the state, firefighting resources were stretched to the limit. To fight the Dandenong Ranges fires, the Country Fire Brigade, Metropolitan Fire Brigade and the Department of Conservation and Natural Resources had some 280 firetrucks and over 1000 firefighters on the ground, with three helicopters and two Canadair Super scoopers tackling the fires from above.

As the residents returned in the drizzle of early dawn the following day, the extent of damage and loss to the communities was realised. Forty-one houses were destroyed, 3 lives tragically lost, dozens of houses partially damaged, 179 private gardens burnt and 400 hectares of National and State Park burnt.

On the historical scale of bushfires these fires could be considered small, however the impact locally to the communities was anything but small. Although the Dandenongs are no stranger to bushfires, it was thirty years ago in 1968 that these particular ridge communities were affected by a serious bushfire. Apart from long-term residents, many had never experienced such an event and despite local CFA education campaigns many were unprepared for the risk and thus vulnerable. This has been described by John Schauble, a long-term resident involved in fire prevention for many years, as 'a lack of collective memory'.

The community, agencies and local government were quick to respond. Within days a recovery committee was established (see *Figure 1*) that involved all those responsible for the various aspects of the recovery process. Community sub-committees (to deal with material and financial aid, physical clean up and rebuilding and personal support) were formed under the umbrella of the recovery committee and a Community Development Officer appointed.

The structure developed to manage the recovery provided an integrated, coordinated approach, had clear lines of communication, involved a dynamic process of monitoring and reassessing needs and services, and involved the community.

The resources employed by government and agencies to assist the affected residents were extensive, however it is the initiatives and support that came from within the community and the Community Recovery Projects that this article will focus upon.

Immediately following the bushfires, the community response was spontaneous—existing networks and neighbourhoods rallied together to provide support and assistance. The extent of voluntary support has been overwhelming and exemplifies the renowned community spirit of the Dandenongs. Over 150 community volunteers were so committed to assisting those directly affected that their support has continued for a full year after the event.

Within a week of the fires a core of locals in both Upwey and Ferny Creek planned and publicised a public meeting for those wishing to assist. The impetus from within these communities came primarily from the primary school in Ferny Creek and the Anglican Church in Upwey. Due to the response of approximately 100 community members attending, it was evident a framework was necessary that would ensure

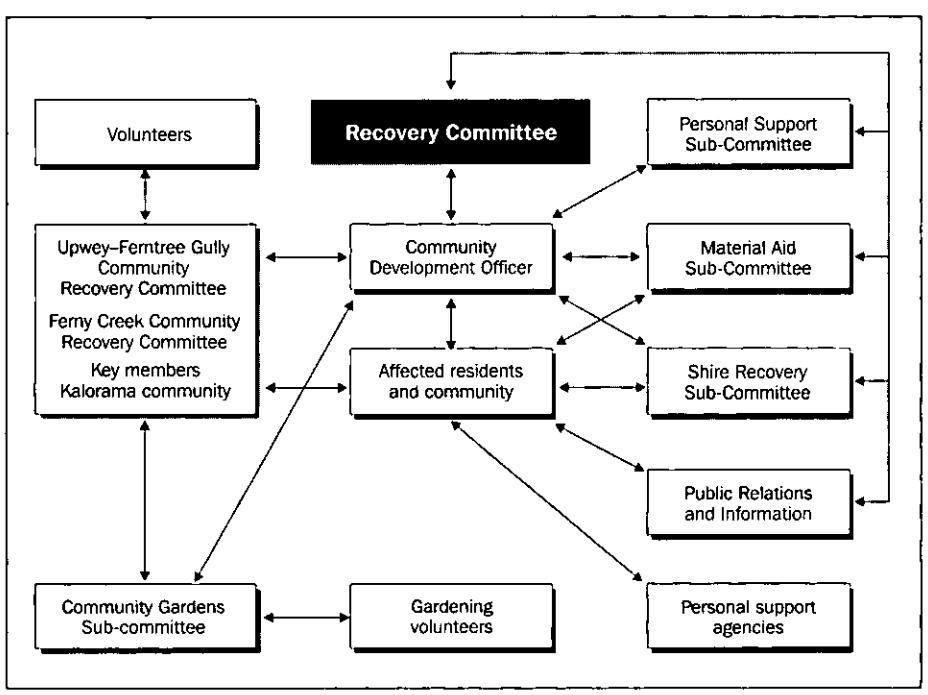


Figure 1: Recovery Committee structure

volunteer efforts were coordinated, communication was quick and effective, the needs of the community were sensitively met and privacy of those affected was taken into account. The volunteer framework was thus developed by myself in my role as Community Development Officer (see *Table 1*).

Those that had indicated an interest in playing an ongoing and organisational role were invited to a further meeting at which they nominated to take on coordinating roles. It was through this process that the coordinators formed the Ferny Creek and Upwey Community Recovery Committees.

Volunteers were registered on a database according to the type of assistance they offered, and coordinators were provided with the appropriate list to call on volunteers as required. About 200 volunteers became involved.

Individuals and groups offering assistance (sorted via databank into areas of interest)

In Kalorama the community approached the recovery process in a more informal way. Two key community members and neighbours organised help as needed without being 'registered volunteers' as part of a formalised structure.

This informal response could be due to a number of factors. With fewer community groups such as the CFA and tennis club, existing networks were not as developed and largely focused on the primary school and pre-school. The impact of the bushfires was less in terms of houses destroyed, and those who lost their homes did not have young children and thus school links or links to community groups. Kalorama residents appear to be more independent and have fewer socialising opportunities to consolidate the community. Each community being individual has its own way of approaching their response to an event and its recovery, the informal response suited the Kalorama community and the needs of those directly affected were met.

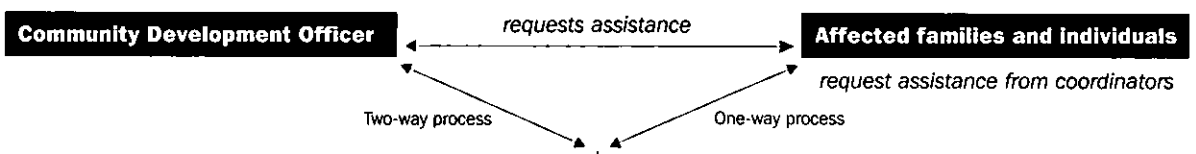
As Community Development Officer, my role included informing the affected residents of the types of assistance available to them and how to access this assistance. Many residents had difficulty in coming to terms with being in the position of needing to accept donated goods and volunteer help. During the first month following the fires I visited all those who had lost homes and spent time on the affected streets making contact with those who had partially-damaged houses and burnt gardens. Particularly for those who did not previously know the coordinators or myself, this personal approach contributed to allaying shyness or embarrassment. Once help from volunteers was accepted, an easy comfortable relationship developed that kept the volunteers very busy and at times unable to keep up with requests.

The clean up of building debris was offered to residents free of charge by the Shire of Yarra Ranges and for safety reasons did not involve volunteers. However the Shire's service of supplying arborists to assess burnt trees and crews felling or trimming dangerous trees was complimented by a mammoth effort by volunteers helping to split and clear away the felled timber blocks.

Due to the amount of work required to tackle the wood and burnt vegetation of the typically large gardens, many of some hectares, a Community Gardening Sub-committee was formed that included the gardening coordinators and community members from all of the affected areas.

This committee planned and coordinated the garden cleanup across the whole ridge, shared resources and ideas, and motivated groups such as the Masonic Taskforce, Greencorp, Rovers, Guides and Apex to become involved. A fair estimation would be over one hundred garden working bees held with up to twenty volunteers attending each one. This gives an indication of the commitment of the community to organise and help itself in the recovery process.

A wonderful initiative that came from the Community Gardening Committee was the organisation of a 'Plant Day'. Wholesale nurseries throughout Victoria were approached for plant donations, all the affected streets were



Health	Food	Gardens	Interim accommodation	Clerical and administration	Photography	New home establishment	Material Aid
			2 x coordinators in each area				
• Massage • Respite childcare • Luxury treats • Time out for adults • Counselling • Community social activities	• Provision of meals, cakes etc. for affected families • Catering for volunteers – working bees and activities	• Professional advice • Propagating • Growing • Cleaning up • Clearing • Planting • Plant donations • Wood removal	• Arranging temporary accommodation • Cleaning of temporary accomodation • Going/go out • Professional services – appliances, electrical, plumbing • Cleaning damaged houses • Transport, furniture etc.	• Records of volunteer activity • Information dissemination to volunteers • Maintaining database of volunteers • Newsletter production	• Replacing school and kinder photos • Replacing family photos • Documenting the fire and recovery	• Architectural advice • Building and handyperson services • Professional services – appliances, electrical, plumbing	• Helping to organise donations – white goods, clothes • Sorting donated goods

Table 1: Volunteer framework

doorknocked to determine damaged gardens and vouchers to attend the Plant Day were distributed.

On a Friday in early May nursery trucks rolled into the Ferny Creek Recreation Reserve. The plants were sorted into species and size, and counted to determine how many plants each property could take. The grand total was 10,000 plants (ranging from small cottage plants to established trees seven metres high) and 20,000 bulbs!

On Saturday the reserve was a mass of plants and smiling faces. The morale boost the Plant Day gave to the 130 property owners who collected plants was obvious and overwhelming. Community volunteers were on hand providing advice on plant selection, carting plants in utes and trailers for those without suitable vehicles to transport them home, and feeding all the workers.

Another community initiative was organised by the Dandenong Ranges Music Council, who commissioned two composers to work with the children of Ferny Creek Primary School. Through workshops, the children explored their emotions and experiences both verbally and through the creation of sounds. The song 'Island in the Sky' was thus created. The value of this project and its process in the healing of the community cannot be under-estimated, both for the children involved and the wider Dandenong Ranges community who witnessed the moving and powerful performance of Island in the Sky.

Community recovery projects

In April the Department of Human Services and the Shire of Yarra Ranges committed funding to the development of Community Recovery Projects.

Recovery projects should aim to provide the community with opportunities to come to terms with the experience, to express emotions related to their personal and collective experience and to assist the community in linking the past event to a changed environment and a new future.

An essential part of any healing process in that they provide an important alternative and addition to the traditional counselling and personal support services available to those affected by a traumatic event.

Implicit in the development of the Dandenong Ranges Community Recovery Projects was the recognition and acknowledgment the wider community had been affected, and had needs to be met in the recovery process.

The Community recovery projects thus aimed to engage imaginatively with the whole community and not only those directly affected who had lost homes, gardens and loved ones.

Process of developing recovery projects

The involvement of the community in developing recovery projects was essential, and was based on the premise that the Recovery Committee, local government and the CDO should play a facilitative and guiding role but the drive and control of the recovery projects should rest within the community.

The first step of this process was to establish a community working party including community members and representation from the Shire of Yarra Ranges Leisure, Aged, Community, and Youth Services. *Figure 2* illustrates the process undertaken by this working party.

The criteria the community working party felt needed to be met by proposed recovery projects individually or collectively was to:

- bring together and encompass all the communities affected by the bushfires
- provide opportunities for all ages to participate
- engage imaginatively with the community
- provide a vehicle and a therapeutic outlet for the expression of emotions
- allow for a full range of expression, both abstract and recognisable
- encompass a variety of expressive mediums
- integrate social opportunities and community events
- provide opportunities for those not actively 'creating' to participate in events
- incorporate a commemorative project to the event, loss and recovery
- reinforce and express the strengths of the community
- focus on elements of community recovery, natural regeneration and rebuilding of the human environment
- contribute to a sense of a positive future for individuals and the community.

The recovery projects

Five Dandenong Ranges community recovery projects were designed. These projects were a bid to draw out the strengths, experiences, humour and hope of a community rebuilding its environments following the crisis.

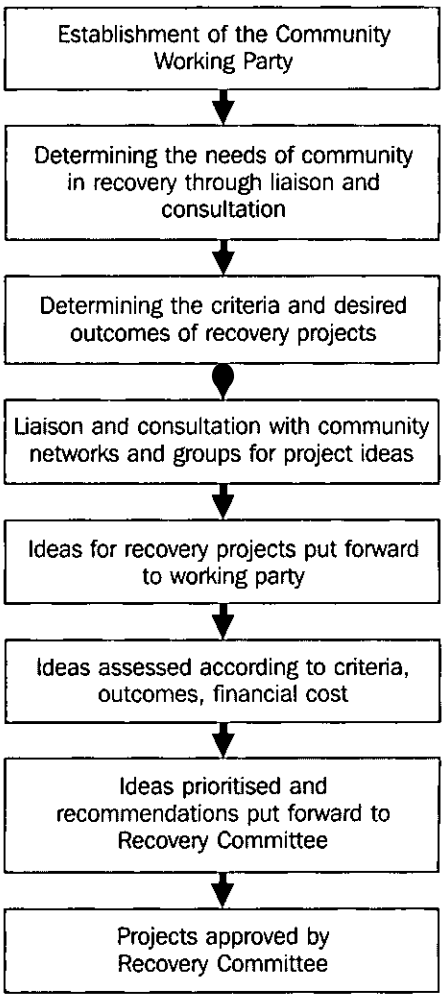


Figure 2: Recovery project development process

The bushfire event itself, although a part of these projects, was not the main theme. Rather the projects focused on the positive process of recovery the forest and community was experiencing—the regeneration of the natural and human environment, the community strength and spirit of care, love, and hope that was illuminated in the actions of neighbourhoods following the fires.

Phoenix art project

This was named after the mythical Phoenix, who every 500 years builds a pyre of the sweetest spices on which it sits and sings a song of rare beauty to the sun to restore its youth and vigour. The sun shakes his locks and from his golden head, shoots one bright beam, which smites with vital fire, ignites the nest and the Phoenix is consumed to ashes, a new Phoenix rises rejuvenated and pulsating with new life. Gathering the ashes of its parent, it flies to the Temple of the Sun where it buries the ashes with great ceremony.

The Phoenix Art Project invited the Dandenong Ranges Community to create artworks with the theme of recovery, regeneration, rebuilding and community spirit. All mediums were invited, including collage, photography,

sculpture, painting and textiles and 160 artworks were exhibited locally for three days. From this exhibition, judges selected 21 entries to illustrate a calendar for 1998. In addition one entry was selected for the cover of the 'Rising from the Ashes' CD and one for the cover of 'Out of the Fire' stories and poems.

Rising from the Ashes music project
Entries of original compositions and were invited for inclusion in a recovery CD. A panel of community judges were given the difficult task of selecting twenty compositions to be recorded for the CD. A wonderful medley of all musical styles the CD was launched at the beginning of December. This music will also form the score for the Video Documentary.

Out of the Ashes writing project
Stories and poems of personal experiences of living through fires were invited. Older residents who had lived through cycles of fires and recovery were encouraged. Thirty-four entries were selected by a panel of judges for publication in book form. Quotes from some of these entries were included as text in the Phoenix art calendar.

Commemorative Pathways project
A series of four community commemorative paths were designed for sites at FernTree Gully, Ferny Creek, Sassafras and Kalorama.

Pavers were bought in an unfired state and community workshops were held to decorate individual pavers by carving, engraving and painting either an image or message. Ceramic artists designed and painted a series of large picture medallions along the paths.

Video documentary
The production of a documentary to show the journey of a community recovering, community generated initiatives and the extent of collaboration between the community, organisations and government has been commissioned. It will be a social document in hope, love and strength of a collaborative imagination, of a community healing itself, of how disaster can often lead to unexpected joys and the discovery of hidden strengths.

It would probably be an understatement to say that these five recovery projects were ambitious. With a budget of $25,000 and one CDO as coordinator, these projects would not have been possible without the tremendous support the community gave in an organisational sense and by donating their time and skills. Each project had a core of community members, and many other people helped as the need arose.

Graphic artists designed flyers, volunteers distributed them around local shops, a local restaurant donated their venue for the art show, judges for the projects gave their time, a recording studio was donated, as was the time and skills of sound engineers and a producer, ceramic artists designed the pathways and assisted with facilitating workshops and sorting out the fired tiles, local estate agents erected signs for events, a cinemaphotographer, and script writer are volunteers on the video project and the local cinema has been donated for its launch.

Community participation

Phoenix Art Show
- One thousand primary and secondary students participated from five local schools. Each school chose 15 entries to enter into the Phoenix Art Show.
- One hundred residents created art for the show.
- Six hundred residents attended the show over three days.

Rising from the Ashes
- Thirty-five entries of original songs and compositions were received.
- Entries chosen for the CD have involved 120 musicians and singers, including children from two local primary schools singing.
- Three hundred residents attended the CD launch.

Out of the Ashes
- Ninety entries received from residents.
- Students from two local secondary schools participated and 15 entries from each school were chosen by teachers.

Commemorative Pathways
- Six hundred residents attended the workshops to decorate a tile.
- Five hundred students from four local schools decorated tiles as part of art classes.
- Three hundred and fifty people have attended the pathway openings.

The projects were designed to include community events that gave everyone an opportunity to come together. For those not actively creating, these events and the end products—book, artshow, calendar and CD—provided an opportunity to partake in the projects as viewers, listeners and readers as part of their personal recovery.

The community recovery projects did stimulate an outpouring of emotion, with many in the community being surprised by their emotional reaction at the community events associated with these projects. Through feedback from those who have purchased the recovery items, the value and personal importance of the communal sharing of feelings and experiences was evident.

The community supporting each other

The community also recognised the need to support each other in an emotional sense, by holding social activities to simply get together, have a good time and reaffirm the support and friendship of the community.

Only one week after the fires, large gatherings were seen at Ferny Creek Reserve and Kalorama Oval. Thousands of the community came together, listened to music, talked (and talked and talked!) and expressed their thanks to the CFA, DCNR, SES and all those involved in fighting the fires and, in their own words, 'saving our mountain'.

In the middle of winter an event was organised that had many of us wondering if the community had 'lost its marbles—a 'Beach Party'. Industrial heaters were brought into the Ferny Creek Hall, the floor covered with sand, appropriate decorations of beach balls and colourful bathing boxes added. The result was a night of great fun and dancing, the community attending in shorts, bathers and sarongs.

It has been a real pleasure to work as a Community Development Officer. The Dandenong Ranges communities have shown that a traumatic event can strengthen a community, that recovery and a future is possible, and that such an event need no0t result in a 'disaster'.

The author

Helen has been a long time resident of Sassafras. She trained as a teacher and worked in the Adult Migrant Education section. She has extensive links and networks with both the older community and newcomers to the area. This has been developed through involvement in a wide range of school, sporting groups and community projects in the local area. At the time of the January bushfire she was at home with young children. However, in her role of Community Development Officer she was able to draw upon her personal organisational skills, local knowledge and networks in responding to the needs of the local residents.

United Nations 1998 World Disaster Reduction Campaign

Prevention begins with information

Natural Disaster Prevention and the Media

The United Nations World Disaster Reduction Campaigns, organised by the IDNDR Secretariat, are designed to make people aware, world-wide and across all professional and social sectors, of what they can do to protect their countries and communities from natural hazards.

The campaigns are based on a different theme each year, and various activities are organised as part of them. Campaign events are designed to build local capacity and system-wide commitment (locally, nationally, regionally and internationally) to reducing the impact of natural disasters.

Each campaign culminates on United Nations World Disaster Reduction Day, which is celebrated on the second Wednesday of October.

This year, the United Nations World Disaster Reduction Day will be celebrated world-wide on 14 October 1998. The theme is 'Natural Disaster Prevention and the Media' and its slogan is 'Prevention begins with Information'.

Why focus on information and the media?

The aim of the 1998 United Nations World Disaster Reduction Campaign is to enlist the media as working partners in promoting natural disaster prevention measures.

The well functioning of modern society is based on the good and fast circulation of information. This is even more relevant in the case of a society vulnerable to natural hazards. Their accurate information and its regular delivery is of importance in all sectors of decision-making as people's lives and assets are at stake.

The ability to reduce social and economic risks from natural hazards requires the adoption of a global culture of prevention based on information and its widespread communication.

Information (collection, production and dissemination) and communication media are therefore a crucial link in the chain of sound natural disaster prevention measures and awareness building. Only then can a society vulnerable to natural hazards implement healthy sustainable development measures which will allow for economic growth and national development.

Over recent years, countries and communities over the world have repeatedly been reminded of the devastating force of natural disasters. All sectors of society have noted with concern the growing vulnerability of humankind and their poverty to natural and environmental hazards. At least three million people have lost their lives in disasters during the last 30 years and hundreds of million people have been affected. The recorded economic losses amount to more than US$240 billion in 1995–1996 alone. In some disaster-prone countries, natural disasters can reduce the GDP by up to ten per cent. More importantly, disasters result in societal disturbances that are becoming more and more unbearable to affected populations. Disasters do not destroy homes and physical property only: they affect livelihood.

How will the 1998 United Nations World Disaster Reduction Campaign be celebrated?

Activities organised by the IDNDR Secretariat

Virtual conference on the Internet

The IDNDR Secretariat will hold its third Internet Conference on the theme of 'Natural Disaster Prevention and the Media'. Information on how to join and details of the agenda will follow shortly.

Photo contest

The IDNDR Secretariat is organising a worldwide photo contest. Send your best photos of natural disasters, natural disaster prevention measures and illustrations of media and communications' related issues to the Secretariat by 15 September 1998. The IDNDR Secretariat will use the material for an exhibit in Geneva, and the winners will have their works published by Stop Disasters magazine. The top three entries will receive prizes from the IDNDR Secretariat.

International activities on 14 October 1998

On World Disaster Reduction Day, important celebrations will take place in the United Nations. The Sasakawa Disaster Prevention Award (created to promote humanitarian efforts to assist those affected by natural disasters) will be handed to the 1998 winner. There will also be an international press conference. A list of relevant activities which are part of the final phase of IDNDR (1998–1999) for background information and discussion will be mailed to you separately.

All countries are encouraged to undertake similar activities at the national and local level.

Activities organised by other UN agencies and partners

The UN World Disaster Reduction Campaigns are led by the IDNDR Secretariat. Many United Nations agencies host and programme activities to celebrate the Day. In 1998, preliminary discussions for closer collaboration on the campaign have been held with WMO and UNESCO.

Further participating partners include UN Resident Coordinators, IDNDR National Committees, international and regional organisations, scientific associations, universities, companies, and NGOs which have sustained contact with the IDNDR Secretariat. These partners adapt the global campaign locally, nationally or regionally according to the major natural threats, the existing socio-economic vulnerabilities and resources.

Local activities guidelines

Build partnerships with national and local media

Contact your local and national printed, audio and audio-visual media. Send them information (use the support material listed below) on natural disaster prevention. In conjunction with the media bodies in question, work out the main areas at stake in the role of the media versus the issue of natural disaster prevention in your country, what the problems have been in the past and what solutions might be appropriate for the future. Compile this information and send it to the IDNDR Secretariat by 15 September 1998. Your research will be

... *continued page 34*

Recovery: a Local Government response

by Lyn Hayes, Manager Human Services, Shire of Yarra Ranges

Presented at the Emergency Recovery Forum, Darebin, Melbourne November 27, 1997

The Shire of Yarra Ranges was proclaimed in December 1994 from the amalgamation of the previous shires of Healesville, Lillydale, Sherbrooke and Upper Yarra. It covers some 2700 sq. km and has a population of 137 000. The shire encompasses both urban and rural communities and includes the Yarra Valley and Dandenong Ranges. At the time of the fire the Shire was managed by four Commissioners, with elections for Council due in March 1997.

At the time of the fire my role was that of Manager Human Services which also encompassed that of Recovery Manager.

January 21st 1997 was hot with a gusty north wind. In the Shire of Yarra Ranges offices at Lilydale, we gazed out of the windows, constantly surveying the Dandenong Ranges. The first puff of smoke was visible at around 11.00 a.m. and came from the Montrose area. A second column of smoke appeared relatively quickly and appeared to be in the foothill near Kilsyth and The Basin.

My concerns were twofold. As Recovery Manager it meant putting planning into practice and hoping that the preparations had been sufficient. There was also anxiety on a personal level. My home is in Ferny Creek. At home that day were my two daughters and my 8-week-old grandson.

By 11.30 a.m. phones at the Shire were running hot. Staff who may have been in the fire areas were alerted and emergency plans were put into action. Family Day carers and the child care centre started to call parents to collect children, maternal and child health nurses checked on the well-being of their clients, home carers and meals on wheels volunteers were traced through rosters, as were a myriad of other Shire staff who may have been working in the mountains. Customer services staff were also alerted as calls came in seeking information about road closures, welfare of residents, location of the fires and a range of other services.

The Shire's Emergency Management Plan was activated. The plan had been in place for some 18 months following amalgamation of the previous shires and had been tested through minor flooding at Healesville and through desktop exercises.

As Recovery Manager I went to the Emergency Co-ordination Centre at Upwey Secondary College. The Deputy Recovery Manager and other staff went to Montrose to set up the first evacuation centre. By this time there were four fires in the Dandenongs, with the most serious being in Ferny Creek and the Ferntree Gully National Park. Traffic on the road to the Co-ordination Centre was chaotic. The air was thick with smoke and the site and sound of the fires was truly terrifying.

My daughters attempted to evacuate around noon, managing to get to Sassafras township, but were unsure of the safety of the roads off the mountain, as by this stage major roads were closed and minor roads were through forests. They decided to go back home and await further information from me, and eventually evacuated around 7.00p.m as the fire neared our home.

As the afternoon progressed and the fire situation worsened, the Shire established six evacuation centres. This required a significant deployment of staff and many experienced difficulties in getting to the centres. Again, as major roads were closed, staff and the street directory were tested to find access roads that were open. Local knowledge was a valuable commodity. As our resources became stretched our colleagues in the City of Knox opened an evacuation centre at Ferntree Gully. The management of the evacuation centres went reasonably smoothly. Our contact list was up-to-date, but with school holidays and changes in management committee structures, a number of the people we needed to contact were not available.

I established a co-ordination committee at the Shire offices in Lilydale and this became a critical link in the establishment and maintaining of the evacuation centres. There was urgent need for water, food, medical support, staff, information, transport, animal care, hygiene requirements and more at the evacuation centre, and this committee was pivotal in actioning these requests and alerting me to issues arising. Rosters of staff were prepared for the evacuation centres.

We estimated that we had about 2500 residents in the evacuation centres, with many more sheltering in refuges in the hills or self-evacuating to safer places.

As the night progressed the extent of the damage became evident. At final count 42 homes were razed, 17 homes were partially damaged, many gardens and outbuildings were destroyed, significant parts of the forest were burnt and then there was the finding of three bodies in Ferny Creek. The community at Ferny Creek also experienced the greatest property loss and damage and the greatest dislocation of residents.

One of those killed in the fire, along with her husband and neighbour, was a family day carer for the Shire. This had an enormous impact on staff, and meant that the recovery process needed to focus internally within the organisation as well as externally to the community. It also meant that some staff availability and capacity to participate in the recovery process was affected.

Around 11.00 p.m, as the danger started to recede, planning commenced for the recovery process.

Principles of recovery

The principles of recovery we applied were:

- *Immediate response* — it was recognised that residents would require support and assistance straight away. To facilitate this, two recovery centres, one at Upwey and the other at Montrose, were open for business by 10.00 a.m. on January 22.
- *Qualitative response* — in all the tasks and actions we undertook we wanted to demonstrate care, recognition of the needs and emotions of affected

residents, and respect for their dignity and privacy. We focused on how things were to be done as well as what was to be done.

- *Coordinated response* — we wanted all actions undertaken by the Shire and by other agencies to be organised, co-ordinated and integrated under the auspice of the Shire's Recovery Committee
- *Ownership by the community* — we strongly believed that the community should own the recovery process and should be involved in all decisions affecting their community. Initially the Shire took the lead but, as the communities galvanised into action, they took over responsibility for their recovery.
- *Participation* — we knew the recovery process would be a long and arduous one that would require the participation of a number of key agencies. Strong partnership arrangements emerged between the affected communities, the key agencies (Department of Human Services, Salvation Army and the Shire) and the broader community.
- *Transparent processes* — the Shire was determined that all its actions would be open to scrutiny and would be accountable and transparent.
- *Managed information* — information needed to be timely, accurate and available through a variety of mediums. The Shire activated a media liaison person who was responsible for coordinating responses to the media and to control the information flow. In terms of contacting residents, the role of community networks, local post offices and general stores was extremely successful.
- *Timely outreach* — we anticipated that not all affected residents would access the recovery centres so a planned, timely outreach strategy was formed to reflect community requirements

Recovery centres

The recovery centres were designed as 'one-stop shops' that would offer a range of financial, insurance and legal advice, personal support and material aid. They were staffed by the Department of Human Services, Salvation Army, Department of Social Security, Insurance Council, Law Institute and the Council of Churches. Shire personnel, including youth services, rangers, health officers and building inspectors, were based at the centres and provided services relating to financial aid and grants, housing and accommodation, personal support, debriefing and counselling, assessment of property damage, disposal of food, safety of water supplies, animal care etc. The centres were open from 6.00 a.m. to around 10.00 p.m. seven days a week.

The Montrose centre was open for a week and Upwey for nearly three weeks. This directly reflected the level of damage within both communities.

The Upwey centre immediately became the focal point for many affected residents and offered them a chance to meet and exchange experiences as well as to seek and offer support to each other. The Salvation Army kept up the tea, coffee and food supplies that offered a welcome respite to many.

There were two major difficulties with the recovery centres. One related to the intrusion of the press into the centres, which was seen as impacting on the right to privacy and dignity of the affected residents. The other involved material aid coming to the centre. The generosity of businesses, the community and individuals cannot be understated or underestimated. Unfortunately we did not have the space to accommodate all of the goods donated and storage became a major issue. There were mixed feelings amongst residents about having material aid so visible and ideally it should have been separate but adjacent to the recovery centre.

Shire Recovery Committee

This was set up the day after the fires and had membership from the combating agencies and agencies represented in the recovery centres. As the recovery process progressed, membership changed to include community representatives, school personnel, counselling agencies and psychiatric services. Rob Gordon acted as a consultant to the committee and his advice was invaluable. The committee membership was fluid and changed as the recovery progressed.

The role of the Recovery Committee was to control, implement and monitor the recovery process. It was a forum to discuss issues and appropriate responses, to gather and share information with the community representatives and between agencies, to highlight possible areas of conflict or dispute and to devise ways of preventing or defusing them, to share experiences and to give support and acknowledgment and to ensure that the principles of recovery were being followed.

The Recovery Committee had three sub committees — *Material Aid*, *Counselling and Support* and *Shire Services*. The Material Aid committee was chaired by a Shire Commissioner and had the task of developing principles and a formula for the timely distribution of appeals money (from three different appeal sources) and material aid. We wanted the appeal money to be distributed as quickly as possible and to go to those most in need. A matrix was developed to define loss and need that was reflected in a point score. It is interesting to note that a number of affected residents declined financial support on the basis that others were more needy. Of significance were those residents that were uninsured or underinsured for house and property damage.

The Counselling and Personal Support Sub-committee was shared by a staff member from the Department of Human Services and had the task of co-ordinating all agencies that may have been involved in supporting affected residents. It provided a single point of contact (i.e. a 1800 number) from where residents could be 'triaged' to the most appropriate agency. This eliminated duplication of resources and allowed for the best response to residents. This group also co-ordinated the debriefing for professionals involved in the recovery and provided information on how the community was responding and where the flashpoints might be.

The internal Shire Committee was formed to co-ordinate all of the Shire's activity. Shire personnel were at that time located in six offices and three customer service centres, so effective communication and information exchange was paramount. This coordination meant that information about properties and requirements of residents could be shared and eliminated the number of contacts that residents needed to make to the Shire.

The Recovery Committee at first met daily and also at different periods during the recovery process.

Community Recovery Committees

Ferny Creek residents formed and activated a recovery committee immediately. The Shire, through its Community Development Officer, activated recovery committees for Upwey and Kalorama–Montrose.

The role of these committees involved volunteer co-ordination, accommodation of affected residents (many of whom wanted to stay local so that

children could attend schools etc.), food and meal preparation, practical assistance and social activities. Tasks such as cleaning and furnishing houses, clearing blocks, removal of rubbish, restoring gardens, setting up food banks as well as providing personal support were undertaken with great success. Social activities brought together residents in a united and positive way.

The Shire's Community Development Officer, funded by a DHS grant, supported these committees and acted as an advocate and facilitator in meeting the needs of affected residents.

The Ferny Creek Committee was and continues to be particularly active.

Community participation

In identifying affected communities it was necessary to think very broadly. Those affected by the bushfires were not just those people with homes destroyed or damaged, but also included evacuees, previous victims of bushfires, those who thought it could have been them, relatives and friends of all the above, participants in the response and recovery stages and so on. The affect, and therefore the response, differed in relation to all these groups but it was important to include them all. Outreach and newsletters went to all residents, activities were widely promoted and participation was actively encouraged.

Key community groups, networks and agencies such as schools and preschools, services clubs, sporting groups and youth groups all supported families and individuals, whilst horticultural groups offered practical advice about plant and tree damage. The local historical society undertook the recording of the stages of the bushfire and the recovery.

As the fire occurred just before the commencement of a new school year, schools played an integral part of the recovery process. Uniforms and books were replaced, special programs were implemented for those youngsters about to start primary or secondary school for the first time so that school could become an island of normality for the children affected by the fire.

The range of community activities included the Ferny Creek picnic day, the great billy cart race at Ferny Creek Primary School, art show, calendar, CD, and workshops culminating in memorial pathways at a number of sites.

Outreach

This process began with press advertisements about the recovery centres and progressed to leaflet drops, information in the local newspapers and the commencement of a Shire community newsletter. There were a number of editions of this newsletter that went out on a fortnightly basis and contained factually correct and current information about the recovery process.

An information kit was prepared containing contact numbers for a range of services, information about the fires, the recovery process and how to access support and advice. This was distributed to around 2000 households through a major doorknock campaign, organised through the Council of Churches, Department of Human Services and the Shire. Volunteers were marshalled and briefed as to their roles, areas were gridded to ensure no households were overlooked. A green dot on the letterbox signified that the house had been visited. Volunteers were debriefed on their return and reports were compiled indicating whether further visits were required, any issues the householders may have raised and general opinions on the well being of the community.

There was complete shire involvement and commitment to the recovery process. Activities undertaken included rubbish removal (fire generates a lot of rubbish), health issues, planning, building inspections, road maintenance and reconstruction, customer services, youth services, tree assessment, block clearing, public relations, stock and animal control and the role of community services and other direct service staff who listened to the stories of their clients.

Community education

This was a major focus of the recovery process and still continues. It included:

- Fire prevention strategies — how to prepare properties and houses, when to evacuate, developing individual emergency plans. The role of the CFA and Shire in organising neighbourhood meetings and other preparation and prevention strategies has resulted in a growth in knowledge and confidence of residents.
- Concerns in the community about the difference between a refuge and an evacuation centre. Many residents self-evacuated to refuges throughout the hills, some being there for considerable periods of time without water and food. This issue was addressed through a range of forums (meetings, media, leaflets etc.).
- Preparing individual evacuation plans to support the elderly, infirm, disabled and other vulnerable groups on days of high fire danger. Unfortunately some people believed that the Shire or some other agency would come to collect them as the danger approached. Again much work has been done to address this concern.
- The role of Local Government in emergency management (prevention, response and recovery).
- The role of respective agencies in responding to emergency situations.
- Dealing with trauma (included information nights at schools and pre-schools for parents and families with affected children).
- To rebuild or to not rebuild. A number of the houses destroyed were adjacent to the forest and will always be at risk. Much discussion occurred about the advisability of rebuilding and the types of houses and gardens to better suit the environment. Rob Gordon prepared an article about this, which featured in the community newsletter. At this stage—some twelve months after the fire—there are a number of families that have not and will not rebuild. Others have rebuilt houses markedly different from the original.
- Re-establishment of gardens. Gardens and horticulture are very dear to residents and much work and effort was placed by volunteers in clearing damaged gardens and restoring and replanting them, culminating in a huge 'plant-fest' where affected residents where able to access trees, shrubs and bulbs that had been donated. This included trees, that required a crane to move them.
- Need for time-out and the importance of leisure and recreation activities. There were a number of social and fun activities organised throughout the recovery process. Many affected residents made use of

accommodation options donated to the appeal to gain some much needed time out.

- The importance of a return to normal business for agencies, the communities and individuals.

Shire involvement: a total response

There was complete Shire involvement and commitment to the recovery process. Activities undertaken included rubbish removal (fire generates a lot of rubbish), health issues, planning, building inspections, road maintenance and reconstruction, customer services, youth services, tree assessment, block clearing, public relations, stock and animal control and the role of community services and other direct service staff who listened to the stories of their clients.

The Shire undertook to expedite the rebuilding process and organised the clearing of blocks and the fast tracking of building permits. There were co-ordinated visits of health officers, building inspectors and insurance agents to minimise the intrusion for residents and to streamline the responses.

An unexpected outcome was the volume and nature of calls experienced by the customer services and administration staff. Some of these may have started as a simple inquiry about dog registration and then progressed to how the caller had lost their pet in the fire and the subsequent trauma they had experienced. Many staff found it difficult to reconcile the mundane and routine requirements of their jobs with these sorts of calls. They impacted on staff and their ability to cope and should be a major consideration in preparing for future emergency situations.

Surviving

There were a number of keys to surviving the aftermath of the fire. The major one was to manage the process. This involved identifying possible points of contention before they happened or early on, so those cleavages could be avoided or diffused. Some potential cleavages were around unity and equity between recovery committees, community membership of the material aid committee and in delineating the role of agencies.

The importance of information management and exchange cannot be underestimated.

The use of transparent processes, accountability to the community and the commitment to community participation in every aspect of the recovery process resulted in better outcomes for residents and reinforced the Shire's credibility.

It was also important to support Shire staff. Many were involved in the Compulsory Competitive Tendering process, staffing levels were down due to holidays, and their was a need to juggle the normal commitment to keeping Shire services operational and to being part of the recovery process. All staff were offered group and individual debriefing, counselling and support through the DHS and the Shire's Employee Assistance Program.

Issues

There were a number of conflicting interests and issues to resolve. The Dandenong Ranges is a major tourist destination and many businesses and residents rely on the tourist trade. Residents affected by the fires were angry with sightseers, erecting signs saying tourists go home. As a result the tourist numbers were down. Shire Commissioners addressed the reduction in tourist numbers through the media and encouraged visitors to come to the hills. Those areas affected by the fires had road closure signs and barricades put in place and a satisfactory compromise was reached.

A number of Shire staff were significantly affected by their involvement in the fires. These changes caused some tension between them and those staff who hadn't had the same experiences.

Another source of conflict was the need or desire to remove trees and clear properties while acknowledging that conservation of the environment was a factor in why many residents choose to live in the hills. A solution was found by using arborists to assess any vegetation residents desired to remove for potential safety or fire risk.

There was a need for scapegoats. People were angry that the fires occurred and need to find someone to blame. The Shire received negative publicity for being behind in its grass-slashing program, which took focus off the main game. The fact that the fires were deliberately lit increased the anger.

Managing the volume of material aid donated and ensuring that goods were fairly and equitably donated caused headaches. The Salvation Army was superb in the way they responded and many volunteers and members of service groups rallied round to sort and store the goods.

Relationships with the media developed into a positive experience, and in future planning there is a need to have closer liaison with the media earlier so that all needs are met i.e. the media for stories, agencies for accurate information dissemination, residents to receive appropriate coverage and assistance.

What I learnt

There was a depth of feelings generated in others and myself. Emotions were heightened and needed to be recognised and validated. I don't think it is an overstatement to say some of us had our lives changed through our involvement in the recovery process.

There was an overwhelming generosity. People donated wedding rings to replace those lost, children with new Christmas toys gave them to children who had lost theirs. Expressions of love, sympathy, understanding and support, and memories of these people and their contributions will stay with me forever.

There was power and strength in the community, individuals and agency networks.

The first signs of regeneration in the forest were a cause of great jubilation. It emphasised the cycle of life, growth and rebirth. Although the forest, individuals and the community will grow and continue, they have changed forever. Our challenge is to grow through it.

At the time of the fire Lyn was Manager Human Services at the Shire of Yarra Ranges, with responsibility for Recovery Management.

Lyn has lived at Ferny Creek for 14 years and as a result has personal and professional experience of the bushfires in the area.

Lyn has a background in teaching and social work, as a primary teacher and as a social worker in the School Support Service. Following this she moved to Local Government, where she was Manager Community Services for the Shire of Healesville before her position at the Shire of Yarra Ranges following amalgamation.

She has a strong commitment to community development and empowerment, and believes that any involvement with the community or individuals must be holistic, systemic, co-ordinated and integrated.

It is important to note that her involvement in the recovery process as Recovery Manager ceased on March 23 1997 when she left the Shire to take up a position with the Department of Human Services in Traralgon.

The Victorian Council of Churches: its role in community support and development

The Reverent Sydney Smale, Central Coordinator Disaster Recovery, Victorian Council of Churches.

Presented at the Emergency Recovery Forum, Darebin, November 27 1997.

While the church has always played a part in the recovery of any community of which it is a part, its role as an organised response agency goes back to 1977. This occurred when the hailstones destroyed property, crops and the hopes and spirits of four hundred 'blockies' at Red Cliffs and Irymple, whose crops were ruined in a matter of minutes.

The widespread damage to property, homes and businesses dashed the hopes that the soon-to-be-harvested crops would make up for the disappointments of previous years. In response, the local Uniting Church clergy formed teams in and around Red Cliffs and Irymple to visit every home, business, farm and block in the affected area. Their task was to provide support, encouragement and where necessary (and at the level of their professional competency) counselling to those with presenting concerns. In the process they were also able to assess the needs of those visited and to pass on that information to other agencies, both government and non- government working in the area. Where appropriate, individuals and families were immediately followed up and the whole process repeated a month later.

The effect and impact was summed up at one of the final community meetings when a representative of the Department of Agriculture said, 'we have been helping people to mend broken vines. You, the church, have been mending broken spirits'.

One of the Uniting Church ministers, the Reverend John Hill, decided that the lessons learned should not be lost and he set about informing the church at the national level of the valuable role the church could play in disaster ministry. Funds were made available at the national level to enable John Hill to travel to every state to conduct seminars and workshops on disaster ministry and to establish task groups who could respond in the event of an emergency. The value of this work was underscored when bushfires hit on Ash Wednesday in 1983.

Teams of Uniting Church clergy and other volunteers in three affected states were able to respond immediately, and in Victoria the work was especially recognised by Premier John Cain in a speech to Parliament. John Hill, whose contribution was especially recognised, was awarded a Churchill Scholarship to the USA to further his knowledge of disaster ministry in community recovery. John Hill became recognised internationally as an authority in this field and was requested, for example, to assist in the aftermath of the earthquake in San Francisco in 1989.

This arrangement, whereby the Uniting Church was a response agency providing teams of visitors, continued until the response to the 1991 floods in Gippsland. With the passage of time, the movement of clergy and the resignation of John Hill, it was then discovered that that the structure was no longer able to effectively respond.

A major difficulty experienced by any voluntary organisation that exists to respond to events that one hopes will never happen, or that happen infrequently on a significant scale, is to maintain the enthusiasm and commitment of its members. One of the major weaknesses of the model at the time was its reliance on the central coordinator. The present structure is based on a model of decentralisation, which should add to its effectiveness.

After discussions between several churches and the Department of Human Services, it was agreed in 1993 that responsibility for the work of the church in disaster ministry would be undertaken by the Victorian Council of Churches. The Church could now respond ecumenically in a decentralised form, with more responsibilities given to regional coordinators and including other faiths.

Tom Keating (1996) in an article on the October floods in the north-east of Australia, correctly observed that:

'*... the outreach programs were extremely uneven. The framework for providing outreach and initial contact with people had been developed by the Reverent John Hill on behalf of the Council of Churches* [should read Uniting Church], *following the Ash Wednesday disaster. In the time since Ash Wednesday however, I think that there has been an increasing focus on formal debriefing services and a failure to attend to basic contact and community support which is required in the first instance.*'

This observation was an accurate assessment of the role of the Uniting Church at that time. However, the new decentralised model, based on the Victorian Council of Churches has gone a long way in addressing that deficiency.

Not so accurate was his observation in that same article that the decline of the church in numbers in rural areas raises the question as to whether the local church can function any longer as a potent community network. While the local church may be declining in numbers, along with the remainder of social organisations and groupings in many rural areas, the work and effectiveness of the church extends far beyond the local community. The Church in all its facets is rich in human resources, has an organisation that can and has been mobilised from areas beyond that of the impact area and exists in the presence of its people, many of whom occupy leadership roles in the life of a community. Performing leadership roles in the life of a community, large or small goes beyond that of Sunday gathered worship and is often unrecognised as being the work of the church, a point, which the Keating article failed to acknowledge.

So much for the history of the involvement of the church. What exactly is its current role?

According to the State Disaster Plan, the role of the Victorian Council of

Churches is *'to provide support, counselling, information to affected persons and communities'*.

During the past two years church members have:

- staffed emergency centres and 'one stop shops'
- provided support and counselling personnel at evacuation centres
- provided teams of trained outreach visitors for a needs analysis of people affected by the event
- left helpful information and corrected disinformation

The churches have also provided:

- qualified counsellors for the recovery process
- services of worship
- symbols of hope in times of grief and despair, such as the services after the Port Arthur massacre and on the first anniversary of that terrible event.

However, its major task has been to get information and to give information immediately after an event such as the bushfires in Victoria's Dandenong Ranges on February 11, 1997.

The fires destroyed 41 homes and damaged 45, of which 11 were subsequently pulled down. Three lives were lost. While that damage and destruction was confined to a relatively small geographical area, the emotional impact of the fires embraced a much wider area. Many people living in the destruction had vivid memories of the fires of AshWednesday and some parents of young children were interpreting their own experiences of Ash Wednesday when they were children 14 years previously.

The first meeting of the Recovery Committee decided that homes well beyond the impact area needed to be visited to assess needs and to leave helpful information. Within 48 hours of being notified, regional coordinators across Melbourne activated 135 people who, along with local government and Human Services staff, visited over 1700 homes over the next 3 days. From the information gathered, a number of people and families were identified as requiring follow up visits and counselling. The church was able to provide a number of clergy and lay people who were themselves practising psychiatrists or had been trained in clinical pastoral care.

Church services and longer-term pastoral care were also provided by churches situated in the Dandenongs. This work of caring support and counselling continues through the work of the various churches located in the Dandenongs and in any other part of Victoria and beyond where people hurt and the process of recovery continues.

Given that community recovery is a long-term process the church, as an important part of any community can and does play a very significant role. For it is a resource offered not for its own sake but for the sake of all the community.

Reference

Keating T 1996, 'The October Floods 1993: Lessons for the Management of Community Recovery', *The Australian Journal of Emergency Management*, Vol. 11, No. 2, pp. 36–40.

The Reverent Sydney Smale is a Minister of the Uniting Church and seconded to the Victorian Council of Churches to work as the State Central Coordinator, Disaster Ministry. He has wide experience, including 5 years as a parish minister at Warrandyte, a high-risk fire area in Victoria. He also lectured for 12 years in the faculty of Social Sciences at the Royal Melbourne Institute of Technology. His main task now is training the teams of outreach visitors and coordinating follow-up counselling by clergy in the event of disasters and critical incidents.

International Sociological Association Research Committee on Disasters

Samuel Henry Prince Award

The Research Committee on Disaster (ISA Research Committee 39) has established the Samuel Henry Prince Award to encourage and promote standards of excellence in disaster scholarship. This committee is tasked to honour new scholars who, through dissertation research endeavours, make a distinguished contribution to the field of disaster research.

Procedure

Awards will be made to individuals who, in the opinion of the committee, have made an outstanding contribution in their doctoral dissertation to the field of disaster research. Dissertations from any discipline are eligible for consideration. There will be no restrictions on the number of awards made within a particular period.

Awards may be made up to five years from the time of a successful defence. The definition of 'outstanding' will be the prerogative of the committee. The committee will explain the merits of successful dissertations in an official announcement at each ISA/RCD World Congress of Sociology. There will be no publicity of dissertations that are submitted, and no explanation of why submissions have not been successful.

Copies of the dissertation and a nominating letter from either someone who is familiar with the dissertation's contribution to disaster research, or a letter of endorsement from the supervisor of the dissertation, should be sent to each committee member. In both cases, the letter should indicate consent of the scholar in question and provide an address to which the committee can address further correspondence. The letter should also provide the title, date and discipline of the dissertation.

The committee chair will acknowledge receipt of the submission by return correspondence, and will outline the procedures the committee will follow. In the event that a submission has been supervised by a member of the committee, a replacement acting member will be engaged to consider the merits of the dissertation.

Committee members are:

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Samuel Henry Prince was a Canadian scholar whose 1920 doctoral dissertation, *Catastrophe and Social Change*, is recognised as the first scholarly study of disaster.

With no recognition of the event, how do you plan a community development program?

by Rosemary White, Community Development Officer, City of Greater Shepparton, Victoria.

Presented at the Emergency Recovery Forum, Darebin, November 27 1997.

Anthrax is a word loaded with negative images and perceptions. Although mostly known as a disease affecting animals, Saddam Hussein ensured that we understand only too well the possible threat it poses to human beings. For good reason it remains a notifiable disease, with the Department of Human Services ranking it with rabies, typhoid, cholera and polio and classifying it as a disease outside our 'normal' experience. I say this is not to focus on the unpalatable nature of anthrax nor to underestimate its seriousness, but to highlight the problems associated with dealing with an outbreak of a disease that conjures up such powerful, predominantly negative and frightening images.

As a news story, the anthrax outbreak revolved as much around issues of public health and safety as it did around total numbers of stock lost and the trade ramifications. Certainly the one confirmed case of human infection underlined the risks involved in the management of the disease, but also contributed to even higher levels of public apprehension and misinformation.

Dealing with the technical side of the anthrax outbreak was one thing ... dealing with the human issues was another. This then, is the primary focus of my article—the effects of anthrax from a community, or people, perspective.

The topic 'With no recognition of the event, how do you plan a community development program?' was a quote taken from a discussion I had with Phillip Buckle and Michael Dickinson, from the Department of Human Services Disaster Support and Recovery Unit, regarding the post-anthrax community development process.

The point I was making was that once the early sensationalism associated with the anthrax outbreak subsided, little interest or recognition remained regarding how or what that particular community had suffered due to anthrax. The community itself, by virtue of the fact that it was anthrax, was also keen to disassociate itself from the anthrax hysteria to further avert the spotlight.

That doesn't mean there were no ongoing problems, it just means that for a number of very valid reasons the community wanted anthrax to go away. In this instance at every stage there was a delicate balance or trade-off between the public and private consequences.

This had important consequences in my role as Community Development Officer, and may have similar consequences in other disasters where the event does not 'fit' a typical or anticipated disaster situation, i.e. how can you implement a community development program when there is no ongoing recognition of the event from within the affected community or beyond it?

I don't profess to know the answer to this question, and the comments here are based solely on my experiences during 1997. However what I witnessed does suggest that in this case the community reacted differently to what might normally be expected after a disaster event. To some extent after a bushfire or flood a loose bond exists between those affected by the disaster, generally the community rallies and there may be an underlying sense of common purpose in response to the disaster situation.

This was less evident with anthrax, where the insidious, unpredictable nature of the disease created a different set of responses, characterised largely by uncertainty, suspicion and fear.

Anthrax: an environmental problem

From the outset I think it is important to point out and clarify that anthrax is the result of the bacterium *Bacillus anthracis*, which can survive in the environment for decades through soil contamination. As such it is not a disease that can be managed or controlled until such time as there is an outbreak—farmers cannot take any preventative measures prior to this time.

It is important to make this distinction, and understand that there is no relationship between poor farm management and the onset of the anthrax.

Some background

Dr Terry Thomas, Principal Veterinary Officer with the Department of Natural Resources and Environment, has stated that the 1997 anthrax outbreak in the Goulburn Valley constituted 'the largest response to an emergency animal disease outbreak in Australia's history'. It was centred around the towns of Tatura and Stanhope, and formed a corridor running in a south-west to north-easterly direction, 10 km wide and 20 km long.

After official confirmation of the first outbreak on January 26th, a total of 210 cattle and 4 sheep deaths were recorded on 84 properties, with 79,000 cattle and 2,600 sheep vaccinated on 596 properties. The Agriculture and Resources Minister, Pat McNamara, declared the outbreak officially over on March 26th, subject to property owners adhering to conditions for quarantine release.

These conditions formed the basis of a legal agreement between the property owner and the Department, to provide quality assurance by ensuring that vaccination coverage of stock took place and also that the required withholding period after vaccination was adhered to.

Briefly the 596 properties fell into three categories:

- infected properties where stock was lost
- properties less than 1 km from an infected property
- properties at a distance greater than 1 km from an infected property.

Varying criteria applied in each category in relation to quarantine release, and also determined whether property owners were required to vaccinate for the minimum period of one year, or the maximum period of three years.

The magnitude and duration of this outbreak, together with the insidious nature of the disease, certainly contributed to an unprecedented disaster event. Although anthrax occurs worldwide, it is generally in more isolated situations than the large-scale outbreak experienced in the Goulburn Valley.

A further anomaly related to the fact that in Victoria cattle were predominantly affected, whereas in New South Wales most cases occurred in sheep.

The CDO position

The position of Community Development Officer was provided by the City of Greater Shepparton, funded by the Department of Human Services for a three-month period from April 1st to June 27th. It acknowledged the need to provide support to farmers and others in the community affected by anthrax.

In accordance with the principles of community development, particularly as they relate to support and recovery, the emphasis was on facilitating the recovery process through:

- the gathering and dissemination of information
- the provision of advice to affected individuals and families
- encouraging the participation of those affected in local support services, as well as ensuring the co-ordination of these services
- facilitating liaison between services, government and voluntary agencies
- identifying and involving any special needs groups
- ensuring advocacy, counselling or pastoral support was available and accessible for those in need.

While each of these objectives is highly desirable in any community development process, flexibility and responsiveness to the affected community remains paramount. Initially I was unsure whether, as a non-local female, I would be at a disadvantage, however the real issue, and probably the only prerequisite, was a genuine empathy for the people and community who had been affected.

Developing contacts

The establishment of a local reference group emerged as a priority for several reasons, in particular

- to offer local knowledge, expertise and information
- to provide vital links within the community
- to formulate an appropriate action plan given the time limitations of the appointment
- to establish credibility both personally and professionally.

The reference group consisted of seven people, drawn from around the local community, who together incorporated a range of agricultural and business interests, as well as being geographically representative. This last point is worth mentioning given the wide area under quarantine and also given that some issues were more localised and hence more 'topical' over the duration of the outbreak. Anthrax was the overwhelming consideration but specific issues were relevant at different times and venues throughout the area.

The confidential nature of the database of affected property owners meant that the reference group also served as an essential bridge to the affected community. It was impossible to access people affected by this outbreak through the normal channels of outreach programs or visitation, so introduction or personal meetings could only be arranged or co-ordinated through a third party. In this way members of the reference group were instrumental in my being able to access those in the community who had been directly affected by the anthrax outbreak.

Members of the Goulburn Valley Regional Recovery and Municipal Recovery Committees were also important contacts for the same reason, especially the Rural Financial Counsellor and the Uniting Church minister.

Initial discussions with the reference group and others revealed that the time for practical assistance measures normally within the role of a CDO had, by this point, almost passed. Most people had moved beyond that stage and in many instances were indicating that they were now more ready to talk about their experiences. Perhaps this would have been less likely in the early stages when emotions were still running high.

What followed was largely a consultative process that allowed people to give voice to their stories and experiences, so that key issues could be identified from a community point of view. To that end I saw my role, and to some extent my responsibility, as ensuring that those issues, from a 'people perspective', were recognised and fairly represented. Someone suggested that my role was 'to recognise and value the things that individuals and the community identify as concerns and bring them to the attention of the relevant bodies'.

Contact was made with as many key stakeholders as possible, from local and state government, welfare agencies and departments, to veterinarians, milk factory representatives, field officers, industry networks and associations. Others indirectly affected, or secondary sources including livestock carriers, stock and station agents, agricultural and machinery suppliers and local small business people, were also sought out.

All this input proved invaluable and enabled more than one hundred people to participate in this process, which I believe also provided a broad cultural and geographic cross-section of the Tatura–Stanhope communities.

Anthrax: what did it mean?

What did it actually mean to have anthrax reported on a property?

Anthrax is a bacteria and cattle are infected by eating soil containing the dormant bacterial spore. These spores first enter the soil when infected animals die and are left to decompose. The spores are very resistant to the environment and it may take decades before they infect another animal. It is not known why the spores suddenly become infective to stock. Climatic conditions probably play an important part and most outbreaks worldwide occur during hot, dry weather followed by rainfall.

The onset of the disease is sudden and dramatic. Once infected, stock deteriorate and die within a few hours. Antibiotics are effective only when administered in the early stages, but symptoms may not then be apparent. The incubation period is approximately ten days, and immunity after vaccination may take up to fourteen days.

In the days and weeks that followed the official confirmation of anthrax, a nerve-racking waiting game was played out, as further cases were reported. Like a bushfire, there was no obvious rhyme or reason to the pattern of infected properties, no way of knowing when or where it would strike next.

Even after vaccination there were long days of checking herds and counting stock every few hours to determine if any animals had gone down. This has been variously described as being similar to a 'game of Russian Roulette' or 'like having a gun held to your head'. The emotional toll cannot be underestimated. As each new case was reported people's confidence and optimism was hammered, to be replaced with a growing sense of frustration and vulnerability.

At the same time, other practical and financial considerations came into play with the quarantine requirements. A

total of 596 properties were vaccinated. Those properties represent a large number of individuals and families who were suddenly confronted with a disease that impacted on their farm businesses, as well as other secondary sources who were also affected when stock could not be moved or sold.

And finally, there was the fact that anthrax was not really a 'socially acceptable' kind of disaster. Those powerful, negative images I described contributed to an atmosphere of uncertainty, suspicion and fear.

What were the key issues, concerns or lessons that might be gleaned from this experience?

Observations about people

The delay in appointment of a Community Development Officer resulted in feelings of frustration and isolation, especially for some of those affected in the early stages of the outbreak. At that point, by necessity, the emphasis was on technical information and the need to control the further spread of anthrax. However, as a result, it seems women in particular, were left to deal with the emotional stress and uncertainty of the disease, personal health issues, the constant media presence, as well as coping with the normal daily events of family and farm life. Consequently many felt there was a sense that 'people got lost in the process'.

Whilst the appointment of a CDO was viewed in some cases as 'too little too late', at the same time it did acknowledge the significant impact anthrax had on the local community. The comment that 'at least someone was doing something' (even where people were not clear on what that something was) was taken as endorsement of the CDO role.

'Anthrax fatigue'

Related to the lag time in appointment was 'anthrax fatigue', which was apparent from commencement. Local people were 'anthraxed' out, initially reluctant to talk and generally tired of the ongoing speculation associated with anthrax. This reaction was understandable given that continued publicity focused attention on anthrax and the Goulburn Valley with further negative implications for industry, in particular Australia's major export markets.

Public concerns

The unprecedented nature of the outbreak prompted widespread public concern and apprehension, with the resulting lack of accurate information evident in rumour, misinformation and even stigmatising. In part this can be attributed to the insidious nature of anthrax and a need to understand and make sense of such an unpredictable occurrence.

However I believe the apportioning of blame and culpability are not consistent with victims of other disaster situations where generally a sense of community spirit, goodwill and common purpose prevail. Here in some cases, affected property owners were labelled and, even worse, ostracised from their neighbours and local community.

The media were also responsible for promoting sensationalist and emotive views, unaware of or ambivalent to the local ramifications. This remained a constant theme in views expressed by members of the affected community.

Information

The need for relevant, timely information in all stages of disaster response and recovery has been well documented. At a local level this necessitates information being available and accessible. This was confirmed in the anthrax outbreak where the need for clear, accurate information and communication was identified by property owners as the highest priority. In the early stages some felt there was a communication void at a time when factual details were crucial to the planning and management of the outbreak. Perceptions were still limited by a lack of knowledge and personal experience of anthrax resulting in misinformation and rumour.

Affected property owners gained information primarily from direct contact with DNRE staff, local vets and field officers. However, with limited resources as the outbreak escalated, it was increasingly difficult to keep the community informed. Information fact sheets delivered by tanker drop were an important part of the communication process. Community meetings convened at different locations around the area also allowed people the opportunity to gain first hand knowledge of anthrax from senior DNRE officers.

Sources used for distribution of information are central to issues of accessibility. In this instance the dairy industry, with support from milk factories and established contacts via industry associations (i.e. the United Dairy Farmers of Victoria) were much better served than the beef sector, who were disadvantaged by a lack of existing social or political networks.

Lack of recognition

The fact that anthrax was not a compensatable disease under the Cattle Compensation Act was the cause of some angst among farmers who sustained cattle losses. Although the list of compensatable diseases is subject to much debate, had compensation been available from this fund assistance would have been appropriate, equitable and immediate.

This lack of financial compensation (as distinct from the Rural Finance Corporation low interest loans), combined with limited public recognition, created a deep cynicism within this rural community. Individuals noted that few people (including politicians) seemed responsive to their situation and felt that little acknowledgment of their plight confirmed that 'no-one cared'.

Where recognition was given, it tended to focus on the total numbers of stock lost as a total measurement of the overall impact of the outbreak. Regular updates and media releases concentrated on confirmed deaths as a means of quantifying the disaster. There can be no argument with the legitimacy of these figures, however the broader assumption that financial losses were only incurred by property owners with reported stock deaths, minimises the scope of this disaster. As already indicated, loss of income as a direct result of anthrax and the stringent quarantine requirements was experienced by a range of secondary sources, who all felt the cumulative effects of anthrax on their cashflows.

It is a narrow view for another reason, as it concentrates on an economic scale or bottom line rather than from a wider social perspective. As Blong (1996) has noted 'disaster size is too often measured in lives lost or millions of dollars damage, rather than in societal consequences'. Whilst there were very real financial costs associated with anthrax, the ongoing social and emotional implications for the community should not be overlooked. The reputations of individuals and the Tatura and Stanhope communities, as well as the wider Goulburn Valley, all suffered indirectly as a result.

Observations about the process

As I have already stated, anthrax differs in a number of key areas to the range of natural disasters that emergency management more commonly deal with. The fact that it went on over an extended period of time, accelerated after the

initial first few weeks instead of decelerated and the affect this had on people psychologically as time went on, must be considered.

However there are number of points regarding the recovery process that could be relevant to another time or another disaster event.

- It is important to develop protocols dealing with disasters outside 'normal' emergency management recovery situations, particularly in the event of disasters that proceed along an open-ended timeframe. Lack of precedent, combined with the duration and magnitude of the anthrax outbreak, possibly hindered the early activation of recovery strategies. Clear guidelines are needed for the declaration of a disaster situation.
- Ownership and responsibility for recovery must be clearly defined for all local and state government departments and agencies involved in the process. This is especially true where the disaster crosses existing local and state boundaries, as well as a number of government departments. The issue of 'who owns the problem' needs to be clearly addressed.
- Recovery strategies need to take advantage of the commitment and intent of all individuals and agencies involved in the early stages of response and recovery. Interest, motivation and priorities wane as events move away from impact.
- Where the position of Community Development Officer is deemed appropriate, appointment should take place as soon as possible after the disaster event. In order to maximise benefit and identify local needs, the CDO should develop a profile within the affected community early in the recovery process. Information, practical assistance and referral are required at this point.
- Ongoing support and debriefing is also essential and I am grateful for the advice I received from the Department of Human Services, in particular through David Robinson in Shepparton. My thanks go also to members of the reference group for their invaluable assistance.
- Local recovery committees provide an excellent opportunity for people in the affected community to be represented and included in the recovery process. Membership should be extended to include the range of stakeholders involved and also to avoid criticism associated with decision-making by those not directly affected by the disaster.
- Recovery strategies and activities need to be flexible and responsive to the culture of the affected community. Rural communities, as distinct from urban communities, are traditionally self-reliant and generally reject a welfare ethos. As a result farmers are more reluctant to ask for assistance and tend to carry on independently.

Conclusion

Throughout this paper I have tried to convey the fact that anthrax was about real people and real situations, not just a disease that resulted in statistics about stock losses. In closing I would like to share with you the thoughts and feelings of someone who offered me her diary as a personal record of events. She too understood the need to put a human face on anthrax. Although her official permission has been given, names and several other details have been changed to protect their identity. The entry (below) comes from February 14th 1997.

Rosemary White holds a Bachelor Degree in Social Science with majors in Communication and Social Research Methods. Over the past thee years she has been involved in project management and has undertaken a numbers of projects in the health and community development areas. She is currently employed by GV Agcare Inc. in Kyabram, a country town in Victoria.

Rosemary is undertaking a pilot project designed to improve access to information and services for people living in rural communities. The project is one of six funded by the Commonwealth Department of Primary Industries and Energy throughout Australia.

7.00 a.m.
No. 70 (Steve's pet) dead. Vet took blood sample to confirm anthrax-related death. He will notify DNRE.

9.00 a.m.
No. 36 looks strange, away from mob, a little staggery. Phone vet.

9.15 a.m.
Call again

9.30 a.m.
Vet arrives, takes blood sample, gives 25ml penicillin but holds no hope for life of cow. We walk with vet to check mob for any possible 'signs' of infection. What a hopeless task. We find three possibles and vet puts them each on a 3-day course of 25ml penicillin. He injects one, we'll do the others. He says any costs incurred will be paid for by the DNRE.

10.30 a.m.
No. 36 dead. Vet will notify DNRE.

11.00 a.m.
Steve penicillins both cows, I hold the bottles and needle protective cap. Steve hands me the used and bloody syringe and goes to open the gate. No. 25 does not like to be confined in the crush, so I move forward, open the crush gate, stand back to let her pass, shoo a fly from my face and cut myself with the unprotected, perhaps anthrax-infected syringe needle. I simply sigh deeply and shake my head in disbelief. I ring the doctor — 'come down immediately'. Exasperated, I go off to the doctor, he checks the wound, gives me a penicillin needle in the rump, a double course of penicillin capsules and orders me back every two days so that he or a colleague can inspect the wound for any signs of infection. What a nightmare! I'm glad the kids are at school. They're not here to see the mess their mum and dad are in. In 21 years of marriage we've never had anything knock us so hard and fast. I thought the fear and dread of being infected with anthrax on our property couldn't be much worse than actually being infected. How wrong I was. Steve and I with tears of disbelief, shock and a sense of aloneness (due to our ignorance of this bacteria) trudged on, one foot after the other, from the house to the herd 3 or 4 times, scared of what we'd find.

2.00 p.m.
No.25 wobbly on her feet, lazy eyelids — doesn't look good.

5.00 p.m.
DNRE 'clean-up' men arrive to remove 70 and 36. Whilst they're here No. 25 dies. The men take away the three carcasses. No blood sample is taken from No. 25. God, what a day. The kids take it as well as we could have hoped but it's hard to put on a brave face in front of them. Three today, how many tomorrow? I'm afraid Steve will have to check them — I can't. Inform neighbours — positive. Happy Valentine's Day, love.

Spiritual issues and recovery management

The Reverend Dr. Peter Crawford, Regional Coordinator, Victorian Council of Churches.

Towards a holistic approach

There is a significant need for a holistic approach that doesn't segment personhood and eliminate the spiritual elements that frequently surface in disasters. In Australia we have tended to concentrate only on physical and now emotional aspects of recovery. Sometimes this has been to the extent that the community's or individual's ability to regain independence is hampered because we have overlooked other dimensions of the recovery process. Recovery is often incomplete if the spiritual dimensions are overlooked.

In unsourced work done by Phillip Morris at the Repatriation Hospital in Melbourne, it has been shown that intervention can make a significant difference in the first two years in overcoming post traumatic stress disorder, but that after that period there is little difference in response between those who have been counselled and those who haven't. In other words people can re-experience the initial stress and suffer consequent identity disturbance if they haven't recovered in a holistic way.

For example in the 1997 Dandenong Ranges fires we found that many people who had experienced the Ash Wednesday fires but weren't directly threatened at all by the 1997 fires nevertheless went through a re-experience of post traumatic stress disorder. They avoided any experience themselves of the new fires and indeed exhibited a number of numbing signs. A parallel is found in research into what enables people to survive the troubled teenage years. Research by Eckersley (1987, 1988, 1992, 1993) and Resnick (1988) has shown that the three factors that underpin a teenager's successful transition to adulthood are stable family relationships, supportive school relationships and a faith framework.

Why did it happen?

This question can haunt people who have been through a significant disaster, especially when the disaster is the result of human evil such as Port Arthur, Dunblane, Queen or Hoddle Street. This question is primarily a theological question. That is why it hasn't been well handled in recovery management over the years. Unresolved issues can hamper full recovery for individuals and communities. Our thesis is that with understanding comes acceptance and peace, and therefore there needs to be a theological presentation soon after the disaster, and indeed for some lengthy period after that.

Some ways to press towards understanding would include the concepts that the world we live in is not paradise—it's a fallen or damaged or fractured world and therefore we are not shocked when disasters happen. We see them as being a normal part of living in a damaged world.

We also understand that there is such a thing as human evil and sin and that this accounts for a great number of disasters. There is also natural evil where there are disasters like Tsunami, or earthquakes, or bushfires caused by lightning, and we see that this is not a direct action of God but rather just a part of being in a damaged world. Once we understand the causes and we source those causes either in nature or in mankind, rather than in God, we can understand that God is not our enemy. We are better able to recover when we see that God is on our side. Reconciliation is another vital concept that we will tackle in due course.

Ultimate issues

The more significant the disaster the more sharply ultimate questions are raised about the meaning of life, what happens after death, and questions about good and evil. Has evil triumphed? Is there no justice? Is God acting in judgement on us all (perhaps in a capricious way)? Is there a God at all?

When there has been a loss of life as well as property, people begin to face up to these questions. When these ultimate issues are no longer camouflaged by material distractions people may realise that the things they have centred their lives on have been less significant than they had thought. So it is important in recovery to consider what are the answers to these ultimate issues. Some key elements that need to be tackled are

- What happens after death?
- When people have been killed, is there any hope for those who are left behind of meeting them again, or is it absolutely the end?

One of the factors that helps people recover and recover well from disaster is hope, not only the security of knowing that it won't happen to them again, but the ability to view their future in a positive way and with significant levels of hope. Interestingly, one of the most affected groups in my experience are those who have been most independent prior to the disaster, and masters of their own destiny (including male farmers) and when that independence was threatened they suffered significantly.

These ultimate issues are spiritual questions addressed by most religions. However I believe that Christianity is unique at this point and can help people deal practically with grief and shock.

Guilt

Guilt can only be overcome by forgiveness. Guilt is frequently experienced by people after a disaster. Survivors, even those whose properties have survived often feel an unreasonable sense of guilt. In order for someone to overcome guilt whether it is an objectively real guilt or only an irrational felt guilt, they need to feel forgiveness. Forgiveness needs to be declared, and needs to be declared by someone who has the authority to forgive. The person who can forgive is the one who has been wronged, or their delegate. However forgiveness is not a normal reaction, and is rarely expressed in clear language.

Indeed some of the people we have counselled have felt that what has happened has been a form of punishment. They have linked their sense of guilt to the disaster and so become both victim and cause.

EMA UPDATE

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PNG Tsunami

EMA was heavily involved in coordinating Commonwealth Government support in the wake of the Tsunami that devastated villages in the Sandaun Province of Papua New Guinea on 17 July.

AUSASSISTPLAN, the Australian Government Overseas Disaster Assistance Plan, was activated on 18 July once news of the disaster reached Australia. On behalf of the Australian Agency for International Development (AusAID), EMA quickly arranged transport and medical assistance from the Australian Defence Force (ADF). EMA continued to work with the ADF and AusAID during the response and recovery phases of the disaster. Offers of assistance provided by States and Territories were much appreciated.

Further information can be obtained from Rod McKinnon on (02) 6266 5328 or e-mail: rmckinnon@ema.gov.au

PNG drought

EMA's seven month involvement in drought relief operations in PNG officially ended in mid-April. During this period, the Australian Government Overseas Disaster Assistance Plan, AUSASSISTPLAN, remained activated as EMA worked with the Australian Agency for International Development (AusAID) and other Commonwealth agencies in Australia and PNG and the PNG Government in bringing relief to PNG citizens in drought affected areas accessible only by air. Further information on EMA's involvement can be obtained from Phil Stenchion at EMA on (02) 6266 5441, e-mail: pstenchion@ema.gov.au

ASEAN Regional Forum

In February, EMA's Director of Policy Planning and Coordination, Rod McKinnon, attended the second meeting of the ASEAN Regional Forum (ARF) meeting on Disaster Relief. The meeting was attended by representatives from 20 ARF countries, UN agencies, the Red Cross, World Health Organisation, and the European Union. The meeting reached broad consensus on the need for training and technical cooperation to further develop national disaster management capabilities, the development of early warning systems and the development of a regional disaster relief capabilities disaster database. These matters will be further addressed by an 'experts group' which is to meet in Bangkok later in 1998. Further Information can be obtained from Rod McKinnon at EMA on (02) 6266 5328, e-mail: rmckinnon@ema.gov.au

Review of volunteer legislation

EMA recently released the final report on the Review of Volunteer Legislation undertaken by Dr Imtiaz Omar from the University of New England in 1997. Copies of the report have been sent to the Executive Officers of State and Territory Emergency Management Committees for distribution to agencies that employ volunteers. Further information and copies of the report can be obtained from Rod McKinnon on (02) 6266 5328, e-mail rmckinnon@ema.gov.au

Ausconplan Spred

EMA recently released a revised edition of the Australian Contingency Plan for Space Re-entry Debris (AUSCONPLAN SPRED). The plan addresses coordination of the activities of Commonwealth agencies in support of operations by States and Territories to recover and neutralise radiological hazards arising from the re-entry of radioactive space debris over Australia and its territories. Following release of the plan, a seminar attended by Commonwealth and State and Territory representatives was held at the Australian Emergency Management Institute to ensure that the plan was understood by all likely to be involved in its implementation. Further information can be obtained from Don Patterson at EMA on (02) 6266 5165, e-mail dpatterson@ema.gov.au

Review all disaster management in the South Pacific

The Australian Agency for International Development (AusAID) recently commissioned a Review of Disaster Management in the South Pacific. The purpose of the review was to assess the impact of AusAID funded disaster management activities in the Region, to identify priorities for future Australian assistance and to recommend a structure which will ensure that the program is appropriate for the Region's needs and is well coordinated. The outcome of the review is still awaited. Further information can be obtained from Phil Stenchion at EMA on (02) 6266 5441, e-mail: pstenchion@ema.gov.au

Australian Disaster Conference 1999

Planning is underway for a major International Decade for Natural Disaster Reduction (IDNDR) conference to be held at the National Convention Centre in Canberra from 1–3 November 1999. The conference will be known as the "Australian Disaster Conference 1999" and the theme is to be 'Disaster Prevention for the 21st Century'. If you would like more information concerning this conference please contact Conference Logistics, PO Box 505, CURTIN, ACT 2605, Tel: 02 6281 6624, Fax: 02 6285 1336, e-mail: conference@conlog.com.au

IDNDR Day 1998: 'Disaster Prevention and the Media'

The Decade 1990-2000 has been designated by the United Nations General Assembly as the International Decade for Natural Disaster Reduction (IDNDR). Within each year of the Decade, the second Wednesday in October is designated as World Disaster Reduction Day. This is marked by special activities appropriate to each participating country. The Australian IDNDR Program coordinates an annual seminar or workshop as a major activity each year, and State/Territory Emergency Services are encouraged to undertake activities particular to their area to promote the Day. The World Disaster Reduction theme for 1998 is 'Disaster Prevention and the Media' and NSW State Emergency Management Committee has offered to host a one-day workshop which will focus on cooperation with the media as a way to achieve IDNDR goals, in particular in relation to disaster prevention. The date of the workshop has yet to be decided.

RADIUS — Risk Assessment tools for Diagnosis of Urban areas against Seismic disaster

To realise the concept of the IDNDR and "Yokohama Strategy and Plan of Action", the IDNDR Secretariat in Geneva, with overall guidance by the IDNDR Scientific and Technical Committee and in consultation with some leading institutions, launched the RADIUS project in 1996 with assistance of the Government of Japan. It aims to promote worldwide activities for reduction of siesmic disasters in urban areas, particularly in developing countries. The IDNDR Secretariat has selected nine earthquake-prone cities where case studies will be carried out.

The two Australia cities (Cairns and Newcastle) nominated as RADIUS Associate Cities have received official recognition. As Associate Cities, Cairns and Newcastle will be able to share their experiences with other earthquake-prone cities in the world and, at the same time, they will be able to gain useful information from the interaction under RADIUS.

Further details are available on the Internet: http://pangea.stanford.edu/~tucker/Radius/RADIUS.html

Standard Emergency Warning Signal

As part of a coordinated national emergency plan, an audio signal (based on the existing Cyclone Warning Signal) is proposed for adoption in all States and Territories to alert the community to an urgent safety message relating to an identified emergency such as a flood, fire, or earthquake aftershocks.

A pilot study has been underway in NSW in anticipation that a National launch will be possible in late 1998.

The signal sounds like a wailing siren. You can hear the signal by dialling 1800 24 SEWS (1800 24 7397).

For further information contact Malcolm Houston on (02) 6266 5309 or e-mail: mhouston@ema.gov.au

ABC TV Educational Emergency Management Personal Skills Series

The ABC and EMA (in partnership) are producing five half hour adult education emergency management skills programs. The programs will be based on specific natural hazards targeted to adults, but also suitable for students from upper primary and secondary, with the aim of developing personal emergency management skills. The TV series will seek to motivate and encourage personal preparedness in individuals and help to develop a culture of prevention. Production will be completed by October 1998.

For further information contact Pip Marks on (02) 6266 5408, e-mail: pmarks@ema.gov.au

1998 Australian Science Festival (National Convention Centre, Canberra)

Emergency Management Australia (EMA) once again provided a display booth at the annual Australian Science Festival in Canberra, which was attended by tens of thousands of members of the public as well as many local, interstate and several international school groups. At the 1998 Festival (2-6 May), EMA's Disaster Awareness and International Decade for Natural Disaster Reduction (IDNDR) Programs provided informative, colourful, static and video material on Australia's natural and technological hazards including school and community education projects. Our Internet site was available for viewing and prizes awarded for winners of an Australian hazards quiz. Our range of awareness publications were made available and all visiting teachers were provided with free disaster education resource kits.

For further information contact Pip Marks on (02) 6266 5408 or e-mail: pmarks@ema.gov.au

NEMEG meeting

The first 1998 meeting of the National Emergency Management Executive Group (NEMEG), attended by the Executive Officers of the State and Territory Emergency Management Committees, was held in Canberra on 11 March. Members considered a broad range of issues reaching agreement on the publishing of Multi-agency Incident Management Guidelines, Commonwealth funding arrangements and performance indicators under the State Support Package, future directions for Urban Search and Rescue, and the National launch of the Standard Emergency Warning Signal. The NEMEG also agreed that EMA should further develop a formal approach to requesting disaster assistance from one state to another. A briefing by the Bureau of Air Safety Investigation's (BASI) Manager, Major Investigations and Quality Assurance, Mr Lindsay Naylor, advised members of the likely magnitude of a response to a major aircraft accident within Australia and began to identify issues which need to be addressed. The next meeting of the NEMEG will be held in early August. Further information can be obtained from Shelley Webb on (02) 6266 5339, e-mail: swebb@ema.gov.au

Major study on the role of AEMI commences

A consultancy has been let to examine the future role of AEMI in emergency management education and training. Called the 'Education and Training 2000' study, the consultants have been tasked with examining the role of AEMI in:

- learning policy direction
- development of learning standards and benchmarking
- provision of strategic advice
- creating and exercises (e.g. for agencies, groups within the community or strata across a community)
- learning evaluation and brokerage
- provision of technical advice on emergency management education and training issues
- evaluation of program performance and compliance
- undertaking or monitoring research
- development and/or delivery of emergency management education and training.

The study will also consider the management of markets (e.g. local government, industry) that AEMI should service and how should those markets be managed (e.g. through a third party, through direct contact).

If AEMI is to deliver education and training products the study will also address the following additional issues:

- whether a series of modules within the national emergency management curriculum should be developed and delivered by AEMI as a 'core' set of learning products
- whether other learning products, which are loosely aligned with the national emergency management curriculum modules, are required as part of a 'core' set to be developed and delivered by AEMI
- the sequence in which the 'core' set of products should be delivered
- pre-requisite knowledge for students to attend the 'core' set
- whether a credential should be issued by AEMI for the successful completion of the 'core' set of learning products and what such a credential should be.

With respect to resources required for education and training development and delivery:

- what resources are required to develop the 'core' set of learning products
- what is the most appropriate method or combination of methods for delivering the 'core' set of products (e.g. residential courses, extension activities, distance education, on-line access).

If AEMI is only to deliver a 'core' set of products, what:

- partnership or other arrangements between AEMI and appropriate institutions to facilitate development and delivery of the national emergency management curriculum modules that are not included in the 'core' set of products should be developed
- arrangements should be made for the underwriting of the diploma and advanced diploma if AEMI and other institutions enter into partnership for delivery of the curriculum modules.

The consultants who have been engaged to do the first part of the study are Mr Joe Griffin and Mr Allan Cooper (they have been briefed on the scope of the study by the Director of AEMI). It is recognised that the key to this study will be consultation with all of AEMI's clients and stakeholders. The need for this consultation has been emphasised in the project brief and the consultants will contact state/territory emergency management organisation executive officers who will form the first point of contact. Focus groups with representatives from all interested parties will be held in each state and territory. Submissions from all interested parties are also welcome and may be faxed to Mr Griffin on (03) 9817 1692.

This study will chart the direction for AEMI in the future. All of the Institute's clients and stakeholders are encouraged to take a close interest in the study and to contribute to it fully.

The Public Safety 'training package'.

The draft endorsed components of the Public Safety Package (particularly the competency standards, assessment guidelines and qualifications framework) went through a nationally-conducted validation process in April. The consequential changes have been checked by the training package steering committee and the components were submitted to the Australian National Training Authority in May for endorsement. The validation process has seen the revised emergency management competencies nested within the training package. The development of non-endorsed components (including professional development materials and assessment tools) were put out to open tender in May, with the expectation of product delivery before January 99.

The Emergency Risk Management guidelines

The draft Emergency Risk Management guidelines have been put out for comment through the executive officers of each State/Territory emergency management committee. Feedback on changes to be incorporated was requested by mid-June, after which the guidelines (incorporating amendments) were put to the National Emergency Management Executive Group.

What's on at AEMI

Forthcoming Workshops

Planning for Ecological Disasters Workshop

7–11 September 1998

The aim of the workshop is to review and improve capacities for planning, identifying and responding to ecological disasters. In doing this the workshop will consider approaches for dealing with inherent uncertainties including the role of risk assessment in managing ecological disasters and identify needed attributes and expertise.

Emergency Animal Disease Preparedness and the Needs of the Non-Veterinary Agencies

5–9 October 1998

This aim of this workshop is to ascertain the awareness, training and briefing needs of industry and non-veterinary agencies involved in the conduct of emergency animal disease control operations. A set of guidelines will be developed during this workshop that will form the basis for training modules.

When we consider guilt we see that the churches have a role to play because guilt, especially irrational guilt, is best overcome by assuring people they've done nothing for which they ought to feel guilty. There is no one, including God, who would hold them guilty. The assurance that God does forgive is a tremendous release to people, and becomes even more powerful when it is based on the fact that God has personally paid the price to procure forgiveness. This can bring a sense of cleansing and restoration and lead to harmonious relationships in a unique way.

Individual guilt can damage relationships. It can bring about lines of division in a community and even corporate guilt can be a significant element. There is a need to allow survivors to celebrate their survival without any sense of guilt. Being able to say, 'it is good that we have survived, it is good that our properties have survived', and for the rest of the community to support them and agree that this is worth celebrating.

Some practical issues

Here we consider the role of clergy and of the churches. The churches can play a significant role in helping a community to prepare for disaster. For example, in the Dandenongs, the churches work alongside the other emergency services. By working together on committees they help build bonds of community that will enable the community to cope with a disaster.

These bonds can also help preclude later divisions especially when it is seen that the churches are one group who aren't in it to promote their own cause but are there as the glue between the other different groups. The churches also have a role in providing the lubricant for networking, which is mutual care, and also providing an understanding of how communities can work together and bridge natural divisions whether they are racial or sub-cultural.

Also in the Dandenongs we have regular church services where all the different emergency services are invited and a leading public figure is there to honour them and acknowledge their work. In this way morale is lifted and there is a sense of community bonding. In the event of an emergency the churches play a very significant role. They are able to assist in grief, by conducting major events like funerals and annual memorial services and so on.

There is also the role, especially in Victoria, of outreach visiting. For example in the 1997 fires the Victorian Council of Churches, together with the Department of Human Services, organised outreach visiting very quickly to some 1700 affected homes.

We ought not to overlook the role of prayer. At the time of writing we are facing one of the worst bushfire seasons in living memory and prayer services were held before the beginning of the fire season asking God to protect lives and property through the Dandenongs. It will be very interesting to see the effect after the fire season has passed.

Some reasons why churches are among the most strategic groups to be used in emergency recovery are:

Churches are local groups. They are a natural part of the affected community — an integral part with local sensitivity. Because of their local presence they are usually ready to serve their neighbours. They are rich in human resources. Their people are available in larger numbers than most other community groups, and they are ready to work 24 hours a day, 7 days a week.'

- They are local groups. They are a natural part of the affected community—an integral part with local sensitivity. Because of their local presence they are usually ready to serve their neighbours.
- They are rich in human resources. Their people are available in larger numbers than most other community groups, and they are ready to work 24 hours a day, 7 days a week. That was certainly our experience after the Ash Wednesday fires. For perhaps two months we had someone virtually working around the clock insuring that the recovery process moved forward.
- There is a low financial cost in churches, unlike other recovery groups.
- Those who are there are volunteers and are motivated by love and by a sense of self-sacrifice and are trained to care. This is fundamental to their philosophy of life.
- There is a sense of continuity— there is a long-term commitment. After the Ash Wednesday fires the last group still working were the churches, and they are still there working.
- The churches are not motivated by greed or wanting to build empires. They are there to help the local community.
- Their resources are mobile and fast to react. For example, in the 1997 fires one of the first agencies to be ready to provide evacuation centres, meals and so on, were the churches.
- The churches are significant because they have a natural infrastructure that will help in the follow-up process.
- There are also international links, that provide not just prayer support but inspiration and advice and financial support. Those same international links mean that even local people involved in the churches have a world view that helps underpin their lives in times of stress by giving hope and meaning and joy. Out of that robust worldview comes the ability to survive, and that ability to survive can be contagious in an affected community.
- There is a national network behind the churches so that they are not standing by themselves but are backed by resources from right around the country. That certainly shone out during Ash Wednesday.
- The churches are practical. They can do things that almost no other group can. For example, in the Ash Wednesday and 1997 fires, we did things like providing childcare and creches, transport where it was needed, meals, overnight accommodation, long-term accommodation, counselling, pet care, family reunions and the distribution of free plants, so that there was a sense of life and ongoingness in the recovery.
- The churches have large buildings and appropriate facilities for recovery work. As we face this fire season our properties are listed for a refuge centre, an evacuation centre and a recovery centre.
- Most people accept the help of clergy and of the trained volunteers from the churches because they are seen as being neutral and trustworthy.
- The churches are experienced in organising and running large-scale public events. This was true in the aftermath of Port Arthur.

The churches are able to address not

just physical but also emotional, social, spiritual and economic needs. This includes playing the role of advocate. After Ash Wednesday there were some communities who had fine human resources and were able to take advantage of the aid that was being offered. Other communities were poor, and had little in the way of human resources. They found that it was the churches that stepped in to argue their case in terms of fair aid distribution.

In terms of multi-culturalism the churches are committed to bridging divides in the community and this can aid recovery at a community level.

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Reverend Dr. Peter Crawford has been the senior pastor of St. Mark's Anglican Church in Emerald, Victoria since 1981. Cockatoo, a township within the parish was devastated by the Ash Wednesday bushfires in 1983. Peter's book *'Beauty from Ashes'* (Acorn Press) tells a part of the story of that town's recovery from the disaster. As a regional coordinator for recovery work under the Victorian Council of Churches and the State Government Department of Human Services, Peter was deeply involved in the 1997 Dandenong Ranges bushfires.

United Nations 1998 World Disaster Reduction Campaign

Prevention begins with information (cont.)

published in the 1998 campaign report and will be used as part of the substance for discussion in the 1998 Internet conference.

Compile information kits and success stories

Compile the information collected on the most important hazards in your country and the potential solutions in the form of printed, audio, or audio-visual information kits and send it to the IDNDR Secretariat in Geneva by 15 September 1998. The material will be published in our 1998 campaign report which will go to all our partners worldwide and to the international press.

Hold a round table on natural disaster prevention and the media

Focus on the most important issues, problems and solutions in your country with regards to the finding, production and dissemination of information in the realm of disaster prevention, discuss it with the officials, the professionals and the concerned population. Send your recommendations to the Secretariat by 15 September. The results will be published in the 1998 campaign report.

Make a list of useful contacts

Make a list of relevant persons to contact with reference to natural disaster management in your country. Give the list of natural disaster management professionals to your partners in the media so that they have sources of information on natural disaster management issues.

Involve pupils and communication students

Encourage pupils and communication students in your country to report on natural hazards, disasters and natural disaster prevention measures in your country. Send the material to the IDNDR Secretariat by 15 September 1998. The material will be published and the winner will receive a small grant to further his or her work in disaster prevention issues.

Links to other sources of information

The IDNDR Secretariat has produced an extensive list of further contacts in the field of natural disaster management. The list is in the form of websites and can be viewed under the 'links to further contacts' section of the following website: http://www.quipu.net:1997/ and http://www.reliefweb.int/.

For more information on the IDNDR RADIUS initiative, please visit the RADIUS home page: http://www.geohaz.org/radius; for information on the UN Task Force on El Niño, coordinated by the IDNDR Secretariat, please click on 'latest on El Nino' (under 18 December 1997) at http://www.reliefweb.int/.

Support materials

A series of support materials and guidelines for activities are proposed by the IDNDR Secretariat to help you celebrate the campaign theme.

These include:

- 2 posters
- 1 press kit
- 1 video
- stickers
- 2 information leaflets on IDNDR

The IDNDR Secretariat looks forward to your feedback on the above mentioned activities and encourages you and your organisation to write back with proposals for further activities and information on potentially related events.

For more information, please contact:

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Supporting the **entire person**

A comprehensive approach to supporting people affected by emergencies and disasters

by Phillip Buckle, Jan Brown, and Michael Dickinson

Introduction

We want to briefly indicate some of the issues confronting us as recovery management co-ordinators, particularly in the area of psychosocial responses to disasters. Our conclusions are derived from the experience of ourselves and other professionals as managers and service providers who have worked in a diverse range of events.

However, we acknowledge that our conclusions need to be tested before significant weight can be put on them. We also believe that similarly rigorous testing needs to be applied to many of the other views, opinions, conclusions, treatment regimes, diagnostic practices and strategies applied in the field of supporting people affected by disasters and emergencies. Much planning and practice, it seems to us, is based upon unsupported subjective experience and anecdote. While subjective assessment is often a valid tool it needs to be sustained by a body of observation and be publicly defensible.

Our interest lies in opening up the debate, in challenging some strongly held views, in seeking more direct evidence that trauma is widespread after disasters and in asking directly whether we spend too little time dealing with the majority of people whose responses to disaster are less than traumatic.

We are also interested in developing the theory of personal support and therapeutic intervention so that it can be couched in operational and management terms and so provide practical assistance in emergency management.

As a colleague suggested, the analogy for much personal support after emergencies and disasters is that of a bus crash involving many people. Too often we provide intensive surgical support to the few people with multiple major injuries but ignore the other survivors.

Background: the nature of disasters

The classification of disasters by the nature of the hazard agent (fire, flood, etc.) continues to dominate the thinking of most emergency managers. This includes those concerned with providing personal support to affected individuals and groups. This leads to an emphasis on activities to contain the hazard, supports a philosophy that favours short-term activities (those necessary until the threat was removed) and encourages a focus on the dramatic and threatening aspects of disasters to the exclusion of other less spectacular effects.

This can perhaps be seen most clearly with the Sydney bushfires of January 1994. By their nature bushfires are spectacular events. These bushfires were close to Sydney, the country's largest city and easily accessible to the media. They therefore captured the attention of the country in a way in which, for example, the much more extensive and more damaging Victorian floods of October 1993 did not. It can be argued that decision-makers and the public were influenced to assess the significance of the events by the media portrayal of the drama and not by the type, level or severity of the impacts.

Largely as a result of the efforts of human service agencies, this standard is being challenged. Increasingly we see disasters and emergencies in terms of their effects on people and communities rather than the atmospheric or geophysical agent causing the damage.

This makes sound management sense. After all emergencies are about people, their social lives and their communities.

This new approach also assists us with the classification of disasters and, by extension, with criteria for deciding on appropriate assistance measures. Fitting events such as shootings, bushfires and toxic chemical spills into the one category of 'disasters' was almost impossible given the disparate nature of these events, and required us to either engage in mental contortions or to ignore the problem. We usually did the latter. The causes, modes of transmission, frequency, spatial distribution, warning time and all the other attributes typically assigned to hazard agents differed too much between hazards to allow us to comfortably or convincingly group them.

Now, however, we have a method of classification that is useful and can be applied, that is, the *consequences* of a disaster. We now understand that there are common outcomes that are useful in analysing the event and which help us in developing management and service delivery strategies. All disasters affect people, all cause disruption and stress, all generate uncertainty. Without these outcomes an event is not a disaster.

Of course, there will be some different impacts. Criminal events may not destroy residences as bushfires do. But both will cause personal stress and community disruption.

Disaster effects

We have made considerable progress in recent years in anticipating and identifying outcomes for individuals, groups and communities of the impact of emergencies and disasters. This in especially so in the area of psychosocial consequences.

But despite this progress, and while we now acknowledge impacts on people as the proper focus of emergency management, we do not fully understand all those impacts. This is particularly the case in their secondary and tertiary effects and how different impacts interact. So, for example, we understand how the loss of income earning assets affects lifestyle, but we do not understand full range of psychosocial impacts of income loss, or how trauma resulting from a life threatening situation, income loss and the stress generated by income loss may interact.

We do not completely understand the incidence and distribution of psycho-social impacts. What causes trauma, what causes stress and what is simply annoying, disruptive and inconvenient?

Rob Gordon, in a paper on Port Arthur, speaks of some major irritants to the survivors that included being asked to pay for their bandages. He states the symbolic effect of this was

highly significant for the emotional state of the victims—an apparently trivial issue had a very considerable and unintended outcome.

Nor do we understand what people (or classes of people) are vulnerable to particular impacts. Of course we have general views about how the young, the aged and the socially marginalised may react, but these are vague, often untested generalisations. These impressions may be useful in developing strategies—or better still in developing research hypotheses—but of less use in developing specific services.

Also we focus on those who have suffered loss, trauma and bereavement and who apparently cannot cope with day-to-day life and work towards their own recovery. We do not focus on those people who display resilience (strength, fortitude, courage, stoicism, hope, faith and so on). As a consequence we do not learn from these people—we put people back together again but we do not try to develop preventative programs. We assume that people will fail, not that they will succeed. We are interested in collapse, not in growth. We favour the study of vulnerability over the study of resilience.

In other areas of recovery management, particularly infrastructure repair, we are increasingly turning our attention to the developmental opportunities provided by a disaster, looking for ways to improve the situation of the affected community. And we increasingly acknowledge that recovery is concerned with moving forward and is not about returning to the past.

But when it comes to dealing with what goes on inside people's heads we are concerned to patch up the damage, to restore the loss, to minimise harm rather than to foster growth, independence, confidence and resilience.

We have indicated here some significant problems. The positive side of this is that 10 years ago—even 5 years ago—we were not even aware of these issues, let alone concerned to tackle them.

Victorian involvement in disaster management

The recognition that disasters are defined by their consequences rather than their causes has lead Victorian recovery arrangements to embrace a range of events beyond the traditional body of natural disasters (bushfires, floods and windstorms).

Over the past decade we have provided recovery services to people and communities affected by bushfires, floods, storms, toxic chemical contamination, transport accidents, criminal shootings, hostage situations, failed financial institutions and sudden-impact community economic dislocation.

Our involvement has been over a wide scale of events, ranging from incidents that have involved only a few number of people to the floods of 1993 that rank as perhaps the fourth-largest natural disaster in this country (in terms of principal residences affected). Some of these events have been stressful and potentially traumatising for the people involved. Some have been violently destructive of homes and other property.

'We do not focus on those people who display resilience (strength, fortitude, courage, stoicism, hope, faith and so on). As a consequence we do not learn from these people —we put people back together again but we do not try to develop preventative programs. We assume that people will fail, not that they will succeed. We are interested in collapse, not in growth. We favour the study of vulnerability over the study of resilience.'

Some have affected only a few people and localised communities, while others have had an impact across a wide area.

In all of them, we have encountered people who have suffered greatly and whose capacity to manage their own affairs and to manage their own recovery is greatly impaired. We have encountered some people who have required intensive assistance to overcome the impact. However, these people are a very small proportion of the affected population.

Equally, we have met relatively few people who have been so traumatised that they have been psychologically disabled or deeply affected that they have not been able to contribute to their own recovery.

While formal research investigations have not been undertaken (and this is an issue in itself) there is no indication from our program staff, our community development officers, the staff of local government or the staff of non-government organisations that trauma after any of these events is frequent and widespread. Its incidence in any given affected appears to be low.

Personal support strategies

Given an initial assessment of an event based on our experience of previous events and the professional skills of our managers and service providers, we are generally confident that the majority of people affected will be able to manage their own personal response to the event.

Our first action after an event is to assess likely impacts: numbers of people affected, the nature of the impacts, types of people have been affected, what local or other support networks and services are available.

At the same time we will make available in the affected area information on the range of possible psycho-social effects of the event and coping strategies. We will also provide skilled consultants to advise our managers and service providers on the event and its likely repercussions for the community.

As far as possible we will refer people to established networks and, unless there is evidence of greater need, retire to a consultancy role provided only on demand.

For large-scale events, we will parallel the provision of information with an outreach program, typically conducted by churches and other non-government organisations supported by local government and the Department of Human Services. This activity arranges for a skilled volunteer or para-professional to visit each affected household. The purpose of this visit is to confirm the damage to the site, provide information to household members and to make an informed initial assessment of how well people are coping.

Where more intensive support is required, group debriefing processes, in conjunction with local support networks, may be set up in the first weeks after the event. The purpose of these sessions is to put the event into context and to provide the affected population with a greater range of self-applying support skills and to further link people into formal support networks.

A next step may be to provide

counselling services to people. Our own staff, social workers, counsellors from the National Association for Loss and Grief and other agencies may all provide individual or group services for the affected population.

Where affected people show a clear incapacity to maintain a reasonably normal life and to manage their own recovery then referral to a clinical psychologist or psychiatrist may occur. The support these professionals provide may continue for an extended period.

The important elements of this approach are:

- we do assume that most people, with access to information and advice about possible coping strategies, will be able to manage their own affairs
- no assumptions are made about the extent or intensity of the impact on any individual
- information on possible affects and appropriate coping strategies are made available
- initial assessment of impacts is accompanied by constant monitoring of personal and community responses
- trauma is not assumed to be an inevitable outcome of the event
- support is provided in a graduated and co-ordinated manner
- debriefing and counselling services are always available if necessary but are provided only after assessment.

Organisation of personal support

An important element in service provision has been identified and deserves description as a significant approach.

Throughout this process support from a para-professional or caring administrator is always available. For affected people these staff are conduits for information, providers of logistical support and access points for a wide range of services.

This service continues throughout the recovery process and underpins and supplements all other services, especially clinical support.

It has been observed that clinicians (apart from charging for their services which may restrict availability for affected people) see their clients generally for short periods at defined times, and they are not readily available outside these pre-determined appointments. This applies even where an immediate and unexpected need may occur.

Now, while the more profound or traumatic aspects of the impact may need to be addressed by clinician services, the logistical and day-to-day support, essential to maintaining a normal lifestyle and to achieving recovery, is equally important.

The para-professionals or administrators providing these services are often the people to whom the affected people turn first for support, sympathy, advice and resources. They are the people who provide the context and resources in which recovery proceeds.

Now, this program of providing personal support may be compared to the process of surgery. We can identify the critical role of the surgeon in the medical process, but their position makes no sense unless we place it in the context of the operating theatre with a nurse, assistant surgeon and anaesthetist.

Further, the surgery cannot be understood—nor would it be successful without the involvement of the general practitioner who first identified a problem, the nurse who provides day-to-day care, the physiotherapist who ensures rehabilitation and the love and comfort of relatives and friends.

In our experience the clinician and the treatment of trauma stands in the same relation to other recovery workers as the surgeon does to the other medical staff.

This analogy may be taken a little further. Medical and paramedical staff, particularly physiotherapists, are concerned not just to repair the damage or to restore a physical function but to improve the body's capacity to withstand injury. The aim is recovery but also improvement.

Psychosocial workers can learn from this and should aim not to just minimise the damage and restore equilibrium but to encourage growth and resilience.

A compilation of case studies from Victoria's recent experiences

Port Arthur shootings

In the days and weeks following this tragedy, the Department of Human Services advertised a central contact number for any survivors requiring assistance. From this central point, calls were diverted to each regional office. Calls were taken by each Regional Debriefing Coordinator, who then arranged visits by clinicians, debriefers and trained counsellors from agencies, for example the Victorian Council of Churches. For many the only help needed was information. Callers were given verbal advice or sent packaged information. Most contacts required only one visit, but they were supplied information of where to go should they need further assistance.

We found that the type of assistance needed by many of the survivors had little to do with clinical services. They asked for many things, such as assistance with accounts, questions about appeal funds, conversions of bathroom fittings, transport to appointments, or someone to be with them when interviewed by the Homicide Squad.

Dandenong Ranges bushfire

A similar strategy was used in our response. The recovery of the fire-affected community was enhanced by the early supply of personal support responses. Information was sent out through informal and formal channels, including an outreach walkabout, but also through other systems across the Ranges. For example council tree loppers were supplied with information in case community members asked them for information.

Mitcham siege

This was another example where the early supply of personal support was successful. Eight employees were held by a gunman for over 5 hours. Personal support was offered to families of the victims as they waited at the police barricades. Police information was given as often as possible. Some relatives found the loan of a mobile phone the most helpful personal support assis-

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tance. (This event happened in the middle of the day and one Melbourne radio station broadcast continuously from the site.)

After each witness had given their police interview, personal support staff were in attendance at the police station.

Although there have been affected people from these events who have sought clinical services, there are many who have required other support.

When some survivors are having a 'down day', they will phone asking perhaps for information about accounts etc., but where time permits and a visit can be arranged, it is clear that while the contact was initially about information, they are actually seeking something else. This 'something else' is not about therapy or counselling, it has its own quality. Perhaps it is the survivor knowing that there is *someone* who can respond in a multitude of ways and that while others are expecting them to 'get on with life', he or she knows that there is still someone looking out for their whole-of-life recovery.

In Victoria, those who are involved in personal support services following emergencies have 24-hour access to the Clinical Director Rob Gordon. Rob is contracted to the Department of Human Services to provide consultancy and advice to debriefers involved in this work.

The Victorian response to the tragedy of Port Arthur has been to make available to affected people a continuous range of support services, ranging from practical transport services to logistical support to clinical treatment.

This is a typical array of services after emergencies, but in this case we have found a greater-than-usual reliance on the support provided by non-clinical providers. In some cases this is because injuries and wounds have required greater physical assistance. Overall it seems that people are generally able—or at least willing—to try to manage their own recovery, but require information and day-to-day support in practical matters to achieve this.

This support includes transport services, information, advisory services, service co-ordination, liaison and advocacy, referral and general discussion sessions with recovery workers (often an affirmation process for the affected person).

This situation also applied after the Dandenong Ranges bushfires. Three people were killed, 44 houses were destroyed and many thousands of people lived within the affected area.

As well as municipal and state personal support co-ordinators, the Department of Human Services funded a Community Development Officer at the Shire of Yarra Ranges for 12 months after the fires. Other agencies, such as the Victorian Council of Churches, have been instrumental in providing support through outreach services and visitation programs. Local community committees have been set up as self-help groups.

More so than in most previous events, local people have taken responsibility for their own recovery and have rallied to provide an extensive range of support services to each other.

These have included temporary accommodation, food supply services, clean-up and debris removal, information services, tree removal, commemorative services, fund-raising services, and ceremonial and symbolic services.

The incidence of trauma following this event appears to be relatively low. In fact, referral and access to local health services declined very significantly after the first few months. This incidence of disabling stress and trauma is, on the face of it, lower than in previous bushfires.

Prima facie we attribute this to the comprehensive and well-organised range of personal support services offered by State and municipal government and by the affected community itself.

People were able to easily obtain information about possible personal responses and about useful strategies for dealing with these, and for working towards recovery.

This is not to say that some people were not significantly affected or traumatised, and there is an indication from the slow progress of rebuilding that the bushfires had a profound effect on some people.

But it suggests to us that the role of personal support and local community programs may be instrumental in alleviating some traumatic responses.

Conclusions

1. The Victorian experience is that trauma is not an inevitable outcome of disasters and that where it does occur it is unlikely to be widespread.

2. Assumptions of psychopathology may be inappropriate in the context of disasters that typically impact on otherwise mentally healthy people.

3. We acknowledge that some groups of people may be more susceptible to trauma and severe stress and that some events—particularly those that have threat to life and a horror as central elements—may be more likely to generate trauma.

4. A range of psycho-social responses require an equal array of services to meet those needs and those services need to be structured and ordered in the way in which they are provided.

5. Developing successful coping strategies will require a better understanding of resilience and will necessitate putting proportionately less emphasis on negative responses.

6. The support of affected people and communities requires an approach that integrates clinical services with all other services and which places the individual, rather than the professional practice, at the centre of the management strategy. This may be termed 'addressing all life issues that are relevant to the affected persona and not just the manifestations of extreme psychological reactions'.

The area we are exploring at the moment concerns setting conceptual boundaries to events. It seems from some recent events, such as the Port Arthur shootings and the outbreak of anthrax at Tatura, that negative personal and community reactions are more likely where the cause of the event is not explainable (even as an 'act of God') and where there is a moral dimension to the event.

People need to understand the cause of an event and to understand and accept why it happened. For events such as floods and bushfires this is easily done.

Floods by and large occur on flood plains and after heavy rain. Bushfires happen in areas prone to fire and a source of ignition is usually evident.

However, other events particularly criminal events directed by malice or some other mental state, are less easily explained and rationalised. It seems that in these cases people have difficulty accepting their losses and often have difficulty working with their community to overcome the impact. Where they are isolated they in turn lack many of the usual support networks.

The novelty of our approach is that we acknowledge the partnership of services and professional service providers. We do not accord greater standing or status to any particular group of workers (community development officers, psychiatrists, therapists and so on), and we understand that only integrated and collaborative service provision will provide an effective range of services to support people in achieving their own recovery.

Port Arthur – lessons for early disaster management

by Ian Sale and Peter Hessman, Hobart, Tasmania

Introduction

There has been a considerable body of research over recent years demonstrating that in addition to any loss of life and injury, destruction of infrastructure and economic disruption, disasters also cause significant rates of psychological morbidity in both survivors and emergency personnel (Raphael *et al*, 1987).

A study into the consequences of the Newcastle earthquake (Carr *et al*, 1995) identified two broad factors responsible for psychological injury, namely:

- threat, arising from exposure to injury or possibility of injury
- disruption, a measure of issues such as property damage and displacement.

While both factors were significant predictors of morbidity, higher exposure or threat was associated with a greater use of support services, higher perceived stressfulness of the situation, and more severe psychological morbidity. Of those who were exposed to high levels of threat, 18.3% were regarded as 'at risk' for the development of post-traumatic stress disorder.

Post-traumatic stress disorder (PTSD) (Tiller *et al*, 1996) is one of the more common of psychological reactions to a disaster. First described in combat veterans, it is now recognised that similar difficulties arise in individuals who have been victims of disasters or accidents, or subject to a criminal victimisation. It seems likely that the condition has always been with us, but prior to recent times has received other names, consistent with beliefs concerning causation. For example, in the 19th century a pattern of symptoms were identified following railway accidents. This was attributed to 'spinal shock'. More recently, during the second World War, combatants were said to have developed 'shell shock'.

Post-traumatic stress disorder can be considered as a severe and sometimes persistent form of anxiety disorder, accompanied by intrusive and distressing memories, and generally also associated with avoidance behaviours. While the majority of individuals who develop PTSD will improve over a period of several months, chronic symptoms are common, although many will learn to live with them.

For some, PTSD can be a chronic disabling disorder. McFarlane (1986) has reported on the longitudinal course of PTSD in a group of South Australian fire fighters exposed to the Ash Wednesday bushfires. He found that the level of morbidity at 4 months of the disaster remained substantially unchanged at 29 months, at which time more than one-fifth of the firefighters were continuing to experience symptoms.

A wide variety of treatment measures and other interventions have been attempted with post-traumatic stress disorder. There seems to be no consensus as to the best form of treatment, and considerable debate as to what preventative value, if any, measures such as critical incident stress debriefing, might have (Raphael and Meldrum, 1995; Deahl *et al*, 1994; Kenardy *et al*, 1996). In view of this, there is a strong case for improving preventative possibilities. In a disaster, this would require examination of the means by which individuals are exposed to threat, or suffer subsequent dislocation.

The aim of this paper is to explore some of these possibilities for prevention, by examining some of the events occurring during the aftermath to the Port Arthur shootings.

Post-traumatic stress disorder can be considered as a severe and sometimes persistent form of anxiety disorder, accompanied by intrusive and distressing memories, and generally also associated with avoidance behaviours.

The Port Arthur Incident

On Sunday 28th April 1996 a lone gunman visited the Tasman Peninsula area and in a few hours killed 35 persons and wounded several others. The gunman then retreated to the nearby Seascape guesthouse and it was some considerable time later, after a 20-hour seige, that an arrest was made.

The day in question was the last day of school holidays and there was a large crowd of around 600 at the Port Arthur Historic Site, as well as 30 individuals working in various capacities such guides and restaurant workers.

Most of the shootings occurred during a brief period in and around a restaurant, and along the exit road. Those in and near the restaurant were exposed to a very high degree of threat, and many of those who have gone on to suffer severe and persistent psychological symptoms were amongst this group. The majority of visitors to the site were initially unaware of what had occurred, and some initially moved towards the restaurant, believing that there was some form of historical re-enactment.

Initial first aid measures were administered by some of the site workers and visitors. After about 30 minutes local volunteer services (ambulance, doctors and SES) started to arrive. Later, helicopters despatched from Hobart carried police and paramedics.

The major focus of police operations however was some distance to the north at Seascape, where two police officers were pinned down in a ditch by gunfire. The siege caused the main road to be blocked, traffic to and from Port Arthur having to take a circuitous back route, significantly increasing the travel time from Hobart (generally 90 minutes).

The police forward command post was established at Taranna to the north, rather than the historic site. Telephone services were limited and overwhelmed, and the terrain disrupted radio communications. Thus, for a variety of geographical and logistic reasons, the police presence at the historic site remained relatively modest, and communications

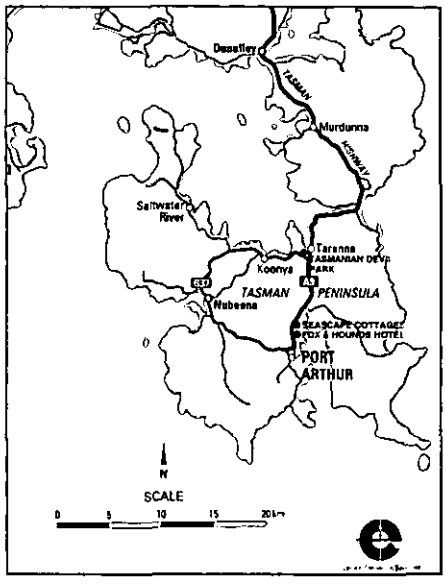

Figure 1: Tasman Peninsula

in and out of the site were difficult. These had important consequences for later developments at the site.

As evening fell, the majority of visitors and workers were still at the site, their numbers now swelled by various emergency personnel and volunteers, and other site workers who had arrived to assist. The majority congregated in various site buildings or in the motel. Their knowledge of what had occurred remained patchy.

Perhaps inevitably rumours started to spring up. There were concerns that there may have been more than one gunman, perhaps even a terrorist group, or that the gunman at Seascape might escape through the police cordon. Inevitably in this collectively anxious, vigilant and bewildered atmosphere someone heard, or thought they heard, gunshots.

It is easy to imagine what happened next. A wave of panic swept through the site. Darkness was falling, adding to the sense of vulnerability. The majority locked themselves into buildings, drew curtains and lay on the floor, and went through a lengthy period of extreme fear. Many were to say later that this period was even more terrifying than the time of the shootings. It was well into the evening before there was a significant and conspicuous police presence.

Other than adding to the feelings of insecurity, the limited police presence during the afternoon and early evening contributed to difficulties in adequately securing the several crime scenes, particularly the restaurant. Fortunately this had no impact upon the subsequent prosecution. However many individuals, emergency personnel and civilians were able to enter these areas without having legitimate cause to be there, and thus expose themselves unnecessarily to extremely distressing scenes.

The first counsellors arrived during the evening, transported to Port Arthur in a bus accompanied by armed police, at a time when information about the incident was very incomplete, and even police had concerns whether the offender was adequately contained at Seascape. It is doubtful whether the counsellors themselves felt particularly secure or whether they had any notion of the circumstances they would encounter.

Angry scenes occurred later in the evening when police insisted that visitors and site workers should attend counselling at a centre established at the Police Academy (on the outskirts of Hobart). Site workers in particular were reluctant, preferring to stay with their colleagues, or return home to their families. A compromise was reached when counsellors conducted a CISD session at a youth hostel at Port Arthur. Even then, some declined to attend.

It is also clear that it was a lack of information that provided a fertile substrate for the development of rumour. That rumour and panic might spread through such a large group of frightened and bewildered individuals was probably predictable had it been considered.

Police recorded the names and addresses of those who were potential witnesses. However, many were not recorded. Unfortunately, no case registration was set up until three days later. The exact number of persons who were present at the site, or who arrived later, remains unknown.

Overnight, the police were held at bay at Seascape. Many of the Peninsula residents remained terrified that the offender would evade police and continue his rampage. One elderly couple reported that they had sat up all night, in darkness, listening for sounds of intruders and nursing a loaded rifle. They were probably not alone in maintaining such vigilance until the news broke in the morning that the offender had been taken into custody.

Discussion

It can be seen that events and conditions conspired to cause the numbers of persons exposed to frightening circumstances to be greatly expanded beyond those who had the misfortune to be in or near the restaurant and adjacent areas, and thus increase the numbers at risk of psychological morbidity.

The events during those first few hours after the shootings illustrate how any distinction between 'response' and 'recovery' is a blurred one.

This account of these events is not intended to be critical of the police response. The situation faced that night was unprecedented, and the response was rendered difficult due to the remoteness of the area, the terrain and the communication problems. With the benefit of hindsight it will almost always be possible to argue that some things might have been different. However there are lessons to be learnt that may have relevance to future disaster responses.

It now seems obvious that conditions at the site would have benefited from a more conspicuous police presence, headed by senior personnel. This may have prevented or reduced the later rumour and alarm. It may also have been possible to more effectively secure the crime scenes in this location.

It is also clear that it was a lack of information that provided a fertile substrate for the development of rumour. That rumour and panic might spread through such a large group of frightened and bewildered individuals was probably predictable had it been considered. However, emergency services were focussed on the evacuation of the wounded and the siege.

It has also become apparent that there was considerable fear and bewilderment in the surrounding community. Their information was largely confined to that available through the mass media. Information released to the media was in part dictated by operational considerations, that is, the belief that the offender would also have access to television and radio. There may not have been an appreciation of the continuing apprehension amongst those who lived in the area. Inevitably, this also allowed rumour to flourish.

Finally, the role of counsellors must be considered. Undoubtedly police and other personnel needed assistance in coping with the large numbers of distressed visitors. General support, reassurance, information and practical help were all called for, and in general

were given. However, there seems to have been an expectation that the counsellors would 'counsel' and, in particular, that they would conduct group debriefing.

There appears to be an assumption that counselling will be required for those exposed to a disaster, but whether this assumption is based on research, or some intuitive belief that it must be helpful to get matters aired, is unclear. And, even if it is assumed that debriefing is helpful, is it reasonable for it to be compulsory (as for emergency personnel) or assertively encouraged (as for the civilians)?

A specific difficulty when a disaster arises as a result of criminal activity is that processes such as CISD may complicate the tasks of the investigators in gathering evidence. It is not unreasonable to fear that an individual's recall of an incident may be contaminated by hearing others give their versions. This problem arose following the Port Arthur incident and was of concern to police (Bennett, 1997).

During these early hours after a disaster it is probably more important that the survivors feel safe (which in this instance was doubtful), that they are aware that their friends and family know them to be safe (also doubtful), that their physical needs and comfort are addressed, and that they have some idea of what has happened and what will happen.

Responding to those in distress is an intuitive human response. Rigid adherence to an institutionalised form of comforting in the form of psychological debriefing may inhibit more natural and common-sense expressions of care.

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Peter Hessman is a Detective Constable, joining Tasmania Police in 1974. He has been serving with the CIB for 8 years and is a Specialist Detective. He was one of the first police officers to reach the Port Arthur Historic Site on the day of the massacre, and for the first few hours was in charge of that crime scene.

New UN Disaster Management Glossary

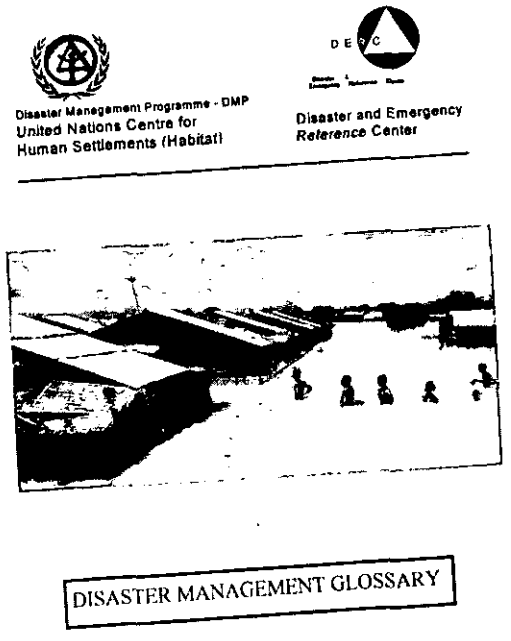
The United Nations Centre for Human Settlements (Habitat) in Kenya, along with the Disaster and Emergency Reference Centre in The Netherlands, has developed a first-draft Disaster Management Glossary.

Disaster reduction is gaining recognition as an important aspect of development planning. Information material and training programs in prevention and disaster management have increased in scope and number. The language of disaster management from various disciplines is for many planners still unfamilar, and the glossary hopes to fill that gap and clarify terms used.

The list is multi-disciplinary, and most entries are coded according to the specific sector of disaster management from which the term comes. These include general disaster management (DM), technological disasters (TD), human settlement (HS), natural disasters (ND), emergency response (ER) and wildfire (WF).

The publication can be obtained for US$10 by contacting:

Disaster and Emergency Reference Centre (DERC)
Postbox 338
2600 AH, Delft, The Netherlands
Tel: (+31 842) 11 6973
Fax: (+31 15) 278 4408
E-mail: disaster.derc@usa.net



Two-State Emergency Services and Industry Training: a big success

by Brian O'Connor, Chairman of the Canberra and Regions Oil Industry Emergency

Albury was the scene on March 5–6 for a series of unique joint emergency service and industry training sessions for emergency responders from both Victoria and NSW. Specialists from the oil industry conducted sessions showing how to safely handle tanker rollovers.

When a petroleum product incident occurs, it is essential that correct operating procedures are followed. On rural roads, first responders are often the local bushfire brigade or police. They may have no real knowledge of the working of a road tanker or how to handle the specialised equipment on these vehicles.

The training sessions were conducted using a specially modified 'rollover' tanker that can be laid on its side to simulate an actual incident. This enables emergency responders to be trained in 'real-life' conditions. The tanker unit can even be made to leak at certain points, adding to the realism of the training.

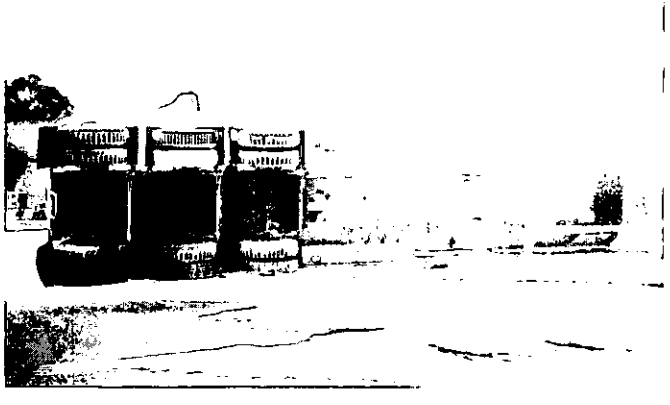
Participants attended from a number of emergency services, government agencies, local governments, oil industry distributors, tanker drivers and depot staffs. Training included how road tankers are constructed, the various valving configurations, venting, hatches and practical methods to stop leaks.

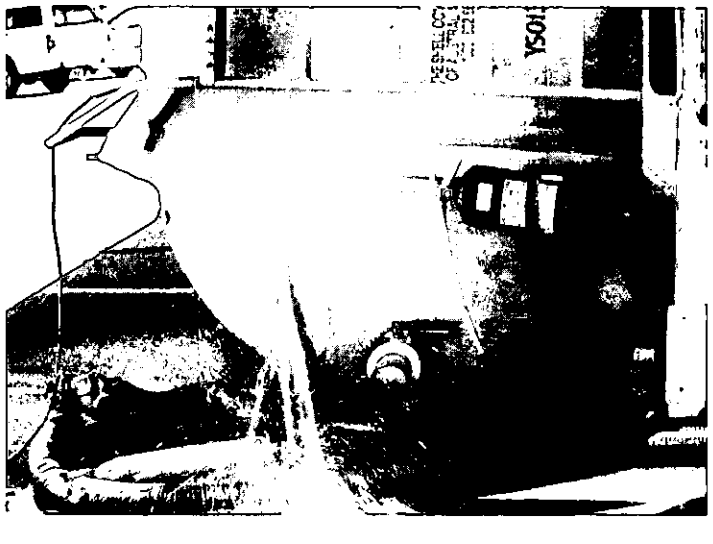
Product recovery from tanker incidents is another area where specialised knowledge is essential. The sessions demonstrated how to cut into tankers to enable safe and prompt product recovery, the separation distances to be observed from ignition sources and what equipment and protective clothing to use in the product recovery operation At the end of each session a foam cover was put down, an essential part of the initial emergency response in suppressing product vapours.

Vehicle salvage was also an area in which some points were highlighted. Petroleum product tankers are specialist vehicles and unsafe vehicle salvage methods can create very real hazards.

The fact that 600 people attended was a tremendous response, and was indicative of the interest in learning more from industry experts on how best to respond to tanker incidents. Many compliments were passed about the high standard of the training. Not only have the sessions been very successful in getting people from across borders to train together but also the 'side-by-side' training of industry and emergency services puts in place a platform for future co-operation.

For more information about future cross-State rollover training, contact Brian O'Connor, telephone 02 6226 1752 fax: 02 6226 1643 or e-mail: bjpoc@u030.aone.net.au.





Flood management in The Netherlands

by M. J. Bezuyen, MPA, M.J. van Duin, PhD, Crisis Onderzoek Team, Rijks Universiteit Leiden/Erasmus Universiteit Rotterdam, and P.H.J.A. Leenders, ing. Fire Chief, Nijmegen

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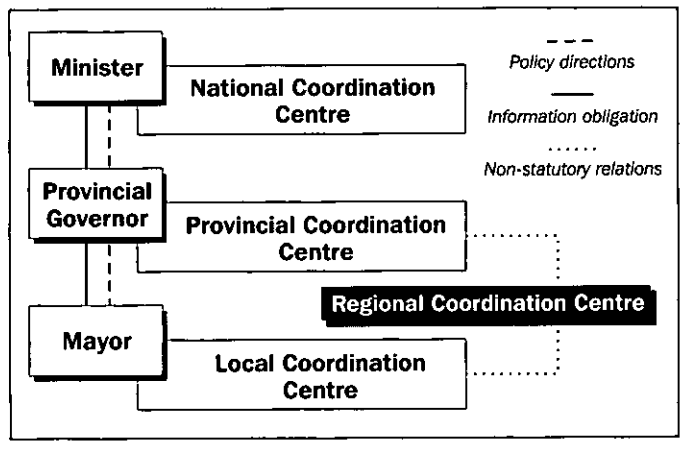
Introduction [1]

In December 1993, continuous and heavy rainfalls in France and Belgium caused a flood in the province of Limburg, situated in the southern part of The Netherlands. Thirteen months later, in January and February 1995, flooding struck the province again. This flood covered more territory, and rescue operations had to be undertaken in six provinces. There was also a difference between the threat to the province of Limburg and the threat to the other provinces in the Netherlands. While Limburg actually flooded, the risk of dikes breaking in other provinces led to nearly 250,000 people being evacuated from their homes.

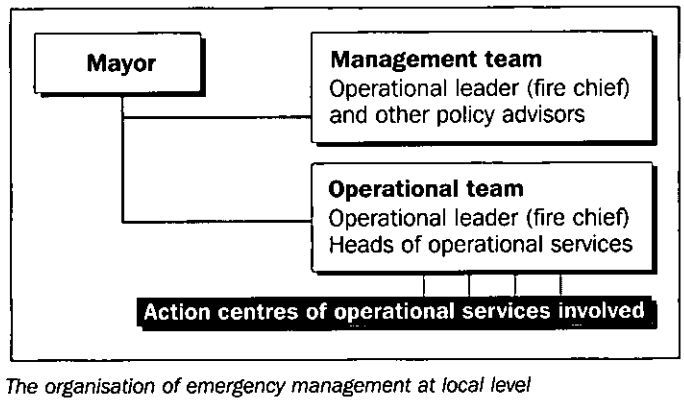
Not only the basins of the large rivers in Western Europe were flooded. Regions in Southern Europe were also affected, such as Valencia, Athens and, very recently, Sicily.

The floods are partly a result of human behaviour. Because of an increasing population, pressure in already densely populated areas, residential zones and industrial sites is becoming greater in areas that are already facing a flood risk. Floodplains are now being used for housing and agriculture. Furthermore, different measures have been undertaken to canalise the rivers. The surplus of water cannot be stored temporarily in natural floodplains and instead runs directly to the sea, leading to situations where the water rises more quickly in downstream areas than in the past.

This article deals with several aspects of the floods that occurred in 1993 and 1995. A brief outline is given of the formal system of disaster management in the Netherlands. An overview is provided of the events that took place during both floods. The specific situation in Nijmegen region during 1995 will be examined by the fire chief in charge of the operations. Finally, flood management during the period of high water will be reconstructed on the basis of two themes: warning and evacuation.



Relations between State, province(s) and municipalities in case of a disasters (where municipal boundaries are transcended)



The organisation of emergency management at local level

***Figure 1**: Organisational Structure of Emergency Mgt in The Netherlands.*

Disaster management in the Netherlands

In 1985, the Dutch parliament passed a new Disaster Act, which defines a disaster as an event endangering life and health of a large number of people, or causing severe harm to material interests, and which requires coordinated efforts from various fields of expertise. This conceptualisation of disaster reflects the prevailing principles of disaster management in the Netherlands. A very general notion of the social and economic disruption of the community is combined with an explicit demand for governmental activity and for coordination between governmental agencies. The Dutch emergency management structure is characterised by different levels of government being involved i.e. central government, twelve provinces and several hundred municipalities *(see Figure 1)*.

Local and regional fire brigades are the most important operational services involved in emergency planning. As the Disaster Act dictates, the local fire chief has the primary responsibility for on-site coordination of local disaster responses. Generally, local emergency management coordination centres and operational centres are established. In addition to these centres, so called 'action-centres' become active. Here teams composed of members of specific divisions perform tasks in fields such as public relations, civil services, public works, and environmental services. In recent years, some executive agencies crucial to disaster management, such as the fire brigade and the police, have switched nationwide from a local to a regional mode of organisation—with the precise boundaries of the regions differing markedly across organisations. In doing so, an extra

Notes

1. Part of this paper is based on comparative research (on assignment of the European Commission) that studies the 1993 and 1995 flood from the perspectives of France, Germany, Belgium and The Netherlands. The Crisis Research Center has also been asked by the Ministry of the Interior to study the consequences of the evacuation of the 1995 flood. The goal of this study is to draw lessons for the future.

level in the formal emergency management organisation was created.

In the preparedness phase of emergency management, local authorities are often the key actors, which shows the essentially decentralised approach envisaged in the Act. However, when the situation becomes more serious or transcends the boundaries of one municipality, provincial or even national authorities (especially the Ministry of Home Affairs) may decide to coordinate or otherwise intervene. More specifically, under the circumstances that mayors at the regional level do not succeed in their joint efforts or their decision-making is contrary to supra-municipal interests, the provincial governor may give indications for administrative action. A similar situation may occur between provincial governors and the minister of the Interior when a disaster transcends boundaries of one province [2].

The Directorate-General of Public Works and Water Management, part of the Ministry of Transport and Public Works, is responsible for communications about the water-level of the Dutch rivers. The Directorate-General of Public Works and Water Management (RWS) has a decentralised structure. Every region has its own section. RWS operates in close cooperation with the Institute for Inland, Water Management and Waste Water Treatment (RIZA)[3]. Communication about water-levels is done through the Regional Coordination Centres.

The 1993 and 1995 floods

The 1993 flood

Before a more thorough overview of the events in 1995 is given, a brief insight into the flood of 1993 is valuable. During that period, nearly one-fifth of the province of Limburg was flooded by the river Meuse.

The water level of the river Meuse started to rise on Saturday 18 December 1993. The rising water was caused by continuing rainfalls in the northern part of France and the Belgian Ardennes. On Monday 20 December it became clear that the water level of the Meuse was reaching a threatening height. Emergency services were warned in several parts of the province of Limburg. Shortly after the alarm had been given, several parts of the villages of Borgharen and Itteren, situated on the Dutch–Belgian border very near to Maastricht, were invaded by the incoming water. Emergency services and citizens were surprised by the speed and magnitude of the flood. During Tuesday other villages along the Meuse were flooded. The situation deteriorated further on Wednesday 22 December.

The water left a trail of destruction. Infrastructure utilities started to fail, farmers saw their cattle drown and some businesses feared bankruptcy. Ten thousand people had been evacuated and thousands of hectares had been flooded. The hard-hit area was officially declared a national disaster on Christmas day.

On Tuesday 28 December, the water-level of the Meuse finally started to decline. The province began with an audit of the damage. Registration forms could be collected from the province. From Wednesday 29 December, emergency services started to reduce their staff levels. The total amount of damage was over 100 million ECU.

The 1995 flood

Heavy rainfalls in France and the Ardennes gave rise to anxiety in the province of Limburg. Although RWS declared that the water level was not going to reach the height of 1993, people were not willing to take any risks. On Monday 23 January, villages along the Meuse were taking necessary measures to prepare themselves for a new flood.

On the Tuesday the water-level was still under the 1993 height. Nevertheless, crisis centres were being set up in case a new flood might occur. On Wednesday 25 January RWS made an alarming prognosis for the coming days. It seemed the water level would now exceed that of 1993. This was the definitive sign for action. The mayor of Maastricht advised the inhabitants of Itteren, Borgharen and another part of Maastricht to evacuate. These calls for evacuation seemed to be ignored by most of them. Ministers and members of parliament visited the province and showed their sympathy with the population.

Over the week, the situation deteriorated quickly. Inhabitants of Limburg were trying to save their belongings from the rising water. Every village along the Meuse had set up its own crisis centre. In several villages, a 'state of emergency' was declared. This gave the mayor the authority to force the inhabitants to leave their homes. On Friday 27 January, the provincial coordination centre reported that about 2,630 people had been evacuated so far. More than 13,000 houses were flooded by the water.

Not only the river Meuse gave problems, but water levels of rivers such as the Rhine and the Waal were also rising. This meant that other provinces would be in trouble as well. The situation in the province of Gelderland seemed especially alarming. This area, called the 'river-area', is situated between the rivers Rhine, Meuse, Waal, Lek and Neder-Rhine. The bad state of some of the dikes in this region led to the danger of them breaking through. If the dikes burst, some of the polder-land would be flooded with water within a few hours. In contrast with the province of Limburg, this could lead to a life-threatening situation for the inhabitants of this area.

On Saturday 28 January, the polder-boards, responsible for the maintenance of the dikes, declared that the situation in the 'river-area' was alarming. They thought that the prognosis of RWS was too optimistic and presumed that the situation would deteriorate during the weekend. They based their opinion on the situation in Germany, where heavy rainfalls and snowmelt caused the water level of the Rhine to rise further. In the evening, RWS gave a new prognosis which confirmed the opinion of the polder–boards.

In the meanwhile, preparations in the 'river-area' were being made in case an evacuation was necessary. The next day, Sunday 30 January, a crisis meeting was held in Arnhen between the provincial governor and the three coordinating mayors within the provinces of Gelderland, Nijmegen, Arnhen and Tiel. During this meeting, it was discussed whether an evacuation of the first part of the region (Ooijpolder and Land van Maas en Waal located in the area of Nijmegen) would be necessary. A representative of the polder-board, in which this area was situated, stated that from Tuesday they would not take any responsibility for the safety of the dikes. The participants all agreed that an evacuation was unavoidable. The final decision would be made in the regional coordination centre of Nijmegen in which all mayors, who are primarily responsible for public safety and order in their municipality, were represented.

On Monday 31 January, the regional management team in Nijmegen decided to evacuate part of the region. When the

Notes

2. Commission Boertien, December 1994, p. 2-1.

3. The Institute for Inland Water Management and Waste Water Treatment (RIZA) is the research and advisory institute of the RWS for fresh water in the Netherlands and a national knowledge centre for integrated water management.

provincial governor advised people to leave their homes, most of them were already on their way. The warning signals from mayors, representatives of polder-boards and the provincial governor had resulted in the voluntary evacuation of a great part of the population in this region. From Tuesday 9.00 a.m. onwards, nobody was allowed to enter or leave the evacuated area. Until that moment, everyone had the chance to move their belongings to safer places. Farmers were able to evacuate their cattle until Tuesday 9.00 am. Hospitals and old people's homes were evacuated on Monday. Assistance was provided from all over the country. Over the following days, the provincial coordination centre decided to evacuate other areas as well. In some cases, an emergency evacuation had to take place, because a sudden problem in the dike made a breach possible. Eventually, nearly 250,000 people had to leave their homes.

Problems occurred regarding farmers, commerce and industry. Special plans were not available and it seemed that the lead time for these groups to evacuate needed to be much longer. For example, for one corporation it would take about fifty days to move their stock to another place. Other examples showed that farmers and directors were reluctant to leave their business. They declared that they would take the risk. The economic damage would be too high for them. Despite these problems, the evacuation went well.

The situation remained critical, although the water level did not rise any further. The length of time during which the water level was high, meant that dikes were saturated. Therefore, the risk of a breach of a dike was still possible. However, people were getting anxious to go back to their homes. The provincial governor and the Minister of Home Affairs stated that this would not be allowed.

On Thursday 2 February, there were rumours that people might be allowed to go back the next weekend. The decision for this return would be made within a few days. From that moment on the Minister of Home Affairs had decided to use his authority to intervene in the decision-making process. Every decision concerning the return of the people should be discussed with him first.

On Friday the third of February, the water-level of the rivers dropped rapidly. The general opinion was that it would only take a few hours before the population could enter the evacuated areas again. Nevertheless, the decision was postponed until Saturday. A conflict arose about the timing of the message for the people to return. The provincial governor wanted to communicate the message as soon as the decision had been taken, while the coordination centre in Nijmegen insisted on waiting until the population could actually return. This would prevent chaos on the roads. In the end, it was decided that the people would be told the moment it was actually possible.

In a press conference on Saturday morning, the minister stated that the people could return to their houses. This started on Saturday 4 and Sunday 5 February. Just as with the evacuation, the return went well.

A case-study: the region of Nijmegen

In the region of Nijmegen, a well-prepared disaster relief and evacuation plan combined with good coordination between authorities, made for an efficient and smooth evacuation of thousands of people and cattle. An advantage, however, was that the Dutch authorities could anticipate the problems and prepare well in advance of the possible high water levels. In Southern Europe, floods are more of a sudden nature and effective emergency plans are necessary for the safety of human beings.

The disaster relief plan

The region of Nijmegen is bound by the river Waal, which is on the north side, and the Meuse, which is on the south side. These are the natural borders of the region. On the east side, there is the German border. There is a difference between floods in polders and in the areas without dikes, for example along the river Meuse in the province of Limburg. In areas without dikes, there will be instant flooding by the rising of the waterlevel in the river. However, there will be no flooding in areas with dikes (mostly polders) unless the dikes are broken or the waterlevel in the river is higher than the top of the dikes [4].

Because of the possibility of floods and the threat of a dike breach, a disaster plan was drafted for the region of Nijmegen in the early 1980s. After the flood of 1993 from the river Meuse and the fact that there appeared to be real threat of weakening and breaching of the dikes along the river Waal, the board of mayors from the region decided to update the plan.

The question that had to be answered in the plan was 'would there be enough time for evacuation in the case of a dike breach, and in what order should measures be taken?'

Eventually, there should be a plan for each polder. In every polder, there is more than one municipality, which means there could also be a co-ordination problem. In the Netherlands, the mayor is responsible for disaster management. If more than one municipality is hit, and more than one mayor is involved, there could be a problem. This was solved by introducing a co-ordinating mayor, the 'super-mayor'. In this region, this was the mayor of Nijmegen. His task is to achieve consensus of opinion between all the mayors concerned.

The expected water-level and the safety of the dikes are important factors underlying organisational preparedness. To prepare the organisation for full emergency response, four stages were distinguished.

1. Technical measures must be taken.
2. The local disaster staff must be operational.
3. The regional disaster staff will be operational including all elevated services. At this stage there could be the danger of breaching the dikes. All measures must be taken and responsibilities according to the Disaster Act are now in operation.
4. A dike breach occurs and an urgent evacuation must take place.

In the disaster planning, all services related to this kind of disaster are involved. Special issues dealt with by this plan, which was accepted in December 1994, were:

- inundation scenarios
- evacuation planning for persons
- evacuation planning for animals
- communication plan
- information for the population.

Inundation scenarios

During the recent floods large areas had to be evacuated, which has shown that large-scale evacuation is an essential part of scenarios that had to be considered. Besides the evacuation, experience has shown that the flood causes enormous social disturbance. Not only do people

Notes

4. The situation in the Netherlands differs from that of Germany, because the so-called bath-tube effect of the Dutch polders is more severe than those in Germany. The water level in a flooding polder can reach a depth of 4–7 metres. The risk for the population and the cattle is great.

experience great mental pressure, cattle suffer as well. Furthermore, economic consequences are tremendous, not only the cost of the operation, the care for refugees and loss of income, but also loss of production and damage to means of production, cattle, agriculture and horticulture.

All this is sufficient reason to consider decisions about an evacuation extremely carefully. This is made more difficult by the shortage of key data. This data, on which decision-making can be based, concerns the range of areas to be evacuated and the times when evacuation should take place.

During the recent floods, only cursory means of support were available, namely the criteria and inundation scenarios that the emergency management team had drawn up. The inundation scenarios are based on assumed water heights (based on probability calculations) and provide an insight for a limited number of periods only (the time-bar, moreover, is rather extensive, viz. 24, 75 or 175 hours). Further, details of the time-bar as well as adjustment to present water levels could already provide a much clearer picture.

If there is more insight into how an inundation takes place in relation to the time needed for the evacuation of the area, it is not only possible to define more accurately the moment of evacuation and the range of the area to be evacuated, but it may be possible to render preventive evacuations completely unnecessary. This fact is also relevant if strengthening of the dikes in the polder has taken place. The increased quality of the dikes will expel potential dangers similar to those at the beginning of 1995. A dike breach, however small the chance may be, will remain a possibility (although a remote one).

That is the reason that the region of Nijmegen together with the region of (Kreis) Kleve and the Road and Hydraulic Engineering Division from the Dutch Ministry of Public Works and Water Management have proposed a pilot project to the Commission of the European Union for an 'SDSS for evacuation of inhabitants and cattle out of a flooding polder' (for the proposal see box above).

The flooding of 1995

Only a few weeks after the latest plans were accepted a new flood took place on 25 January 1995. While our region was the only one with new plans and the discussion about the contents had just ended, it was possible to put the plans into practice in a short period of time. The mayors of all the cities involved were informed about the main issues of the plans. This made discussions about the process much easier. The necessary decisions could take place more easily, because everyone knew the consequences and the next steps to be taken.

While the water level was still rising, the 'water authorities' brought attention to the possibility of a breach of the dikes. At a certain moment, there was a point of no return when the water authorities no longer accepted any responsibility in our region for the safety of the dikes along the river Waal.

At this point the responsibility for the safety of the whole population and cattle in the polders of Ooy en Maas en Waal was in the hands of the mayors involved. They could not in any way take this responsibility. How could they justify any decision of passivity should a burst ever occur? Eventually, this led to the decision to evacuate all the people in the threatened areas (30 January).

Fortunately, it was foreseen that this could happen. Therefore, the evacuation plan for the areas involved was already prepared. When the board of mayors took the decision to evacuate, all the planning had occurred and the total amount of required personnel and materials were ready.

Because the region of Nijmegen was the first to decide to evacuate in the province (together with German neighbours from the Kleve region), this worked as a snowball for the rest of the province. It was acknowledged that after the decision, other regions would soon

Proposed Pilot Project

On the basis of a prototype model developed for the Ministry of Public Works and Water Management in 1992, it is possible to improve policy assessments. As neither geographical nor population data have been stored into that prototype model, it is not ready for practical use yet. In order to develop the model into a fully usable program, it is necessary to store data in cooperation with an actual region (the region Nijmegen together with the Kreis Kleve will be that region).

Previous to, during and after an expected disaster caused by inundations consequent to a breach of the polder dikes, operational insights and information are built up around processes that will appear in polder areas. This will be based on a spatial-(physical) and attributes-related (socio-economic etc.) description.

Those operational insights and information are supported by knowledge concerning:

1. *Hydraulics*—new knowledge and experiences acquired during the recent evacuation and disaster management activities in the Nijmegen region and other polder areas.
2. *Applied spatial informatics*—spatial decision support system (SDSS) approaches in case of disasters, as currently described for both natural and human caused disasters, especially with the aid of geographical information system tools integrated in such SDSS.
3. *Disaster mitigation*—disaster management, risk reduction and relief can be supported by research and evaluation studies carried out for other crisis management circumstances, e.g. industrial and other public emergency situations.

The development of the SDSS will be reached by:

1. Spatial descriptions of polder and adjacent areas, with maps, statistics and data listings ready to support decision makers with highly needed information.
2. Knowledge concerning the following relevant process: water behaviour and flooding, start and progress of connected disasters, relief, evacuation and opportunities for fast physical repairs of protecting devices such as water barriers and dikes.
3. The simulation of processes and consequent effects are 'managed' by parameters. One example is the average costs for one evacuating inhabitant. Another concerns the acceptable minimum time span between the start of the evacuation and the moment of estimated dike breach. A reduction of this time span causes extra risks and an extension may cause serious financial consequences.
4. Knowledge about organisational issues: available personnel to guide the evacuation, available materials for transport, available reception centres, food, communication between crisis centres.

follow. So, the Gelderland Province and the Home Secretary were informed. A great part of the population (90%) decided to evacuate voluntarily using their own means and staying with family or friends elsewhere in the country. The evacuation of cattle however was more difficult. Apart from the great transportation problem, housing and feed were difficult.

After the evacuation had taken place, the area was abandoned and had to be guarded by the police and the fire-brigade. However, there was continuous pressure by farmers and industries to temporarily return to their property to reduce damage and to maintain their equipment. This was a difficult problem for the authorities and not every authority acted in the way that they had been agreed in the board of mayors.

Following its natural course, the water level began to fall. After some time, the 'water authorities' could guarantee safety again. Everybody could return to their properties. After the return of the population, all kinds of technical measures had to be taken, for example electricity, gas and telephones had to be restored.

An extra effort to guard the area was necessary and only the people who lived there could return. This operation was successful because a 'Plan for Return after the High Water' was drawn up. This plan contained, besides some statements, the measures for guarding the area, rules for accessing the area, transportation for people and cattle, public utilities and information. The return of the population was very successful. Nevertheless, in the evaluation afterwards, some lessons were drawn (see box below).

Flood management: warning and evacuation

In regard to the warning process, the difference between the 1993 and 1995 floods was remarkable, with some major consequences for the response.

Warning: a comparison of 1993 and 1995

In 1993, southern Limburg was taken by surprise by the sudden increase in the influx of water. Different aspects can explain a late and incoherent reaction.

Firstly, the authorities and inhabitants had not considered a situation like this ('it cannot happen here'). In earlier years high water had occurred frequently (the last time was at the beginning of 1993!) and the problems were always minor. But even though the situation was different this time, authorities and inhabitants did not expect the flood to become a major threat.

Secondly, the 1993 situation highlighted the lack of communication between the Belgian, French and Dutch instrumentalities involved (water boards and local authorities). Since there was no contact between the Dutch and Belgian authorities, South Limburg was warned at a relatively late stage. A researcher in Delft stated this quite firmly: 'For the Netherlands the Meuse (and measurement of high water) started at the frontier [5]. Due to this lack of communication, authorities and public were surprised by the sudden high water situation.'

Thirdly, in 1993 the preparations and planning for high water were not impressive. When the situation became critical the operational services started to look for things like boats, sandbags and pumps. The degree of preparedness was insufficient to combat the flood. The difference between the high damage in 1993 and the comparably low damage in 1995 can almost be totally explained by this lack of preparedness.

The other regions in Limburg, and other parts of the Netherlands, had more time to prepare for and inform the public about the coming threat. Due to the slow onset, the water took three to five days to rise in these areas. Therefore, there were no particular problems concerning the warning of flooding. The information was nevertheless very important for the next stage in the process, the evacuation.

Evacuation

One of the central issues of the 1995 flood was the massive but smooth evacuation of nearly 250,000 people. With respect to this evacuation two questions could be posed. First of all, the decision to evacuate a large number of people put a burden on the responsible decisionmakers. The first question deals with the reasons for evacuating this part of the Netherlands. Secondly, many people wondered what made the evacuation such a successful operation.

The reasons for evacuation

• *A life-threatening situation.* In a way this question about the reasons for evacuation looks superfluous. People were evacuated because it was life-threatening. Of course, this is the main and to a large degree the only reasonable answer. Both the authorities and the people directly involved were convinced that there was a high-risk situation. Large sections of different dikes were 'old fashioned' and in bad shape. For a number of reasons the safety of the river dikes had been a non-issue during the last few decades.

Although plans for maintenance were ready, the lack of priority gave no urgency to implement them. When it rained for days in the river basin of the Rhine and the water level rose, the old dikes became a problem, because the sliding or collapse of a dike can endanger large numbers of people.

• *No guarantee.* Although the situation was more severe than in other years, there had been similar situations in the past (1988, 1993). This time the water rose higher and this time the polderboards, responsible for the maintenance of the dikes could no longer guarantee that the dikes would keep the water out.

Lessons drawn

- A study is necessary to determine the consequences of constructing compartments in the polder.
- A spatial decision support system (SDSS) is needed for operational management of civil protection by polder evacuation and disaster mitigation in case of flood.
- The rules for entrance to the abandoned area have to be settled, despite the needs of individual municipalities, in a way that is realistic for the police, who have to enforce them. This also applies for the people who stay home.
- The evacuation of cattle should be more clearly described for a more practical execution.
- Before a new decision about evacuation is taken, more needs to be known about the economic issues regarding the farmers, the trade and the industry.
- there should be clarity about the damage payment from the government. Everyone should know what they can expect in future cases.
- The information to the population can be improved.

Notes

5. *De Volkskrant*, 30 January 1995.

This was a new experience for the responsible authorities (mayors), who subsequently became responsible for the safety of their inhabitants. There was no other solution than to evacuate, after the experts withdrew their guarantees.

For the 'water authorities' the evacuation of such a massive number of people was, in a way, a blessing in disguise. It was a great opportunity to improve the quality of the dikes. After the evacuation, everyone was aware of the deplorable state of the dikes and a consensus existed for the need for rapid repairs.

• *An ongoing process.* Scanlon argued that the 1979 evacuation of Mississauga was a process with some psychological aspects[6]. The evacuation started close to the affected area, but in the hours and days that followed, broader circles around the disaster were evacuated. The evacuations continued not only because of the increased risk, but also because the initial evacuations were so successful. There was no reason for the police to stop, they just continued their job. In the balance between staying and evacuating, the latter became more popular.

To some degree there was a similar pattern in the 1995 flood evacuation. The successful evacuation in the Nijmegen area made the decisions of the water authorities and the public authorities further down the river much easier. The risk and uncertainty of a flood were, after the first successful evacuation, greater than the problems and risks from an evacuation. In other words, this process made it difficult for authorities to decide not to evacuate.

The success of the evacuation

Despite some minor problems during the actual evacuation, everyone agreed that the operation was a success. The population was praised for their disciplined behaviour. But was this behaviour the only reason for this outcome? There are other reasons that can explain the success of the evacuation.

• *Preparation.* Most of the people involved believe that preparation helped a lot and made the evacuation process smoother[7]. After the high water in 1993, the province of Gelderland and especially the region of Nijmegen were convinced that the development of a special emergency 'high water' plan in case of a flood was necessary. The first efforts for such a plan were undertaken in the beginning of 1994 by the region of Nijmegen. This plan served as a model for other regions in the province. At the end of 1994 this model was accepted and sent to other regions in the province. Although the other regions had not formally accepted this plan before the 1995 flood occurred, most of the regions could use it as a guideline for their response to the flood.

As soon as the flood occurred, preparations were undertaken in Nijmegen. Two days before the decision to evacuate, a special team of police in charge of the evacuation was formed to develop, on the basis of the emergency plan, a more specific evacuation plan. Some days later, these preparations were useful during the evacuation.

It could be argued that it was rather fortunate that the region that was best prepared for a flood was also first hit[8]. The successful evacuation of Nijmegen (about 60,000 people) must have given confidence to the other regions that an evacuation of a large number of people was possible. Also, a positive side-effect of the first evacuation was that people in other areas were convinced there was an actual danger for the population in the province. This gave them a good example ('they were evacuated yesterday, we may be evacuated tomorrow').

• *A real threat.* The appearance and severity of the threat were clearly visible. The slowly-developing threat gave the responsible authorities enough time to convince the population of the danger. It started with the 'wet-feet situation' in the southern part of the Netherlands. After that, pictures were shown of the situation in Koln and Koblenz (with large parts of the cities under water). Eventually, people saw the high water-level in their own region. These pictures seemed to have a major impression on the perceptions of the population. It did not take too much effort for the authorities to convince the people that there was a threatening situation. Probably, this was the most fundamental explanation of the success of the whole evacuation[9]. Most of the people of the evacuated areas were convinced of the threat of the situation. The visibility of people leaving made others evacuate.

A survey conducted by the Crisis Research Center confirmed that a majority of the people evacuated far in advance of the official dead-line. Results of the survey also show that nearly 90% thought that the evacuation was justified and about 80% would evacuate again next year if a similar threat occurred[10].

This argument gains strength when the situation in southern Limburg is considered and how it differed completely. Here people were reluctant to leave their houses. Although flooding took place, a life-threatening situation did not occur. This was also the main reason that mayors decided not to force people out of their houses.

• *Slow onset.* Urgency is one of the common features in crises. The amount of time and the presence of urgency do not only influence decisionmakers, but also affect people involved. Lack of time, and more importantly the feeling that there is a lack of time, is a key factor in the possible presence of panic-like behaviour[11].

The people in the province of Gelderland had enough time to prepare themselves for the flood. Measures were taken to protect their belongings in case a flood occurred. Furniture was moved and kitchens were disassembled. As soon as these measures were completed, there was no reason for them to stay any longer. In addition, the large number of policemen which were present in the area gave them the idea that everything was well protected. The long lead time was an extra reason for the people to react calmly to the message to evacuate.

• *A 'three-stage rocket'.* Authorities communicated to the public about the evacuation in three different stages. This started with information about the coming threat, which made the people conscious about a possible flood. Then, a governmental three-stage 'evacuation rocket' was launched. The first stage was the advice to the public to prepare for an evacuation. The second was the urgent message to evacuate before a certain time, and the third and final stage was the deadline posed by the local government. This communication strategy

Notes

6. See Scanlon T.J. 1989, 'Toxic chemicals and emergency management: the evacuation of Mississauga, Ontario, Canada', in U. Rosenthal, M. T. Charles and P. 't Hart (eds), *Coping with Crisis: The Management of Disasters, Riots and Terrorism*, Charles C. Thomas, Springfield, pp. 303-322.

7. This is based on interviews done by the Crisis Research Center in relation to the study that is currently been done.

8. Of course, this is not a coincidence. Due to the fact that the Nijmegen area was threatened most in 1993 and the area with the highest risk, the first preparatory measures were undertaken in this area (see also end of this paper).

9. This confirms the results from studies done in the field of disaster-sociology.

10. This survey was set up to study the reactions of the population to the recent events. About 500 persons in the province of Gelderland were questioned by the Crisis Research Center.

11. Panic is one of the myths: everyone would expect panic, but research has shown that this is hardly ever the case.

appeared to be successful. This method was only possible because of the long lead time available. This is again confirmed by the survey. It showed that about 75% evacuated 24 hours or more before it was obliged[12].

• *Self-regulating behaviour.* After the flood was over, the authorities and chiefs of operational services were positively surprised by the co-operation of the people. Nearly all evacuees left and returned to their homes without any support. The authorities planned for almost 25% of the people needing to be transported by public means (ambulances, buses). During the evacuation, only 3% had to use these means of transportation. The same goes for temporary accommodation—expected usage was 10%, the effective use was less than 3%.

There are some explanations for this discrepancy. The authorities overestimated the numbers and were not aware of the results of international research in this field. Secondly, due to the amount of time, almost 10% of the people who had no means of transportation were picked up by relatives or friends. Finally, there were no special problems that authorities had to deal with. The composition of the population was rather homogeneous. No attention had to be paid to special groups like for instance immigrants.

• *Co-operation from the media.* Afterwards, authorities showed their surprise at the massive presence and role of the media. For days, the town of Nijmegen was besieged by foreign reporters. The flood was an important news item for almost ten days. It is certainly interesting to see that the local and regional broadcast organisations played a central role during the flood. Before the evacuation in Gelderland took place, information was obtained from regional and local radio stations. Afterwards, the survey showed that the people were of the opinion that the regional radio station was the most popular and trustworthy[13]. This conclusion also applies for some municipalities in Limburg. In Venlo for example, the local radio station was the primary source for the local people.

To conclude, it can be stated confidently that the whole evacuation process went well.

Concluding remarks

It is impossible to present a complete picture of the floods of 1993 and 1995 and the warning process in such a short article. For that reason, a number of interesting aspects have been left out or only dealt with briefly. This is the reason this article ends with 'concluding remarks' instead of 'conclusions'. These remarks focus on the subjects that were amongst some of the most interesting issues of the 1995 flood.

Authorities and responsibilities

This article started with an introduction to legislation of emergency planning in the Netherlands. During and after the 1995 flood, on-going discussions have been held about the subject of authorities and responsibilities.

Central questions were: Why did the Minister of the Interior intervene in the decision-process? What was the role of the provincial governors and what is their relation with the so-called 'supermayors'? Are municipalities the right level to combat a flood or take decision like an evacuation? From what level should operations be coordinated?

To answer these questions would take another twenty pages. Still, we want to make some statements about these issues. It is interesting to note that there is a discrepancy between the way authorities work together and their reaction afterwards. The authorities worked well during the critical situation, but conflicts occurred when responsibilities were discussed in the aftermath. One of our respondents stated: *'from the moment the water-level was decreasing, there was an increase in conflicts about responsibilities'*. The tendency towards centralisation during the decision-making has been discussed thoroughly. Certainly, there are various reasons for such centralisation of decision-making. Decisions about evacuation and return of people over a large area always supersede the level of the evacuated areas. However, people go outside the area, so other areas become involved.

Another interesting subject concerns the role of the so-called 'supermayor'. There is still discussion about the position of this person. The discrepancy with the formal system of emergency planning (there is no formal status for this person) was also an important stimulus for the discussion about the structure of Dutch government (the scale and number of provinces or a fourth layer of government).

If ... then tensions

One of the interesting and frequently mentioned issues about the information, warning and evacuation process is the exemplary function of decisions and preparations. When a director of an old people's home, hospital or prison decides to prepare for an evacuation, this immediately has effect on the behaviour of the population in the neighbourhood. The same goes for the police or firefighters who start to move belongings to a safer place, while neighbours are still ignorant about the coming events.

Another example is the differences in return. Some people had to wait one or two days, while others were already returning to their homes. These sorts of phenomena were visible during the evacuation process in 1995. This led to foreseen and unforeseen processes such as a snowballing effect. In some cases, it took authorities quite some time to inform the people of the decisions that were taken.

Broader lessons

What can be learned from this successful operation? Most people, including us, are reluctant to translate the success of this operation to future occasions. Each crisis and disaster has typical, but also a-typical features. It is, in this respect, dangerous to translate these experiences too easily to other situations with perhaps other features (less warning time, other organisations involved and another agent, for instance chlorine instead of water).

On the other hand, some general lessons from the disaster literature have been confirmed during the flooding. The self-regulating behaviour of people is the most important aspect. In a sense, the success of the operation can for a great part be ascribed to the behaviour of the people in the Netherlands.

Notes

12. See note 7.
13. See note 7.

Further explanation of term 'Polder'

Polders and Polder-lands are areas that have been reclaimed from the sea, surrounded by dykes. Polder-boards are regional water authorities, run by elected bodies, with responsibility for flood safety. A polder-board may also be called a water board, because they do not only exist in polders. When the Dutch started manipulating water systems, a need arose for some collective action to protect land and property against flooding. This was institutionalised in the 12th or 13th century in the form of water boards. There are about 120 polder boards and their responsibilities also include water-quality management. The focus of the boards is now less on hard engineering solutions, and more on 'working with nature'. They are the 'practitioners' at a local or sub-regional level and fairly independent from national, provincial or local governments.

Balancing international approaches to disaster: rethinking prevention instead of relief

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Introduction

That there has been a change of focus in disaster research and its application hardly needs reiteration. In the last two decades scholars and practitioners have increasingly shifted interest from the provision of relief to an emphasis on prevention. Mitigation and development are the rallying calls of the day.

While no one can doubt the value that these strategies have on reducing the devastating impacts of catastrophe, there is reason to believe that the current movement—at least at it relates to the developing world—has gone, or may be going, too far. My opinion on the matter is that we are ignoring some of the drawbacks and challenges of solely implementing the prevention route in Third World countries. What I am suggesting, then, is a more balanced international approach to natural and man-made calamities—one that recognises the necessity for both prevention and relief. In order to facilitate my discussion I will examine where we as a disaster interested community have been, where we are now, and where we should be headed in the future.

Where have we been?

Practitioners and scholars have traditionally focused their attention on the response phase of disasters. On the one hand, providers of humanitarian aid have always felt a moral obligation to care for needy victims in calamity-stricken areas. Governments, international governmental organisations, and private voluntary agencies have also sought ways to facilitate the coordination of their relief efforts. On the other hand, students of disasters and policy analysts have critically evaluated relief operations. Their goal has been to offer suggestions as to how the distribution of aid can be more effective and efficient.

Practitioners and disaster relief

One of the first recorded instances of international humanitarianism took place after an earthquake devastated Lisbon in 1755 (Macalister-Smith, 1985). After being notified about this calamity King George II of England requested that Parliament quickly send sufficient and suitable relief to meet the needs of victims in such an emergency. Three years latter, Emmerich de Vattel declared in The Law of Nations (published 1916) that all governments with an abundance of provisions should come to the assistance of those countries which have been smitten by disaster. He asserted further that no civilised nation could fail to respond in such an extremity. In living up to Vattel's assertion about international responsibility, many governments have established relief agencies — particularly during the latter half of the present century — with the task of providing unilateral aid to victims of calamities in other countries. The United States Office of Foreign Disaster Assistance (a branch of the Agency for International Development in the State Department) is only one example of this type of organisation which could be mentioned. Counterparts are manifest in Australia, Canada and England, as well as in other developed countries throughout the world.

In addition to individual nation-states, international governmental organisations have also been concerned with assisting nations that are affected by disaster. The first multi-lateral relief institution, the International Relief Union (IRU), was founded in Italy in 1921 and was later integrated into the politically-established League of Nations. According to the Preamble of the Convention for Establishing the International Relief Union, the member states of the organisation were to 'render aid to each other in disasters, to encourage international relief by a methodical co-ordination of available resources, and to further the progress of international law in this field'. Although the IRU was ultimately unsuccessful at ensuring mutual support in the event of disaster (due to the inherent weaknesses of the League of Nations and lack of political by the United States), it has been suggested that the IRU did make symbolic strides in helping governments recognise the 'need for collaboration in matters of humanitarian assistance through international organisation' (Macalister-Smith 1985, p. 21).

Upon the breakup of the League of Nations and the founding of the United Nations in 1945 there was no immediate attempt to create a new international disaster relief organisation. With the passing of time, however, political leaders again began to see the urgency for expanded and enhanced efforts in international disaster response. Besides the constant demand for assistance by those nations affected by catastrophic events, a major reason for this shift in thinking was due to the burgeoning appearance of other international actors involved in delivering humanitarian aid. Some of these new players included the World Food Program, World Health Organisation and the Pan-American Health Organisation that emanated from the United Nations itself. But the vast majority of these new actors were voluntary humanitarian agencies (VOLAGS) or private voluntary organisations (PVOS) who also felt a similar sense of duty to supply relief to disaster victims in foreign territories.

The International Red Cross, considered to be the most renown of the humanitarian agencies, is an excellent example of the case in point. Macalister-Smith reiterates the fact that the 'resolutions of the first Geneva International Conference of 1863 demonstrate clearly that the founders of ... [this organisation] envisaged a ... development of peacetime relief activities' (1985, p. 17). Henry Dunant himself advocated that the victims of physical calamities were equally deserving of aid as those of man-made disasters such as war. This belief subsequently led to the first large scale international disaster relief operation conducted by the Red Cross as the 19th century came to a close.

Besides the Red Cross, other VOLAGS representing a wide array of

religious–ideological, interest and professional groups became involved in humanitarian service at the international level. A few of these PVOS include the Salvation Army, Oxfam, Catholic Relief Services, CARE, Church World Services, World Vision, and Medecins Sans Fontieres. The growth of such participants was particularly evident as World War II came to a close.

Aware of these more numerous and diverse actors that were providing relief to victims of disasters, governments became concerned with how to properly manage and perhaps incorporate PVOS into their relief activities. For this reason the United Nations Disaster Relief Organisation (UNDRO) was created in 1971 (Kent, 1987, p. 54). Resolution 2816 specified that UNDRO was to mobilise and direct the relief operations within the United Nations system and among relevant VOLAGS. Most assessments of UNDRO reveal that it was never able to live up to this expectation (Borton, 1993, p. 196). But the advent of this international organisation underscored once more the importance that relief had in the hearts of practitioners.

Scholars and disaster relief

Beyond those who served in a humanitarian fashion, students of disasters have also been intrigued with relief operations. The academic investigation of various aspects of international disaster response was clearly made manifest in the 1970s. One of the major issues addressed by scholars during this period dealt with nature of aid itself. Some scholars including Brown (1977) asserted that the quantity of aid is often inadequate as a result of insufficient funding. In contrast, Davis (1977) declared that there was at times an overabundance of aid as was the case with emergency shelters in a Nicaraguan operation. Furthermore, Shaw (1979) illustrated in his study of immunisations in Guam that international aid is often not requested nor required for the disaster situation. Others yet argued that relief was frequently unusable because of cultural or practical reasons (Olson and Olson, 1977). For example, Mitchell (1977) elucidated the fact that certain foods or styles of clothing were rejected by the Islamic members of society in Turkey, and De Ville de Goyet et. al. (1976) showed that medicines could not be administered to disaster victims in Guatemala as they were expired.

Another significant topic researched by scholars regarded the method and means of providing disaster assistance. Several savants, namely McLuckie (1970), Brown et. al., (1976) and Brown (1979), described the difficulties, or were highly critical of the low degree of coordination among humanitarian organisations. Additional students of disasters lamented the inexperience of volunteer and paid personnel in international relief operations (see Wauty et. al., 1977; Brown, 1977). And, many academics pointed to the political problems of providing relief. Taylor (1979), for instance, noted the exaggeration of disaster effects by relief agencies for the purpose of acquiring more resources. Similarly, Green (1977) pointed out the unwillingness of disaster stricken governments to seek aid in order to save face, the favoritism displayed by donor nations, and the inequitable distribution of relief supplies by those who wield power (see also Marshall, 1979).

Studies exhibited a diversity of other themes as well. McLuckie (1970) and Dynes (1972) assessed the lack of trust or presence of conflict among relief workers and disaster victims. Green (1977) highlighted the significant role that the media plays in generating funds while Spencer et. al. (1977) indicated how news-worthy rumors could get out of hand. Brown (1977) addressed the difficulty of assessing relief needs or obtaining response related information as McLuckie (1977) probed the impact that governmental organisation has on disaster response. Finally, Kates (1977) and Bolin and Trainer (1978) looked at what impact traditional family relationships could have on the provision of aid.

The two major policy studies undertaken during this period—the UNA USA Policy Studies Panel on International Disaster (1977) and the National Academy of Sciences' Committee on International Disaster Assistance (1979)—likewise revealed and added credence to many of the above academic findings. These analyses also provided new insights on, and policy recommendations for disaster relief as well. For example, the former group underscored the necessity of adjusting relief responses as each disaster is unique and takes place within a distinct social, political, and economic context. The UNA USA also stressed the value of promoting a mutual understanding of governmental and non-governmental roles in order to facilitate relief coordination. The latter council attempted to highlight the difficulty that relief organisations have in distinguishing disaster related issues from the chronic problems facing Third World countries, and indicated their desire to prevent a duplication of efforts and the waste of resources by calling for inter-agency cooperation.

As can be seen, practitioners have historically felt a responsibility to care for the unfortunate victims of natural disasters. Their collective organisational interaction and individual mission statements revealed a desire to improve international relief operations. With similar zeal, students and policy analysts examined humanitarian actions in order to understand what takes place in the response phase of disasters and to recommend how the provision of aid could be improved in foreign territories. In sum, the prestige of the relief approach to calamities has traditionally been towering.

Where are we now?

In the late 1970s and early 80s the reliance on relief as a solution to disaster was coming under attack. By the 1990s a new approach which stressed disaster prevention began to gain hegemony. The predominance of mitigation and development over relief is now readily seen in both disaster policy and scholarship.

The shift in emphasis

Many of the previous mentioned scholars and policy think tanks that were concerned with disaster relief helped to generate interest in prevention strategies. Some cited the need for Third World preparedness as a means of supplementing the relief efforts of international donors and providers. Green, to illustrate, called for ways to 'improve uniformly the administrative and logistic capacities of national governments and relief organisations in disaster prone countries' (1977, p. 51). The UNA USA analogously recommended that developing nations acquire the necessary modern communication and transportation equipment 'to deal effectively with a major disaster' (1977, p. 33). Conversely, others began to see relief operations as inadequate responses to calamities and therefore desired to find ways to avert them altogether. Brown was among the first to argue that greater attention should be paid to prevention as disasters recur and are becoming more severe in developing countries (1979, p. 104). CIDA, in tandem, pushed for measures to be undertaken to alleviate the endemic problems of developing nations in order

to address the various causes of disasters (1979, p. 12; see also p. 93). Thus, the students and policy analysts who had generally focused on relief activities were partially responsible for pointing out the merit of disaster preparation and prevention.

Nevertheless, the works of other—particularly later—scholars had a more significant impact on disaster policies. Foremost among these were Burton, Kates and White's *The Environment as Hazard* (1979), Cuny's *Disasters and Development* (1983), and Hewitt's edited volume entitled *Interpretations of Calamity* (1983). Each of these books were critical of the relief approach, although to varying degrees. Burton et. al. affirmed that the effects of relief are 'largely palliative' (1979, p. 186). Cuny asserted that disaster relief 'maintained the status quo' (1983, p. 115). And, Hewitt and his entourage declared that relief actually 'makes matters worse' as it fosters dependency (1983, p. 123). Therefore, it was widely held that a post-disaster response alone was ineffective or even detrimental. Moreover, every one of these scholars noted that economic status was related to disaster vulnerability. Burton, Kates and White illustrated that, in spite of immanent danger, the less fortunate tend to live in areas that are risk prone. Cuny observed that calamities occur most frequently among the developing countries of the world; he stated that the root cause of disasters was poverty (1983, p. 11). Finally, Hewitt concurred that the plight of the poor was the central contributing factor for disaster vulnerability.

Consequently, these authors provided, again with somewhat different connotations, arguments in favor of prevention strategies. Burton et. al. advocated global monitoring of hazard, and the transfer and application of technology for early warning systems. Cuny saw economic development as a solution to the disaster problem He thought improvements in structural engineering would reduce the adverse effects of calamities as well. Hewitt and his followers were very skeptical of Burton's et. al. 'technocratic approach'. They asserted that 'the enormous commitment to geophysical monitoring and prediction deals with a peripheral rather than a central ingredient of disaster' (Hewitt 1983, p. 28). What is more, the contributors to *Interpretations of Calamity* illustrated that disasters are not just 'unexpected' or 'unexplained' geo-physical events in which humans are either helpless or blameless. Accordingly, Hewitt avowed that it is everyday activities which increases vulnerability and also acknowledged that something had to be done to help the destitute of the world. Unlike Cuny, however, Hewitt was more pessimistic about the immediate prospects for improving the lot of the needy. He therefore saw the need for a complete restructuring of values, or even of the entire social–political–economic system itself. Thus, regardless of their views on disasters and subsequent differences in policy prescriptions, Burton et. al., Cuny and Hewitt agreed that relief was only a short term response measure; something had to be done in the way of prevention. The books by these scholars have had tremendous impact upon present disaster policy and current academic trends.

Prevention in policy

In the policy arena, the shift to a prevention strategy is visible in the goals of the United Nations International Decade for Natural Disaster Reduction. The purpose of having governments unite to concentrate on disaster issues during the 1990s is to spread scientific knowledge in order to foster prediction, and also to facilitate mitigation through risk assessment and the application of early warning technologies and improved structural engineering (see Lechat, 1990). Little, if anything, was mentioned about the importance of relief or the imperative for improving the delivery of aid. The prevention approach has in fact gained so much credence now that the value of the United Nations Department of Humanitarian Affairs (DHA), UNDRO's successor, has recently been questioned. While the DHA is still intact, it is not clear if it will remain so in the future. Today relief seems to be a lesser component of international disaster policy.

Prevention in academia

In the academic world, a great amount of attention is also being placed on prevention strategies. A quick review of the subject matter of current scholarly work provides a flavor of this movement. The titles of papers presented at conferences and of published books and articles include: 'Disaster Resistant Communities' (Russell, 1997; see also Tucker, 1997), *Disasters, Development and Environment* (Varley, 1994; see also Sinha, 1992; Anderson and Woodrow 1989), and 'From Relief to Development' (Hyder, 1996; see also Anderson and Woodrow, 1991; Tidemann, 1992). Funding is equally oriented to the prevention approach. One only need look at the list of grants in Natural Hazards Observer (published by the Natural Hazards Research and Applications Center at the University of Colorado at Boulder) for confirmation. The majority of moneys that are available for research are related to sustainable development or mitigation tactics which include disaster prediction, early warning technologies, and structural engineering techniques. Scholars and their supporting institutions also appear to indicate a prevailing bias for prevention.

With the discrediting of relief as an approach to disasters, prevention has emerged as the strategy in the 1980s and 1990s. International policies now concentrate on how the transfer of knowledge, the analysis of vulnerability, and the application of scientific breakthroughs may decrease or eliminate disasters. Students of disasters are equally caught up in the trend of examining the virtue of mitigation and development. In short, prevention seems to be gaining (or has) the same status that relief had 20 years earlier.

Where should we go from here?

Just as the sole reliance on relief came under attack in the latter 1970s and early 1980s, the strict emphasis on prevention may now be questionable in the late 1990s. The strategies of mitigation and development, in some instances, may neither be completely desirable or immediately feasible in the Third World. What we need therefore is research and policy that accepts as important disaster prevention as well as relief.

The desirability of prevention

A prevention-alone approach may not be advantageous for nations in the developing world. This fact may be due to several reasons. First, at the most fundamental level and regardless of attention given to prevention, disasters will always occur. The United States and Japan have probably spent the most money on disaster prevention, and yet these countries were still negatively affected by earthquakes in Northridge and Kobe. While specific social, political and economic policies geared towards mitigation will undoubtedly reduce the adverse effects of disasters, no society or nation can be completely assured that they are exempt from the overwhelmingly destructive and tragic forces of nature. Second, and closely related to the

previous point, a policy over-emphasising prevention may eclipse and subsequently diminish the likelihood of necessary preparation for relief. The earthquake in Kobe is again supportive of this proposition. The means available and steps undertaken to deal with this event were seen as deficient by some citizens living in the area (Heath, 1995). Therefore, resource allocation for response activities, disaster planning and preparation, and implementation of emergency management procedures are too important to be neglected. Third, the mitigation of disasters is often a function of, or is possible only to the extent to which there is development; yet development may in turn lead to increased vulnerability. Although 'economic progress' may facilitate the acquisition of early warning systems and promote improved structural engineering, it may also escalate the dangers of environmental degradation (Quarantelli, 1993a; Guarnizo, 1993), urban demographic mismanagement (Quarantelli, 1993a; Cuny, 1983, p. 16), dependencies on outside assistance (Campbell, 1990), and technological hazards (Quarantelli, 1997; Quarantelli, 1993b). Thus, development can make nations more disaster prone; it may prove detrimental if not carefully pursued. Fourth, the sole reliance on prevention ignores the fact the many of the current disasters in the Third World are not amenable to a 'technological solution'. In recent years the major catastrophes that the international community has responded to are political in nature. Civil wars and other internal conflicts are difficult to foresee and resolve, and will always generate victims who require assistance from humanitarian organisations.

Finally, the close academic attention directed towards prevention strategies may overshadow the need to conduct research on the response phase of disasters. For instance, more studies must be conducted on: how developing nations cope with disasters, how international humanitarian organisations can better assist and be integrated into indigenous relief capabilities and actions, the purported need for and benefits of restructuring the United Nations relief organisations, and the relationship between communications technology and improved relief coordination (see McEntire, 1997). Focusing on prevention alone would leave many of these crucial investigative stones unturned. Taken together, these points reiterate the fact that relief will always be needed and may even be more so as development takes place. In addition, focusing only on prevention could be pernicious as it may preclude relief from being provided in complex emergencies and may also discourage much needed research from being conducted on issues pertinent to disaster response.

The attainability of prevention

The prevention of disasters may not also be easily attained owing to various persistent and prospective challenges of achieving development. First, prevention strategies might require large amounts of resources generated through economic development. But such a level of progress has not been achieved by most countries. Isbister (1993) is only one of many scholars who argues that lesser-developed nations of the past are generally the lesser-developed nations of the present (see also Kennedy, 1993). In spite of modest and dispersed successes the track record of development is not overly encouraging; there is no reason to believe that this tendency will be altered in the near future. Second, it is increasingly unlikely that Third World nations will receive the amount of international developmental aid that they received during the Cold War. With the fall of communism there is simply less reason for the United States and others in the West to fund development as has been done in the past. Furthermore, the nations that now make up the former Soviet Union are in no position to provide aid and virtually all other governments in industrialised countries have turned inward to solve their own specific domestic problems. Third, with mounting debt and more strings being attached to foreign loans, developing nations will be less capable to obtain or less willing to seek help in this direction. International banks may refuse to issue further credit in order to minimise their losses if default should occur. Also, Third World nations may not be willing to follow austerity programs, laissez faire economics and environmental protection programs which have been suggested by the IMF, World Bank, and other international institutions. Thus, pursuing a strategy of prevention through mitigation and development could conceivably be even more difficult in today's world context than it was in the past.

Some may point to the newly industrialised countries (NICS) as a counter argument to the above claims. Without a doubt, the 'economic miracles' of the Asian Tigers have been nothing less than impressive. Nonetheless, Hong Kong, Singapore, South Korea and Taiwan developed in unusual circumstances—circumstances that are not likely to recur in the future. These countries received massive amounts of aid from the West due to its fear of communism, they did not suffer from the problems of debt, and, with the exception of Hong Kong, did not practice complete laissez faire economics. Even though the NICS are now placing a great deal of emphasis on disaster prevention, this has only occurred after or in conjunction with economic development. Part of the reason for the prominence of this strategy may be due to the massive investment from multi-national corporations (MNCS) that exists in these nations.

By now it should be evident that, at the international level, the pendulum has swung too far in the direction of prevention. Academics have carried out research and practitioners have pursued policies in the prevention vein without recognising what implications their activities might have on developing nations or the provision of relief. Prevention alone may not be void of disadvantages, mitigation and development may not be as easy to implement as we would prefer to believe. Because prevention may not be totally desirable or freely attainable, relief will remain a necessary ingredient for the reduction of the adverse effects of calamities. Finding the proper balance among these alternatives or examining ways to integrate them are the greatest challenges facing the international humanitarian community in the future.

Conclusions

It is possible that the argument presented in this essay will not be popular. My assertion goes against the grain of conventional wisdom, policy trends, and funding for scholars and practitioners. Let me reiterate, therefore, that I am not suggesting a return to a relief strategy alone. This mistake was obviously made up to the 1980s, and there is no reason to rely on such a lop-sided approach now. Likewise, I am not necessarily advocating that developed countries rethink their domestic disaster policies or re-appropriate relevant resources and revenues. For a variety of reasons, industrial nations are clearly in a position to pursue and rely upon prevention more than relief. Furthermore, I am not denying that many forms of inter-

national disaster prevention are facilely obtained and fairly effective. Information gleaned from early warning systems, for example, can be shared and used with little or no cost.

What I have tried to convey is that in the Third World—where the reduction of disasters is most needed—the sole reliance on a policy of prevention may not, however ironically, be totally advantageous. Scholars and practitioners would be well advised to recall that what works and is possible in industrial countries might not be appropriate or applicable in developing nations.

In the mean time, then, while we wait for and hopefully encourage and facilitate prevention through mitigation and development in poorer nations, let us approach catastrophes in a more balanced fashion. After all, if our goal is to counter the devastating outcomes of disaster, prevention and relief are clearly two important sides of the same coin. Applying these dual responses appropriately to calamities is the major opportunity before us as we wind down the United Nations International Decade for Natural Disaster Reduction and prepare for the coming century.

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New publications

Aviation

Working safely with aircraft: for emergency services personnel

Dept of Natural Resources and Environment, Melbourne, Victoria, 1997, Video no. 275

Every day throughout Australia, emergency services personnel work with aircraft, conducting a variety of roles both airborne and on the ground. This video provides instructions in how to safely work in the aircraft environment, enter and depart helicopters and fixed wing aircraft, load personnel and equipment aboard aircraft, operate emergency equipment and respond to emergency procedures, protect yourself if caught in a firebombing drop zone, marshall helicopters and assist with sling load operations, assist with aircraft refuelling operations and load fixed wing firebombing aircraft.

Business Recovery

Is your business ready for the next disaster?

Henderson, Douglas M

Dorrance Publishing Co., Pittsburgh, Pa., 1996, 658.477 ISY

There are sound business reasons for developing a Business Continuation Plan. Financial reasons include the more rapid restoration of business activities and the mitigation of damage. The safety of employees and other individuals is important. Negligence in this latter area can result in litigation with direct financial consequences to the business. There are other moral and sometimes legal reasons for having an effective plan of action in the event of a disaster. Large businesses recognise these reasons and employ risk management personnel or engage outside professional consultants. Smaller organisations have difficulty with the financial requirements of a professional dedicated staff and outside consultants.

This publication will greatly aid the business executive to either develop a Business Continuation Plan or understand and enhance the plan that has already been developed for the business (79 pages).

Coastal Zone Management

Australian coastal vulnerability assessment project report

Waterman, Peter

Department of the Environment, Sport and Territories, Canberra, 1996

333.91714 AUS

The Intergovernmental Panel on Climate Change (IPCC)has identified climate change as likely to have significant adverse impacts on the economic, cultural and natural values of the coastal zone in many nations. Trials of the (IPCC) Common Methodology for Vulnerability Assessment in Western Australia, Cocos islands and Kiribati as well as case studies of other nations have identified major weaknesses in the methodology. In 1993 Australia presented a revised methodology to the World Coast Conference held in the Netherlands which attempted to address these weaknesses. This report summarises a project in which, as part of its Climate Change and Coastal Action Programs, the Commonwealth Government supported a series of nation-wide case studies and a national workshop to trial the revised methodology. Detailed outcomes of the project and case studies are available on the accompanying CD-ROM. A separate report on the national workshop has also been produced (75 pages).

Australian coastal vulnerability assessment workshop report

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A separate project report is available and detailed outcomes of the project and case studies are available on a CD ROM produced in conjunction with the project report (51 pages).

Urban flood damage under greenhouse conditions: what does it mean for policy

by D. I. Smith, Centre for Resource and Environmental Studies, Australian National University

Introduction

There is little doubt that the study of greenhouse-induced climates has concentrated upon the modelling of atmosphere-land-ocean interactions in order to improve our understanding of what is still a very uncertain hydrological future. The last few years have seen the first tentative steps to use these scientific scenarios to assess the socio-economic impacts on communities. The proceedings of the two organised symposia, held in 1987 and 1994 (Pearman, 1988 and Bouma et al. 1996), rank highly as early studies of this kind. However, even these seminal publications tend to address the topic in a manner that is heavy on science and light on policy. There are many reasons why greenhouse climate scenarios have yet to receive any rigorous link to policy. Three major handicaps are:

- That the scenarios are surrounded by uncertainty and focus on what happens under double CO_2 conditions, the date for which is also uncertain but for convenience in this account will be taken as about 2070. This is a long time horizon when compared to that usually considered by decision-makers charged with policy formulation
- The implementation of environmental policies formulated by Commonwealth and State governments falls upon local government authorities, their resource base (technical and financial) is often inadequate to meet such demands.
- Even if the scenarios had less uncertainty the socio-economic impacts have a complexity that is just as great as that facing climate modellers. However, the research funds available to assess the socio-economic impacts are paltry in comparison. Australia has no greenhouse research institutions for such studies with a funding base comparable to that available to, say, CSIRO and the Bureau of Meteorology.

Presented at the Conference on Climate Change and Water Resources, *Asia-Pacific '97*, November 16–19.

The problem is similar at international level. The IPCC has only recently produced a background volume devoted to *'the economic and social dimensions of climate change'* (Bruce et al. 1996), this covers both costs of abatement as well as impacts. As we shall see, the volume has relatively little to say about greenhouse climate impacts on specific facets of the socio-economic world. In addition, the IPCC has published a technical report of climate change and adaptations which provides *'guidelines for assessing climate change impacts and adaptations'* (Carter et al. 1994). This is useful in giving an outline to possible methodologies but lacks specific illustrative examples.

The account that follows is limited to a consideration of the possible effects and possible policy responses to the most recent IPCC (1996) climate change scenarios for urban flood losses in Australia. This, it can be correctly argued, is a narrow topic but it does provide an example of the complex nature of policy responses to greenhouse climate impacts. It is also of interest because the effects of climate change on extreme meteorological-linked natural hazards have been highlighted, mainly by GCM modellers, as of special concern. A useful background to this subject is given in *Climate change and extreme events — altered risk, socio-economic impacts and policy response* by Downing et al. (1996). However, with minor exceptions, that study is lacking in detailed case studies of the impact of extreme events that can form a solid base on which to consider policy responses other than in the most general way.

Greenhouse urban flooding: Australian case studies

This account uses the results of a recent research project, funded by the Commonwealth Department of Environment, Sport and Territories, as background against which to comment on the policy implications of potential changes to urban flooding under greenhouse climate induced scenarios. Neither the modelling of the flood hydrology nor their conversion to urban flood damages under greenhouse conditions will be discussed in detail in this account, other than to report that the hydrology combined the use of conceptual rain/runoff model (IHACRES) with a stochastic weather generator and that the flood damages were assessed using an established computer package (ANUFLOOD). The technical aspects and detail of the results are described in Smith et al. (1997). Immodestly, the authors of the report consider that the methodologies used are the equal of any elsewhere!

Background to methodology

The climate scenarios employed were those given in CIG (1996) which are based on IPCC (1996) but modified for application in Australia. The modelling was undertaken for three catchments that contain existing flood prone urban communities. The case study urban locations were for Queanbeyan and Canberra (essentially in the same catchment), for the Hawkesbury-Nepean corridor (that includes Penrith, Richmond and Windsor) and for the highly urbanised Upper Parramatta River catchment. It is pertinent to note that all these fall within a region for which the CIG (1996) climate scenarios are identical. The modelling concentrated upon 'the most wet' and 'most dry' extremes for the year 2070, assumed to be close to double present CO_2 concentrations.

The estimation of direct flood damage (resulting from the impact of flood waters, sediment etc) was undertaken using widely accepted techniques. It gained from the availability of pre-existing data bases that contained

information on every individual building in the urban areas at risk. The data bases were unusual in that they extended well beyond the level of the probable maximum flood (the theoretical worst case) under current climates. The analysis of damage also allowed for building failure from extreme flood events when the combination of velocity of depth of the flood waters exceeded the critical limits for lightweight structures. The databases for Queanbeyan, Canberra and the Hawkesbury-Nepean were collected in the late 1980s to assist with the estimation of upstream dam failure. As a minor point, the data bases for these locations were not updated but all damage estimates are expressed in terms of mid-1996 prices. Unfortunately it has not yet proved possible to provide comparable damage estimates for the Upper Parramatta, although the hydrological modelling is complete and the changes under greenhouse scenarios have been estimated.

The results

The simplest single statistic to demonstrate the impact of greenhouse change is that for average annual damage (AAD). This integrates losses and probability of flood occurrence across the whole range of flood frequencies. It can be equated with annual flood insurance premium that would charged to provide flood cover for all buildings and contents (without allowance for administrative charges, profit etc). It is pertinent to note that members of the Insurance Council of Australia have never offered flood cover for dwellings or small businesses. The results for the case study locations are presented in Table 1, the losses are restricted to those for direct damage i.e. due to the contact of flood waters with building fabric and contents. For flood prone Toongabbie in the Upper Parramatta River catchment, current losses would increase, under worst case greenhouse 2070 scenario, by a factor of about 2.5

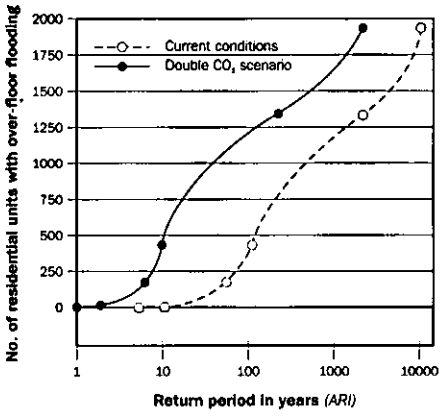

Figure 1: Number of residential buildings in Queanbeyan at risk from over-floor inundation, under present and for most wet 2070 greenhouse climate scenario

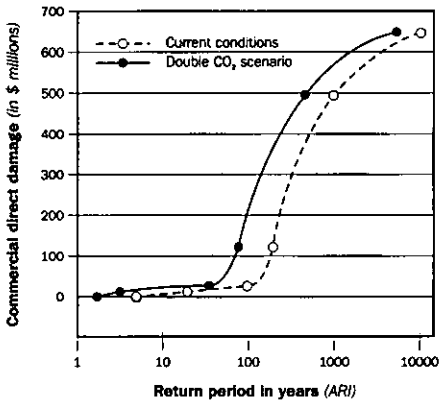

Figure 2: Direct flood damage to commercial buildings in the Hawkesbury-Nepean corridor, under present conditions and for the most wet 2070 greenhouse climate scenario.

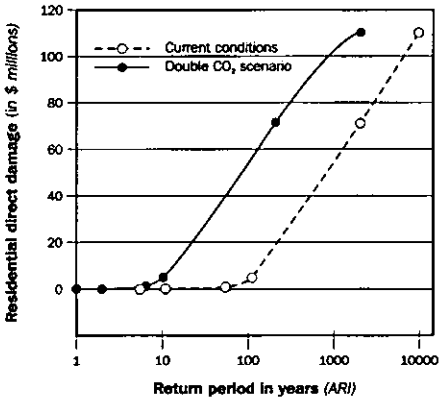

Figure 3: Direct flood damage to residential buildings in Queanbeyan, under present conditions and for the most wet 2070 greenhouse climate scenario

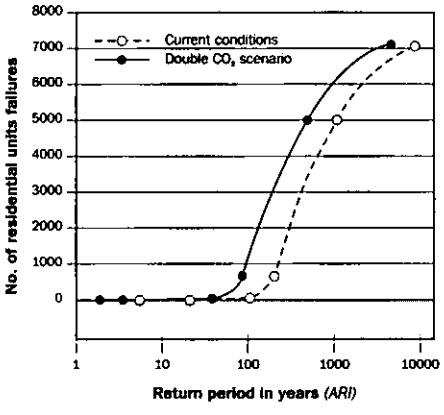

Figure 4: Residential buildings at risk from failure in the Hawkesbury-Nepean corridor, under present conditions and for the most wet 2070 greenhouse climate scenario

although direct damages values are not yet available.

The significance of *Table 1* is that even for locations within the same regional greenhouse climate scenario the adverse effects are markedly different. This reflects both the different hydrological responses for the catchments and the type and height distribution of buildings.

Figures 1 to 4 compare, in graphical form, other aspects of the most wet double CO_2 climate scenario for 2070 with those for present flood hydrology. These are selected on from a range of similar graphs that can be presented for the case studies. They show the effect that double CO_2 has, for floods of differing recurrence interval, on the numbers of buildings at risk, for direct damage and the implications for building failure under extreme flood conditions. For each locality comparable graphs can be produced for the residential, commercial and industrial sectors; for ease of presentation the latter two have been combined. The flood damages presented are restricted to those for direct flood damage i.e. contact of flood waters and their contents to building fabric and

Average annual direct flood damage

	Present conditions			Worst case double CO_2		
	Residential	Commercial/ Industrial	Total	Residential	Commercial/ Industrial	Total
Queanbeyan	0.55	0.69	1.24	5.40	6.75	12.15
Canberra	<0.001	0.007	0.007	0.001	0.07	0.07
Hawkesbury-Nepean	3.76	2.34	6.10	14.29	8.91	23.20

All figures in $m at mid-1996 values

Table 1: Average annual direct flood damage for Queanbeyan, Canberra and the Hawkesbury-Nepean corridor under present day and most wet double CO_2 (2070) climates

contents. In *Figure 1* the number of buildings illustrated are those that would experience over-floor inundation, although the direct damage data incorporates the losses from over-ground flooding i.e. limited to building grounds.

To obtain estimates of total urban flood damage it is necessary to add indirect and intangible flood losses to direct flood damage. Indirect losses are essentially due to disruption and would include the costs of alternative residential accommodation and loss of profit for the commercial–industrial sector. These are not specifically considered in this account since the normal manner to estimate indirect losses is as a proportion of direct losses. Intangible losses (not easily or sensibly expressed in monetary terms) are an additional loss and in cost benefit analysis are usually expressed qualitatively. One category of intangible flood losses is the stress-related effects on health, another is the potential for fatalities associated with building collapse under extreme flood conditions.

Notwithstanding the unique features of each and every urban flood prone location, the salient feature of the illustrative material is that there is a sharp increase in number of flood prone buildings (and therefore in flood damages) at around the level of the 1-in-100 year ARI flood under present conditions. This has a form similar to that of a step function. Any increase in flood frequency therefore, causes developments positioned just above the level of the current 1-in-100 year flood line to become exposed to significantly greater risk. For the case study areas, this 1-in-100 year 'step' corresponds to the annual recurrence interval level used as 'the designated flood line'. The designated flood line is the level at which land use controls are placed on new developments. This is the case for New South Wales and the Australian Capital Territory, in which the case studies are located. The 1-in-100 year designated flood line is also commonly used worldwide as the designated flood line, albeit often without any sound hydrological or reasoning.

Figure 4, which shows changes to residential building failures for the Hawkesbury-Nepean corridor, requires some additional explanation. The majority of the potential failures are to single storey, detached, weatherboard dwellings that are a relatively common house type in older urban areas in Australia. Under present conditions a 1-in-100 year flood event would likely cause the failure of about 70 such dwellings in the Hawkesbury-Nepean corridor. For the equivalent worst case 2070 flood, this increases to about 1200. It is not suggested that this result should be extrapolated to other flood prone urban areas, this is because the flood height range for the Hawkesbury-Nepean is exceptionally high. The increase in flood height from the 1-in-20 to the 1-in-100 year at Windsor is in excess of 10 metres with a comparable rise between the 1-in-100 and the probable maximum flood. It does, however, represent a significant factor for urban floodplain and emergency management under both current and greenhouse flood regimes. Queanbeyan exhibits similar, but less dramatic, changes in the potential for building collapse. In contrast, many inland locations in both New South Wales and Queensland experience flood height ranges of only a metre or so and greenhouse change would have insignificant effects on failure potential.

The socio-economic scenarios and response

The uncertainty of the scenarios and the hydrological modelling apart, the information given in *Table 1* and *Figures 1 to 4* provides a basis on which to consider how urban floodplain managers and policy makers may respond. These can be considered as socio-economic impact scenarios comparable to the climate scenarios of GCM modellers. In summary the scenario for impacts is:

- there are differences in the estimates of future flood loss even between catchments in the same greenhouse climate region
- under worst case 2070 conditions there are major increases in the numbers of buildings at risk and therefore in damage
- under the most dry option all forms of flood damage would be similar to, or slightly less than, those experienced with present day flood frequencies
- for some existing flood prone urban developments the risk of building failure under the most wet scenarios is unacceptable
- the hydrological analysis suggest that even under the worst case the major changes are likely to occur after the year 2030 i.e. before 2070.

Current Australian urban floodplain management and policy

The policy response to socio-economic scenarios for greenhouse urban flooding require an understanding of current policy. A recent detailed review for Australia is available in Smith et al. (1996) and an extensive international comparison of policy style in May et al. (1996). For Australia the starting point is that water resources, including floodplain management, are constitutionally the responsibility of the States. Although each State government takes a different stance to floodplain management, the role of local government authorities (LGAs) in all States is of major importance. There are about 900 LGAs in Australia and likely about half of these would have an urban flood problem of some kind. It could be argued therefore, that there are several hundred different versions of floodplain management and policy in the Commonwealth, each of which has an unique blend of flood hydrology and damage profiles!

Discussion can, however, gain by focussing on New South Wales and Queensland, if only because those two States have approximately equal shares in the 85% or so of existing flood prone buildings in Australia, the national situation is reviewed in Smith (1996). This review serves to highlight the policy differences between States. New South Wales has State guidelines for urban floodplain management that match world best practice, it has steadfastly promoted these policies for some twenty years. There are incentives for LGAs to prepare and implement locally-based floodplain management usually incorporated into local planning controls, invariably based on the 1-in-100 year designated flood. In addition, flood mitigation measures have often been introduced at LGA level to reduce flood losses to existing flood prone developments. However, the attainment of this high standard of urban floodplain management has required the provision of considerable financial and technical resources and, at times, prompted fierce political confrontation between State government and LGAs. It is often said that there are no votes in the introduction of locally-based planning controls to limit flood-prone development.

In contrast, Queensland has no State policy or guidelines for urban floodplain management. It is solely a matter for individual LGAs, some have excellent locally-based management but the majority have only the most skeletal framework. This leads to an escalating problem in vulnerability and damage

potential. For instance, the Gold Coast has several thousand dwellings at risk, virtually all of which have been built since the major flood of 1974, for which good quality maps of the limits of inundation are available.

Thus, theoretically NSW could modify its State policy guidelines to take account of greenhouse effects and encourage LGAs to incorporate such future change into their local controls. In Queensland this is still a matter for LGAs, most of which see the imposition of floodplain management controls as a barrier to local development. It is possible that Queensland may introduce state guidelines and policy, if this were the case consideration might be given to including potential greenhouse effects.

Even if there were much improved certainty of change to the designated 1-in-100 year flood line under greenhouse conditions, the response is not a simple matter of 'changing the line'. Designated flood lines were the result of major and fierce argument and, having agreed to a line, any further change would cause major distortions to the prevailing property market. Certainly the present degree of uncertainty makes any such response most unlikely. It is the LGAs that need to be persuaded of the need for change, although in NSW the State government has some leverage in part due to its willingness to assist with the funding of flood studies and mitigation measures for the LGAs that adopted State guidelines for sound floodplain management. These are described in the NSW *Floodplain Development Manual* (1986).

Local Government response

The only detailed survey of which I am aware that considers the response of LGAs for planning and greenhouse is by Zehner (1991). In 1990, he conducted a postal questionnaire survey (addressed to the 'Chief Town Planner') of all LGAs in Australia (some 900) and obtained a response rate of about 75%. The two most important environmental issues for LGAs, regardless of any greenhouse change, were 'drainage/water runoff' and 'flooding', mentioned by 75% and 62% of respondents respectively. Approximately half of the responses indicated that greenhouse climate effects are expected in Australia. However, 50% of LGAs had no interest in 'long term changes in climate', 39% had 'some interest' and only 11% had taken action to provide discussion papers, to propose or implement policy changes. Only 15 out of 671 responses were in the category of 'actual policy change'. Intuitively, it is unlikely that these responses have changed much since the early 1990s.

The survey suggested that most respondents considered that the federal government should take the responsibility for greenhouse policy planning. Understandable though this may be, the responsibility for implementing policy would remain with the LGAs.

Scientific and media reporting of potential greenhouse effects continues without any sign of diminishing. However, the scientific community should understand that the frequency with which the climate scenarios change does not instil confidence or act as a spur to action at LGA level. To take a simple illustration: the CIG (1992) range in winter rainfall change for 2070 is given is –20 to +20% of present, CIG (1996) gives this as –10 to +10%, the corresponding summer changes are 0 to +40% (1992) to –10 to +10% (1996). These illustrations all refer to the region in which the case studies are located. The 1987 scenario (used in Pearman, 1988) suggested 'higher spring, summer and autumn rainfalls by up to 50% in those regions deriving such rain from southern penetration of tropic–subtropical air during the Australian monsoon season' and 'winters will be generally 20% drier'.

LGAs have many urgent priorities that clamour for their attention. For those who practice sound floodplain management, modifications to match the continually changing greenhouse science scenarios targets are understandably accorded a low priority. Those LGAs with only minimal regulations under current conditions are even more unlikely to change their practices in the light of current greenhouse scenarios.

Undoubtedly the translation of greenhouse climate to socio-economic scenarios should be supported by federal agencies but, even with increased certainty of possible adverse effects, policy change at LGA level is difficult to implement. It should be remembered that probably half of all LGAs in Australia are lucky to have a single professional on their council staff — invariably a harassed engineer who doubles as the 'planner'.

'No regrets' and the 'Precautionary Principle'

'No regrets' and the 'Precautionary Principle' are two policy stances that have emerged as key words in the greenhouse policy literature. They apply both to strategies to reduce emissions and how to cope with potential impacts. Bruce et al. (1996) contains simple definitions:

- the 'no regrets option can be regarded as 'measures worth doing anyway' (p. 15)
- the 'precautionary principle' 'can be stated as a means 'to invest more than would otherwise have been invested' in order to '... enhance the economy's ability to adapt should climate change damages occur'(p.26).

These two policy approaches to possible greenhouse changes to urban flood damage provide more scope that the pessimistic background to response outlined above. The precautionary principle accords with Australia's overarching environment policy of 'ecologically sustainable development'. This is a policy accepted by all tiers of government i.e. at Commonwealth, State and local government levels.

As postulated, the general approach of LGAs to planning for the future of flood prone urban developments is not one of enthusiasm for change. There are however, exceptions and these are often where the professional staff are concerned over duty of care and persuade the elected representatives that this a shared responsibility. For such LGAs future adverse greenhouse effects provide additional information to implement changes that represent sound and effective floodplain management under present climate conditions, the effects on uncertain greenhouse futures would be a bonus.

The most likely response is to improve the current flood warning system in order to lessen the effects of floods on the community at risk. This has the advantage that it is likely to have a favourable cost–benefit ratio regardless of the inclusion of greenhouse effects. This however, is not an easy task as a 'flood warning system' includes not only the hardware and forecast of flood heights but requires improvements in community awareness and response. Such improvements to flood warning systems are a prime example of the no regrets policy style, they would be advantageous to all the case studies described.

The potential for building failure with its associated risk to life, clearly demonstrated for the Hawkesbury–Nepean, requires a different policy response. In the author's opinion, the risk of such failure under extreme current conditions is unacceptable, it is

a question not of if such failure will occur but when. If it were to be tomorrow, there is no question that much more severe building regulations would be immediately implemented, in the worst event from the Coroner's Court. The worst-case failure with the 2070 greenhouse scenario is completely unacceptable. In this case, judicious use of the 'precautionary principle' represents the favoured path, this could take the form of changes to building regulations in flood prone areas.

Greenhouse flooding studies: the literature

There are very few accounts in the literature that provide hydrological and socio-economic information on urban flooding under greenhouse conditions that can be compared to those described here. The IPCC study on economic and social dimensions succinctly comments (Bruce et al., p. 202, 1996) that:

'... little information is currently available regarding the socioeconomic impact change in the frequency and intensity of river floods' (see Arnell and Dubourg, 1994).

A study based on similar procedures to those described here, for Limburg on the River Meuse in the southern Netherlands, is reported by Penning-Rowsell et al. (1996). The changes to urban flood damages by the year 2070 are estimated to be 2.2 larger than under present conditions. The Dutch study however, does not give the range for 'most dry' and 'most wet' climate scenarios.

Robinson (1988) used earlier, and 'wetter scenarios' than used in this report, to indicate the potential for major changes to flood frequency for a variety of Australian catchments. These were not directly converted to flood damage. Smith (1993) outlined methodologies to assess urban flood damage but declined to provide quantitative estimates as the scenarios at that time were inadequate for such prognostications. That methodology was used in Minnery and Smith (1995) and forms the basis for the results presented in this account.

Minnery and Smith based their tentative assessment of greenhouse changes to urban flood loss on the scenarios for changes to rainfall intensity reported in Fowler and Hennessy (1995). The hydrological analysis used by Minnery and Smith is inferior to those reported here. The changes, based on rainfall scenarios for the year 2070 resulted in a four-fold regional increase in AAD; there was no attempt to consider separately the most wet and most dry cases.

Despite differences in the climate scenarios used, all these earlier studies indicate that urban flood losses are likely to increase under greenhouse climates.

Conclusions and recommendations

The methodology to investigate the impact of future greenhouse climate change on urban flood damages outlined in Section 1 is put forward as the best currently available. However, the uncertainties and lack of local detail in the greenhouse scenarios and the problems of estimating the frequency of extreme events, question whether the figures for changes in flood loss are adequate to form a basis for future policy change.

Even discounting these formidable limitations, any modification to current urban floodplain management and policy is likely to be incremental. Policy changes based on the no regrets and precautionary principle are therefore, recommended. These are also the most likely to be undertaken.

The good news at national level is that even the worst case scenarios represent only a tiny fraction of gross national product although there may be much trauma at local level for those directly affected by future adverse changes to river flooding. The bad news is that this study has been confined to the changes in flood frequency to rivers and possible effects on damage to urban buildings and their contents: adverse changes to flood frequencies have much wider implications. These range from problems for urban drainage surcharge to the question of safety for hazardous dams.

Acknowledgements

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Book review

Flood Warning: Issues and Practice in Total System Design

John Handmer (ed), Flood Hazard Research Centre, Middlesex University, 1997.

By Dingle Smith, Centre for Resource and Environmental Studies Australian National University, Canberra

The hazard of flood and the establishment of effective warning systems are key concerns to emergency managers worldwide. The search for an optimal solution is one of the many 'golden fleeces' of emergency management. An unending quest for the perfect system is renewed with vigour after the occurrence after each major devastating flood event. In September 1990, AEMI sponsored a workshop at Mt Macedon to yet again consider the problem. This workshop assembled a wide range of stakeholders drawn from all three levels of government, from a range of governmental agencies and with a sprinkling of researchers from academia. The meeting was seminal to the formation of a committee charged with producing a publication to promote better flood warning procedures in Australia. The outcome was the publication, in 1995, of *Flood Warnings: an Australia Guide.* (This publication can be obtained from the Information Centre at the Australian Emergency Management Institute, it is a free publication).

Thus for the first time there was a clear national statement of the path to be followed. As with all the golden fleeces that together form the totality of emergency management, it does not give all the answers and it is certain that the management of future flood events will be far from perfect and EMA will convene meetings to see where the flood warning systems went wrong. However, it is an invaluable guide to the overall principles that should be followed.

Flood Warning: Issues and Practice in Total System Design, edited by John Handmer and published by the Flood Hazard Research Centre at Middlesex University in 1997 continues the theme initiated at Mt Macedon but within an international context. It is based upon a Workshop held in September 1995 and attended by some twenty flood warning experts drawn from six countries. The publication includes 16 papers presented by those present and gives a background to flood warning systems from a variety of countries. The Workshop used as its centre piece the EMA flood warning guide, with major contributions from John Handmer, Jim Elliott and Chas Keys who were members of the committee that wrote and edited the EMA publication. Thus Australian emergency management and EMA can be justifiably proud of the role they played in forwarding the adoption of better flood warning systems.

It is critical to understand that to attain effective flood warnings for communities, that the provision of the forecast is only the first step in a long chain of actions and feedback loops that comprise the 'system'. Technological expertise based on the sciences of meteorology and hydrology are necessary but could, in my opinion, be regarded as the easy part of the system. Such expertise exists, the barrier is the provision of resources (human and financial) to install, maintain and interpret the information. Indeed, this technocratic bias has for too long been regarded as the cutting edge of emergency management. For decades the assumption, from the scientists involved, was that if the community were given the information that they would then respond in an appropriate manner.

Thus, if the extent of flood-prone lands were defined and forecasts of river height and time were available that the battle for effective emergency management was virtually over. That this is false is clear to anyone involved in emergency management. Once the basic, and clearly important, scientific information is available the problem really starts! No longer can those involved at the sharp end of the process shelter behind the shield of 'we don't have the information', the task has becomes how can the information best be used? The Australian guide stresses these aspects and classifies the steps into translation of the technical forecast into terms that are appropriate for those at risk, followed by how to efficiently disseminate the warning to those at risk, and then to give guidance as to what the appropriate response should be. These issues form the core of the Australian guide and were the starting point for the international meeting at Middlesex University.

Several of the papers describe flood warning practice in the United Kingdom while others outline practice in other countries. I have sympathy for the authors of these papers, as in each case it is necessary to describe the institutional arrangements in which the flood warning system operates. This does not make for easy reading, it is difficult enough to try and comprehend the multi-organisational arrangements that operate in Australia. The overall impression is that the Australian pattern is comparable to those elsewhere and

better than many. For Australian readers the account by Jim Elliott of the flood warning arrangements in Australia provides an excellent summary. There is a strong impression that the situation is the United Kingdom is still strong on science and technology but that the aspects of dissemination and response, the core of emergency management, leave much room for improvement.

Comparison of flood warning systems between nations will always be handicapped by the problems of scale and of socioeconomic development. For the former, the sheer size of the problem in China is breath-taking. The seven major rivers that flow across the lowland heart of China have a flood-prone population that numbers several hundred million—with annual average damage of many billions of dollars. The account by Tong and Xiaogan is, therefore, salutary for Australia readers where the population at direct risk from flooding is less than a million! The account of flooding in Bangladesh and Malaysia give indications of the problems, due to lower socioeconomic status, faced by developing nations. The account for Malaysia, by Chan, is of interest for the statistics it provides on the proportion of households who were warned of impending floods, further classified into who were actually flooded, those were not etc. Sime sees the next challenge as '... to develop effective criteria for defining, designing and assessing the performance of flood forecasting and warning systems in terms of warning and response'. Despite the problems involved, such evaluation presents the next stage of analysis of flood warning systems in Australia.

The problem with collections of papers of this kind, and with *Flood Warnings: An Australian Guide*, is that the overall approach to effective flood warning systems is described but the limitation of space preclude the provision of local examples of how specific communities have managed to improve dissemination or response. For the emergency management practitioner such examples of good, or even bad, practice would be invaluable in enhanced the effectiveness of flood warnings for their community. There is also a tendency, especially in international forums, not to comment in any detail on what went wrong so that we can all learn from the mistakes. The paper by Bezuyen et al. on flood management in the Netherlands, and especially of the massive evacuation undertaken in early 1995, is of particular interest. The evacuation involved the movement of 250,000 people from their homes. Technically this was a successful operation the account however, gives a graphic description of the problem of the roles and responsibilities of those involved in making the decisions to move such large numbers of people. This paper is reprinted, in full, in this journal.

Flood Warning is available in the AEMI library and provides a useful overview of the issues involved in designing and implementing a flood warning system—that is the need to build on the technical flood forecasts in order to fully capture full benefits that theoretically can accrue. It is good to see 'how others do it?' and to bask in the reflected glory that the British workshop, on which the publication was based, gained from the EMA publication and the presence of Australian practitioners in emergency management. We would do well to remember however, that our problem is small compared to China or Bangladesh. There is still room for improvement in Australia in order to move towards the golden fleece of optimum and successful flood warnings for all communities at risk. We will never achieve a perfect solution but we can say with honesty and pride that it is better now than ever before!

The publication is available from the:
Flood Hazard Research Centre
Middlesex University
Queensway, Enfield EN3 4SF, UK
Fax: +44 181 362 5403
Cost: £20 Sterling

Expression of interest: rescue footage

BBC Television's '999' program is appealing to rescue services throughout the world for help with a new series called '999 International Rescue'.

Presented by well-known journalist Michael Buerk, the emphasis in the show will be to use real actuality footage of dramatic incidents and rescues, and combine that with specially shot interviews with survivors and rescuers.

According to producer Martin O'Collins, UK fire and other rescue services have worked in the past with '999' to produce responsible programs that combine dramatic footage of rescues (often shot by the rescue services themselves) with important safety information.

The BBC would like to establish a similar relationship with rescue services around the world. Many services keep a video library of material that they have shot themselves, and many also keep recordings of dramatic rescues shot by local newsmen and in some cases bystanders.

The theme of the new series is rescues of practically anything—a burning building , confined space, car crash, sewer, flood, dangerous animals, people trapped in a subway and so on. The BBC would like to hear from any of the rescue services with video material which they think may be of interest, even if the footage has already been seen on television.

Apparently a fee will be paid for footage used in the series. The BBC claims that the material will be handled sensitively and shown only with the permission of those involved.

For details contact:
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Environmental scanning and emergency management

by Murray Gillett, Senior Constable, New South Wales Police Service

Introduction

Environmental scanning is not new , however it is a process that is very useful in assisting emergency management policy makers to make well-informed critical decisions related to law enforcement and emergency management issues across Australia.

Environmental scanning is not only an analysis of our environment (water, air and land), but complex analysis of our working environment. Environmental Scanning makes predictions as to what may or may not occur in the future.

Environmental scanning within a law enforcement environment is defined as:

Environmental scanning involves an examination of factors with the potential to impact on the organisation's environment at various levels and may take a short or long time frame, usually 3–5 years. It involves scanning, monitoring, forecasting and assessment of the organisation's environment. Scanning is most usually described as the process of sifting through various types of information and other unclassified information, from the mass media, opened source information and other unclassified information available to the general public.

Scanning places emphasis on potential rather than its source. Breadth of coverage is a critical issue, with all levels of material considered. Environmental analysis provides a glimpse of 'the real world' and suggests the future. (Adapted from the definition provided by Melinda Tynan to the Australian Bureau of Criminal Intelligence Digest, January 1996.)

Environmental scanning: a partnership between law enforcement and emergency management

During 1997 the Southern Rivers Police Region Commander, Chief Superintendent Gollan commissioned an environmental scan of his region to assist him to prepare for impending change to the New South Wales Police Service in the wake of the Wood Royal Commission.

The following information was gathered from opened source material and is just a small example of the information gathered during the information collection phase.

The Southern Rivers Police Region covers 195,712 km^2, from Goulburn to Albury and Wentworth to Kiandra, with a population of 358,060. The area is largely rural with some large country towns, including Wagga Wagga (pop. 52,197). The area is growing at 1.4% per annum. The local economy is booming in Wagga Wagga, with a new industrial estate going ahead at Bomen.

Eight major highways traverse the area, including the busy Hume and Newell highways, carrying cars, buses and heavy vehicles between Brisbane, Sydney and Melbourne. These roads have accounted for many fatalities over the years, however both are continually being improved. Every 24 hour period, 5932 vehicles travel the Hume Highway.

With the transportation of chemicals, fuels and other dangerous goods, there is a major disaster potential. Many potential disasters have been averted by a quick, professional emergency management response.

All towns on the Hume Highway will be bypassed in the near future. Currently there are two options available to bypass Albury.

The Murray, Murrumbidgee, Darling, Lachlan and Edwards Rivers flow through the area, playing an important role by supplying water to the irrigation channels that service a multi-million dollar rice industry.

The Murray River supplies water to three states and over 1.25 million people living in the supply area. There are various weirs and 13 navigation locks on the river. There are three main dams in the region: Burrinjuck (1,026,000 megalitres), Blowering (1,631,390 megalitres) and the large Hume Weir (3,038,000 megalitres), with its 1.6 kilometre wide, 39 metre high concrete spillway. Incorporated in the structure is a 50 megawatt hydro-electric power station. The rate and direction of run off from the weir will be determined by the ever changing factors of the Albury-Wodonga economy and infrastructure, such as the new development of residential housing in east Albury.

The Hume Weir is undergoing $40 million in repairs to the wall after a crack appeared. If the wall were to fail, the loss of life and damage to the local economy would be devastating.

So what does it all mean?

The use of environmental scanning revealed certain concerns, such as by the EPA in Albury, that if a bypass was constructed close to the township heavy vehicles carrying chemicals and other dangerous goods would be travelling at 100kmh rather than the current 60kmh. If a heavy vehicle was to crash and spill its load the effects could be catastrophic.

The scan echoed the sentiments of emergency managers in Albury that a very real danger exists with the wall of the Hume Weir.

Conclusion

'To achieve your objective in this fast paced, multi-national, information driven world, you need to know as much as possible about what's going on, and what's likely to go on, throughout the total environment in which you are operating'. (Adopted from Herbert Meyer, *Real World Intelligence.*)

The unique characteristic of environmental scanning is that, when properly carried out, it can effectively pinpoint emergency management concerns so that they can be prevented. Emergency management agencies can gauge the magnitude, scope and potential threats. This knowledge helps to plan the most effective counter-measures.

Environmental scanning can reveal information from varying sources that may otherwise been overlooked or may not have even been obtained. It may substantiate or refute a course of action being taken by emergency management.

References

Gillett M. J., Rochester M. and Jackson S. 1997, *Southern Rivers Region, Environmental Scan.*

Australian Bureau of Criminal Intelligence Digest, January 1996.

Disaster events calendar

9–11 October 1998

1998 Annual Conference Australasian Fire Authorities Council

Hobart, Tasmania

Contact:
Mr Rod Cuthbert or Mrs Margaret Kean, Organising Committee, AFAC 1998 Conference, Tasmania Fire Service, GPO Box 1526R, Hobart, Tasmania
Tel: (03) 6230 8605, Fax: (03) 6230 8604

25–28 October 1998

11th World Conference on Civil Protection, Beijing

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29–30 October 1998

Post-Disaster Management in the Railway Industry

England

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1–3 November 1999

Australian Disaster Conference 1999: 'Disaster Prevention in the 21st Century'

Canberra, Australia

Contact:
Australian IDNDR Secretariat,
PO Box 1020, Dickson ACT 2602
Fax: (02) 6266 5029
email: idndr@ema.gov.au

1–4 November 1998

Disaster Management: Crisis and Opportunity

Cairns, Australia

Sponsor:
Center for Disaster Studies, James Cook University

Contact:
The Center for Disaster Studies, P.O. Box 6811, James Cook University, Cairns, Queensland 4870, Australia
Tel: 07 4042 1215, Fax: 07 4042 1214
e-mail: linda.berry@jcu.edu.au
website: http://www.tesag.jcu.edu.au/cds/cdsweb.htm.

4–5 November 1998

The 7th Australian Earthquake Engineering Society Seminar

The University of Western Australia, Perth

Theme: Meckering, 30 years on—how would we cope today?

Topics cover engineering, un-reinforced masonry, seismology hazards, disaster management and offshore earthquake hazards (Tsunamis).

Contact:
Mrs B. Butler
PO Box 829, Parkville, Vic 3052
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Peter Gregson, AGSO Mundaring Geophysical Observatory
Mundaring, WA 6073
e-mail: pgregson@agso.gov.au

10 November 1998

Control of Communicable Diseases in Australia Conference

Canberra, Australia

Under the auspices of the Communicable Diseases Network Australia New Zealand (CDNANZ).

Contact:
Alison Milton, National Centre for Disease Control, MDP 6, Department of Health and Family Services,
GPO Box 9848, Canberra, ACT 2601
Tel: (02) 6589 8245, Fax: (02) 6289 7791
e-mail: ccd.conf@health.gov.au

16–19 November 1998

The Role of Information Technology in Fire Management

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Contact:
Mike McCoy
Information Center on the Environment, Department of Environmental Studies and Policy, University of California at Davis, Davis, CA 95616; (530) 754-9171.

18–20 November 1998

Fire Australia 1998 'Caring for Our Community'

Darling Harbour, Sydney, Australia

The theme focusses on protecting those who live and those who work in residential care and in hospitals from fire.

Contact:
Amy Hylands, Conference Secretariat,
PO Box 1049, Box Hill,
Victoria, 3128 Australia
Tel: (03) 9890 1544, Fax: (03) 9890 1577
e-mail: amyh@fpaa.com.au

19 November 1998

Disaster Exercises: Planning and Running an Effective Drill

Edmonton, Alberta, Canada

Designed to improve emergency exercise leadership skills through an in-depth presentation of the planning process required to deliver effective mock disaster exercises. Covers table-top exercises, command post drills and full simulations. Each participant will be given the hands-on opportunity to design their own exercise.

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e-mail: lhuskins@miacc.ca
website: WWW: http://www.miacc.ca.

8–10 December 1998

4th International Conference Marina 98: Planning, Design and Operation

CapeTown, South Africa

Organised by:
Wessex Institute of Technology, Southampton, UK.

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website: http://www.wessec.ac.uk

12–14 January 1999

Sixth US–Japan Workshop on Urban Earthquake Hazard Reduction

Kobe, Japan

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