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The Australian Journal of Emergency Management

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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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Y2K—was it worth it?

1999 saw a flurry of activity and the expenditure of many billions of dollars worldwide to guard against the Y2K Bug. The media presented experts who predicted everything from 'the end of the world as we know it' to 'nothing is going to go wrong'. The general government and business position was that remediation work was well under way and that, no matter what happened, we were well prepared to protect the public.

Commonwealth and State/Territory Governments sought reports on remediation performance in the public sector and key business sectors. The negotiation of reporting requirements was usually undertaken in frank and open environments where information was shared freely. These meetings established good working relationships between government (including emergency managers) and key businesses as all were keenly interested in ensuring that, whatever problem existed, it was well understood and a clear solution was developed.

The actual event in Australia saw few formal reports of Y2K incidents. Anecdotal evidence suggests that many more incidents occurred but were not reported. Indeed, many companies were reported as saying that they would not report an incident unless they had to. They argued that they deal with hundreds of minor faults in service delivery every day and their contingency processes are well developed to cope with those without causing undue public concern.

With figures such as $12 billion being suggested as a national expenditure on Y2K, we should ask the question—'Was it worth it?' The truth, I suspect, is that we will never really know. Like any disaster, the challenges and benefits of Y2K extend beyond the immediate cause which, in this case, was information technology. The Y2K remediation process identified, and repaired, many technical problems. That process, however, was not limited to the technical. Government and businesses reviewed and tested contingency plans; many considered, and planned for, failures in utility supply, which after all can fail for reasons other than Y2K. In addition to business continuity planning, companies became more aware of the interdependency of utilities. Those utility companies gathered to gain a better understanding of that interdependency and how they might work in the event of a failure. In New Zealand, this work was commenced under the Lifelines Project—a concept that is yet to be fully embraced in Australia.

Y2K was also an exercise in public confidence with the media seeking to provide exciting stories. Companies tried not to give too much information prematurely with the main message being that remediation was under control and problems would not occur. Government tried not to become embroiled in discussions on the likely extent of the problem, preferring the message that no matter what happened, it was prepared.

The emergency management industry had to look at its own business continuity under Y2K conditions as well prepare for additional response to the consequences of Y2K incidents. It also played broader roles in gathering information on incidents, linking industry and government departments, and providing advice on contingency planning.

The reality of Y2K is that the public experienced no significant disruptions with only a few minor incidents being reported. Reports are not widely available on the results of control tests of original systems left to operate through Y2K. According to anecdotal evidence, some survived and some failed. Consequently, the questions such as 'was the exercise worth $12 billion' and 'was it all a hoax' are now being asked.

I suggest that the answers are not to be found in focussing on Y2K but the outcome of improved business continuity planning in Australia. Y2K was a threat, arguably it was poorly defined and people wanted answers before a full analysis could be completed. Nevertheless, Y2K was the catalyst for many activities, such as:

- improved awareness of the interdependency of lifelines;
- the establishment of networks for future cooperation between organizations
- the development or revision of business continuity plans within the private and public sectors
- the rationalisation of corporate IT, including a better understanding of the threats affecting it.

Was the expenditure on Y2K worth it? We may never know. But to lose the lessons of Y2K will be to ensure that it wasn't. The challenge to emergency managers, collectively, is to build on the partnerships established and the lessons learned to develop and promote the importance of planning and preparing for infrastructure failures beyond those that occur daily within a single industry.

Barry Stanton
Emergency Management Australia

Post-disaster reconstruction and economic development: A methodology for the utilisation of public information data

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Introduction

This article proposes a methodology for the development of a cross-national data basis that is useful to disaster relief agencies and national governments for planning strategies of post-disaster interventions that are consistent with and facilitate sustained socio-economic development. The data basis will document the socio-cultural, political and economic characteristics and mitigation strategies in societies where disasters have become stimuli for socio-economic growth as well as in those societies where disasters have been followed by socio-economic downtrends. Eventually, the data basis will be accessible electronically and will be useful to identify what kind of disaster preparedness and post-disaster intervention strategies are appropriate in specific socio-economic and political environments both for emergency assistance and for long-term reconstruction and development.

Risk reduction management as a multidisciplinary task

Given the enormous burden that disasters impose on the resources especially of developing nations, we cannot any longer afford to continue focusing most of our energies on risk reduction and mitigation understood in the narrow sense of the words. To be enforceable and sustainable, mitigation policies should be consistent with, and more importantly, foster socio-economic growth. The link between mitigation, disaster response and socio-economic growth is the central thesis of this paper.

Sudden and massive disasters, such as earthquakes, are 'total' phenomena because they affect the physical and social aspects of human living. The holistic understanding of all the factors that contribute to a successful disaster-risk management cannot be provided by any single discipline. We cannot evaluate the technical adequacy of mitigation policies without proper geological and engineering knowledge; at the same time, we cannot understand why mitigation policies are all too often not implemented or even totally lacking, without analysing the socio-cultural, political and economic configuration of the society in question.

A 1986 publication of the American *Earthquake Engineering Research Institute* provides an insightful example of the importance of interdisciplinary co-operation.The volume entitled *Reducing Earthquake Hazards: Lessons Learned from Earthquakes* that summarises the contributions of geosciences, engineering, architecture, urban planning, and social sciences (EERI 1986). Hence, the contribution of a sociologist/anthropologist (Rossi 1974, 1980, 1982a, 1982b, 1983, 1993) at an International Symposium on 'Disaster Risk Management' organised by engineer's (INCEDE 1998) is not out of line[1]. Personally, I find affinity with the emphasis of engineering on long-term solutions; whereas most of the past research by sociologists has focused on immediate emergencies after disasters, a small group of us have been concerned with issues related to long-term recovery and reconstruction. (See for instance the study of the long-term recovery and industrialisation after the 1980 earthquake in Southern Italy in Rossi 1993). In this paper I want to suggest a methodological strategy that enables one to develop cumulative and comparative knowledge from publicly available accounts of post-disaster processes; the ultimate intent is to develop a codification of a scientifically sound and usable database of social and geo-engineering factors that are positively or negatively related to sustainable socio-economic development after disasters.

Disaster and socio-economic development

The massive influx of foreign and internal aid that typically pours into areas stricken by major disasters often introduces cultural, economic and technological changes that have the potential of triggering societal transformations. In 1963, C. E. Fritz pointed out the 'amplified rebound effect' produced by the mobilisation of social actors (and leaders) and the total concentration of societal resources after disasters occur; society can be 'carried beyond the pre-existing levels of integration, productivity and capacity for growth' (in Geipel 1982). E. L. Quarantelli and R. Dynes (1977) stated that catastrophes could have negative and positive consequences for the society. The few long-term studies of post-earthquake events being carried out so far have frequently documented negative long-term consequences of natural disasters, especially in developing countries (see, for instance, Munasinghe and Clarke 1995, chapter two). Yet, there exists also some research evidence to the contrary. Geipel cites the study of the Halifax explosion by Day and Kunreuther (1969), Herweijer's study (1955) of the Dutch catastrophic flood, and the recovery after the Friuli earthquake to support the notion that disaster may be regarded as an impetus rather than a hindrance to the aggregate (supra-individual) development of a region (Geipel 1980).

Long-term development after disasters can be either positive or negative in different societies as well as in different regions of the same society. For instance, the 1976 Friuli earthquake marked the infusion of large investments, the modernisation of machinery and the re-launching of the industrial sector, which increased job opportunities (Geipel 1980 and 1982). As a result, the whole Friuli region experienced new dynamic trends and accelerated economic development (Cattarinussi and Pelanda 1981). When a survey of 900 people was taken four years after the earthquake, 60.3% believed economic conditions were improved

Note

1. This paper is a revised and updated version of the presentation I made at the Bangkok 1998 International Workshop (I.N.C.E.D.E 1998).

after the earthquake and 77.1% believed that job opportunities had increased (Cattarinussi 1982).

This kind of post-earthquake outcome has not been the norm after Southern Italian earthquakes. After the destruction of the 1968 earthquake in Belice (Sicily), not much happened for a long time in terms of reconstruction, and much less in terms of development. Eight years after the earthquake, four villages still were in need of total relocation and another ten villages were in need of partial relocation (Baldassarro 1975). As of today, some villages have not been rebuilt and others have been abandoned. Yet, every year the Government has allocated funds for this area. No one knows how this money is really spent, but everybody's suspicion is that most of it ends up into the pockets of local politicians.

The 1980 Irpinia earthquake, northeast of Naples, also accentuated old exploitative relationships and profiteering in the disbursement of reconstruction funds (see Rossi 1993). A few months after the earthquake, the central Government launched an unprecedented effort of massive and rapid industrialisation to transform the largely agricultural and underdeveloped area stricken by the earthquake into an industrial region. Through a centrally devised and implemented plan, almost a half billion dollars (at mid 1980's *Lira* value) were allocated by the Government to subsidise the construction of modern factories. The type of industrial sectors and the firms to be subsidised were selected by the Central Government without much local input. The result was that local politicians deeply mistrusted the industrialists 'imported' from Northern Italy so that the later became incapable of linking their business activities to local economic and entrepreneurial capabilities; moreover, skilled labor was also imported from Northern Italy. Instead of stimulating a large network of satellite enterprises, these factories became within a few years 'cathedrals in the desert' incapable of competing in the national market. One reason for this failure was the high transportation costs to buy primary material and sell products; an highway project that would have linked the high plateau of Alta Irpinia (at the epicenter of the earthquake) to the adjacent valleys remained unfinished for decades, and, finally, it was completed in an aborted and truncated form. The import of primary material was a necessity for the new factories, since contrary to the suggestion of many local leaders, most of them were not designed for the processing of local products. Other infrastructural services were missing also, and eventually the factories became incapable of obtaining loans from financial institutions. Out of 75 factories that participated in our surveys of managers, workers and local leaders, only 61.3% in 1986 and 89.1% in 1987 published their budget; respectively 39% and 63% of the published budgets showed a deficit (Caporale 1991b). A few years later, many of these heavily subsided factories closed down, with some of them transferring the modern machinery purchased with government funds to their Northern plants. The irony was that, once more, funds earmarked for the development of the economically depressed areas of Southern Italy ended up accentuating the economic disparity between the economically prosperous North and the relatively depressed South. The mismanagement of reconstruction funds became a national scandal that led to a parliamentary investigation and prolonged prosecutorial actions against many prominent politicians. (For a more detailed documentation and for the protagonists' perceptions and evaluations of the reconstruction process see Rossi 1993, chapter five).

> Given the enormous burden that disasters impose on the resources especially of developing nations, we cannot any longer afford to continue focusing most of our energies on risk reduction and mitigation understood in the narrow sense of the words.

Why are there such differences in post-disaster outcomes across nations and within a nation? It is preposterous to believe that the status of geoscientific and engineering knowledge can account for these radical differences. The central question is, rather, why the recommendations of geoscientists and engineers are taken more seriously in certain societies than in others and in certain geographic and cultural areas of a given country than in others? A related question is what are the societal characteristics that lead to effective reconstruction in some societies and to profiteering in others?

The 1994 World Conference on Natural Disaster Reduction jointly sponsored by the World Bank and IDNDR, linked the issues of disaster mitigation, social vulnerability and sustainable development. At the conference, the notion was proposed that 'the amount of damage caused by disasters is largely a function of decisions made in the course of development' (Munasinghe and Clarke 1995). Inordinate urban expansions, poor building codes, and lack of land-use regulations increases social vulnerability or societal 'predisposition to experience substantial damage as a result of natural hazards' (Munasinghe and Clarke 1995). Mohan Munasinghe and Caroline Clarke (1995), two non sociologists, stated that 'the consequences of natural disasters and the efforts needed to recover from them are country-specific and depend on many factors, such as the proportion of the economy affected [by disasters] and the prevailing economic and social conditions, in addition to the nature and severity of the disaster itself'. Development characterised by chaotic urbanisation, mass poverty, and environmental degradation can greatly augment the effects of natural disasters. To counter this escalating spiral effect we need to engage in paths of sustainable development 'that place emphasis on productive usage of natural resources to meet the needs of the present while enhancing resources to meet the needs of future generations' (Munasinghe and Clarke 1995). According to the same authors, sustainable development has an economic dimension (preserving and increasing the resources, which includes the capacity to mitigate catastrophes), a social dimension (like participation of local communities in identifying and solving problems) and an environmental dimension (preserving the resilience of biological and physical systems); in fact, the more degraded natural resources are, the more vulnerable to disasters they will be. Disaster mitigation was held to be an essential component of all three dimensions (Munasinghe and Clarke 1995).

A strong message is contained in this conference's *Proceedings*: long-term post-disaster strategies cannot lead to positive outcomes without economic development; from the overall argumentation of the conference one must infer also that economic development cannot take place without a socio-cultural re-engineering

of newly developing countries. My own position is certainly clear on this point; the production of new wealth by itself does not automatically translate into better mitigation and environmental policies; such an outcome is contingent upon a socially sensitive usage of resources which does not happen without some sort of participation in political processes. Stated succinctly, economic development will not be beneficial to the society as a whole without concomitant socio-cultural development.

Disasters as 'total phenomena' affect the social and economic strata of society and these strata will engage in paths of post-disaster recovery and related socio-economic changes that are consistent with the logic of their own interests. The studies quoted by Geipel show that a positive, universalistic, participatory and entrepreneurial logic leads to positive growth; the post-disaster recoveries after the Northridge and Kobe earthquakes have revealed similar outcomes. On the contrary, in Latin America, in Southern Italy and in other relatively undeveloped regions disasters have occasioned the reproduction of a particularistic and exploitative logic; the latter type of logic tends to prevail in highly stratified and lowly participatory societies.

It follows that the negative consequences of disasters cannot be adequately explained only by referring to the small scale of the economies; this explanation seems to be suggested by R. C. Otero and R. Z. Marti for Latin American and Caribbean countries (Otero and Marti 1995:28). It is true that the smaller the resources are, the longer and more difficult the recovery is. However, the crucial issue is that often reconstruction programs aggravate the unequal distribution of wealth (Otero and Marti 1995) and in doing so they prevent solid growth.

Gerald M. Meier (1989), a well-known authority in matters of economic development, lists various socio-cultural and political characteristics of developing countries that are an obstacle to economic growth: hierarchical social relations, strong social cleavage among strata, limited social mobility, ascribed social positions, tradition-oriented values, group loyalties and personalised social relations, lack of innovation and achievement orientation, recent and frail political independence, political instability, weak democracy, tendency to preserve the status quo.

If this discourse is correct, it is important that we document in a systematic way the socio-cultural, political and economic characteristics of societies where disasters have marked societal downtrends and of societies were disasters have become stimuli for socio-economic growth.

This systematic knowledge would tell us what are the planned economic, legal, technical strategies (including geo-scientific and engineering ones) that we must have in place to actualise post-disaster reconstruction in a developmental way. This knowledge should guide international voluntary agencies, as well as policy makers, in devising culturally appropriate strategies of intervention in the emergency as well as long-term recovery processes. The social and economic stakes of unplanned mitigation are too serious, especially in developing countries, to be left to the 'natural course' of social events.

A data base methodology for strategising developmental policies of disaster mitigation

We need a research strategy that allows us to accomplish the following goals:

1. Document the socio-cultural, political, economic correlates of positive and negative patterns of disaster mitigation, emergency response and long-term recovery
2. Measure the interrelationship among all these sets of factors in synchronic and diachronic relationships both within a given society and across societies.

Traditional research methodologies have two fundamental shortcomings. First, the compartmentalisation of disciplines has resulted in some repetition in research efforts, a lack of holistic understanding and a failure to produce cumulative knowledge on a multidisciplinary basis. Secondly, traditional research methodologies cannot provide economists, urban planners, and engineers with a well-informed and operational knowledge for practical decision-making. In fact, traditional research has been way too selective in the focus of inquiry (otherwise you do not get funded!) and too delimited in scope and time of data collection. Hence, the first problem is that too much data on long-term recovery processes remains unanalysed so that the information basis for social and technico-engineering intervention is inadequate. Secondly, all to often, scientific research seeks theoretical interpretations and formulations, which by very definition are abstract, that is, remote from the concrete indicators that practitioners and policy makers need.

I submit that the advent of modern databases offers for the first time the opportunity to develop holistic, multi-disciplinary and practically applicable information on post-disaster trends. Databases contain a great amount of information on all aspects of pre-disaster and post-disaster activities (and in-activities!) and covers them until the resolution of events. To profit theoretically and practically from this wealth of comprehensive and multidisciplinary information, we need to make an inventory of the variety of existing data bases and their sources of information. Moreover, we need to develop a theoretically sound and quantifiable codification of all the factors that have a positive or negative impact on risk mitigation, disaster response and sustainable development. This coded information will permit one to develop field-based indicators of mitigation policies, disaster response and post-disaster development as well as a quantification of their socio-cultural, political and economic correlates.

I have been involved for five years in the collection and consolidation of various databases on post-disaster developments after the 1994 Northridge and 1995 Kobe earthquake and I have so far developed a code of 106 variables to categorise and quantify the information. I have also collected information on the post-disaster events after the 1998 Italian earthquake (see Rossi 1998) and the 1999 Turkey and Taiwan earthquakes. I provide a preliminary sample of the major headings of the code developed so far on the basis of the abstracts of new items covering the events of the first five years after the Northridge earthquakes.

Sources of general and technical information

Sources of general and technical information that are abstracted in the databases: daily newspapers (local, national and international), general weeklies; business journals and periodicals (investment, trade, financial scholarly); publications of governmental, State publications & journals of cities and institutes of urban development; journals of professions (medicine and health care, architecture, and so on); journals of educational institutions and research professions (technological institutions, geological, seismological, geophysical, environmental professions); industry publications (drugs, oil & gas, restaurants and food distribution, transportation); periodicals of construction-related industries (building and construction, electrical and maintenance, fire/oil/gas, welding perio-

dicals); geological, geophysics, seismological journals; insurance and property management periodicals; banking and financial periodicals; consumer and interest groups publications.

Type of coded items of information (106 variables)

Seismic impact: location, intensity, path, other characteristics of the seismic wave; aftershocks; number of dead, wounded, homeless, missing people.

Damage, damage inspection, estimated losses: damage to infrastructures, public and private buildings, lifelines, businesses, other structures; inspection and re-inspection of damage; total loss amount, loss amount by type of structure and infrastructure.

Emergency response: search and rescue operations; medical emergencies, Red Cross, Fire Department and Police activities; emergency activities by city, state, federal agencies, voluntary organisations, public institutions, businesses; external aid by other municipalities and overseas; type, amount and length of assistance by all these agencies.

Evaluations of emergency aid: speed, quantity, coordination of aid delivered; jurisdictional conflicts among relief agencies; victims experiences and reactions to the aid; legal claims against city agencies, building owners, and insurance companies; fraudulent claims and restitution.

Social impact of the earthquake: medical and psychological problems; driving habits changed; exodus from the stricken areas; impact of the earthquake on job and work patterns; differential impact across different social strata; difficulties of low-income renters, rent control in jeopardy; the phenomenon of ghost towns; political impact.

Negative economic impact: price gauging; tightness of rental space; difficulties of small businesses; other types of businesses in difficulty; relocation of business.

Sectors stimulated by the economy: transportation, manufacturers of building material; construction of private housing and malls, entertainment industry, tourism; job creation; other business sectors and professions quickly recovering and/or stimulated by the quake; controversies over the good vs. bad economic impact of the earthquake.

Evaluations of construction standards and practices: design flaws, soil conditions; performance of retrofitted structures; engineering reports on damaged steel-frame structures; proposed code revisions; upgrading engineering designs; the question of steel-frame structures; presence and adequacy of mitigation measures.

Long-term reconstruction issues: varieties of interventions by city, state, federal government; problems in public and private reconstruction; financial sources of reconstruction: plight of banks, problems of multi-family housing and homeowners; amount of homeowner insurance; estimate cost of the reconstruction.

Crisis of the insurance industry: Losses of the insurance industry as a whole; losses of individual insurance companies; insurance strategies to deal with losses; state regulation of insurance companies; debate on state and federal insurance programs; insurance litigation.

> Databases contain a great amount of information on all aspects of pre-disaster and post-disaster activities (and in-activities!) and covers them until the resolution of events.

Re-construction and development: cultural factors affecting positively and negatively the recovery; tax breaks, policies of economic incentivations; economic performance of various industry sectors at 2,3,4,5,6 years from the disaster. (This section of the code is under development).

Analysis and interpretation of the coded information

As we can see, media coverage provides a lot of information on the nature of the disaster, immediate response, efficacy of mitigation measures, long-term recovery and reconstruction issues, economic impact of the earthquake, reconstruction and economic development. (Each of the headings contains a very large number of sub-headings and subcategories).

But is there any evidence of development and betterment linked to the Northridge and Kobe disasters? K. J. Tierney reports (and the report is also summarised in the data bases) the following data from a survey of 1079 businesses in Santa Monica and 1110 in L. A. taken on May 1995 or 16 months after the earthquake: half of the businesses indicated they returned to the pre-earthquake level, one fourth failed to recover, one fourth were doing better; the larger businesses were more likely to report to be better off than small businesses (Tierney 1997).

One year after the quake the chief economist of the State of California found that the Northridge quake caused a brief disruption followed by a surge in economic activities as a result of outside aid and rebuilding fervor; he concluded that the quake probably accelerated the onset of Los Angeles economic recovery (Romero 1995). Los Angeles City has been involved in 'Community Redevelopment Disaster Planning' and 'Economic Development Programs'.

My analysis of databases on the Kobe earthquake has proceeded at a slower pace, but it has shown a similar variety of data sources. The research done up to this point has revealed that databases contain abstracts of information on Kobe-related events from 166 American periodical publications: 82 newspapers and weeklies of general orientation, 41 periodical representing business sectors (finances, trade, construction industry, electronics, fire insurance, steel, wood, gas industries and so on), 43 scientific journal and journals of professional societies (architecture, engineering, economic, geography, geology, mechanics, medicine, photogrammetry, risk management, seismology, and so on). It is only reasonable to expect that Japanese sources on Kobe post-disaster events are more numerous and diversified than American sources.

During the process of coding the abstracts of media items for the first year after both earthquakes, I found that most of the coding categories developed for Northridge data are applicable to the Kobe data with the addition of a few variables, like the issue of external aid, Japanese people in the U.S. seeking news about the Kobe situation, expression of USA–Japan sympathy, and some references to Japanese cultural traits affecting the reaction during disaster emergency and recovery.

I have also seen some information on cultural, political and economic aspects of post-disaster events after the Kobe earthquake. During the first few months after the earthquake only temporary losses were predicted (such as in the shipping industry), and there were frequent reports on the expected boosting of the economy by the earthquake: firms seizing the

opportunity to rebuild and modernise, anticipated boom in construction, lumber, cooper, sake, wireless and satellite technology. These expectations were based on the solid state of the Japanese economy.

I do not possess quantitative economic data on the status of Kobe five years after the earthquake, but in the 12/1/97 Report by the City of Kobe one can read a few pages on 'urban redevelopment' and 'development' projects. Section five deals with 'economic revitalisation': there the focus is on 'restoration' of existing businesses and industrial activities, but also on 'promoting industries integral to urban restoration' on 'nurturing business for the 21st century'; on 'raising the level of sophistication of the industrial structure', on 'nurturing new industries and promoting international economic exchange'. In section six the goals for rebuilding the port of Kobe are described as the restoration of port facilities, 'strengthening its functions as a mother port of Asia' and 'strengthening its global competitiveness'. Section seven is on 'promoting Safe Urban Development' and 'strengthening disaster prevention measures'. Section ten discusses promotional projects, including the 'new Industrial Structure Formation Project' where the goal is to create 'knowledge-intensive network-type businesses and attracting foreign firms to facilitate self-restoration by the private sector'. It is clear that, at least programmatically, the city intended to move beyond replacement/reconstruction and realize new growth and development. Information databases also show the existence of the 'Hanshin-Awaji Economic Revitalization Organisation'.

One may raise the question of whether a systematic codification of the content of the databases can produce better results than the existing compendia of research findings. I am referring here to two inventories of sociological findings: *Human Systems in Extreme Environments* by Millet, Drabek and Haas (1975) and Drabek's Human *System Responses to Disaster: an Inventory of Sociological Findings* (1986). The latter work organises the findings according to a temporal sequence (preparedness and planning, warning, evacuation and other forms of pre-impact mobilisation, post-impact emergency, restoration, reconstruction, hazard perception, attitudes toward mitigation) and a fourfold structural level: individual, group, organisational, community, societal and international levels. Both of these compilations of propositional findings can serve as guidelines to develop categories for coding the information available in a variety of databases. However, the empirical referents of the events often disappear from propositional statements. Unfortunately, even on the level of propositional inventories these codifications of findings have serious shortcomings. For instance, the authors responsible for the chapter on 'Social Sciences' of the report of the Earthquake Engineering Research Institute (EERI 1986) criticise disaster studies as being mostly concerned with the emergency period alone and for being descriptive rather than analytical. Secondly, propositional statements formulate relationships between a few factors (usually two at a time) prescinding from contextual findings; hence, one cannot determine which other factors are related with those entered in propositional statements.

Conclusion and recommendations

The quantified codification of the type of information described above makes possible a holistic description of each event and a comparative analysis of disaster events within a given society and across various societies. To minimise data loss and maximise comparative and correlation analyses we ought to undertake a twofold type of data collection on a systematic basis.

First proposal

1. We should develop an inventory of the available data bases that index and abstract general and technical information on disaster-related events and their socio-cultural, political, economic and geo-physical concomitants.
2. We should develop a categorisation and codification of the content of the data bases (and eventually code the entire text of the source, when available and when it covers important issues).
3. We should computerise the coded categorisation of the information for usage by researchers, disaster planners, and other practitioners in the field of risk management much in the fashion of the Human Relations Area Files that has become a standard tool for cross-cultural analysis (Murdock 1983a, 1983b; Human Relation Area Files 1987).

Second proposal

With the cooperation of governmental and private agencies involved in disaster risk management we should develop a standardised tool to record, country by country, the disaster-related legislation, policies, programs, and indicators of recovery/ reconstruction/development outcomes as officially recorded.

This approach will permit one to develop a complete and comparative record of societal experiences that can be submitted to the same coding procedures and statistical analysis as previously discussed.

There are many advantages for coding the large quantity of the available information contained in the databases (and in the proposed standardised tool):

1. General media and practitioners tend to use common terminology and behavioral referents so that the effort of decoding encrypted information is kept at a minimum. (At the same time, when we code databases that report from technical sources, we must rely for codification of experts in the field).
2. Databased information provides an holistic view of disasters rather than fragmented and piece-meal views on selected aspects of them; one can argue that the latter is usually the case for much funded research.
3. Databased information is not limited by the need to collect only the data that are most appropriate to test a specific theory or hypothesis. Moreover, non-quantifiable information often adds important contextual knowledge.
4. Databased information is mostly informant-based information (as opposed to respondent-based information of much funded research).
5. Databased information conveys the point of view of the major constituencies of disaster events: government, relief agencies, private sector, victims, general population, advocate and consumer groups, and experts in the many areas directly involved with disaster recovery.

The following types of statistical analyses are possible with a coded data set:

1. **Event synchronic (relational) analysis:** One can study the interrelationship among various facets of disaster relief and recovery activities (including their social, economic and geo-physical concomitants) that occur at a particular period in time. For instance, the coordination achieved among federal, state, city agencies and voluntary organisations during the emergency phase.
2. **Event diachronic analysis:** One can study, for instance, the relationship between hazard preparedness and amount of damage; amount of damage and quickness of recovery; speed and amount of fund allocation and speed and level of recovery; relationship among emergency recovery, temporary housing, permanent reconstruction, and socio-economic development; tax

and financial incentives, on the one hand, and speed of business recovery, on the other hand.

3. **Societal cross-event analysis** or comparative analysis of patterns of events after different types of disasters that occur within a given society.
4. **Cross-societal event analysis** or comparative analysis of similar types of disaster events in different societies, (and both in a synchronic and diachronic perspective).

One word of caution is in order. The coding categories must be developed on the basis of theory-driven scholarship (or at least a synthesis of previous research findings) and on sound taxonomic principles. Scientific rigor and multidisciplinary cooperation are indispensable for the quantification of database information that is useful to develop cross-societal applicable and country-specific policies of disaster-induced socio-economic development. For this reason, I am presently conducting a critical review of the literature on economic development and I have developed a dialectic framework for the analysis of globalization processes (Rossi 1999). No strategising of socio-economic development would make sense outside a global context.

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Postscript: The author entertains initiatives of international conferences and cross-national collaboration on this kind of project.

New approaches to assessing vulnerability and resilience

by Philip Buckle, Manager, State Emergency Recovery Unit, Dept of Human Services, Victoria; Dr Graham Mars, Lecturer, School of Social Science and Planning, RMIT University; and Rev Syd Smale, State Disaster Recovery Coordinator, Victorian Council of Churches

Introduction

Identifying who exactly are the vulnerable people in the community has been accepted for some time as a necessary part of effective emergency and disaster planning. With the introduction and general commitment throughout Australia to a risk management approach to emergency management, the need to identify vulnerabilities has been given impetus (Salter 1997). The authors are particularly interested in developing the concept of vulnerability and of improving methods for assessing that vulnerability. However, it seems to us that there is still a limited understanding of what the terms vulnerability and resilience include.

This lack of understanding often constrains the effective practice of emergency management. As well as dealing with a variety of potential risks, emergency managers have to deal with a range of potential needs and potential capacities to cope of individuals, groups, communities and agencies about which they have only a partial and incomplete understanding. This necessarily limits the options that can be developed to reduce risk to the community. Equally, individuals, communities and agencies have an equally demarcated understanding of risks, hazards, vulnerabilities and capacities. As a result, understanding of options for effective risk management as well as for supporting local capability are also limited.

Some people, of particular note Ken Granger and his colleagues engaged in the Cities Project (Granger et.al. 1999), are developing a better and more detailed understanding of risk and vulnerability. However, we believe that there are a number of additional facets to resilience and vulnerability that need further exploration as we discuss below.

In this paper we identify specific issues that are central to a proper and complete understanding of vulnerability and resilience.

As we progress in our study of vulnerability and resilience we hope to incorporate these elements into a coherent framework that is capable of systematic application by emergency managers and community members to generally inform the process of risk assessment and risk management planning more thoroughly than is now possible. This will be a practical and applied aim.

We also expect to develop a better theoretical basis for the understanding of vulnerability and resilience and to integrate with other disciplines such as community development, social psychology, community economics and environmental management.

Background

Recent events in Victoria and elsewhere have stimulated an interest in assessing vulnerability that had recently become evident and which was developing in significant ways. The January 1997 bushfires in the Dandenong Ranges was a generally well managed community support and recovery process. The lead taken by local government, and the level of support provided by the local community to its own members, serves as a model of local coordination and management.

However, there are some indications that it took some time for the recovery process to identify all vulnerable groups. In particular single parent families, usually with low incomes and typically with constraints upon the time of the sole parent and comprising just over 10% of the total population, may have lacked opportunities to fully participate in some community recovery activities. Following the East Gippsland floods of June 1998 it also became apparent that there were a number of distinct groups that had special needs.

Families in remote areas lacked access to child care facilities (other than a traveling child care support group whose funding was shortly due to cease); other people in remote areas had very considerable distances to travel to access services and support; in some of the farming areas an aged population faced difficulties in recovering from their losses and the whole area was made more vulnerable through the effects of 2 years of drought preceding the floods.

Vulnerability was as much a result of exposure to 2 years of drought and many years of environmental alteration, and the effects of isolation (extended travel time, poor communications and so forth), as it was to the passing effects of the flood itself.

The Gas Shortage of September 1998 in Victoria also highlighted particular vulnerabilities in the community when gas restrictions were applied. Aged people, new born babies and infants, people with particular medical conditions or with terminal illnesses requiring palliative care, people on life support systems, and the disabled all had special requirements for support. Yet many of the aged who were expected to be vulnerable actually coped better than was expected by emergency managers. The elderly had experience and coping strategies not available to younger people, that they had gained from working through previous life difficulties such as the Great Depression and the Second World War.

Of less immediate priority were a number of other groups. People laid off from work that experienced an unexpected reduction in income, businesses forced to close temporarily and people that needed to purchase electrical cooking and heating.

On a broader scale still, there were groups of people that required specialist information on dealing with the effects of the loss of gas in terms of alternative cooking and heating options, the safe disposal of food and other putrescible materials, and safe methods of heating and using water for bathing.

These events, and the ways in which they have highlighted community needs occurring in the context of a change from a hazard based focus on emergency management to a risk based focus, set a starting point for our consideration of vulnerability as it applies to emergency management.

Definitions

The glossary produced by Emergency Management Australia (Emergency Management Australia 1998) defines **vulnerability** as:

> *The degree of susceptibility and resilience of the community and environment to hazards. The degree of loss to a given element at risk or set of such elements resulting from the occurrence of a phenomenon of a given magnitude and expressed on a scale of 0 (no damage) to 1 (total loss).*

Elements at risk is defined as:

> *The population, buildings and civil engineering works economic activities, public services and infrastructure, etc. exposed to hazards.* (Emergency Management Australia 1998)

But there is no reference to people, their community and social associations, networks and processes which underpin and facilitate life in our society.

Despite these limitations we accept this as a working definition of vulnerability, although the subsequent references in the glossary as:

> **vulnerability analysis:** *see hazard analysis, and*
>
> **vulnerability assessment:** *see hazard analysis.* (Emergency Management Australia 1998)

suggest an emphasis on the hazard agent rather than on the consequences of interactions between the hazard agent and community, property and the environment.

The glossary continues by defining **vulnerable groups** as:

> *Categories of displaced persons with special needs, variously defined to include: unaccompanied minors, the elderly, the mentally and physically disabled, victims of physical abuse or violence, and pregnant, lactating or single women.* (Emergency Management Australia 1998)

In our view this is a limited and restricting list.

Resiliency is defined as:

> *A measure of how quickly a system recovers from failures.* (Emergency Management Australia 1998)

Again we have no inherent disagreement with this definition, so far as it goes. But it fails to identify that individuals, groups and communities may each possess degrees of resilience which will vary over time and within each of these categories.

We need to understand the resilience of each of these levels, in fact of all elements that have a bearing on the life of the communities that we are investigating.

We accept that argument with any definition is possible and we do not relish pedantry. However these definitions and the emphases they place (or, just as importantly, do not place) do indicate a particular view of the world and a view of what matters or which elements have priority. These limitations to these concepts have clear potential to affect planning and management in practice.

The new approach to emergency management, of assessing risk, evaluating a range of management options and of directly involving the community in the process, rather than emphasising prevention and control of the hazard agent only is still developing. In this circumstance we can hope that these concepts and definitions will be refined as the new approach is increasingly adopted and progressively evaluated.

Some of these issues are clarified, or at least identified, in the definitions of risk and associated terms given in the glossary. 'Risk' as a key concept in this new approach has a tendency to embrace associated issues, such as vulnerability and resilience, and although the definition of 'risk' itself clears up some issues there also needs to be a comparable clarification for terms such as vulnerability.

- **risk:** a concept used to describe the likelihood of harmful consequences arising from the interaction of hazards, communities and the environment. The chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood. A measure of harm, taking into account the consequences of an event and its likelihood. For example, it may be expressed as the likelihood of death to an exposed individual over a given period. Expected losses (of lives, persons injured, property damaged, and economic activity disrupted) due to a particular hazard for a given area and reference period. Based on mathematical calculations, risk is the product of hazard and vulnerability.
- **risk analysis:** systematic use of available information to determine how often specified events may occur and the magnitude of their likely consequences. The systematic use of available information to study risk.
- **risk assessment:** the process used to determine risk management priorities by evaluating and comparing the level of risk against predetermined standards, target risk levels or other criteria. (Emergency Management Australia 1998)

The final point that we want to make about definitions refers to types of vulnerability.

Vulnerability is often taken to be an absolute measure of loss, usually given in dollar terms and expressed as potential or actual losses, as for existence in damage caused by cyclones, earthquakes, bushfires and floods. An equally important aspect of vulnerability is the relative vulnerability of groups, that is the amount lost (or at risk) compared with the amount that another group may risk; where amount can refer to dollar values, amounts of goods such as household items and so on. This aspect is important in setting priorities for limited resources when they have to be allocated to different groups or areas.

An often neglected definition refers to loss relative to the goods and capacities required to sustain at least a minimum level of safe and healthy living. For some people this level of loss may be slight, in dollar terms, but in terms of their capacity to replace losses and to sustain acceptable living conditions it may be very important.

What we indicate here is that a qualitative assessment of the significance of the goods that may be lost needs to be included in any consideration of vulnerability. In this sense a $1M home in affluent Toorak has the same value as an $80k home in the working class suburb of Footscray; both are the abode of a person or a family. In this sense they are identical. The home in Footscray may actually be of greater value to the residents if their income is low and they have fewer resources to divert to replacement or repair or even to take out adequate insurance in the first place.

We do not deal in this paper with hazard assessment, which is an integral part of the risk management process and which is directly relevant to assessing vulnerability. Hazard analysis and assessment are well understood processes—even if the hazards themselves are still difficult to understand and predict in terms of location, timing and behaviour—and so we refer readers to the relevant literature and sources for hazard assessment techniques.

We also need to mention that vulnerability is often taken to be 'community vulnerability', that is the personal (life, safety, wellbeing and personal and family property) vulnerability of individuals, families and small groups. The exposure to damage of services, infrastructure and economic activity is frequently ignored. Yet these are vulnerable to damage themselves. When damaged the resulting loss to people of services and amenities

may in itself increase or generate vulnerability and need.

Therefore we believe that these elements also needed to be included in a vulnerability assessment of the community and as well as their own vulnerability needs to be assessed.

Current approaches to assessing vulnerability

While vulnerability assessment has been accepted for some time as a requirement for the effective development of emergency management capability the concept has generally been applied simplistically.

Vulnerability has usually been taken to refer to groups of individuals. Typically these are taken to be:

- the elderly
- the very young
- the disabled
- people who speak a language other than the dominant language (in Australia's case English)

At best this is a very limited list and it looks at only one dimension of vulnerability. Groups are identified basically as first existing outside place (with any location specific mix of hazards, (such as close to chemical plants), community facilities (which may reduce vulnerability) and so on). Second as being outside time (variations in vulnerability over time as periodic changes such as across the year or across repeating events such as drought or economic downturn), third as being independent of social and economic trends.

These groups may well be vulnerable to the impacts of hazards. Though how and why they are at greater risk than others is not identified or evident from a simple statement of the class of people as vulnerable. Is it because, say, they are aged or is being old indicative of other factors that are more directly relevant to emergency management? Such as reduced income, reduced physical strength and mobility, limited opportunity (in terms of the time available) to recover from major financial losses?

This approach also looks at vulnerability as an attribute of the group being assessed. Clearly this is the case for some issues. However, there are circumstances where a vulnerability may be imposed and may not be linked to the people affected in any significant way. Damage to infrastructure, to community facilities and amenities and damage to the businesses and economy of an area can impact directly on people who may not be immediately or otherwise affected by the event, such as damage to a transport network impacting on commuters and tourists and damage to a public transport network will impact more severely on those people who do not have private transport than on those who do.

An alternative approach to assessing vulnerability and resilience.

As we mentioned earlier, our approach is still being developed and we hope to first identify a greater range of issues that need to be taken into account in assessing vulnerability and resilience. Secondly, to integrate these into a robust operational structure and third, to develop a theoretical framework for this approach and its methods, integrating it with other relevant social science, economic, political science and environmental management approaches.

Our work so far has drawn on the existing literature, essentially that relating to emergency management, with its subdivisions of social science, management and psychology as they apply to emergency management, and community development.

We have also relied on our own experience in emergency management, emergency management planning and emergency operations, as well as community development and community action, and the experience and knowledge of numerous people from agencies which include the fire services, police, emergency services, human services, non-government organizations, community organizations and local government.

We also worked through a considerable number of scenarios provided by a range of agencies. We found these of variable usefulness. Our experience suggests that scenario analysis is useful either when it is applied to a limited situation in great detail and worked through systematically and comprehensively. In this case it can act as a useful reality check, as a means of testing operational capacity against a likely event that is understood in some detail. The other situation where scenario analysis is useful is when it is applied as a mind clearing exercise or as reconnaissance activity. In this case the purpose is to identify the boundaries of the problem and the most prominent features of the topography.

We used both techniques. We found difficulty when we applied the process of reconnaissance hoping or expecting to come up with a detailed survey of the terrain.

In this paper we try to develop a series of perspectives, each of which can throw into relief different aspects of vulnerability identification and in ways that can be developed as a coherent structure as well as being useful in planning, management and operations.

The following lists can be used independently or linked in a matrix to identify priorities in service requirements, support needs or to distinguish between the relative needs of groups.

What we propose, and are working towards developing is a framework for assessing vulnerability that:

- includes multiple levels of social life—individual, family, group, organization, community and infrastructure and services
- includes multiple perspectives on vulnerability and resilience, with these different perspectives capable of forming various matrices as analytical and predictive tools for the community and emergency management agencies

Groups at risk

We acknowledge that there are likely to be some groups that are more susceptible to loss, or have less resilience than other groups, see *Table 1*, while acknowledging that vulnerability has to be considered in functional terms and in response to the hazard type.

This list is neither exhaustive nor exclusive. Nor is it set out in priority order. Actual groups at risk will depend on the specific circumstances (location, community demographics, time of year etc.)

Its principal value lies, we believe, as an aide memoire, as a prompt to those who are undertaking a vulnerability assessment.

What it does not do explicitly is indicate how or why these groups are vulnerable.

Needs

The range of hazards and the consequences of their impact on communities are varied and *Table 2* indicates items of likely greatest need. Again, this is neither an exhaustive nor inclusive list and the ranking of needs will vary on the nature of the event and the nature of the people affected.

This list also serves as an aide-memoire and as a road map of the sorts of issues that need to be identified and canvassed when assessing need and vulnerability.

Special services (identifying vulnerabilities)

It became apparent through the gas shortage that there are particular sets of people who are in special need from utility failure. Often these groups have few members and are not groups in the sense that the members interact with each other,

Vulnerability–groups at risk

1. Aged (particularly the frail)
2. Very young
3. Disabled (mental and physical)
4. Poor/people with limited resources to meet essential needs
5. Non English Speakers (NESB)
6. Indigenous Australians.
7. Socially isolated
8. Physically isolated
9. Seriously ill
10. People dependent on technology based life support systems
11. Large families
12. Single parent families
13. Workers at risk from machinery/equipment failure
14. People with limited psychosocial coping capacity
15. People with limited financial resources
16. People with inadequate accommodation.
17. People on holiday and travelling (particularly those in tent and caravan resorts).
18. Tourists from overseas.
19. People living close to areas of hazard (e.g. floodplains, chemical processing plants, areas of potential landslip.
20. People affected by the impact of a hazard (e.g. people who are trapped, people made homeless)

Table 1: groups that are more susceptible to loss

Vulnerability–needs

1. Home/shelter
2. Safety (personal security and freedom from physical and psychological threats)
3. Health/wellbeing (maintenance of 'normal' conditions of day to day life and interactions)
4. Medical services (including hospital and medicines)
5. Food
6. Uncontaminated water
7. Sewerage
8. Social links (established means of communication and interaction within and between communities
9. Information (about the event, possible personal and group reactions and support and assistance measures
10. Access (to services)
11. Income/economic opportunity (income maintenance or supplementation, business continuity etc.)

Table 2: items of likely greatest need

but groups only by virtue of a common need.

It seems to us that identifying these people can be achieved by reference to special services provided day to day to help people maintain the basic conditions of a safety and well-being.

These services include:

- Meals on Wheels
- Home help
- Supported accommodation services
- Nursing homes
- Hospitals
- Royal District Nursing Service
- Hostels
- Infant Welfare Centres
- Ethnic and Koorie Welfare Agencies
- Community Health Centres

Management perspectives

Despite their utility as aide-memoires, the above lists, and the needs and services they identify, are difficult to work with.

The elderly, for example, may be particularly vulnerable. However there is nothing we can do to make them young. We cannot make the young mature, the poor rich or, in the short term, the sick well.

We therefore need to consider these groups in terms of their needs that are relevant in practical ways to the situation (vulnerability) and which indicate how those needs can be met.

We suggest that the following issues are germane to the emergency management community in so far as they are a way of thinking about service provision in management and operational terms rather than simply in terms of the particular assistance measure or in terms of the simply stated need.

Information

For example about: hazards, preventative and preparedness activities.

About the impacts and consequences of an emergency if one occurs:

- information and advice about assistance measures and how to access them
- the normal biopsychosocial reactions that can be expected and how they can deal and cope with these reactions for themselves, members of their family and their community
- how to make sense of the event in terms of its cause and fitting it into their 'view' of the world

Resources

For example, what resources are required, and owned by members of the community

For prevention, preparedness, protection and recovery activities.

Management capacity

This refers to people's capacity to manage their own affairs with limited outside help and includes:

- time and opportunity e.g. to undertake recovery activities
- physical capacity e.g. which may include the support of other people, machinery or other support where there is a particular need
- access to services e.g. through establishing transport systems, locating service centres close to affected areas or access in terms of translator, interpreter or other language and media services
- expertise e.g. access to specialist services such as tradesmen, financial counsellors and other professional services

Support

This refers to personal support services as well as support programs that provide intangible or common services to the community (i.e. non-financial or material goods service to individuals)

- personal support e.g. outreach services, personal advisors and counsellors, specialist support services, advocates and gatekeepers
- community support e.g. community development officers, support at home, domiciliary care and similar services

Involvement

This applies to the need for people to engage with their local community and recognizes that community involvement is an integral part of effective plans and management

- consultation in developing and implementing emergency management programs
- encouragement in making a contribution to policy and program development
- engagement in monitoring and auditing the progress of community services
- engagement with other members in terms of provisioning mutual aid

These lists are also not exhaustive. They address the practicable aspects of reducing vulnerability.

Using these factors we can assess a person's needs in terms of the types of services that they require to meet the need. It allows us focus on the critical factors determining a person's vulnerability.

This analysis also allows us to identify alternative measures to support the need. So, for example, for an elderly person whose house has been destroyed and who is having difficulty rebuilding, the central

issue is not likely to be that they are aged. It is more likely to be that they have reduced strength and mobility; they are no longer working and so have reduced income. It may be a variety of factors which we can deal with, whereas age in itself in intractable. Equally, an elderly millionaire whose house is destroyed is even less constrained by age or even reduced physical capacity. He or she has the resources, in this case money, to purchase services, in this case a builder to rebuild the house.

Services and infrastructure

These elements which include infrastructure such as roads and bridges, utilities such as telecommunications, power, gas, water and sewage systems, other public facilities such as hospitals and schools and community health centers as well as services provided by agencies and local government can all be damaged by hazard impact.

In this way the utility service providers are vulnerable themselves and since they provide an essential public function the extent of their vulnerability, and appropriate protective measures, needs to be assessed.

However, the loss or diminished capacity of any of these also has an impact on the community itself. This in turn exposes those people who are direct and current service recipients to greater risk immediately and increases the vulnerability of others.

It is important therefore to see utilities and services not simply in terms of their own exposure but more significantly in terms of their social and community value.

This suggests an iterative approach to assessing vulnerability. First we need to assess the direct impact of a hazard and then the indirect losses to the community and its members when services are no longer available.

Levels of vulnerability and community inter-relationships

Often vulnerability is assessed just for the individual or family group, sometimes also for particular utilities or services.

Linking the latter to the former is undertaken less often. There are also other elements at risk in the community that co-exist with these. Community and social organisations such as sporting clubs or recreational facilities, groups that share a common interest, may all be impacted by an event. These groups and associations, ranging from loosely associated groups to formal and structured clubs and service associations, have in our experience all played a role in supporting the community, particularly in recovery activities.

Their relationships with each other, with the community and with government and private sector agencies is not well documented in this area. However, any damage to these groups can result in a corresponding loss or reduction of service.

These groups may be damaged in a variety of ways. Physical damage to their assets such as club rooms and facilities is the most obvious. But splits within the community that may occur after events along lines of policy, resource allocation, perceived local interests, can all divide members of local groups and associations. Also losses suffered by the members themselves will reduce their capacity to contribute. This may be taken to be a less tangible loss, one of capability of the group to maintain normal services to its' members and others and a reduced capacity to sustain local relationships and networks.

Networks within a community may also be damaged when community groups, individuals and families experience losses and normal communication channels and protocols are disrupted or supplanted by emergency specific systems, processes and networks.

But these networks are vital to effective community functioning. Change has to be managed to ensure transition to another effective pattern of networks.

Identifying and assessing these non-tangible systems and networks can be difficult, but it is not impossible. Assessment in terms of key players, information sources, points of exchange, protocols of behaviour and communication, frequency and volume of exchange are all tools that can be applied to assessing the less formal, but critical, elements of community life.

These are the structures, processes and interactions that support everyday life for most people, provide them with personal and community support, offer them essential services when required and, for other people, provide them with the critical health and care services required to maintain health and wellbeing.

Change of conditions generating vulnerability

Vulnerability is often assessed only at a particular point in time, usually prior to or as part of the emergency management planning process.

Vulnerability, either for individuals, groups or organisations needs to be assessed at particular points. There are periodic times, across the year when certain vulnerabilities may increase, which suggests that mitigating programs also need to be scheduled—whether these are programs targeted at communication, self-protection, planning or others.

Social conditions may alter locally, say with the onset of particular environmental or economic changes such as episodic drought or economic downturn, and these processes are likely also to alter the conditions generating vulnerability

Also, after disasters, changed conditions—damage to homes or income earning assets, damage to the networks of the community or to infrastructure—may generate new conditions of vulnerability that require a re-assessment of potential or actual vulnerabilities. The actual length of time over which the event occurs may be significant in changing social conditions and may itself represent a period when dramatically changed social relations exist.

Social conditions

The social conditions that generate and maintain vulnerability are not well understood in detail.

We do have some sense that certain situations may generate or magnify vulnerability. Remoteness as distance from services, low income as reduced capacity to acquire resources or services, difficulty of access in terms of ethnicity or language, economic decline of areas are just some of the factors that can affect vulnerability. They affect the vulnerability of individuals, communities and agencies. For example, 2 years of drought in east Gippsland prior to the floods of June 1998 appears to have reduced the capacity of both individuals affected by the floods and the community broadly to recover quickly and effectively. The drought did not influence the occurrence of the flood, nor perhaps the damage it caused (except for soil erosion), but it clearly reduced the recovery capacity of the area.

Understanding the dominant social and economic conditions of an area that are relevant to vulnerability will allow us to better target measures to reduce vulnerability.

We also need to be able to translate these conditions into issues and tasks that we can address in a practical way. The drought increased vulnerability through reducing incomes, lowering community morale, reducing the 'emotional strength' of people. These are issues we can deal with.

However, the underlying conditions for

purposeful local activity existed as evidenced by local commitment to the 'A Future for Rural Australia' program; the job of emergency managers is to draw out such latent capacities in local communities.

Norms and values

It is a given of emergency management that self-reliance, individual and local preparedness, awareness of the risks faced are all elements that are important in reducing vulnerability and increasing the coping capacity of the community.

We have at this time only a rudimentary understanding of what values are relevant or of how values may affect behaviour.

We have encountered events where local self-reliance has such a high value placed upon it that the affected community is resistant to assistance from outside. In other events some sectors of the community hold values of self-reliance, independence and oppose accepting what they see as charity or welfare from recovery agencies that inhibit them from seeking help even from their neighbours. In some events blame has been attached to some members of the community and this has resulted in splits within the affected population. The damage to local networks and services and the energy given to the conflict has reduced the immediate effectiveness of recovery services.

So we need to understand the values and norms that influence vulnerability. Not necessarily so that we can modify or override them—our business is to support the community not to usurp it—but so that we can identify measures that can be explained to, and offered to, the community and built into their own structures and set of values.

In one instance we had a prominent local leader reject additional staff resources. He perceived the staff as 'do-gooders' and as irrelevant to the practical issues of recovery. When it was explained to him that they would be local people employed as a resource for the community to manage, and that their focus would be practical and focusing on specific local issues, needs and tasks, he was receptive to the proposal.

Capability assessment

The capacity of social groups such as sporting associations, Non-Government Organisations and agencies tasked with a role in providing support to the community all have role to play in minimising vulnerability and supporting resilience.

The capacity of these to provide support services to the community, in planning, preparedness, protection and recovery, will bear directly on the vulnerability of the community.

If these groups are exposed to hazards, if their own operational capability is at risk, then there will be corresponding increase in vulnerability.

Consequently capacity to avoid risk to the organization as well as capacity to provide services after impacts and even after impacts that affect the organization itself, need to be assessed and taken into account.

Resilience

While people, communities, agencies and infrastructure may all be exposed to hazards and risks, that is be vulnerable, they may equally possess qualities that reduce vulnerability.

This we call resilience and it is not just the absence of vulnerability. Rather it is the capacity, in the first place, to prevent or mitigate losses and then, secondly, if damage does occur to maintain normal living conditions as far as possible, and thirdly to manage recovery from the impact.

There are a number factors that support individuals, families and communities to minimise the consequences of disasters in terms of supporting preparedness activities as well as supporting and sustaining recovery activities.

Identifying and assessing those positive factors possessed or shared by individuals, families, groups, communities and agencies which support resilience gives emergency planners and managers the opportunity to further develop resilience to increase the 'disaster resistance' of the population.

Some of the elements that support resilience are listed in *Table 3*.

Conclusion

We have proposed a different perspective on how resilience and vulnerability may

Elements that support resilience

Shared community values, aspirations and goals

including a shared and positive sense of the future, a commitment to the community as a whole and agreement of community goals as well as a shared culture

Established social infrastructure

such as information channels, social networks and community organisations such as sporting and social clubs.

Positive social and economic trends

such as a stable or growing population, a healthy economic base

Sustainability of social and economic life

which embraces a capacity for the community to weather disruption

Partnerships

Partnerships between agencies, between community groups and between commercial enterprises, or any combination of these, may bring innovation, sharing of experience, knowledge and resources and common goals. This applies particularly where the partners play a dominant role in the social and economic life of the town, such as towns dominated by a particular industry or economic activity.

Communities of interest

Where a group may exist over a wide area and be otherwise socially diverse but they share a common area of interest, skill or expertise. This includes communities bound together by faith and religious commitment, cultural groups as well as less formal groups such as business or commercial associations or sporting or recreational clubs

Established networks

Clear and agreed and stable links between people and groups facilitate the exchange of information as well as the sharing of resources and the commitment of skills, time and effort to planning and preparedness

Resources and skills

The resources and skills available locally may be directly relevant to emergency management planning, preparedness and for community support if an emergency does occur. These can be identified by the type of resource or skill, its amount, the cost to use it, its availability and by its location. Where useful resources or skills do not exist then they may be developed or promoted as part of preparedness activities.

Table 3: factors that support individuals, families and communities to minimise the consequences of disasters

be assessed. Some aspects are already accepted or are being adopted by a number of emergency management agencies and agencies with emergency management responsibilities.

The Department of Human Services in Victoria has already issued initial working papers 'Guidelines for Assessing Resilience and Vulnerability' (Department of Human Services 1999) for use by emergency management agencies, local government and the community and the Victoria State Emergency Service is actively promoting community risk management as a means of planning with municipalities. The Country Fire Authority has been working with local communities for some time to develop local capability in responding to fire hazards and to develop better local understanding of fire risk through programs such as Bushfire Blitz and Community Fireguard.

All this is to the good and parallels similar—but we suspect less developed—activities in other western countries.

A further challenge we need to confront is already addressed by many researchers into risk, hazards and vulnerability in the differently developed countries. This is the structural causes of risk and vulnerability.

We have suggested that it is not personal or demographic characteristics that are necessarily the most important in determining vulnerability. Social, economic and cultural factors, profoundly embedded in our community, may be of more importance in terms of understanding, and therefore reducing vulnerability.

Structural determinants of vulnerability are identified in many studies of the differently developed world. Western researchers investigating vulnerability in western countries less readily identify them.

The challenge is this, to look critically (and this does not mean negatively) at our own community to identify and evaluate the deep, long term conditions, processes and relationships which may exist to manufacture and maintain vulnerable populations.

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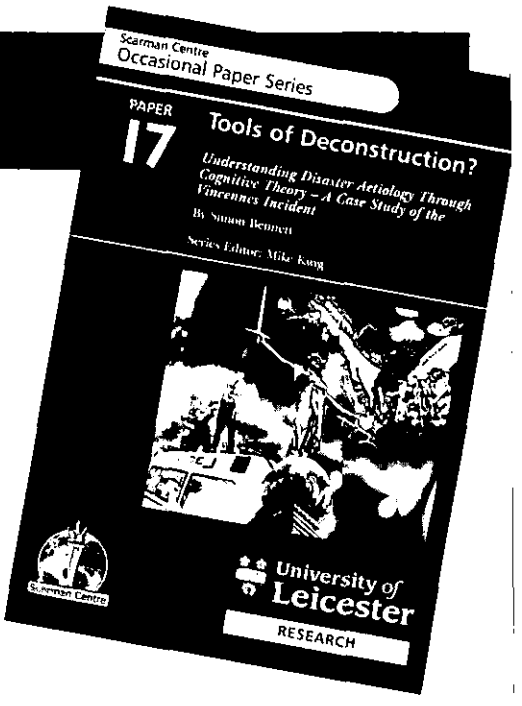
Disclaimer

This paper does not necessarily represent the views of the authors' agencies and is part of work in progress to more clearly understand the nature of vulnerability and resilience in the context of emergencies.

New Books



Tools of Deconstruction?

Understanding Disaster Aetiology through Cognitive Theory – A Case Study of the Vincennes Incident.

by Simon Bennett

An Occasional Paper from the Scarman Centre, at the University of Leicester, UK.

Reviewed by Colin Fiford

On 3 July 1988 the American Warship Vincennes shot down an Iranian airliner over the Persian Gulf. Two hundred and ninety passengers died. The Vincennes had mistaken the airliner for an Iranian warplane. The incident soured relations between USA and many Middle Eastern countries. Some accused the Americans of deliberately destroying the Iranian airbus.

The publication *Tools of Deconstruction?* attempts to unravel the mystery surrounding the shootdown. It uses theories from social psychology to try to understand why the Captain and crew of the Vincennes mistook the airliner for a warplane. *Tools of Deconstruction?* concludes that:

- the error resulted from the accidental misinterpretation of radar data, which, in turn,
- resulted from the crew's expectation of conflict with Iranian forces.

This expectation reflected America's deteriorating relationship with Iran and an exchange of fire between the Vincennes and Iranian gunboats on the morning of the shootdown. 'Tools of Deconstruction?' also argues that the crew's perceptions and actions were influenced by tough US Department of Defence Rules of Engagement (ROE) that required the robust defence of military assets and personnel. The publication suggests that under such circumstances the destruction of the Iranian Airbus amounted to a 'scenario fulfillment'.

Through its analysis of the circumstances of, and reasons for, the incident the publication shows how precedent, rules and regulations, pressures and expectations cause competent personnel to misinterpret information. In the case of the shootdown of Iran Air Flight 655, Dr. Simon Bennett theorises that this most human of failings led to the deaths of 290 civilians.

The paper has two objectives. Firstly, through a case study of the destruction of the Iranian airliner, the publication evaluates three theories of human cognition. These are the *tools of deconstruction*, with regard to the aetiology (the historical and contemporary circumstances) of disaster, which give the paper its title. Secondly, the paper employs the theories of heuristics, paradigms and social schema to develop a fuller understanding of the dynamics of the incident.

The holistic analysis employed in the paper reflects the work of Reason in a 1995 book 'Human Error'. Reason took the view that actions and events may be informed and influenced by historical experience as well as by contemporary circumstances. Simon Bennett's paper accepts that he cannot claim to offer a definitive explanation of the actions of the Captain and crew of the USS Vincennes.

A *heuristic* is defined in the paper as a mental short cut that provides 'a simplifying routine that leads to approximate solutions to everyday problems'.

Paradigm is defined in the words of Kuhn (1962), in 'The Structure of Scientific Revolutions'. A paradigm is 'a strong network of conceptual,

theoretical, instrumental and methodological commitments that inform analysis'.

Social *schema* are cognitive structures that contain knowledge of the social world. They help us to process information about events that facilitate an understanding of our environment. They may be considered as 'cognitive shortcuts'. Schema, says Simon Bennett, are masses of organised past experiences that create a tendency to interpret contemporary data in accordance with the general character of earlier experience. Such cognitive expediency carries with it the risk that responses may be inappropriate to those contemporary circumstances.

Bennett argues that schema, what he calls 'general organising frameworks', are not dissimilar from paradigms, to the extent that both are prescriptive mechanisms. Heuristics, he says, are also grounded in past experience. Bennett quotes Reason frequently and the view that only a detailed understanding of the aetiology of an event can provide a full and comprehensive explanation of why the protagonists developed certain views and behaved in a certain way.

In the third of nine meticulously constructed chapters, Bennett looks at the actual destruction of the Iranian airliner and the antecedent events and trends. He speaks of the United States as 'the dominant economic and political power of the 20th century'. Developed nations, he says, have promoted a new form of colonialism based primarily on economic power. 'The demise of the Soviet system helped the USA's global ambitions. It allowed the USA a monopolistic superpower role'. By the mid-1980's the United States had military alliances with 50 nations and had 1.5 million soldiers, airmen and sailors stationed throughout 117 countries.

Another chapter looks closely at the design, development and capabilities of the USS Vincennes, a Ticonderoga Class cruiser. The radar SPY-1A or 'Aegis' system is analysed in detail, including its target illumination weaknesses, and its costs (each installation costs approx. $200 million). The conduct and ergonomics of the Combat Information Centre (CIC) is a key factor in the shoot down of the Iranian aircraft. In addition, the responses from the aircraft's transponder, and the coded replies, determine whether an aircraft is civilian or military. There was confusion in this regard.

In his excellent foreword to the 1999–2000 edition of Jane's Fighting Ships, Captain Richard Sharpe's words support and complement many of Simon Bennett's theories. Captain Sharpe says 'the great weakness in command and control development is the assumption that because we can think 'it', computers can represent 'it', as long as we can create the appropriate architecture'.

One of the earliest naval challenges to this orthodoxy, says Sharpe, came in the analysis of low frequency sound in the sea. If a skilled sonar operator could interpret a series of ambiguous and intermittent acoustic signals as coming from a potential target, it followed that a computer could do the job as well, if not better. The answer was that it could not, because an element of artistic interpretation was often necessary to augment the purely scientific data, *in order to sift the nuggets of ore from the oceans of dross.* Humans achieve this, computers cannot.

Is it even desirable to try, bearing in mind the dangers of operators believing that what is on the screen always represents reality?

'The greater the data flow, the greater the vulnerability to misinformation, deception and confusion. Information dominance does not guarantee superior judgment.'

'Janes' goes on to discuss another acronym: CEC (Cooperative Engagement Capability) the latest attempt at better information management at the command and control level. However 'deficiencies existed in the areas off track management, net operations, co-operative engagement, support, composite identification and link interoperability. This is happening at the turn of the century and very little appears to have changed from the Vincennes incident (1988) that is the focus of this review'.

Incidentally, at the beginning of his foreword, Richard Sharpe offers two pages of military analysis that every politician and senior officer globally (and especially in Australia) who is involved in defence affairs, should read and act upon. He speaks of the 'creeping tide of civilianisation' and 'that the lobby for softening traditional military values is taking the line of least resistance, in order to accommodate the social priorities of liberal political establishments'. 'A compensation culture is milking money for perceived injuries, both physical and mental'. But, I digress.

A particularly interesting part of the paper is that decisions are made based on a small screen which provides a data snapshot of the situation. Symbols represent the targets on the radar, but unlike older radars, are digitalised and do not represent the *size* of a target. Even modern vessels like the USS Vincennes, are prone to heel over when carrying out turns at high-speed. In such situations manuals, charts, calculators and other types of unsecured equipment may be flung across their work areas.

This reviewer is reminded of his naval service and of one Captain's alleged comment to the executive officer of a surface ship: 'Are the men at dinner, Number One?' 'Yes Sir!' 'Very good. Starboard 30'.

Bennett quotes Brookes in saying, 'in bygone days old fashioned raw radar returns could be interpreted by a skilled operator to deduce a target size. This was no longer possible with the computer-generated symbols on the Vincennes' screens'. Brookes is quoted as asserting that this reliance on the CIC can lead to decision-makers becoming, as he puts it, 'cut off from reality'.

In the final chapters of this engrossing, and complex, paper the author investigates the actual engagement and the global reaction. Had the CIC picked up a Mode II transponder signal from a military aircraft at Bandar Abbas airfield which led to the classification of Flight IR655 — the Iranian Airbus — as a hostile aircraft?

The tactical information coordinator (TIC) had insisted that the target aircraft was descending towards the Vincennes at a rate of 1000 feet every mile. In fact the aircraft was about to climb from 9000 to 11,000 ft. At one point the operator was 'shouting and yelling', said one report 'as if a kamikaze was running in'.

The *heuristic of availability* was clear, says Bennett, together with the paradigm and schema cognitive mechanisms that are the foci of the paper. The Stark incident had clearly focused the minds of the Vincennes' crew. The Stark incident resulted in the commanding officer being criticised for not taking timely action.

'The crew of the Vincennes obviously lost their cool in the heat of battling gunboats and with the memory of the Stark vivid in the minds'. The radar system was unable to discriminate between an Airbus and a two-seater fighter plane. CIC personnel had to synthesise data from two screens. This had to be done in a situation of some chaos. Human error had a role to play - or as this reviewer prefers to call it "the human element". The author suggests the implementation of human / user-centred-design procedures so that the demands of systems do not exceed user capabilities.

An amazing 56 references are used for this masterly work. Its great strength is in the economy of words and the careful structure. Simon Bennett must have written and rewritten parts of this paper many times in striving for excellence. It is still hard reading because of the many, and frequent, references.

The paper's topic is a very specialist field and the early pages, where the academic foundations of its purpose are laid, should not put off likely readers. History, sociology, military strategy, ship architecture, defence strategy and tactics, geography, crisis decision-making, to name but a few topics. They are all, and more, crammed into these comprehensive 49 pages.

Congratulations to the author Dr. Simon Bennett and to his Series Editor, Mike King.

The reviewer, Commander Colin Fiford, was a naval officer in conventional and nuclear submarines, specialising in navigation and intelligence. He later worked in maritime education and simulation, also curriculum design and educational technology for adult and distance education. He is Senior Education Officer at the Australian Emergency Management Institute, where he is primarily involved with the development and delivery of emergency exercise management and of risk management education. He still serves in the Naval Reserve.

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Identifying key issues affecting the retention of emergency service volunteers

by Alan Aitken, Manager Volunteer Planning & Development, WA Fire & Emergency Services Authority.

Paper presented at the 4th Annual Emergency Services Forum, Volunteers in Emergency Service, July 1999, Sydney

Identifying and analysing the factors influencing volunteer participation & retention

The major purpose of this paper is to look at those factors which appear to influence Western Australian volunteer participation and retention and to focus on possible options open to Emergency Service Organizations to ensure that they utilize their volunteers effectively and maintain their interest and involvement.

Initially I believe that we have to ask ourselves two questions:

1. Why do people become volunteers?
2. Why do they remain as volunteers?

In late 1998, and early 1999, the WA Fire and Emergency Services Authority (FESA), in conjunction with Edith Cowan University, conducted a survey of it's volunteers in an attempt to explore both these issues. This survey was based on a similar format used with the New Zealand Fire Service in the mid 1990's. Approximately 1400 survey forms were distributed to volunteers in the three Emergency Services coming under the FESA umbrella:

- the Fire & Rescue Service (FRS)
- the Bush Fire Service (BFS)
- the State Emergency Service (SES)

542 completed forms were received. The returned sample comprised 40% FRS volunteers, 30.5% BFS and 15% SES.

Major outcomes of the survey

The survey asked for responses in the following areas:

- general levels of satisfaction with the role as a volunteer
- how many hours per week (on average) did the person spend on volunteer activities
- why did the person become a volunteer
- why did they remain a volunteer
- the effects of their employment on availability as a volunteer
- satisfaction levels with the various kinds of activities undertaken as a volunteer

Firstly and most importantly, the survey found high levels of satisfaction amongst the sample with their volunteer role:

- 55% 'Agreed' they were satisfied
- 31.4% 'Strongly agreed'
- 4% were 'Unsure'
- 2.5% 'Disagreed' or 'Strongly Disagreed' that they were satisfied with their roles as volunteers. This relationship of strong 'agreement' held across male/female responses, across respondents from the three Services and irrespective of whether the respondents were officers or not.

Also of interest were the responses to the question of why did people become volunteers. This was an open-ended question and the results were tallied according to the types of responses received. Over 25 categories of responses were recorded, many of which only had one or two entries and were therefore of no real significance. The major categories of responses to the question and the proportions for each were:

- sense of community 50.2%
- social and mateship reasons 13%
- to try something different or learn new skills 8.5%
- to be involved in competitions, training or games 6.3%
- a sense of duty—somebody has to 6.1%
- interest 6.1%
- to help others or protect lives and property 6.0%

Hence, it appears that the two major reasons for people becoming volunteers lie in:

- the social benefits associated with being a volunteer
- being in a position to help others and the community

On the issue of why do people remain volunteers, the majority of respondents indicated that they remained as volunteers for 'enjoyment' reasons. Respondents gave other reasons, but none assumed the same significance in terms of response rates as the 'enjoyment' category.

The results of the survey tend to indicate that in looking at the issues of attracting and retaining volunteers, agencies need to focus their recruitment and retention strategies around the issues of making volunteerism interesting and enjoyable. At the same time, agencies must also ensure that community service and the social benefits of participating in volunteer brigades and units are suitably highlighted when seeking new volunteers and when constructing policies and procedures related to the running of brigades and units.

Before examining other issues in relation to volunteer retention, it is also interesting to examine the responses to the questions in the survey on the activities that volunteers enjoyed, since this also provides important clues to strategies for future retention.

Amongst FRS and BFS volunteers, the four most favoured activities were:

- firefighting
- assisting and aiding the community
- social activities
- physical training (ie training of a practical bent)

Those least favoured were:

- administration
- competitions
- educating the public on issues
- theory training

Although in each of those latter cases, a majority of respondents still reported these activities as 'OK' or 'Satisfying'.

In dealing with volunteers, members of FESA staff spend many hours talking to volunteers in the course of their duties. As a consequence the views and opinions of volunteers filter back to policy makers and planners from a diversity of sources. This 'colloquial' evidence should also be collected systematically by agencies and due recognition given to it as a source of valuable data when developing policies on volunteer issues. In many instances this colloquial evidence is also linked to common sense and administrators should continually project themselves into the situation of a volunteer and ask themselves 'How would I feel if asked to do this?'

'Colloquial' evidence

What are some of these examples of 'colloquial' evidence about volunteers collected in FESA and possibly relevant to other Agencies?

- *Don't waste volunteer time*: volunteers object to activities that they see as 'padding' or doing something simply for the sake of doing it. Don't run extended training programs, about half a day is ideal to encourage maximum attendance.
- *If long training courses have to be used* (ie in terms of time), try and break them up so that they can be taken in small chunks at the convenience of the volunteer.
- *Training must be 'relevant'*: any training undertaken has to be seen to be related to the jobs volunteers are called on to do.
- *Don't ask volunteers to read too much material*, either in training or administration. If the Agency has a message to get out, then it should either be delivered verbally on a personal basis or put into video form. Lengthy written material will often be 'binned' or put on a notice board and not read. As much as possible, the Agency's communications strategy with volunteers should be based on verbal 'face to face' communications, or a video approach, rather than written communiques.
- *Realize that amongst any Emergency Services volunteer population there is usually a significant literacy problem:* in WA it was estimated in research done some 5 years ago, that anywhere up to 20% of volunteers may have some form of literacy problems, with 5–7% having severe problems. This has implications for :
  - the delivery of training
  - training assessments
  - volunteer communications
  - volunteer administration
- *Keep it 'simple'*: complex instructions won't be read.
- *'Remember were only volunteers'*: an often repeated statement that seems to carry with it a number of unspoken implications:
  - if we don't like what you do we'll stop being involved
  - you're not my 'boss' and I therefore have the right to question you if I don't like what you say or do
  - I don't have to do anything I don't want to
  - keep us happy or you will loose us, etc.
- *Remember that their main motivation is the needs of their local communities*, not the Emergency Services Agency. Therefore don't just assume they are 'employees' in a different guise and treat them accordingly.
- *Volunteers give their time and effort without direct monetary reward*: hence amongst a significant proportion of them runs the feeling that the Government 'owes us'. Many volunteers therefore expected that the Agency should meet all reasonable volunteer wishes and demands.
- *Rural volunteers in particular seem to have significant anti-government, anti-bureaucracy feelings*: this emerged strongly in a survey of BFS volunteers that FESA undertook in the latter part of 1997 and early 1998. Many volunteers are quite happy to deal with local government agencies, but are immediately suspicious of officials from centrally based organisations. This suspicion can sometimes extend to the point where they refuse to supply data or information to central sources and ignore requests for information, particularly information that has a personal bias.
- *This natural suspicion often means that new Agency staff appointed to a rural area can be treated warily until local volunteers get to know them*: once known and accepted they will usually have greater local standing amongst volunteers than headquarters staff of similar or higher status and often will be believed more than senior officers who only appear occasionally on the local scene. Stability and careful selection of field staff is therefore a critical factor in the success of an Agency's dealings with its volunteers.
- *There appears to be a strong strain of 'egalitarianism'* running through Emergency Service volunteers: this appears to come out of such things as:
  - Australia's rural cultural makeup and long standing traditions that 'Jack is as good as his master'
  - the fact that volunteers give their services for free
  - the strong interpersonal and local ties that characterize Emergency Service units
  - the need to depend on others in the Unit in emergency situations

  The upshot of this is that Agencies utilizing volunteers must be prepared to adopt a number of different approaches in their dealings with volunteers, eg:
  - Senior staff of the Agency must be prepared to accept strong vocal criticism on issues that impact on volunteers at local levels.
  - The Agency must be prepared to consult widely with volunteers on all matters that are seen to impact on them.
  - The Agency must ensure that they have a visible and local presence with all volunteers.
  - The Agency must strive to keep volunteers informed on what is happening in a wider context within the organization.
- *Volunteers only want to get on the 'red' trucks and go to fires with sirens on and lights flashing!*: they are not really interested in other activities (e.g. fire prevention, community education, etc).
- *Emergency Service volunteers tend to see themselves as unpaid 'professionals'*: the only difference, in their eyes, between themselves and the Agency staff is that those staff are paid. Hence, the Agency staff must demonstrate that they are much better than the volunteers in all aspects of their work are if they wish to earn their trust and respect.

These comments are based largely on local Western Australian experience. However, I believe that any Agency working with volunteers should make an effort to collect not only formal research evidence on what volunteers think and feel, they should also try and regularly collect colloquial evidence from field staff who deal with volunteers on a regular basis.

Historically Emergency Service Agencies have, I believe, tended to take their volunteers somewhat for granted. They have simply transferred established employment practices from permanent staff into the volunteer area. In the past this has been possible, but I believe that the current climate of change, particularly in rural areas, means that Agencies must now begin to undertake more formal research into volunteer needs and desires, in order to obtain a greater understanding of their volunteer populations. The findings of this research can then be applied to their policies, procedures and practices in order to ensure that they can recruit and retain sufficient numbers of suitable volunteers to maintain current levels of services to the community.

What are the differences between metropolitan and country volunteers?

Is it possible to identify any major differences between metropolitan and country volunteers? Unfortunately, very little directed research appears to exist on this particular issue, but in late 1997 and early 1998 a survey was conducted of Bush Fire Service (BFS) rural/farming and metropolitan brigades on proposed entry standards for volunteers. The results of this survey were mainly directed towards entry standards for new recruits, but some

interesting ancillary facts emerged re the differences between rural and metropolitan brigades:

- rural/farming brigades claimed they generally knew all of their new recruits, the point being made was that as a result they did not need to run formal selection procedures for these new recruits
- on the other hand, metropolitan brigades felt that the proposed procedures were a good way to get to know new recruits; they indicated that often they had not seen new recruits before and needed to have screening procedures in place, that would give them time to get to know them
- a number of rural/farming brigades complained about a complete absence of potential new members in their areas; many stated that they would be happy to take anyone they could get, but that there was no one available in their local catchment areas. No such comments were received from brigades in or near metropolitan areas
- rural/farming brigades were obviously more comfortable with more informal and less structured approaches to recruitment issues, whilst metropolitan brigades seemed happier to accept more formal checks and procedures
- there were unsolicited comments in a lot of the rural/farming returns about these proposed procedures being 'red tape' and 'bureaucratic nonsense'. No such comments were received from metropolitan returns

What become evident after analysing the survey was that there appeared to be real differences between the returns received from rural/farming and metro brigades. Unfortunately, as the original survey did not set out to deal with the issue of differences between metropolitan and rural brigades and the size of the total sample was small (100), it was not possible to place too much faith in the results that emerged. Despite this the outcomes were interesting enough to lead us to believe that there could be real value in more formal research in this area at a later date. Differences detected were significant enough to possibly indicate that we should be dealing with metropolitan and rural brigades in different ways.

As a consequence we also began to question field staff about potential differences between the two groups. The issues we were interested in were: why we would have received such comments from rural brigades; and what field staff saw as the major differences between metropolitan and rural brigades. Following is a summary of the major points that emerged from these discussions.

Rural/farming brigades

- are usually much smaller in terms of numbers of volunteers; they are normally comprised of people who know one another socially and have similar interests and occupations (ie. farming)
- seem to be suffering recruitment problems in marginal farming areas; the average age of their members appears to be getting older and many of them are complaining about the difficulties of getting any members
- usually supply their own equipment and appliances
- are often just small groups of farmers who band together out of self-interest to protect their crops and farms, hence the groups usually have a clear objective and common purpose (ie no motivation problems and little internal bickering or strife with respect to 'brigade' issues)
- their training is normally only at a basic level and directed towards wildfire fighting
- most of their incidents are related to roadside, scrub and crop fires (for many of these brigades there are usually only 1 or 2 a season)
- everyone knows everyone else, potential new recruits are usually known from a young age and if deemed suitable are encouraged to join
- there seems to be a strong aversion amongst the members of such brigades to what they see as central government 'bureaucracy' and at times a strong unwillingness to co-operate with people in 'head office'
- seem to like to work without formal rules or procedures: this may be due to their smaller size and the fact that they are usually more cohesive social groups.
- amongst these brigades there is usually very little interest in what is happening elsewhere within the Agency
- local persons seen as unsuitable are informally discouraged from joining, new members who are initially unknown to brigade members, but who do not work out as being suitable, are often 'encouraged' to leave through informal (but usually very effective) social pressures within the group
- their different social structure (much more informal), their small size, lesser training requirements and the infrequent occurrence of incidents leads, I believe, to a situation which merits different management approaches from Emergency Service Agencies. Once the Agency is satisfied that the brigade has the appropriate skills to work safely and efficiently, then they should, if possible, leave these brigades alone (unless they seek advice or assistance). Agencies should avoid prescribing rules for rural brigades. They should be treated much more informally and administrative demands on them kept to a minimum.

Metropolitan and outer metro brigades

- usually much larger in size
- usually include persons from different backgrounds and with different interests; outside the brigades, the people involved do not usually know one another socially before they join, therefore I believe that as a result metropolitan and large town brigades can often be more fragmented and internally less cohesive than rural/farming brigades
- the motivation for joining a metropolitan brigade is often a generalized feeling of being involved in a community service activity or doing something, which is inherently interesting; as a result, cohesion and common purpose often have to be built into the group's thinking since these brigades are not primarily focused on localized and clear cut self protection (compared with rural/farming brigades)
- new recruits are often not known at all to existing members of brigades, hence there are often no built in social 'screening' processes such as those that appear to exist in rural/farming brigades. It is interesting in this regard, that all of the cases of arson amongst volunteer firefighters in WA have been connected with volunteers on the fringes of metropolitan areas where these informal social screening processes are unable to operate to the same degree
- because of their larger size and more fragmented nature, metropolitan brigades usually require more formal procedures to operate effectively, eg, such brigades seem to prefer to have formal written disciplinary procedures to deal with difficult cases (compared to rural brigades); while they normally don't like to be told what to do, they do seem to prefer the security of a set of defined rules and procedures within which to operate
- Metro brigades usually handle more incidents per year of a greater diversity (eg. HAZMAT, vehicle rescue, as well as

bush scrub and grass fires, etc). This usually requires them to train in a wider range of skills and the higher number of incidents can often mean that they have to formalise their crew rostering and availability schedules, etc. This in turn places more pressure on the members and usually requires them to be in attendance more often for training, incidents and meetings.

- their bigger size and higher member numbers makes them more dependent on formal administrative systems to allow them to operate effectively; many members work for large firms, companies and the government, hence they are more used to formal administration and feel more comfortable in such a framework
- because of the training requirements and higher incident levels there are many more pressures placed on brigade members with respect to time away from families; many of the volunteers in these brigades almost regard their volunteer work as a part time vocation, hence, there is usually more interest and feeling generated in these brigades on what is happening generally within the Agency
- the larger of these brigades often require heavy involvement from their senior members with respect to management and administration, some of the bigger brigades have now hired part-time clerical workers to carry out their administrative work.

It is not possible to draw a line in the sand and place all FESA brigades into one of these two categories. The above comments have been put together more by looking at the extreme ends of the spectrum. Many brigades fall in between the above descriptions and obviously exhibit qualities of both types of brigades. Nevertheless, it is possible to state that all FESA brigades will fall into one of these two categories, or exhibit the majority of characteristics of one or the other.

Implications of these differences

What are the implications of these differences for Emergency Service Agencies and in particular the retention of members? The major implications seem to be that Agencies need to approach small rural brigades much more informally and leave them to their own devices to a much greater degree. They should normally wait until the brigades approach them with a problem (eg recruitment of members), provide assistance and then move back to await further developments. Monitoring brigade activities should be more informal. Apart from establishing that these brigades can function safely the Agency should in general endeavour to leave rural brigades alone to a much greater degree.

The emerging dilemma for Emergency Service Agencies appears to be that while the style of operation of rural/farming brigades suits a non-interventionist, non-regulatory approach, it is in precisely these types of brigades (and those in small country towns) that our 'aging' and retention problems appear to be occurring to the greatest degree. Hence, Agencies will need to develop support mechanisms to overcome local recruitment and retention problems, whilst at the same time taking account of the informal and relatively unstructured nature of rural brigades.

On the other hand, metropolitan/outer metropolitan brigades seem to tolerate much more direct intervention by the Agency. They appear to be prepared to accept more formal guidelines, rules and procedures, but do not (at this stage) appear to have quite the same recruitment and retention problems as rural/farming brigades.

Determining the effects of change on a volunteer population

Within Western Australia, there is mounting evidence that our volunteer populations in country areas are being subjected to social and economic change which will, I believe, shortly begin to impact on our ability to recruit and retain sufficient numbers of trained volunteers. In broad terms, this process of change now appears to be well under way and is likely to increase in intensity and scope over the coming decade.

What are some of these changes? I believe that two of the biggest have their source in two major economic shifts that are currently taking place:

- falling gold and other metal prices that are impacting on mining towns in the north and east of the state
- falling rural incomes (e.g. from grain and wool) that are effecting farming areas and the towns that are dependent on them—this is already evident in changes that are taking place in towns and areas in the more 'marginal' farming areas of the state.

What are the general effects of these two broad trends?

In mining areas:

- mine closures and direct loss of populations (e.g. Kambalda & Norseman)
- changing shift patterns in the mines (eg. a move to 12-hour shifts) which reduce volunteer availability
- a tendency to work 2-3 days of concentrated shifts followed by 2-3 days off – workers then may move out of the town during their time off periods, which means they are usually not available either during their shifts or in their time off
- loss of income in the local towns and hence reductions in employment opportunities (eg. shops & service industries) which in turn helps to reduce the number of people available to act as Emergency Service volunteers.

The general outcome is that local brigades/units in mining towns are now finding it more difficult to attract volunteers.

In rural/agricultural areas:

- falling rural incomes, increasing individual productivity and an aging rural population have tended to lead to the amalgamation of farms and properties, hence, fewer people are available on farms to act as volunteers
- increasing rural productivity, in particular when combined with falling rural incomes, has led to sharp reductions in the amount of employment available in rural areas, which in turn has impacted on the supply of people available to act as volunteers
- local towns have consequently suffered as their customer bases shrink and available people are spending less money, and as a result, many businesses have closed and fewer people again are available to be volunteers
- there has been an increasing move of young people to the cities in search of employment.

At a volunteer brigade/unit level these changes are now beginning to be noticeable:

- there has been significant 'aging' of FESA's volunteer population in the smaller mining and rural communities
- many rural/farming brigades are now beginning to complain that they cannot get any new recruits, stating that there are not any available in their areas
- many small country towns are no longer competing in the FRS annual competitions–it is believed that this may be because they can no longer get sufficient young people into the brigade to form a competition team
- verbal reports are now beginning to filter back to FESA that in some country towns local employers are no longer as willing to release employees for volun-

teer work, since they have had to cut back due to their falling incomes.

In addition to these changes I believe that we are also seeing cultural and social changes emerging in country areas that are beginning to impact on volunteerism. Fifteen to twenty years ago the entertainment of country people was almost totally based around group activities of various kinds, eg. football clubs, cricket clubs, tennis clubs, bowling clubs, etc. The local volunteer unit was one of these groups and as such offered entertainment and opportunities to meet and interact socially with others as well as render community service. In the last decade, we have seen a major growth in more individual forms of entertainment such as video, computer games, satellite TV and the internet. These forms of entertainment have, I believe, begun to replace many of the more traditional forms of group entertainment.

The end result has been a decreasing interest in volunteer groups and activities due to a lessening of their attractiveness as a form of 'entertainment'. One offshoot has been that volunteer Captains and leaders are now telling us that the first question many people now ask when approached to join a brigade or unit is 'What's in it for me?' As one volunteer Captain put the issue, 'before there was no real competition for their time, now if what you are offering is not more interesting than other things, they are not prepared to consider joining!'

In addition to this, there are now other challenges facing Emergency Services Organisations, which in turn are going to impact on their ability to recruit and retrain volunteers:

Minimum safety standards: It is becoming increasingly evident that organisations such as FESA will, as a consequence of such tragedies as the fire incident at Linton in Victoria in December 1998, be required to impose safety standards on volunteer brigades. This will ensure that any volunteer going to an incident has the necessary skills to meet the range of hazards likely to be encountered at that incident. Unlike permanent firefighting crew, organizations like FESA often have no idea which volunteers are actually going to an incident until after the incident is concluded. Even then, one would have to question the efficacy of some of the reporting data forwarded by local volunteer brigades which are notoriously casual about even reporting an incident, let alone bothering to forward accurate data on who attended. I believe that in the future, in order to meet our 'duty of care' obligations, Emergency Service Organizations will have to do such things as:

- lay down minimum numbers and skills profiles for brigades
- set minimum numbers and skills profiles for different types of incidents.

Theoretically brigades would then be directed that unless they met those minimal requirements they could not be classified as operational. Nor could they undertake 'limited' roles and functions at incidents (eg if inadequate numbers of trained crew turn up to a house fire, then they must limit their activities and immediately call out support). Obviously such approaches are going to be very difficult to adopt in isolated towns and areas where there are just no back-up brigades available. This is a difficult issue, but one which I believe agencies will have to address in the future.

At the same time Agencies may also have to look at the issue of adequate coverage by suitably trained crew. In some of our larger and busier brigades this may mean that we have to examine such things as 'rostering' of volunteers and the use of part-time paid staff in those places where sufficient number of volunteers are not available, but a service must be continued. Such requirements could have long term implications for our ability to recruit and retain volunteers unless we can clearly justify the need for such changes.

Medical & fitness requirements: Data collected for Australian and overseas fire services indicates that heart attacks and other fitness related matters are the greatest cause of death amongst firefighters, particularly volunteers. Over time, as part of their 'duty of care' obligations, organizations such as FESA will have to ensure that operationally active volunteers meet laid down minimum fitness and health requirements. As volunteer populations age, many of them will have difficulty in meeting such requirements. At the same time, there are many 'Norms' in our brigades/units and there is often an unwillingness, especially amongst older volunteers, to face the issues of health and fitness. In many instances the outcome of raising such issues is that older volunteers begin to complain and even attack the Agency for raising the issues and begin to talk about impositions on their time and the inability of the Agency to impose or require fitness and health standards. Unfortunately, such issues are I believe, unavoidable for all Agencies and could form a future problem, particularly when Agencies are so reliant on the skills and knowledge of the older operational crew who are the ones usually most effected by these matters.

All of these changes are starting (or have already started) to impact on volunteer populations and our ability to retain volunteers as active members. Over the next decade I believe that we will begin to see the effects of these changes to a much greater degree. As a consequence, Emergency Service Agencies need to begin now to put in place strategies which will, at the very least, alleviate the impact of such changes and enable adequate levels of service delivery to be maintained.

Strategic options

What strategic options are open to organisations to ensure that they utilise volunteers effectively and maintain their interest and participation?

So far I have attempted to identify changes which are impacting, or beginning to impact, on Emergency Service Agencies and their volunteers. In particular I have been focusing on FESA volunteers and the FESA situation. It now becomes necessary to look at what strategies are open to Agencies to deal with these emerging issues. Before doing so, let us recap on what these emerging issues appear to be:

- falling and aging rural populations
- declining rural and mining area incomes
- literacy problems
- changing social and cultural values, growth of the 'what's in it for me' attitude, and less willingness to work for one's local community
- changing entertainment patterns (e.g. growth of individual entertainment mediums, ie. video, TV, computer and less dependence on local groups for entertainment)
- a need for Agencies to make volunteer activities more interesting, relevant and entertaining in order to maintain volunteer interest
- increasing demands likely to be imposed on agencies and therefore placed on volunteers as a result of :
  - safety requirements resulting in more training to achieve required performance standards, hence more demands on volunteer time
  - health and fitness requirements within the context of a diminishing and aging rural population
- Increasing reluctance of employers to release volunteers for duty.

These changes will require Agencies to think carefully about their procedures and practices in a number of key areas.

The ability of Agencies to retain volunteers will be determined by what actions are taken with respect to these matters. Agencies need to develop an awareness that volunteer retention is the consequence of well thought out actions taken on a number of broad fronts over an extended period of time. I believe that lack of a planned and coordinated approach could inevitably allow crisis situations to develop. This in turn may inevitably lead to the adoption of 'band aid' approaches, that will never be as effective in volunteer management and retention.

Volunteer retention

What then are these key areas and the strategies that Agencies should consider to improve long term volunteer retention?

Recruitment

Recruitment campaigns will be required for all Emergency Service Agencies if the current trends of falling and aging rural populations continue, but recruitment campaigns are also opportunities to build the image and self-esteem of existing volunteers. Agencies should see such campaigns as an opportunity to not only attract new people, but also as a vehicle for building the self-esteem and feelings of worth of existing volunteers. They are therefore, a vital tool in volunteer retention strategies. What kinds of messages should be considered in such campaigns?

- focus on the local community, its needs and the opportunity to **serve** the local community (as per the research findings mentioned earlier)
- use local recruitment to praise the contributions of local key figures in the volunteer environment—indirectly, this also sends messages re the value and worth of those key figures and helps to enhance the self-image of all local volunteers
- stress the satisfaction/rewards that come from being a volunteer, eg, the respect of others, the rewards that come from knowing you are helping others, the satisfaction that comes from a 'job well done', the mateship and friendships that will result
- focus on learning new skills; praise the technical competence of existing volunteers and how new recruits can become a member of these select bands of people
- stress the interesting and challenging work that volunteers do. Indirectly this again reminds existing volunteers of the satisfactions to be obtained from their work
- begin to build a feeling that not just anyone can get in to a volunteer brigade or unit—remember that fostering exclusivity also impacts on existing volunteers and promotes their feelings of self worth and value.

Training

Volunteers will spend a major amount of their time in training activities (e.g. a 1997/8 FESA volunteer workload study found that approximately 30% of FRS volunteer activities were related to training in some form or other). How Agencies handle their volunteer training will inevitably become a key factor in the overall retention of volunteers. If we can make training interesting and enjoyable and pitched at the appropriate level for volunteers, then this will form a key plank in a successful retention strategy. What are some of the key elements that we must build into such a training strategy?

- *Training must be inherently interesting.* The traditional repetitive approach to drills training, which many Agencies adopted, is essentially off-putting and should be very carefully handled. This is not to say that essential skills should not be drilled until known, but vary the drills, make them different and try and place them in a relevant practical context wherever possible.
- *Volunteer training should be practically oriented and enjoyable.* Experience tends to show that volunteers will turn up for practically oriented training which involves putting out fires. They don't like theory training. Trainers must develop exercises both at basic levels and for incident command, which have a large element of realism and involve individual and group activities.
- *Focus on the 'must knows' for safety purposes.* Don't just take the training available for permanent firefighters and translate it across to volunteers. This type of training usually contains difficult concepts and lots of technical reading, much, of which volunteers don't necessarily have to know to do their jobs.
- *Remember the literacy problem.* It is too easy to slip into difficult technical language and pages of text. Substitute diagrams for text wherever possible and simple for complicated words.
- *Give rewards/recognition for completion of required skills.* Certificates and badges are two proven and tried methods of rewarding people. Remember all people of all ages like to be praised and recognized for what they do.
- *Never 'fail' people.* Develop strategies and approaches, which recognise that people learn at different rates and some will take longer than others to learn things. Encourage volunteers to keep trying until they have learned a skill.
- *Focus on leadership training.* Identify the key skills that leaders of successful brigades have and look to develop those key skills in as many volunteer leaders as possible.
- *Focus on incident co-ordination and control skills/training.* Develop practical exercises, which will allow volunteer incident commanders to practice incident command skills in a variety of contexts.

Internal communications

Internal agency communications is critical to the long-term retention of volunteers. A successful internal communications strategy is a key plank in ensuring retention. What are some of the important elements in such a strategy?

- the agency must ensure that volunteer concerns can be heard and that problems are dealt with quickly and properly
- there must be mechanisms in place for obtaining feedback from volunteers on all issues that concern them, seek their views on key issues and make sure that when something requires them to do work that it is cleared with them beforehand
- make sure that volunteers are informed as to what is happening in the Agency generally
- keep communications short and simple, try and make messages entertaining. Preferably use verbal rather than written forms of communication, video is an excellent medium for communicating messages to volunteers.
- try and personalize the image of the Agency with volunteers.
- utilize regional staff to communicate as much as possible with volunteers—they can then answer questions and ensure that problems are sorted out. Try and stabilize those regional staff as much as possible.

Adopt a local community focus

I believe that the most successful brigades and those that have fewer retention problems, are usually those that are closely linked to their local communities and have a high profile within those communities. In most instances, Emergency Services have utilized and developed such links (albeit unconsciously) although at times there has been a tendency to see the local volunteer brigade as an extension of the major permanent fire service and treat it accordingly. I believe that Agencies should deliberately and

consciously use a strategy to involve local communities in the administration and management of their local volunteer brigades. What kinds of things should be done in this regard?

- focus recruitment at a local level (see earlier comments)
- ensure that the local communities are involved when recognition and rewards are given to volunteers, eg. hold presentation ceremonies at local levels
- ensure the brigade gets publicity in local press, radio and TV
- provide uniforms that have a common theme, but which have local identification markings
- ensure that brigades are encouraged to hold local social events (eg. dinners, dances, presentation nights) at which local dignitaries are invited to attend and asked to participate with Agency staff
- ensure that workable relationships are established and maintained with local municipalities
- encourage local participation in the funding for equipment, uniforms and training
- foster local junior or cadet units attached to brigades
- hold local 'open' or 'field' days at which volunteers can demonstrate their skills to the local community.

Resourcing, finance and administration

Volunteer brigades that are inadequately resourced, administered or financed are more likely to have problems in retaining volunteers.

This is a fairly basic point, but one which is often overlooked. If an Agency establishes a brigade and then starves it of appliances, equipment or funding it is in effect sending out messages that the brigade is not important. This will have immediate and long-term effects on volunteer retention.

In addition, if the Agency's administration systems are inadequate, slow, bureaucratic in nature or overload local volunteers with work, then this will also have effects on long term retention. The persons who normally undertake the administrative work are usually the leaders of the brigade. If they become disaffected with what is happening then this will spin off to others in the brigade and will eventually impact on retention.

What then are some of the strategies that Agencies should look at in this regard?

- keep administration simple and easy; ask for as little data or reports as possible; make forms / reports, etc, readable, short and appear easy to do
- for bigger brigades provide assistance to enable them to get part-time support (if work volumes justify)
- monitor funding on an on-going basis to ensure it is adequate
- try and devolve authority to a local level as much as possible and encourage brigades to manage themselves
- ensure that there are regional staff who can provide support and assistance to administrators and brigades.

Rewards and recognition

The rewards and recognition systems set up by the Agency for volunteers are a critical element in volunteer retention. In this regard, the balance between too much and too little is critical. If recognition and rewards are too easy to get, then they will not be valued and hence be ineffective. If on the other hand they are too difficult to get people will not be interested since they will not see them as being attainable. This is one area where research into what volunteers would like to have, as rewards/recognition would be valuable to Agencies. There appears to be a strong view amongst many volunteers that monetary rewards are not the way to go. What other rewards/recognition strategies might be considered by Agencies?

- *Recognition of Length of Service.* Appears to be a very effective recognition system (eg. national medals, etc). Again, research into exactly what are the effective elements of this reward system and how volunteers view it would be valuable.
- *Developing local community recognition systems.* For example, recognition in local press and radio and through local shires, municipalities.
- *Internal citations or medal systems* recognizing achievements in training, leadership, etc.
- *Monetary rewards* to brigades for local achievements by either individuals or the brigade as a whole.
- *Badges and uniforms.* A very tangible reward/recognition system which appears to be very effective. Again, further research on this would be invaluable.
- *Scholarships and study awards* for volunteers to allow them to travel interstate or overseas to study volunteer Emergency Service situations in other environments.

Training, medical and fitness requirements

I believe that as part of their 'duty of care' obligations, agencies will have to require that volunteers:

- meet minimum training/skill standards before attending incidents and be required to maintain those skills on an on-going basis
- have regular medical checkups to ensure personal safety
- meet minimum fitness standards, again for personal safety purposes.

Such requirements are not going to be well received among volunteers and could result in significant numbers losses, particularly amongst older volunteers. To overcome this, Agencies will have to strongly market these issues with volunteers. Volunteers will have to be educated on the need for such measures before any attempt is made to impose conditions or standards.

In WA, FESA has been running an experimental program trying to educate volunteers on fitness and health issues. This program has involved the spouses of volunteers and has utilized external experts providing educational sessions on health and fitness, blood pressure and cholesterol testing, fitness test and advice on diet and life style. In those brigades where it has been trialed it has been very well received and FESA is now looking at how it might be extended. Unfortunately, it is a relatively expensive program to run and there are still concerns whether its effects will have a lasting long term impact, nevertheless, it is seen as being a possible approach which could be very effective with health & fitness issues.

The key role of regional staff or contact staff

Most agencies will have staff allocated as the major points of contact with volunteers and volunteer brigades. These staff play a critical role in the long-term retention of volunteers. The volunteer's perception of the Agency and what it is like is largely determined by how these regional staff act and speak. Volunteers are more likely to stay with the Agency if they are treated with dignity and respect. If Regional staff are helpful and supportive, if volunteer views and opinions are sought and acted upon and if they receive training which in their eyes is relevant, interesting and practically oriented, retention will be improved. It is therefore critical that those field staff be chosen with extreme care and be properly trained to carry out the role assigned to them by the Agency.

To this end it is important that the Agency give thought to the type of role that it wants these regional or contact staff to play and then provides them with training which emphasizes the key elements in that role. It should then select

and train on that basis and during the initial period in the field, monitor performance to ensure that the staff member is carrying out that role in the desired manner. In addition, I also believe that a key element in long term volunteer retention is whether or not Agencies are prepared to set up systems to obtain feedback from volunteers on the level of services they receive both from Regional staff and the Agency as a whole and then be prepared to act on the results of that feedback.

The quality of local volunteer leadership

This is, in my view, the most critical of all factors in promoting long term volunteer retention. The local Captain or Brigade Leader is the most frequent point of contact (ie in authority figure terms) for all volunteers. All Emergency Services have had cases where a change of leadership has taken what was a good brigade to being a broken and fragmented one, with old volunteers leaving and potential new ones either refusing to join, or joining and not remaining for any length of time. Most of our volunteer leaders receive training in the technical skills of brigade command. What Emergency Services tend not to do, or gloss over, is to focus on the 'soft' skills involved in dealing with people.

Again, there is a need for research into this area of what makes some brigades successful and able to retain members and the leader's role in this. I believe that we should be recognizing the critical role of the volunteer leader in these matters and providing training in this regard. Many people will argue that in a volunteer situation, the natural leader finds their way to this position and the skills developed in the brigade and other local clubs and organisations in the community, when combined with experiences in the local brigade, enables them to deal successfully with all the different types of problems that arise. This is probably true, but what are these critical 'soft' skills that such leaders require? Agencies need to identify what those 'soft' skills are and then train their volunteer leaders to acquire and use them effectively. This in turn will promote long term retention. Following are some of those skills that might be considered for volunteer leaders.

- conflict resolution
- developing interest and morale
- local recruitment
- effective training skills
- social interaction skills
- building effective teams

Rural/farming versus metropolitan volunteer brigades

I believe that there is a real need to treat rural/farming brigades differently to metropolitan related brigades. As indicated earlier, most of our current volunteer retention problems are occurring in the smaller rural/farming brigades. Agencies need to closely monitor training levels, the effects of age and the numbers in smaller rural brigades and develop recruitment and retention strategies, which address these areas. Unfortunately, many of these problems are the result of economic and demographic changes that are beyond the control of any agency. In many instances all the agency will be able to do is apply 'band aid' solutions that will not address the underlying problems. For many small rural brigades amalgamations may be the only effective answer and in many areas it may require the development of new approaches if the agency is to provide adequate coverage.

Conclusion

In conclusion, I would state that in my view it appears that agencies and Governments have, to a degree, tended to take Emergency Service volunteers somewhat for granted. In a workload study of FRS volunteer brigades run by FESA in 1997/8 it was found that FRS brigades (who are mainly urban brigades) in total donated an average of 77.87 person hours per week to volunteer activities. This figure of 77.87 hours/week represented an average weekly contribution to the community of some $1305 per brigade (ie as measured by multiplying these hours by the then base salary rate for firefighters). For the 92 urban FRS volunteer brigades this would have translated into an annual contribution or 'replacement cost' of some $6.25m per year. For the WA community as a whole, this notional 'contribution cost for all Emergency Service volunteers would have been of the order of $25-$30m per annum.

Such figures must, of course, be treated with extreme caution, but they do provide us with a feel for the overall magnitude of the level of contribution made by volunteers to the community. In WA it is estimated that FESA has some 10,000 operationally active volunteers with another 10,000 being registered for insurance purposes. The contribution to the community made by these volunteers is enormous. I believe that it is in the interests of Emergency Service Agencies (and governments) to find out as much as they can about their volunteer populations. It is suggested that research is needed to find out more about:

- why people become volunteers and why they stay
- what they like and dislike about their activities as volunteers
- what are the most effective advertising techniques to use when recruiting volunteers
- what are the major regional differences between volunteer groups
- literacy levels and literary problems amongst volunteers
- what are the major elements of effective volunteer leadership and how can it best be developed
- what are the key elements that make a successful volunteer brigade

There are obvious changes taking place in Australian urban and rural communities. These changes and their impact on volunteerism need to be monitored closely so that Agencies can respond appropriately in order to maintain a viable and efficient volunteer service. Basic research of the kind outlined above will provide tangible long-term savings to agencies. At the same time agencies should also internally monitor what is going on in their volunteer brigades. Volunteers are in one sense the agency's 'customers' and we must ensure that we cater to their needs and wishes and understand where they are coming from. Agencies must not get so far removed from their customers that they act like the Greenville County Department of Social Services in the United States, which in 1992 sent a letter to a resident two weeks after his death which contained the following:

> *'Your food stamps will be stopped effective March 1992 because we have received notice you passed away. May God bless you. You may reapply if there is a change in your circumstances.'*

Whilst at first glance the sentiments expressed in the letter appear to epitomise good customer relations one has to wonder about the Department's common sense in relation to every other aspect! Both the medium and the message must be carefully thought out and the needs and abilities of the customers carefully researched. Not to do so can be extremely costly in the longer term.

In this paper I have tried to show that retention of volunteers is not a matter that can be treated in isolation, but must be considered within the context of total volunteer management and administration. Retention is one aspect of what must be a totally integrated approach to volunteer management.

The Omagh bomb, August 15, 1998:
An experience of disaster recovery work in Northern Ireland

by Sue Pittman

The incident

Omagh is a small market town serving a regional population of some 200,000. Saturday August 15th was a fine summer's day, just before school returned after the summer break. The Town was busy and made more so when police moved people from the area of the courthouse down to the end of High Street after a coded message from the IRA advising of a bomb.

When the bomb of 500lbs of explosives was detonated just after 3.00pm hundreds of people were crowded into the area of the bomb, causing 29 deaths with 2 more deaths caused indirectly by the bomb. Over 370 people were injured. About 60 people suffered major injuries.

In the months to come 11 people suicided and some of these deaths were related to the bomb. Another 300 or so people were witness to the slaughter and many more rescue workers; health professionals, army personnel and their families were affected. An almost forgotten group were those who were away on holiday at the time. Many felt they should have been there and experienced guilt about their own safety in contrast to those families directly affected.

As with most incidents like this there was a degree of confusion for some hours as people wondered if their relatives, not yet home, but travelling long distances had been caught up in the carnage. The ripple effect of the impact of the Omagh bomb did not stop there. A school group with a summer language school from Spain had crossed from the Irish republic and had visited Omagh as their day's tourist attraction. Spanish and Republican children and a teacher died.

The bomb did not appear to have been directed at one side or the other. It was indiscriminately aimed at civilians of both sides. Women and children made up 24 of the 29 deaths. The bomb was detonated in a small, peaceful country town that was proud of its tolerance, its support for one another and the strengths that allowed and encouraged the community to work towards building a strong future together. There were families that had moved to Omagh, to more peaceful environs, and away from the actively violent areas of other towns.

Omagh saw itself as distant from the more violent areas in Londonderry, Armagh, Portadown and Belfast. The impact was made worse by the fact that the coded message from the IRA was inaccurate, so the police (RUC, Royal Ulster Constabulary) moved people into the area of the bomb, rather than away from it. Buildings on both sides, and a rise in the street contained the bomb's force to the small area at the lower end of High Street. Twenty-six families were bereaved, three in the republic of Ireland, two in Spain and twenty-one locally (Bolton D. 1998).

Many people suffered minor injuries and did not seek treatment. Hundreds of people witnessed the bloodshed. Those on the street at the time of the explosion, people who came to the site to help where they could or who were looking for relatives, rescue workers and investigators, health personnel in triage and emergency departments, and staff in hospitals to which severely injured people were transferred.

The local Leisure Centre became the focus for families wanting to locate missing relatives. People sat through the night waiting for news of family. Many came simply to support and encourage friends and family members.

A temporary morgue was set up with the assistance of the British Army. Background information and details that would help identification were checked a number of times to ensure that no bereaved family needed to be exposed to more than one identification procedure. Care was taken by the police, army, coronial and social services to protect people from unnecessary trauma, but to deal with the reality with dignity and care.

The context

Omagh and its community had a number of issues already demanding attention and resources. It has the dubious distinction of the highest youth suicide rate in Europe, according to local youth workers. There is a high death rate of young people in motor vehicle accidents, and the murder of a pregnant teenage girl that involved two local school children as accomplices, had already deeply shocked the community.

One small rural community, isolated from the town, suffered multiple fatalities in the bomb, an adolescent death in a car accident, two youth suicides and a number of both young children with leukemia and young parents with life threatening cancer.

Omagh suffered with three more bomb scares and two suicides in the weeks following the bomb. A team member caught up in one of these noted the fear and terror as people dealt with retriggered memories. A delay of four hours before people could reopen shops and businesses, or simply collect their shopping and locate their cars, contributed to the ongoing burden the town will carry for some time.

Background history

After years of civil strife and a revolution during World War I, most of Ireland became free of British rule in 1921. Six counties formed the state of Northern Ireland with direct links to Westminster's British Parliament.

Relationships have been strained for centuries. Bowyer Bell notes that 'One of the most remarkable consistencies in British Affairs is a distaste for Irish matters' and with an interest 'merely to make Ireland less troublesome' (Bowyer Bell 1998).

The Troubles revolve around the issue of the Catholic/ Nationalist/ Republican minority question and the legitimacy of the state. The Protestant/ Loyalist/ Unionist majority strongly defends Britain's position. In 1969 riots broke out in parts of Belfast. This sectarian violence has continued since then as both Loyalists

above: postcard showing Omagh before the bombing.

and Republicans formed paramilitary groups fighting each other. Significant other influences include the local police force, which has become strongly militarised, and the involvement of the British Army (Smyth 1998).

The street fighting in Belfast in 1969, with some 25 deaths, evolved into individual attacks, which were more lethal as inter- and intra-organisational violence dominated this stage of the Troubles. Catholic and Protestant terrorist groups killed and maimed as many of their own as each other, in order to maintain discipline and take revenge on informers. The next focus was on public figures such as Lord Mountbatten, and included politicians such as Margaret Thatcher in the Brighton hotel bombing, and Catholic Judges in Northern Ireland who were seen as traitors.

The focus then moved to the security forces. The Hyde Park and Deal bombings were examples of the violence that spread to the British mainland. Throughout, nuisance bombings and threats dogged London's shopping and business precincts over many years, killing and maiming some, but usually warnings allowed crowds to be moved to safer areas.

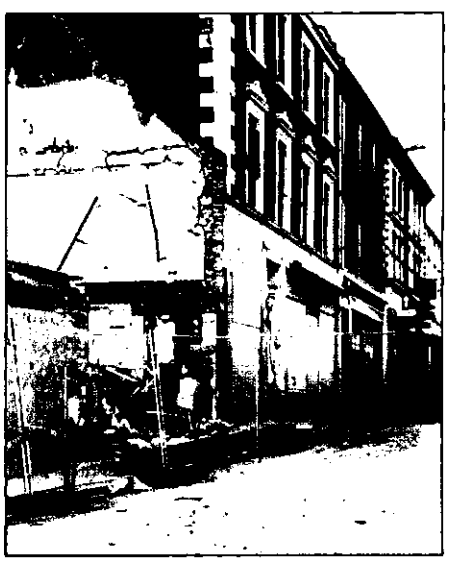
In 1994 the IRA (Irish Republican Army) declared a cease-fire, which was broken in 1996 and resumed to culminate in the Good Friday Agreement of April 1998. Northern Ireland recently formed its own Assembly with greater independence to manage its own affairs. It is a difficult task to move from terrorism to legitimate political process. It is fraught with frustration because of the entrenched fears and stakeholders whose beliefs and values range from the extreme to the mild.

By 1998 over 3,600 people had died, another 40,000 were maimed and injured, and hundreds of businesses and homes had been destroyed. In a population of about 1.5 million these losses are significant. In the Australian population of 18 million these losses would be equivalent to 43,000 deaths and close to 480,000 injuries.

The Troubles have been defined as a 'murderous dispute of sectarian violence between the English and the Irish in North Eastern Ireland' (Coogan 1996). The Troubles certainly qualify for the United Nations definition of terrorism as 'any act of force in peacetime for political ends which jeopardises innocent lives and property' (General Assembly debate UN 1986, Pockrass 1987). Terrorism has also been defined as 'an expression of political strategy or an outgrowth of cultural, political and economic marginalism of an ethnic group who adopt violent tactics' (Crenshaw 1992).

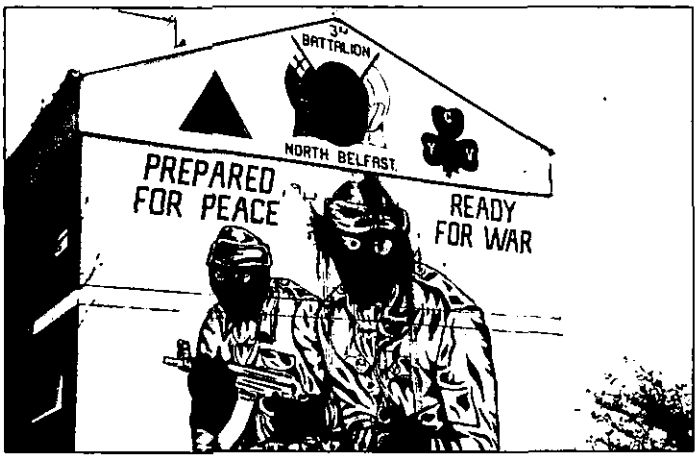
Kenyon Lischer (1999) presents the perspective that it is a 'combination of increased fear and perceived feasibility of reaching desired outcomes through violence, that motivates terrorist activity'. She describes a potent and intriguing mixture of military capability, increasing international legitimacy and false optimism (Kenyon Lischer 1999). All of these have featured in the Troubles during the last 30 years of turmoil and destruction.

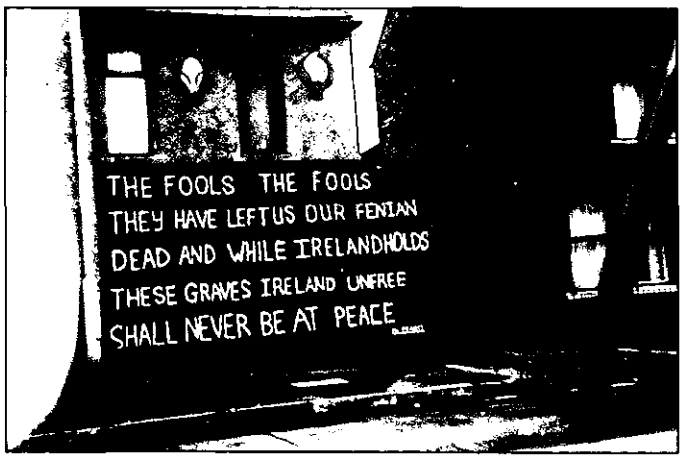
It is difficult to grasp the complexity of the Troubles. In 1998 one could drive around large sections of Belfast and Londonderry and most of the high security, regular checkpoints, high fences and army uniforms on the street had gone. In some areas the high fences and screens on windows, the paintings on the walls, and, the red, white and blue or green, yellow and white painted gutters identifying Loyalist or Republican householder, left no doubt that the issues remained significant. Police stations remained fortress like constructions. Border and airport security appeared to have returned to a normal level, the British Army had all but withdrawn, and negotiations were in place for the resettlement of the terrorists held in the Maze and other prisons.



top, centre and above: the bomb site.

Northern Ireland had finally begun the difficult task of hearing the issues that victims and their families had carried alone for so long. Sir Kenneth Bloomfield





left and right: paintings on walls and painted gutters identifying Loyalist or Republican householder in Belfast.

had completed a report as 'Victims Commissioner' in April1998 and the Social Services Inspectorate had published 'Living with the Trauma of the Troubles' in March of the same year (Bolton 1998). The community had reached a level of commitment to peace and healing that it had never reached before. The British, Irish and American Governments had spent time, effort and money in a concerted effort to help both sides negotiate the peace.

Into this scenario the Omagh bomb of August 1998 was seen as 'one of the most brutal and intense attacks associated with the Troubles' (Bolton 1998). This bomb was indiscriminately destructive—Catholics, Protestants, northerners, southerners, visiting tourists, women, children and young people died and were maimed. The warning for this bomb was so inaccurate people were moved into the area of the bomb, not away from it. This bomb came at a time when people believed that the Troubles had been contained to the political arena and the peace process was well established.

Why an external service?

One week after the bomb the Centre for Crisis Management and Education (CCME) was invited to Omagh by the Western Education and Library Board (WELB). CCME was asked to develop a response program for schools to implement.

CCME had the organisational, professional and personal credibility of working with schools after catastrophic events. Over a period of some 10 years, it had responded to the shootings of Hungerford and Dunblane, the bombing of the Docklands, the Lockerbie crash and many more incidents. In addition CCME had provided seminars and workshops all over Britain for schools, agencies and social services to assist communities, and especially schools, develop disaster response plans and skills. CCME already had credibility with schools in Londonderry, Enniskillen and Omagh as they had worked with CCME to raise awareness regarding children's responses and needs in living with trauma. Schools in the Bogside, Ballymagroaty, and the Catholic maintained schools, worked to develop stress management and long term trauma programs for work in the classroom. These areas had been badly affected over the decades of The Troubles. David Bolton, the Director of Community Care for the Health and Social Care Trust, and Elizabeth Capewell had developed a respect for each other's professionalism and competence in disaster response. As a result CCME had a knowledge base, networks, credibility and support that allowed staff to work effectively during the weeks after the bomb.

Despite 30 years of sectarian violence during the Troubles In Northern Ireland the Omagh bomb was the first time that an Education Board put in place a response program based on disaster theory, and the first time the Health Services provided a Trauma Centre. Social Services had developed a response program to deal with welfare needs, and a debriefing team was made available to those at the front line of the response to the tragedy. These included the rescuers, hospital staff, leisure centre staff and social service staff who had provided immediate input at the leisure centre during the first 48 hours. As disaster theory tells us, services need to be seen as relevant, placed in obvious and easily accessible situations and have credibility (EMA 1992 & 1996). In the first weeks after the bomb the new health services were under utilised and it was assumed that the need was not great. However as the services gained credibility, and people realised that their reactions and concerns were not simply going to go away with time, the demand for services increased steadily. Perhaps it was only the strong possibility of a lasting peace that allowed the community to locate the awareness, strength and resources to seek to manage the outcome of this bomb.

The WELB chief executive officer took a considerable risk in using external help. It is difficult for an outside agency to function well in such circumstances. Particularly when, after a catastrophe or disaster, the local community pulls in very tightly, differences are minimised and energy levels are high. This time of euphoria lead people to believe they were coping and that they did not need outsiders. Insider services can be equally prevented from being effective for much the same reasons. An advantage of outside services in this case was that we could raise issues and concerns and name processes from the knowledge and experience of other events. We could step over some of the very subtle boundaries that communities establish to maintain the status quo. As they had already been breached by the event, we could manage the process more openly than would be possible by those who were familiar with the subtle limits. However, it was essential to maintain complete respect and care of the boundaries and it was a matter of ensuring a very balanced approach.

The CEO recognised that this task was too big for existing systems and procedures to handle. This was especially so considering that many staff were still away on holiday and would return to deal with their own shock, loss, distress and grief. Schools were to return within the week, so as well as returning to a new school year they had the added concern of the aftermath of the bomb and managing grieving pupils. Other staff assumed that the bomb's aftermath would not hold too many difficulties and that most people's reactions would already have passed.

Without the structure, direction and role definition of an in-place recovery plan it would have been impossible to manage the day-to-day business of WELB and combine it with the development and implementation of recovery processes. Just dealing with the added factors of international media interest, being the focus of so many visiting political dignitaries, and the already emotionally charged memorial services, this little town was swamped with demand and would be again and again. Such visits are a mixed blessing as they take resources away from the recovery process but do ensure that the local community is not forgotten or ignored.

The response

Information management is one of the most important factors in recovery management (EMA 1992 & 1996, Raphael 1986, Hodgekinson & Stewart 1991). The dissemination of information is critical. It needs to be the right information, at the right time, to the right person and in the right amount. Too much information swamps people and they are unable to assess and use it effectively. However, too little information creates anxiety, dependency and is disempowering.

Prior to the team's arrival in Northern Ireland, information on the services CCME could provide was faxed to WELB. Basic material, that allowed teachers to assess their own class's vulnerability, allowed an immediate assessment of need. Information packs were also provided to all schools, which helped staff manage some of the reactions of students and their families and which affirmed good coping skills (Capewell & Pittman 1998).

The work was legitimised through the approval and support of the Board of Governors and key managers. The development of internal liaison and coordination was enhanced by the appointment of a senior officer to act as liaison and logistics organiser. This ensured timely feedback to the CEO, key personnel in management and with field staff and schools and gave the team legitimacy and validation of their roles.

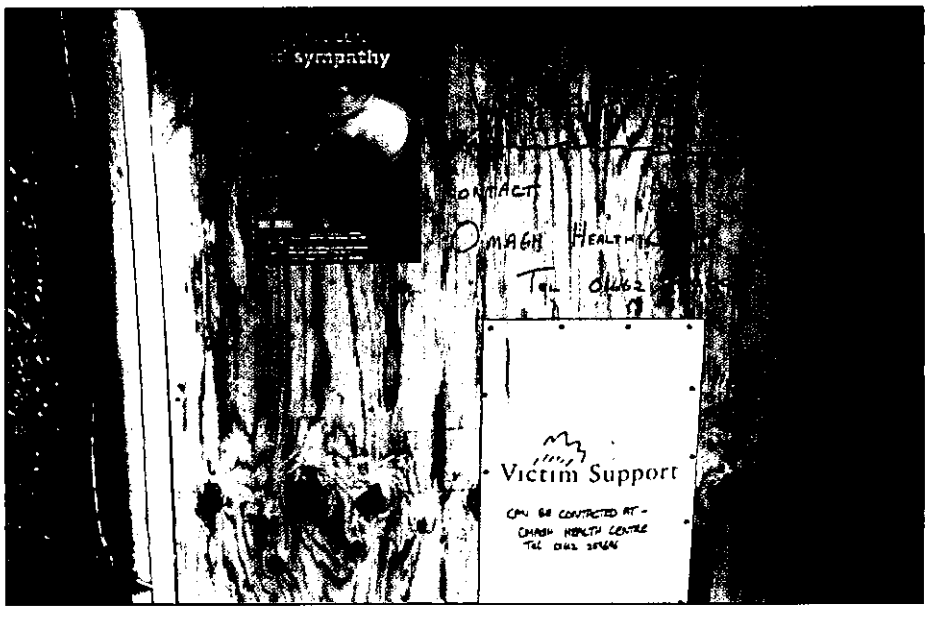
These processes established an information flow supported by senior management, and allowed CCME to assess strengths, coping skills, needs, and vulnerability blocks as well as any difficulties. It also established a model for open, careful communication.

The most outstanding and productive feature of CCME's approach was the establishment of many networks combined with a process that valued and evaluated all information. This was an ongoing process because new information constantly needed consideration and assessment. Action was based on this and carefully reviewed for effectiveness. It informed the team's practice and allowed timely adjustments to the delivery of services. In addition it contributed to the daily reports to the CEO. These meetings provided a problem solving opportunity that allowed the organisation to anticipate some of the developing issues and problems, as well as to simply respond to what was occurring. The internal liaison and coordination meant that all schools, youth groups, libraries and services were identified and meetings with staff were established quickly. When this was combined with needs assessments, the team was able to identify the most vulnerable areas and direct resources and services appropriately (Capewell & Pittman 1998).

Effective information management is complex. The material emerged in an irregular and disorganised manner as normal functioning was overloaded. The usual consultative procedures were abandoned and time scales were reduced to provide quick, appropriate responses in order to prevent other problems from developing. Networking was broad. Conversations with people in shops, with parents, voluntary agencies, government services, support workers, bus and taxi drivers, small business owners, media and contacts from education services in the Republic all contributed to the picture (Capewell & Pittman 1998).

It was a very vulnerable time and the team remained very flexible responding first, hour by hour and then day by day until the situation stabilised. The information assessment, action, review loop allowed constant, purposeful evaluation

above: The first Trauma Centre.



above: Offers of help on boarded up shops.

above: Tony Blair was only one of many political dignitaries who visited Omagh in the aftermath of the bombing.

and flexible, easily changed plans so that new needs could emerge without constraint. Rumours could be identified and tested for reality, and effectiveness of the team's input could be checked without burdening children and affected families (Capewell & Pittman 1998).

The combination of a planned, flexible, open response with preventive education, modelling and the ability to meet urgent needs is a difficult balance to establish and maintain. It allowed the team to attend to group and individual professional needs, and develop strategic planning so that the work could be sustained. It also ensured that the recovery process in which WELB was engaged was co-ordinated with the recovery program in health and social services. The content of material provided for schools focused on enhancing coping skills, aimed at reducing existing problems, and preventing the intrusion of unnecessary stress (Capewell & Pittman 1998).

CCME had a small team and, in order to be as effective as possible, it was useful to identify and mobilise local support and strength, connecting with effective organisational processes and avoiding obstructions and overlaps. An example of this was the students' return to school. The likelihood that the media would want to use the personal stories of children facing the loss and injury of peers had the potential of making the return to school more stressful than necessary. WELB was advised to release a Press statement that requested media cooperation in preventing possible retraumatisation. The media's full cooperation in this matter was of immense value. It prevented schools from being distracted from the tasks of supporting, informing, normalising, enhancing, coping and identifying those in need of extra support.

CCME addressed the support of the networks of welfare officers, psychologists, school advisors, school nurses, principals and class teachers. Youth services and libraries had different needs and foci and were equally affected by the deaths and injuries. Addressing staff needs provided modelling for their approaches and support where it was needed e.g. in their own families, with colleagues and friends and in their work. The dissemination of information at every level ensured a common understanding (Capewell & Pittman 1998).

Liaison with Children's Health, Mental Health and Social Serves helped to prevent overlap. This also allowed CCME to provide feedback about especially vulnerable groups such as those going away to college and university, friends of those who had recently suicided or died in MVA's, and one school where only 2 months earlier there had been a murder involving young people who had been charged by police.

Into the midst of the response and recovery services, and with the continuing clean up and investigation, visiting dignitaries distracted both the community as a whole and the direction of the recovery program. Many days were spent simply planning how to put children back on the street in a crowd in a way that did not threaten or seem to be repeating Saturday's event. As there had been more bomb scares in the weeks following the bomb the community was very alert and vulnerable. (These were not publicised but we did not want to run the risk of bomb scares on the day of the visits).

Cultural factors

Northern Ireland has experienced over 30 years of The Troubles and part of the response to that has been denial at all levels. Post Traumatic Stress Disorder (PTSD) (American Psychiatric Association 1994 & WHO 1992) is only just being recognised as a legitimate aftermath of the killings, wounding, burning, bombing and disappearances. Three generations of children have kept the family secrets. Children go to school on Monday after the death of, or injuries to, a close family member. Nothing is said. No one acknowledges or recognises what has happened over the weekend and the community is expected 'to get on'. Many families don't know that Dad or Mum is a police officer or prison guard or that father and brothers and sisters are active in the IRA (Smyth 1998). The father of a fourteen-year-old, killed in the violence, asked his youth officer 'Please tell me he wasn't active (in a terrorist group)'. The youth officer could not answer and the father had his answer.

Introducing a service into such a culture is interesting. Often the events and the processes are not named. I made the 'mistake' of making very direct comments, as being Australian allowed me to say things others could not. At one meeting of professional staff I raised the issue of 'Managing the Horror'. I was referring to the silent young people, those who had seen the most appalling carnage but were not themselves injured and who, after the bomb, did not feel they could ask for help because there were others worse off. They carried their burdens silently. The reaction was immediate and many comments were made about the strength of my statement, and the inaccuracy of such a comment. Interestingly, youth workers grasped this material like a lifeline because they had been dealing with the horror over many years and in isolation. It was an unsupported and unrecognised part of their work and for the first time someone was naming it. The fact that we were outsiders was more valuable and useful in situations such as this.

Although our focus had been on the Omagh bomb, we recognised that this event could and would trigger other events not yet resolved. There were obvious ones of other bombs in other areas that did not have the benefit of interventions, the acknowledgement of the UK government

nor visits by the American President. This kind of focus on one part of the community and not others contributes to divisions, that are difficult to heal. There was also the murder that had occurred some months before. Many people were horribly shocked that those who participated could sit quietly in school for six weeks without indicating that they were involved. However, from an outsider's perspective, it was not surprising that the youngsters could continue at schools as this fits perfectly with the culture of secret keeping in Northern Ireland.

Additionally, terminal illnesses of children and young parents, suicides and less often, Motor Vehicle Accidents (MVA) were mentioned. There seems to be an acceptance of MVAs as a major cause of death (Cairns & Wilson 1993). However, some of these MVA's may be masked suicides. Durkheim (1951) in his study on suicide found that suicide rates fall in wartime. However, suicide was high amongst Vietnam Veterans and found to be especially high in young people in civil war in Northern Sri Lanka (Somasundaram 1993). More deaths have occurred through motor vehicle accidents and general accidents than the sectarian violence. However, in catastrophes the 'deliberate' nature of the political violence is often perceived as worse than an 'accident'.

While I have focused on denial as significant in Northern Ireland it must be recognised that most nations use this defence in the face of such events. It took the Israeli's 20 years to hear the holocaust survivors, it took Australia and the US 20 years to hear the Vietnam Veterans, it took 20 years for South Africa to start to hear its ethnic populations suffering and Britain still doesn't hear its POWs from the Far East in World War 2 (Zahava 1995, Ofri, Zahava, & Dasberg 1995, Silove & Schweitzer 1993, Williams 1987, Smith 1992, Holden 1998 & Babington 1997).

Culture and disaster planning

The UK is recognised as a 'warrior nation' (Turnbull G. 1999, & Turnbull &Van der Kolk B. 1998). It has been involved in wars named as emergencies or the Troubles for some 200 years with a week or two off. As a result, and like other warrior nations such as Germany and Japan, it has difficulty acknowledging the associated suffering of its soldiers and their families. It was surprising to discover that there is no government department to support returned servicemen and the families of those who died. Rather, it is left to charities to support and resource those who need help (Stevenson 1993). The focus seems to be that their needs are neither greater nor any different from the rest of the population. This denies the unique suffering of individuals and groups and encourages them to ignore and minimise on the one hand or to become entrenched in the need to be heard and acknowledged. PTSD has been identified as a legitimate disorder for many years and was thoroughly tested for cultural differences before being accepted by the World Health Organisation (WHO 1992). In Britain, people often have to prove in a court of law and on an individual basis that PTSD exists.

When a government and country send a person to war or peacekeeping, it is reassuring to know they will be recognised, accepted and supported on their return by the government and country that sent them. Certainly, charities do a wonderful job, but they are often unaware of the resources they can use, unaware of the implications and meaning of symptoms, and unaware of the extent of the problem. The fact that standards and availability of services differ markedly across the country means that it is often a matter of luck that locates assistance and services, or not. Some charities, known nationally, are simply swamped and under resourced. A number of private services are available but once again it is an ad hoc process and there are no standards of service delivery (Stevenson 1993 & Orner 1993).

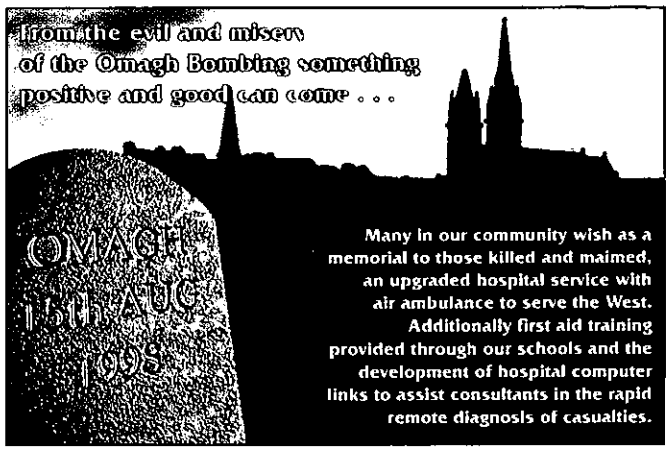
It is interesting to discover that the UK has no overall recovery plan. In 1989 The Home Office set up The Disasters Working Party as a result of the disasters of Hillsborough, the sinking of the 'Marchioness', floods and the Gulf War. The task was to identify what guidance was needed for social and psychological needs after disasters. In late 1998 and early 1999 these documents were out of print and it was unknown when, or if, they would be reprinted. I was surprised to find that many of those working in disaster response (social services and health services) were unaware that this material existed. Part 1 and Part 2 of this working party's material, which is soundly based and well re searched, makes a wonderful basis for good disaster recovery planning. For some reason it got no further and it seems that the British public are totally reliant on their local area for disaster recovery. This means that knowledge, experience and skills are not shared or valued as much as they could be and each area 'reinvents the wheel'.

Agencies such as CCME, local social services and health agencies actually end up being the holders of this valuable knowledge, experience and skill, but it is unrecognised and undervalued. In fact it is often denigrated by comments that such services 'parachute in' and leave.

There is a gulf between research and clinical service delivery. This is common in many countries and unfortunately has the effect of creating inter-faction rivalry, rather than cooperation. Much of the research is not linked to those who do respond to the disasters—local government, social services, health and education as well as churches and community groups etc. It leaves one to wonder if this research is actually studying the right thing or the right people, and if it is ethical to open the wounds without providing clinical backup and resources to help those who are badly affected. Cairns and Wilson (1985) question the validity of examining figures of psychiatric treatment as the measure of reaction to the Troubles and suggest that other coping mechanisms may be relevant including community wide denial.

Recommendations

Northern Ireland is an emerging nation. It has a great many tasks ahead of it to establish itself in a stable, secure and peaceful way and this process is already under threat. It is likely that a major focus on recovery will not be high on the list of priorities, although Social Services are well aware of the need. Recently, politicians from Britain and the new Assembly launched a book that tells the stories of



above: postcard campaign to upgrade the Omagh hospital. The back reads: 'A stamp will save your hospital'—it is addressed to The Rt. Hon. Tony Blair.

victims and names all those who have died.

Northern Ireland needs more than a recognition of the costs to individuals and the community. It also needs planned, national recovery services that are accessible to all, have a recognised legitimacy, are long term and flexible to meet changing needs, are cooperative and are valued by the community. In developing its own model for healing, Northern Ireland is in a unique position. It has a very strongly independent nature which has meant that international aid agencies have not flooded it with humanitarian aid despite such events as the destruction of over 1,000 homes in just one bomb in Belfast in 1992 (Gibson 1997).

(The equivalent destruction in Australia's population would be in the region of 12,000 homes) Northern Ireland has also managed to maintain it's infra-structure throughout the 30 years of the Troubles. Its population of some 1.5 million is small enough to tackle the task of recovery on a national basis.

The advantages of such an approach are that:

- resources can be more evenly distributed
- users are clearer about what services are available
- it does not depend only on local area, national data can be more easily collected to determine those areas of need
- those people who moved from a troubled area to a more peaceful location do not miss out on being able to access services
- there is a greater opportunity to educate the whole community to an increased understanding of the impact and cost
- it can make it easier to ensure a standard of service
- it provides a balance for the secret keeping and denial which have featured so far
- it engages most of the population in a greater awareness of risk

While Northern Ireland could take this task on alone and would, I am sure, succeed, it would perhaps be better served by using knowledge, experience and skill in recovery from around the world. America faced a large, scattered population of affected veterans after the Vietnam war, Israel faced a very traumatised and silenced population of holocaust survivors, Australia has to manage its 'tyranny of distance' in any recovery service delivery and the UK has a scattered population of talented and skilled clinicians.

Harnessing this experience and knowledge would save the task of creating it all from the ground up.

Observing Northern Ireland's capacity to make use of international advice but not let the very powerful nations of America, Great Britain and the Irish Republic take over, suggests it is in a good position not to allow itself to be taken over in the recovery processes and hopefully, it has the judgement not to sabotage itself. A well structured, community based service focused on enhancing coping strategies rather than pathologising survivors would serve this strong independent community well. Using effective community education such as Australia's successful 'slip slop slap' campaign (to raise awareness about the dangers of skin cancer and mechanisms to protect children and adults alike) has the potential to reach the majority of the population. Like this campaign, it would need monitoring for effectiveness and appropriate adjustments would have to be made as people start to take it for granted.

I believe Northern Ireland has many people working in education, the social sciences, medical services and local community services who have a wealth of untapped resources in terms of their skill, knowledge and experience. Combining these with a structured plan, and input from countries that have successfully managed some parts of the recovery process, would give Northern Ireland a unique opportunity to create a new model of recovery aid.

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With thanks to Elizabeth Capewell who gave me the opportunity to work in Omagh in those early weeks after the bomb, Ticehurst House Hospital where I was employed at the time and most importantly the people of Northern Ireland and the Republic with whom I had contact. Many thanks to Maya Cina for her invaluable computer advice.

Sue Pittman has had the privilege of working with people who have been traumatised in many events both individuals and communities in Australia and the UK.

The retirement of Alan Hodges

After six and a half years as the Director General of Emergency Management Australia, Alan Hodges retired on 31 May 2000. During his time in the position initially as a military officer and, subsequently as a civilian, Alan provided outstanding leadership to the emergency management community both nationally and internationally. The respect with which he was held was acknowledged at his farewell dinner in Canberra which was attended by representatives from the emergency management communities in all States and Territories.

Alan's outstanding achievements were acknowledged in a Commendation from the Secretary of the Department of Defence, Dr Allan Hawke. The citation reads,'

'This commendation recognises your outstanding achievements as Director General Emergency Management Australia during the period January 1994 to May 2000.

You have contributed significantly to the development of Australia's emergency management capabilities in many ways. Of particular note is your chairmanship of the National Emergency Management Committee where you have been able to achieve consensus among States and Territories on a range of diverse issues; your leadership of the Australian International Decade for Natural Disaster Reduction Committee which received a prestigious Sasakawa Award for its efforts in advancing the goals of the program; and your sponsorship and personal involvement with the professional development of emergency managers across the nation.

Your achievements within the international emergency management community are also most noteworthy. These include formation of strategic partnerships between Emergency Management Australia and a number of institutions within the region; development of closer ties with the New Zealand Ministry for Emergency Management; and support for the South Pacific Disaster Reduction Program.

Your initiative, commitment and dedication have ensured that Australia is recognised as a world leader in emergency management. You can be truly proud of your efforts in seeking to enhance community safety nationally and internationally.'

Alan and his wife, Beryl, plan to remain in Canberra. He says that he is not retiring but rather having a change of career direction.

Landslide risk in Cairns

by Marion Michael-Leiba, Ken Granger and Greg Scott, Cities Project, Australian Geological Survey Organisation

Introduction

Until the Thredbo landslide tragedy in 1997 there had been little public recognition that landslides were a significant threat in Australia. Where landslides occur, their physical impact is typically confined to a few properties or a short length of road or railway, but the effect can be disturbing or disruptive. Insurance policies in Australia do not normally cover landslide, and this can cause anguish to property owners. One landslide blocking a road or railway can cause inconvenience and economic loss.

The quantitative landslide risk assessment (Michael-Leiba *et al*, 1999) and community risk assessment reported here were undertaken in the Cairns area (*Figure 1*) as part of an AGSO *Cities Project* multi-hazard risk assessment (Granger *et al*, 1999). The *Cities Project* undertakes risk assessments aimed at reducing the risks posed by a range of geohazards to Australian urban communities. The objective of the landslide study is to provide information to the Cairns City Council on hazards, community vulnerability and risks for planning and emergency management purposes.

Cairns landslides

A landslide is the movement of a mass of rock, debris or earth down a slope. The most common trigger for landslides is an episode of intense rainfall. The rainfall threshold values for slope failure are in the range 8–20 mm over one hour, or 50–120 mm over a day, depending on geology and slope conditions. In Cairns, rainfall intensities of such magnitude have an average recurrence interval (ARI) of considerably less than one year, and landslides are not rare events.

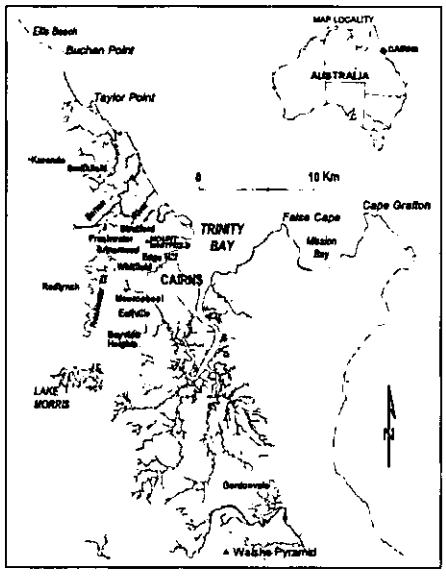

Figure 1: Locality map

The landscape around Cairns is dominated by a series of escarpments that are developing by scarp retreat. Weathering, erosion and removal of debris cause scarp retreat from the slope by two main processes (Michael-Leiba *et al*, 1999):

- on steeper bedrock slopes, and bedrock slopes masked with a relatively thin mantle of broken rock and finer material, weathering and erosion leads to landslides (rock falls, rock slides, debris slides, and small debris flows confined to the slope). By this process rock and soil moves down slope under the influence of tropical rainstorms and gravity
- during the more extreme rainfall events, the combined effect of multiple landslides in the upper parts of gully catchments, and the remobilisation of accumulated debris in the major gully systems, periodically results in large debris flows. These can extend onto the depositional plains at the base of the bedrock slopes.

Debris flows are a type of landslide triggered by the action of torrential rain on loose material on a mountainside or escarpment. The boulders and finer material, mixed with water, flow down the slope as a torrent. The coarser material (the proximal part of the debris flow) is deposited near the base of the slope, while the finer material (the distal part of the debris flow) travels further as a flash flood across the floodplain. Debris flows can be highly destructive. One definite, and two probable, large debris flow events are known to have occurred in the Cairns region since European settlement.

On 12 January 1951, a deluge of about 700 mm of rain in just under five hours triggered debris flows that affected 10 km of the Captain Cook Highway behind Ellis Beach. Huge quantities of debris were swept from the mountainside onto the road and over the precipice into the sea. Boulders up to three metres long were hurled into the Pacific 'like marbles'. Large slabs of bitumen were tilted up from the road and landslide debris was piled up as high as three metres. All culverts and inverts in this area were either damaged considerably or washed away entirely. The highway was not expected to carry normal traffic for at least two weeks (*Cairns Post*, 15 January 1951).

Probable debris flow events happened in 1878 and 1911 on the eastern side of Trinity Inlet. Deposits from numerous debris flows have been identified in this area. On 8 March 1878, a 'flood' followed by a severe cyclone triggered many landslides across the Inlet. They could be heard distinctly in Cairns (Jones, 1976). On 1 April 1911, a big landslide occurred in the Nisbet Range, also across the Inlet from Cairns. The scar could be seen in photos for several years afterwards (A. Broughton, Cairns Historical Society, personal communication, 1997). This landslide brought away trees, rocks and everything else from a considerable distance up the mountain side (*Cairns Post*, 3 April 1911).

Landslides on hill slopes periodically block roads, particularly Lake Morris Road and Kuranda Range Road. The Cairns-Kuranda railway has an even more spectacular history of dislocation by landslides. The most disruptive incident started on 15 December 1910, when a landslide at the Kuranda end of No. 10 tunnel partly closed the tunnel for more than two months. Instances of landsliding have been recorded in the established suburbs, either on cuts behind houses or road cuts or fills. Two houses have been destroyed and several building blocks written off as a result.

In 1927 and again in 1984 or 1985, boulders smashed the water main at the No. 1 and No. 3 crossings respectively of Freshwater Creek. During the latter incident, the water supply pipeline slipped with a mudflow which took out the anchor blocks (Cairns City Council, 1927 and D. Gallop, Cairns City Council, personal communication, 1997).

On 31 May 1900, the landslide that caused the fourth largest number of Australian landslide fatalities happened in Cairns. Five men were killed and one buried alive for ninety minutes when an 8 m deep tramway cutting they were constructing in an alluvial river terrace at Riverstone, for access to the sugar mill at

EMA UPDATE

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New Director General Emergency Management Australia

The new Director General Emergency Management Australia, David Templeman, assumed the position on 13 June 2000. David comes to EMA after a long career in the Australian Public Service. For the past 30 years, he has served in the Department of Defence. His more recent senior level positions have been in human resource management, organisation development and major restructuring. For a number of years, he was closely associated with EMA as the manager of the program within Defence which provided EMA's operating budget.

David says he is looking forward to working with the States and Territories and to the challenge of taking EMA forward into the 21st Century.

Queen's Birthday honours

EMA's Director of Planning and Operations, Rod McKinnon, was awarded an Emergency Services Medal (ESM) in the 2000 Queens Birthday Honours List. The Emergency Services Medal is a new award which recognises distinguished service by members of Australian emergency services.

EMA extends congratulations to all members of the emergency services who were recognised in the Queens Birthday Honours List.

United Nations exercise

In late May, the Australian Agency for International Development (AusAID) sponsored the participation by an EMA officer, Trevor Haines, in Exercise Triplex 2000 in Sweden. Exercise Triplex is an annual United Nations Disaster Assessment and Coordination field exercise which aims to test arrangements for the coordination of international relief to a disaster scene.

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Solomons Islands evacuation

Following a request from the Australian High Commissioner in Honiara on Thursday 6 June for Australian Defence Force assistance in evacuating personnel from the troubled Solomon Islands, EMA activated the Commonwealth Government Reception Plan (COMRECEPLAN). The Queensland State Counter Disaster Organisation (SCDO) was initially requested to establish reception operations in Cairns for the arrival of HMAS TOBRUK carrying 480 persons. However, as a number of other evacuations were subsequently conducted as short notice by the Royal Australian and Royal New Zealand Air Forces, reception centres were also established in Townsville and Brisbane.

While COMRECEPLAN provided a sound basis for the conduct of reception operations, EMA will take the opportunity to review the plan in consultation with Queensland, the Northern Territory and New South Wales in light of the Solomon Islands and East Timor evacuations and the reception of the Kosovars in Sydney in May 1999.

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International Search And Rescue Advisory Group

The International Search and Rescue Advisory Group (INSARAG) was formed in 1991, as a cooperative effort by the United Nations (UN) and many of the participating countries in international USAR operations. INSARAG aims to develop effective international relationships in order to save lives and render humanitarian services following natural or man-made disasters. The activities of INSARAG include the improvement of emergency preparedness and cooperation between international USAR teams as well as the promotion of information exchange on operational procedures and lessons learned.

Three regional groups — Africa/Europe, Americas and Asia/Pacific — were originally formed to advance the aims of INSARAG in their region. The Africa/Europe and Americas groups has have continued to meet however, the Asia/Pacific Group folded after one meeting in 1993.

Following Australian involvement in recent earthquakes in Turkey and Taiwan, the UN asked EMA to host a meeting of Asia/Pacific countries interested in re-activating the Asia/Pacific Group. A meeting was subsequently held in Canberra in March 2000. It was chaired by the UN and attended by New Zealand, Japan, South Korea, The Philippines, Singapore and Australia. Technical experts from Taiwan also attended the meeting. The outcome was strong support for re-activating the group and a meeting will be held in Korea later in the year.

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Global Disaster Information Network Conference 2001

EMA will host the Fourth Global Disaster Information Network (GDIN) Conference at Rydges Canberra from 20–23 March 2001. GDIN is a voluntary, self-sustaining, non-profit association of countries, organisations, and professionals, from all sectors of society with an interest

in sharing all types of disaster information. Delegates to the last conference held in Turkey in April 2000 endorsed the Ankara Declaration which establishes the purpose, scope, goals, roles and organisational structures for GDIN. The mission of GDIN is to get the 'right information, in the right format, to the right person, in time to make the right decision'.

The goals of GDIN are:

- Increase awareness of the importance and value of disaster-related information and best practices for managing it
- Adapt remote sensing, computer, communication, information, and network technologies to acquire, produce, disseminate, and access disaster data, information, and knowledge.
- Promote the development of national and regional capacity and infrastructures to access, manage, disseminate and use disaster information carried by GDIN in a digital format.
- Foster the sharing of information about all disaster management functions via a primary portal of access to national and international networks.
- Facilitate development and foster adoption of mutually-agreed interoperability, metadata, and classification standards to support global sharing of disaster information.
- Provide disaster information and support services as directed by GDIN's governing body.

The full text of the Ankara Declaration is available on the GDIN website at *www.gdin-international.org.* While past Conferences have worked towards the establishment of the GDIN concept, the focus of the GDIN 2001 conference will be on achievements and advances in disaster information management.

A conference webpage is under construction. It will be linked to the GDIN website and the EMA website *(www.ema.gov.au).* Participants will be able to register electronically through the conference email address: gdin@ausconvservices.com.au

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What's on at AEMI

Implementing Emergency Risk Management at the Local Government Level

A new course offering from AEMI / EMA

AEMI is currently offering 2 courses that focus on the practice of emergency risk management within communities.

The first course, *Understanding Emergency Risk Management* (UERM) is an advanced course about risk management in the community safety context for persons who may be involved in any capacity. Seven such courses have been conducted to date this year. It is encouraging to see the awareness that risk management at the community safety level is an excellent, flexible, umbrella philosophy. It leads to a formalised, systematic, analysis and decision-making process. The fact that it is a shared language with the private and public sectors is also important—this brings EM into core management rather than being marginalised.

The second course *Implementing Emergency Risk Management* is concerned with the commencement, logistics, coordination and management of the emergency risk management process. It is intended for persons who will be taking a leading 'facilitation' role in such an ERM process at the Local Government level. The facilitator of the Community ERM process is not necessarily the person who chairs every committee meeting or who necessarily 'leads from the front'. The leadership is of a more subtle nature. This facilitation is about making a process easier; lubricating the workings; promoting a process—the person may additionally be the *specialist adviser* to the process.

The two courses, 'UERM' and 'Implementing ERM', have, as their core, four units of (workplace) competency from the national Public Safety Competency Standards. Competency in units themselves are expected using evidence from a 'real' environment—successful completion of these two courses indicates a level of 'underpinning knowledge' on which to base the workplace experience.

Some of the key topics in this course are:

- communication
- project management
- negotiation
- problem solving
- consultation
- documentation
- legal factors

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Professionalisation of the emergency management community

One of AEMIs roles is to assist in the professionalisation of the broad emergency management community. Currently it does this by offering a range of educational activities. Along with this it is attempting to further develop relationships with external providers and to assist in the development of relationships between these providers. To assist with the building of relationships, AEMI conducted a workshop on Monday 5 June 2000 for both VET and tertiary level providers of emergency management and emergency risk management training and education.

Currently the following providers offer either full courses in emergency management, modules within courses or short courses:

Charles Sturt University: *Bachelor of Social Science (Emergency Management) Master of Emergency Management*
Contact: John Lunn
phone: 02 6338 4639, jlunn@csu.edu.au

Edith Cowan University: *Post Graduate/Executive Certificate in Emergency Management*
Contact: Eric Turner
phone: 08 9400 5477, e.turner@cowan.edu.au,
Kangan Batman TAFE: *Short courses*
Contact: Anthony Ralph
phone: 03 9279 2497, tralph@kangan.edu.au

Royal Melbourne Institute of Technology: *Two subjects are available in undergraduate courses; they are community recovery related.*
Contact: Graham Marsh
phone: 03 9925 3021, graham.marsh@rmit.edu.au

Southern Cross University: *Master of Community Development*
Contact: Jean Griffiths
phone: 02 6659 3106, jriffit@chec.scu.edu.au

Swinburne University of Technology: *Graduate Certificate of Emergency Management*
Contact: Ariel Pearce
phone: 03 9214 5372, AAPearce@swin.edu.au

University of New England: *Advanced Diploma in Civil Care and Security; Bachelor of Professional Studies (Civil Care and Security); Master of Professional Studies (Civil Care and Security)*
Contact: Christine Stafford
phone: 02 67733873, cstaffor@metz.une.edu.au

Rural Decline worskhop

The Rural Decline and Emergency Management workshop took place at the Australian Emergency Management Institute on 10–12 May, 2000. The aim of the workshop was to identify the affect that rural decline is having on emergency management (EM) arrangements and capabilities, within the Australian rural communities, and to develop strategies for the management of those consequences. There were 22 participants from the emergency services, local government and a tertiary institution.

The workshop was conducted over 3 days and broken up into 3 sessions, each building on the previous. Session 1 focussed on identifying the key issues facing rural communities in 'decline'. Session 2 identified some of the key issues facing emergency management as a consequence of the issues facing rural communities. Session 3 enabled participants to explore strategies for the management of these issues and put forward their suggested recommendations for the workshop report. Following the workshop, the working party further refined the recommendations of the 3 syndicate groups.

Outputs from the workshop include:

- a report (currently being finalised) summarising the proceedings and findings in the form of a Mt Macedon Paper
- a set of strategies/suggested initiatives which can be used in full or in part to address rural decline issues in an emergency management context
- recommendations to the National Emergency Management Committee for further consideration.

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Essential Services Disruption seminar

Emergency Management Australia working together with the Department of Justice, Victoria, organised the Essential Services Disruption seminar that took place on Monday 8 and Tuesday 9 May, 2000, at Eden on the Park in Melbourne.

The aim of the seminar was to share the lessons learned, by Government and essential service providers, from three significant essential services disruptions in Australasia that have occurred during the past 3 years. Each of these disruptions produced significant issues for the community, industry and governments.

Case studies from the Auckland power outage, the Sydney water crisis, and the Longford gas plant were used as the basis for this seminar. The case studies revealed disruption to business, employment health issues, agribusiness tourism and hospitality and the lives of people within these 3 cities.

The focus of the seminar included the way that the impact was managed by government, industry and communities, and the interfaces between these sectors. Some of the key topics were:

- decision-making structures in times of community crisis
- responsibilities of governments in relation to essential service providers
- the roles of emergency management in essential services disruption
- development of appropriate communication strategies
- community vulnerability

Delegates who attended came away with a greater awareness of the issues that need to be faced with regard to the response to and recovery from possible essential services disruptions. As our cities grow and the economic structure of our community increases, the consequences to society of essential services disruptions become far-reaching. The well being and safety of society is enhanced when we are proactive, ensuring where possible that we can prevent, prepare for, respond to and recover from disasters.

Information including papers presented at the seminar can be found on EMA's website.

Planning safer communities — strategy for continuing professional development for land use planners

On 25-26 May 2000 tertiary educators in land use planning and environmental management met with AEMI staff to consider educational opportunities in land use safety planning and risk management. It was decided to develop a strategy for developing curricula and educational material for land use planners and other environmental management professionals in risk management.

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School Education workshop

On June 1st a School Education workshop was held at AEMI with representatives from the states and territories meeting to develop a school education policy and strategy. Associate Professor John Lidstone kindly accepted the invitation to attend the workshop and was an enthusiastic participant and keynote speaker.

The workshop highlighted what was occurring in states and territories in the area of emergency management school education through presentations from all representatives. Discussion highlighted both the achievements of the last decade and the perceived needs of school communities in the field of emergency management school education. Considerable debate and discussion lead to the forming of a draft emergency management school education policy and strategy. The policy will be tabled at the next NEMC meeting for endorsement.

More immediately a network has been established of interested representatives in the field. This network is sourcing relevant/suitable resources for use in schools with the aim of establishing an annotated bibliography of emergency management school education resources. This bibliography will be published on the EMA web site. On line links will also be established with relevant agencies.

If anyone has knowledge of particular resources which can or have worked in school classrooms then contact John with details and he will research the required information for the bibliography.

School Education resources

Hazards Happen: Elements of Australian Natural Hazards educational CD is a resource for schools structured according to earth, water, air and fire, with interactive sections to help students learn what they can do to prepare for and prevent disasters. It includes hazard information and case studies. The CD is currently available at a cost of $39.95 through EMA.

Recently tenders were requested for the development of a teacher's guide to support the CD ROM. The teachers guide will raise awareness of Natural Hazards and Risk Reduction through facilitating usage of the educational CD ROM 'Hazards Happen' by an optimum number of Australian schools. Submitted tenders have been evaluated and Associate Professor John Lidstone and Ms Margot Duncan from the Education Committee of the Royal Geographical Society of Queensland will produce the guide. The project will be completed by November 2000 and the Guide will be distributed by EMA.

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EMA publication news

New and revised publications now available

Emergency Management

The Good Practice Guide — Community Awareness and Education in Emergency Management

44 page, A4 book

Full details of this publication appears in the article on page 1 of the AJEM Vol 15 No 1 (Autumn 2000). The target audience includes Australian government and non-government organisations with a responsibility for community awareness and education in emergencies and disasters.

Copies available through your State/Territory Emergency Service/WA-FESA/Qld-CDRS

Role of the Australian Defence Force in Disasters

1/3 A4 colour pamphlet

Information for emergency managers and the media.

Copies available through the Executive Officer of your State/Territory emergency management organisation.

National Emergency Management Strategic Plan

A4 booklet

Australia's emergency management strategy for 2000 to 2005 as determined by the National Emergency Management committee.

Australian Emergency Manual series

Part I – The Fundamentals

Manual 2 — Australian Emergency Management Arrangements

Copies available through the Executive Officer of your State/Territory emergency management organisation.

Mount Macedon Papers:

Identification of Emergency Management Innovation workshop *(No 2/1998)*

Emergency Management Implications of Economic Reform workshop *(No 5/1998)*

Psychological Services workshop *(No 2/1999)*

Landslip Management workshop *(No 3/1999)*

Copies available from EMA Canberra and EMA Mt Macedon (AEMI).

EMA addresses for publications orders:
(first check above for appropriate State/Territory authority or EMA office):

Emergency Management Australia
PO Box 1020 Main Road
Dickson ACT 2602

Australian Emergency Management Institute
Mt Macedon VIC 3441
Australia

Gordonvale, caved in spontaneously. The location was 3 km WNW of Walsh's Pyramid.

Quantitative landslide risk assessment

A GIS-based quantitative landslide risk assessment was carried out in the Cairns area (Michael-Leiba *et al*, 1999) to provide information to the Cairns City Council on landslide hazard, community vulnerability and risks for planning and emergency management purposes. This is summarised below.

Magnitude recurrence relations were tentatively established for the two main slope processes: landslides on developed hill slopes; and large debris flows extending out from the gully systems on to the plains. Rare landslides in alluvial terraces, such as the fatal 1900 Riverstone cave-in, were not included. From the recurrence relations, landslide hazard (H) was estimated as the annual probability of a point being impacted by a landslide.

GIS polygons have been used to delineate and characterise the areas that could be affected by landslides. Three main categories were chosen:

- the hill slopes
- areas that could be affected by the proximal portions of debris flows
- areas which could be affected by the distal portions of debris flows

The nature, number (E) and geographic distribution of the elements at risk were obtained by interrogating the GIS, and their vulnerabilities (V) to destruction by the two main landslide slope processes were assessed. From this information, specific risk (= HxV) maps were produced for: people living in houses and flats; for buildings (houses and flats, only); and for roads. The results are summarised in *Table 1*. The results for the hill slopes indicate what the risk would be *if* the slope were to be developed *without adequate mitigation measures being taken*. The risk would be expected to be considerably less on slopes developed with appropriate geotechnical investigation before, and good engineering practice during, development.

A risk map depicting the estimated annual probability of a total road blockage somewhere in a 10 km length of road parallel to the escarpment was also prepared. For the hill slopes, the estimated annual probability is 63% (an ARI of one to two years). For roads in potential proximal debris flow runout regions it is 1.0% (an ARI of 100 years), and in potential distal debris flow runout regions it is 0.4% (an ARI of 200 years).

Total risk (= HxVxE) was also estimated for people living in houses and flats; and for buildings (houses and flats, only). Maps, that quantitatively depict the total risks per km^2 per 100 years for residential people and buildings in each GIS polygon in the currently developed parts of Cairns, were also constructed. The greatest total risk for buildings (houses and flats) is on the hill slopes, where it is estimated that a total of 13 buildings throughout the map area could be destroyed in 100 years, *if no mitigation measures were taken*. The highest total risk for people living in houses and flats is in the proximal parts of debris flows. It is estimated that a total of 16 people in the map area could die over 100 years in these areas.

There are limitations to this study. Two of the most important are:

- the regional nature of this study. Mapping was at a reconnaissance level, only. For detailed site-specific assessments, the broad findings should be checked by geotechnical specialists
- the paucity of the data from which the landslide magnitude-recurrence relations were derived. As the error bars for the data points are, in some cases, more than two orders of magnitude, errors in the risk estimates may be large.

above: This landslide on Barron Gorge Road was triggered by rain brought by Tropical Cyclone Justin in March 1997.

Community risk from landslides

Building destruction

The total risk of destruction by suburb for all types of buildings is given in Table 2 for the ten suburbs with the greatest risk, in descending order of risk. These values do not compensate for the differing areas of the suburbs.

Note that with good engineering practice, such as adequate drainage and retaining walls, commonly used in developing the hill slopes in Cairns, the actual number of buildings destroyed per 100 years would be expected to be

Unit	Specific annual risk of death–resident people	Specific annual risk of building destruction	Specific annual risk of road destruction	Specific annual risk of road blockage
Hill slopes	0.0008% 1 in 100 000+	0.004% 1 in 20 000	0.005% 1 in 20 000	0.02% 1 in 6 000
Units susceptible to proximal debris flow	0.01% 1 in 9 000	0.01% 1 in 8 000	0.01% 1 in 8 000	0.01% 1 in 10 000+
Units susceptible to distal debris flow	0.0005% 1 in 200 000	0.001% 1 in 90 000	0.003% 1 in 30 000	0.007% 1 in 10 000+

Table 1: Specific annual risk of destruction of people living in houses and flats, of houses and flats, of roads, and of road blockage.

Suburb	Total risk	Suburb	Total risk
Redlynch	6	Brinsmead	1
Mooroobool	3	Smithfield	1
Bayview Heights	2	Stratford	1
Freshwater	2	Earlville	0.9
Whitfield	1	Edge Hill	0.8

Table 2: Total risk of destruction by landslide of all types of buildings—estimated number destroyed per suburb per 100 years, if no mitigation measures taken.

above: The raised, cleared land between the power poles is part of a debris flow fan built by debris flows from the mountains in the background.

above: This large boulder was part of a prehistoric debris flow in Redlynch, Cairns.

considerably less that that shown in the Table 2.

These are dormitory suburbs. The portions that are at greatest risk of landslide are in the Freshwater Valley, the lower slopes of the coastal escarpment, or near the base of Mount Whitfield. Usually not the entire suburb is at risk from landslide. The parts at risk are either on hill slopes, or near the base of slopes in potential runout zones for large debris flows.

As the population of Cairns increases, more development will take place in such areas and the landslide risk may increase unless adequate mitigation measures are put in place at the time of development.

However, most of the critical facilities, such as hospitals and emergency services, essential to community recovery after a disaster, are in the older, flatter parts of Cairns that are not susceptible to landslide.

Isolation

Because the Captain Cook Highway, Kuranda Range Road and Cairns-Kuranda Railway, which provide access to Cairns from the north and the Tableland, each pass through country with steep slopes, they may be blocked by landslides in the event of prolonged or intense precipitation. Outside the study area, the Bruce Highway and particularly the Gillies Highway (which links Gordonvale to the Atherton Tableland), may also be blocked by landslide. This makes the Cairns community particularly vulnerable to isolation by land.

Utilities

Flash flooding in Freshwater Creek, or debris flows, have the potential to disrupt the Cairns water supply by blocking intake or destroying sections of the pipeline. There have been two instances this century of the Cairns water main, which crosses Freshwater Creek, being broken by debris flows or flash floods.

Conclusions

In Cairns, landslide has been, and remains, a significant risk. Property damage has occurred on hill slopes, and landslides have repeatedly affected road and rail traffic.

Blockage of roads and railways providing access to Cairns can cause isolation of the community. Flash flooding in Freshwater Creek, or debris flows, have the potential to disrupt the Cairns water supply by blocking intake or destroying sections of the pipeline.

As development extends further on to the hill slopes and the potential runout areas for large debris flows, landslide risk may increase unless adequate mitigation measures are taken. However, critical facilities, such as emergency services and hospitals, essential to the recovery of the community after a disaster, are not in landslide-prone areas.

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Australian disaster triage: a colour maze in the Tower of Babel

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Introduction

Patient triage is the cornerstone in the medical management of a mass casualty incident (MCI). By assigning treatment priorities to physical and psychiatric casualties, an otherwise unmanageable medical situation can be systematically broken down into manageable components (Vayer *et al* 1986). Avoidable problems have arisen at past MCIs when responding personnel from differing ambulance services attempted to use different triage systems at the same incident (Hodgetts et al 1995, Barton et al 1991, Rooney *et al* 1989), or when the triaging system used by the ambulance service differed from that used within the receiving hospital (Hodgetts *et al* 1995; Morris *et al* 1986). A review of Australian MCI triaging systems was undertaken to examine their susceptibility to these difficulties in the light of past experience.

Methods

All State and Territory ambulance services were asked by postal survey to supply details of their MCI triage plans along with any planned revisions under consideration during October 1996. Follow up telephone calls, letters and faxes were sent over the next nine months until replies were received from all eight ambulance services who would be the initial emergency medical service responders to an MCI within an Australian capital city. The information requested included details of the triage taxonomy, methodology and documentation. If the documentation of patient triage status was by way of a triage tag, samples of the triage tag were requested.

These systems were then compared with each other and the ACHCS Standards National Triage Scale for homology. When a coloured triage tag was used, or colours specified, they were checked for compliance with Standards Australia AS-2700 1996 Color Standards For General Purposes.

Results

Triage taxonomy and methodology

All State and Territory ambulance services were found to use a numerical & color coded system to indicate triage priority *(table 1)*. There was minimal commonality between the triage taxonomy used by the various State & Territory ambulance services and that of the ACHCS which is used within hospital emergency departments as a basis of assessment of quality of care.

The triage methodology also varied between States. Formal algorithms were used in all States except South Australia, Western Australia & Australian Capital Territory. In those States using algorithms no two systems were identical.

The NSW Ambulance Service uses the Triage Sieve & Sort methodology (Hodgetts 1995). In the Triage Sieve, patients who can walk are classed as priority 3. Patients who fail to breathe spontaneously with simple airway maneuvers are classified as dead. Patients with respiratory rates less than 10 or greater than 29 are priority 1 as are all patients with a capillary refill time of greater than 2 seconds or with a heart rate greater than 120 beats per minute. All other patients are priority 2. There is no assessment of the level of consciousness made in the initial 'Sieve' triage.

Triage Sort is a secondary triage based on the Triage Revised Trauma Score (TRTS) which is the sum of three score values ranging from zero to four coded to each of the three parameters of respiratory rate, systolic blood pressure and Glasgow coma scale. Those casualties with a TRTS = 12 are triaged as priority 3, those with a TRTS = 11 are triaged as priority 2, other casualties with TRTS between 1 and 10 are triaged as priority 1, while those with a TRTS = 0 are triaged as dead (Hodgetts *et al* 1995).

Queensland Ambulance Service (QAS) uses the Simple Triage and Rapid Treatment (START) (Benson *et al* 1996). START methodology currently uses the ability to obey command as the neurological discriminator, the presence a radial pulse for cardiovascular assessment and a respiratory rate greater than 30 breaths per minute as the respiratory assessment. The QAS assesses circulatory status based upon both capillary refill and the presence of a radial pulse. The QAS neurological assessment triages as priority 1 patients who are 'unconscious' or have an unspecified 'altered level of consciousness'. Patients who fail to breathe after simple airway maneuvers are classed as being dead.

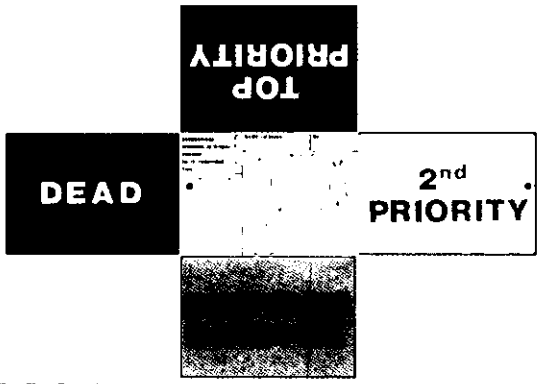
The draft algorithm for the Tasmanian Ambulance Service triages patients who can walk & talk without difficulty as priority 4, all other casualties are triaged as priority 2 unless they have difficulty breathing, cyanosis, peripheral shutdown, Glasgow Coma Score >14 or a not otherwise specified altered level of consciousness. These patients are triaged as priority 1 unless they have overwhelming terminal injuries in which case they are triaged as priority 3. Pulseless, apnoeic patients are triaged as priority 0.

The Metropolitan Ambulance Service (Victoria) nominates 22 individual conditions along with a 22 item 'Time Critical Guidelines Criteria' based on vital signs, pattern of injury, and mechanism of injury. Vital signs used are a 9 point respiratory status assessment, a 4 point perfusion status assessment incorporating a capillary refill time, a Glasgow Coma Score & the Triage Revised Trauma Score. Apnoeic patients are triaged as priority 1 and CPR is instituted on pulseless patients.

The Northern Territory St John Ambulance Service nominates 23 individual conditions to divide patients into 4 triage priorities including an expectant category. Apnoeic patients are triaged in priority 1. The ambulance services of Western Australia, South Australia & the Australian Capital Territory do not have any triage guidelines and rely on an individual ambulance officer's clinical assessment.

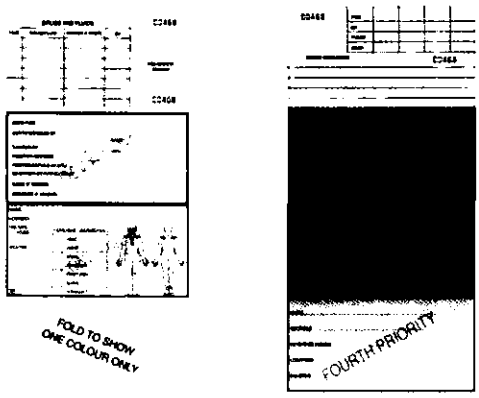
Only the Northern Territory St John Ambulance Service & the Metropolitan Ambulance Service (Victoria) specifically triaged emotional disturbances.

Victoria and Western Australia



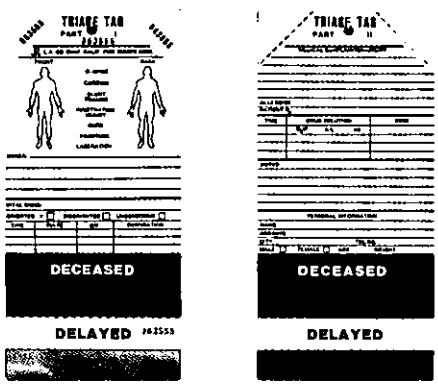
The triage tag used by Victoria and Western Australia is intended to be folded so that only the appropriate colour and category shows on one side, with space for recording on the other. The back of this multi-fold tag is blank.

South Australia, Northern Territory & ACT



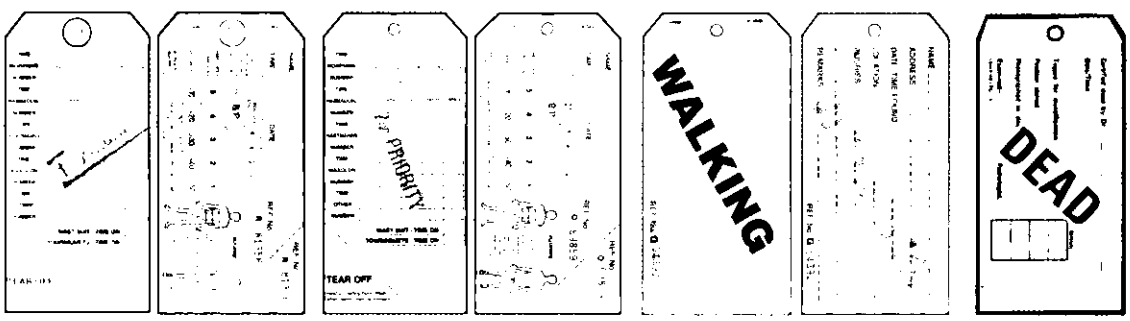
The triage tag used by South Australia, Northern Territory and ACT is double sided, and is intended to be folded so that only the appropriate colour and category shows on one side, with the recording space visible on the other.

Queensland



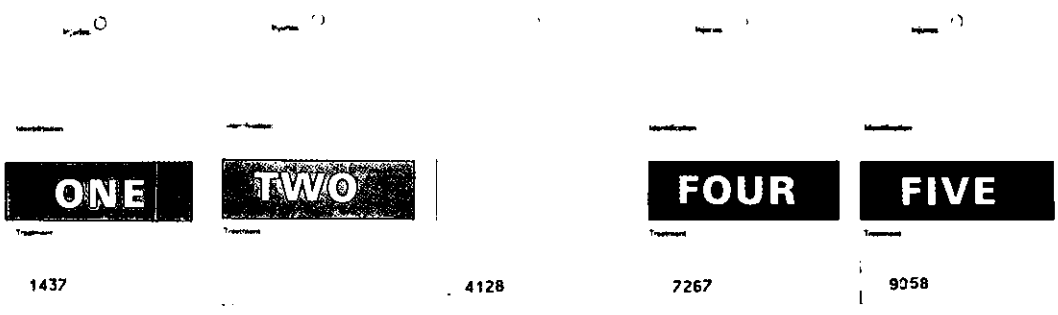
The triage tag used by Queensland is also double sided. The triage designations showing at the bottom can be torn off.

New South Wales



New South Wales has four separate tags. Ist and 2nd Priority, and Walking are double-sided. The 'Dead' tag is blank on the back.

Tasmania



The draft Tasmanian tags consist of five separate tags. The front only is shown here as the back is almost identical.

Figure 1: Triage tags in use in Australia.

Priority	ACHCS	VIC. & WA	NSW	ACT	SA & NT	QLD.	*TAS
Priority	One	Top	First	First	First	One	One
Category	Resuscitation	N/A	Life threatening	Life threatening	N/A	Immediate	N/A
Color	Red	Red	Red	Red	Red	Red	Red
Priority	Two	Second	Second	Second	Second	Two	Two
Category	Emergency	N/A	Serious injury	Serious injuries	N/A	Delayed	N/A
Color	Orange	Yellow	Orange	Orange	Yellow	Yellow	Blue
Priority	Three	Walking Wounded	Walking	Third	Third	Three	Three
Category	Urgent	N/A	Walking Wounded	Not survivable	N/A	Minor	N/A
Color	Green	Green	Green	Blue	Blue	Green	Yellow
Priority	Four	N/A	N/A	Fourth	Fourth	N/A	Four
Category	Semi-urgent	N/A	N/A	Minor	N/A	N/A	N/A
Color	Blue	N/A	N/A	Green	Green	N/A	Green
Priority	Five	N/A	N/A	N/A	N/A	Zero	Zero
Category	Non-Urgent	**Dead	Dead	Deceased	Deceased	Deceased	Deceased
Color	White	Black	***White	***White	***White	Black	Black

*TAS draft issue No. 4
**White tag with black border
***Dead - in Victoria this group includes those individuals deemed to have non-survivable injuries

Abbreviations:
ACHCS = Australian Council on Health Care Standards
N/A = Not Applicable as there is no corresponding classification or code
N/S = Not specified within the nomenclature

Table 1: Triage systems used within Australia ranked according to allocated numerical priority codes and grouped where they share identical triage tags.

Triage documentation

All State and Territory ambulance services documented triage priority by attaching a triage tag to the patient *(figure 1)*. The same triage tag was used by Victoria & Western Australia, another triage tag was in common use by South Australia, Northern Territory & the Australian Capital Territory while Queensland, New South Wales and the draft tag for Tasmania were unique to those states *(table 1)*. In addition there were wide variations in the actual colors used on different triage tags even when systems nominate the same color for a particular triage designation. Only the Queensland tag used colours matching Homebush red, yellow and green in Standards Australia AS-2700 1996 Color Standards For General Purposes. No system nominated colours specified in the standard.

Discussion

Triage taxonomy

Patient triage is a dynamic process involving repeated reassessment of the patient along the evacuation chain and through the receiving hospital until the patient has received definitive treatment. The use of simple triage decision schemes can facilitate MCI triage and reduce the stress of performing triage in a difficult environment (Xenakis *et al* 1985; Ryan 1984), while providing a basis for objective audits of the medical response to an MCI. The separate ambulance and hospital triage taxonomies represents a failure to acknowledge triage is a continuous process.

The multiplicity of state ambulance triage taxonomies severely hinders mutual aid arrangements across State and Territory borders. Approximately 3.31 million Australians live within 100 km of a state or territory border where ambulance units crossing the border in response to an MCI will potentially result in two completely different triage systems being used at the site of the MCI. In addition 88,370 Australians live within 100 km of the junction of three state borders where none of the state ambulance services use the same triage system.[1]

In the 1997 Thredbo landslide ambulance officers from three different ambulance services were on site as part of the relief effort at the Thredbo ski village. In addition, the ACT ambulance service deployed units in NSW to backup NSW Ambulance Service units sent to the Thredbo village from surrounding areas. This highlights the need to develop a National system of patient triage to facilitate cross border mutual aid arrangements.

The Metropolitan Ambulance Service (Victoria) use of specific diagnoses to define a triage category ignores the primary function of triage which is to assign a priority, not diagnose a patient. Detailed clinical evaluation of an individual casualty slows down the overall survey of all patients and delays locating the seriously injured for priority medical care.

Field determination of capillary refill is significantly impaired in low light conditions (Brown *et al* 1994), decreased ambient temperature (Gorelick 1993; Schriger *et al* 1988) and fails to detect mild to moderate hypovolaemia (Schriger 1991). Consequently, capillary refill was abandoned when the Trauma Score was

Note

1. 1996 Census of Population and Housing. Australian Bureau of Statistics.

revised in 1989 (Champion *et al* 1989). Despite this, capillary refill was used to assess cardiovascular status in Victoria, Queensland & NSW at the time of the study.

The NSW Ambulance Service uses The Revised Trauma Score which examines three parameters; respiratory rate, systolic blood pressure, and Glasgow Coma Scale. By assigning a code value of 0-4 to each parameter the Triage Revised Trauma Score can then be calculated. Trauma score has not been validated as a determinant of the severity of medical illness or toxic exposure. There are difficulties in performing indirect blood pressure measurements in a hostile environment (Prasad *et al* 1994) or when a sphygmomanometer is not available. The Triage Revised Trauma Score failed to improve triage sensitivity during the Gulf War (Burkle *et al* 1994), and significantly under triaged civilian gun shot victims from a multiple shooting incident (Beyersdorf *et al* 1996).

The failure to follow commands is a simple prehospital test in trauma patients which identifies those patients with an increased risk of death (Meredtith *et al* 1995). NSW does not include any assessment of level of consciousness in the initial triage assessment.

Triage tags

The use of disaster triage tags is controversial (Vayer *et al* 1986; Rutherford 1989; Kennedy *et al* 1996). There has been only one report where triage tags were considered useful in the field (Beyersdorf *et al* 1996). Some authors consider triage tags might be useful (Coupland *et al* 1992; Mackway-Jones *et al* 1989) within hospitals but practical experience from MCIs have indicated otherwise (Klein *et al* 1991, Rutherford 1973). Numerous problems have arisen at past incidents using triage tags under field conditions *(table 2)*.

Only the Tasmanian draft triage tag was made from materials that were completely weather proof. All States except Queensland and New South Wales, used plastic wallets to protect triage tags from the weather. In the patient requiring frequent observations or whose condition is changing, these tags are likely to perish during inclement weather. Queensland Ambulance Service uses the only commercially produced tag (the METTAG) but have a supplementary sheet to record improvements in the patients condition as the tag design only permits patient deterioration's to be acknowledged.

NSW and ACT use simple elastic bands to attach a tag to the patient. Other states use simple cloth or twine ties. Insecure tag attachments may result in tags being lost or interfered with by the patient. Dislodged triage tags have the potential to become a hazard to rotary wing aircraft.

The triage classification may represent the only medical communication available to a family member with an injured relative at the site of an MCI. The information must be clear, simple & unambiguous (Ptacek *et al* 1996). Only three states Victoria, Western Australia & New South Wales describe the dead as 'dead' while others states use the euphemism of 'deceased'. New South Wales, Victoria & Western Australia do not have a separate designation for those individuals to classed as non-survivable. In Victoria they are labeled with the dead tag.

Dead and dying patients should be kept at the site until all salvageable patients have been stabilized and transported (Fryberg *et al* 1988). Current Australian guidelines (Emergency Management Australia 1995) for assessing patients as being non-survivable during an MCI include major burns where age >60 years & body surface area >50%. These individuals along with those from highly toxic hazardous materials exposures can be potentially conscious & even ambulant at the time of evaluation.

Separately identifying dying patients ensures they receive appropriate medical care at the site and provides a focus for any on site religious personnel from which to direct pastoral care. Patients triaged as being 'non-salvageable' may survive for days before they die (Coupland *et al* 1992). The failure to clearly label the dying as a distinct group will cause confusion amongst non medical emergency service personnel and will potentially cast doubt on the credibility of the medical assessment especially if conscious ambulating individuals are labeled as 'dead'.

Victoria, Western Australia & New South Wales use the term 'walking wounded' to describe patients with a non-urgent triage priority. While the ability to walk is a useful as a screening measure for patients thought to have a minor illness, it is a physical state and not an expression of treatment urgency especially following hazardous material incidents.

The term 'walking wounded' prevents the integration of any disaster triage scheme with a hospital triage system and should be avoided. It ignores the neuropsychiatric casualties of an incident who may not be physically 'wounded' but need support at the site and the offer of follow-up care where appropriate after the

Design Problems

- Triage tag design not able to reflect changes in patient's condition (Barton et al 1991)
- Insecure patient attachment resulting in tags becoming dislodged (Coupland et al 1992; DeMars et al 1980).
- Triage tags not being big enough to record patient information (Coupland et al 1992).
- Tags disintegrating following exposure to body fluids or inclement weather (Barton et al 1991; Coupland et al 1992).
- Tags being removed, or tampered with by patients to access medical care faster (Coupland et al 1992; Mitchell et al 1986).

Operational Problems

- Tags not being available at the incident site when required (Hodgetts et al 1993, Nicholas et al 1998; Orr et al 1983).
- Tags not being available in sufficient quantities when required (Ricci et al 1991).
- Tags not being useful for incidents in close proximity to a hospital (Ebbs et al 1992).
- Tags becoming obscured by changes in patient posture (Coupland et al 1992).
- Patients being tagged with multiple conflicting tags (Gerace 1979).
- Tags interfering with medical procedures (Coupland et al 1992).
- Tagging patients with minor injuries being an inappropriate use of time, which could be better spent caring for the injured (Kennedy et at 1996; Waeckerle 1991; Doyle 1990).
- Tags represent a major departure from standard operating procedures so they are not used or are completed illegibly (Rooney et al 1989; Kennedy et al 1996; Coupland et al 1992; Klein et al 1991; Miller 1980; Stevens et al 1990).

Table 2: difficulties with triage tags

incident. Neuropsychiatric causalities represent a large component of the casualty load following terrorist bombings (Carely *et al*1996; Hadden *et al* 1978; Pyper *et al* 1982). Individuals who have been involved but not physically injured during a MCI are at risk of developing significant morbidity following an MCI (Burckle 1996; Lindeman 1948; Krug *et al* 1998). Children are at particular risk of developing behavioral disturbance following traumatic events (Burckle 1996).

Conclusion

Experience from overseas has shown that using multiple patient triage systems generates avoidable confusion that can compromise the medical response to an MCI. Current Australian MCI triage arrangements present a significant hazard to casualties, especially from incidents near State and Territory borders, and a universal system of MCI triage taxonomy and methodology should be developed as a national priority. There is little evidence to support the continued use of triage tags as a means of documenting triage status during a mass casualty incident.

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An Australian mass casualty incident triage system for the future based on mistakes of the past: The Homebush Triage Standard

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Introduction

The combined effects of an aging population, the trend towards day and minimally invasive surgery, plus the increasing cost pressures upon hospitals have significant implications upon the availability of health resources during a mass casualty incident (MCI). There are no universal definitions of what constitutes either a disaster or a MCI within Australia. A 'disaster' is said to have occurred when normal community and organisational arrangements are overwhelmed by an event and extraordinary responses need to be instituted (Emergency Management Australia 1995).

When available medical resources are overwhelmed by casualties, transport and treatment priorities need to be assigned to individuals to ensure limited medical resources are used efficiently. The term triage was transposed from French into the English language during the First World War to describe the process of sorting casualties for treatment priority by the American Army Medical Corps (Rutherford 1989). Casualty triage is the most important medical function during a mass casualty incident (MCI) and accurate triage a major determinant of an individual's survival (Rutherford 1989; Waeckerle 1991; Fryberg *et al* 1988).

This study reviews the evolution of triage, and factors that can potentially interfere with the triage process and compromise the medical response to an MCI. These are then used to synthesize a triage system to provide a common platform so that patient priorities at the incident site can be interfaced with those arising within receiving hospitals.

Historical perspectives MCI triage

The advent of gunpowder and the development of the rifle forced infantry into linear battle formations. As battlefields became larger it became increasingly more difficult to locate wounded soldiers who were left where they fell until the end of battle. The wounded were then evacuated and treated according to rank including the removal of dead nobles taking priority over wounded common soldiers (Hamby 1967).

Dominique Jean Larrey, Surgeon General to Napoleon's Army of the Rhine, introduced a major revolution in combat casualty care.

Larrey's philosophy was to rescue casualties during battle, with a dedicated corps using purpose built wagons, the ambulance volantes, and rapidly transport them to a central collection point. Here the most seriously wounded would be operated on, without regard to rank or distinction, by either the Surgeon-in-Chief or a competent surgeon under his direction (Richardson 1974). In 1792 Larrey personally lead his ambulance volantes to treat wounded French soldiers in the field and transport them from the front line during the battle against the Austrian Army near Königsberg (Leroy-Dupré 1862).

In 1807 at the Battle of Eylau against the Russian Army, Baron Larrey, now Surgeon-in-Chief to Napoleon's Grand Army, gave treatment based on medical need but with priority to the wounded of Napoleon's Imperial Guard over other wounded French soldiers (Dible 1970). In spite of Larrey's pioneering example, during the American Civil War in 1862, three thousand wounded Union soldiers were left virtually unattended and untreated for three days after the second battle of Bull Run (Adams 1952).

In 1846 British Naval surgeon Dr John Wilson described the principles of MCI triage. Dr Wilson classified combat injuries into slight, serious and fatal and described a system of treatment priority directed towards the control of life threatening hemorrhage, 'To a serious bleeding everything must of necessity at once give way, and the vessel be secured'. Dr Wilson advocated the treatment of those with fatal injuries be restricted to 'a stimulus, an opiate, a proper easy position' (Wilson 1846).

In the Second World War the procedure of patient triage was regarded as the biggest single factor contributing to survival following abdominal wounds in the US Army (Welch 1947). In the Korean War the application of a four tiered triage system, (immediate, delayed, minimal and expectant) lead to a striking improvement in casualty survival (Hughes 1976). The combination of triage, advanced resuscitation and rapid helicopter evacuation of casualties in the Vietnam War contributed to reducing mortality rates down to 1%, compared to the 4.7% observed during World War Two (Kennedy *et al* 1996).

Goals of MCI triage

The primary objective of military triage was to identify those wounded soldiers who could be treated rapidly and returned to the battlefield (Kennedy et al 1996). In civilian practice, the triage process attempts to achieve the greatest good for the greatest number of patients (Emergency Management Australia 1995; Rutherford 1989; Waeckerle 1991; Fryberg *et al* 1988; Burkle 1984). Traditional individual doctor-patient relationships are overridden by a collective medical responsibility to the group of casualties (Waeckerle 1991; Burkle 1984; Llewellyn 1992).

In general there is no role for cardiopulmonary resuscitation during an MCI (Emergency Management Australia 1995) except in cases of lightening strikes involving multiple individuals. Here medical efforts should be directed at those victims in cardio-respiratory arrest, since the majority of other victims will make a

good recovery (Myers et al 1977). Normal triage priorities may be reversed for casualties involved in highly toxic hazardous material exposures where decontamination and treatment priority should be directed at the uninjured and even asymptomatic patients (Kirk *et al* 1994).

The success of the triage process as a means of minimising preventable deaths during an MCI depends upon being able to rapidly identify those casualties at the extremes of care. Medical resources are diverted from those who will either die, or recover irrespective of the medical care they receive, and concentrated on those critically ill casualties with a reasonable probability of survival (Emergency Management Australia 1995, Waeckerle 1991, Kennedy et al 1996, Burkle 1984).

Injury	High evacuation and treatment priority	Low evacuation and treatment priority
Penetrating abdominal wounds	Individuals who can access definitive surgical treatment within 6 hours of injury	Survival after 12 hours without operative care
Major vascular injury in an extremity	Individuals who can achieve vessel reconstruction within 10 hours of injury	If vessel reconstruction cannot be achieved within 10 hours direct ligation of the vessel will result in limb loss in 50% of cases.
Penetrating head injuries	Unstable patients with evolving neurological signs	Individuals who are stable, conscious with either no deficit or moderate paresis or hemianopia can survive for 36 hours without neurosurgical care with appropriate fluids, wound care and antibiotics

Table 1: triage considerations for single practitioners in isolated locations

Problems with MCI Triage

During an MCI, triage is approximately 70% accurate (Burkle 1984) with a tendency to under estimate injury severity. This underscores the need for triage to be viewed as a process of repeated casualty reassessments until the patient receives definitive care. The difficulties in making rapid value judgements based upon relative percentage survival probabilities (Kennedy *et al* 1996; Hughes 1976; Wardrope *et al* 1991) adds to the emotional stress upon the individual attempting to perform casualty screening assessments in a hostile environment during an MCI (Spengler 1995).

Triage accuracy is also adversely affected by other factors including, the physiological ability of the young to compensate for hypovolaemia, altered perceptions of pain in high stress situations (Beecher 1946) and neuropsychiatric reactions amongst surviving casualties (Burkle 1996).

MCI Triage considerations for single practitioners in isolated locations

The limited resources and long transportation times dramatically reduce the threshold of what constitutes an MCI in isolated locations and creates unique ethical and practical difficulties in managing incidents. Collective experience from the Korean and Vietnam wars provides some triage guidance in delayed management of penetrating trauma (Moyasenko 1984; Coupland *et al* 1992).

MCI triage considerations for hospitals

Hospitals must have triage systems to cope with potential incidents in close proximity to their facility where a large number of casualties can present without warning before an emergency medical system (EMS) response has been initiated (Caro *et al* 1973). In addition, large numbers of casualties may be transported directly to the hospital from the incident scene by EMS (Anderson *et al* 1977) or they may simply overwhelm established EMS field triage & treatment posts, and then move en masse to the nearest hospital (Maningas *et al* 1997).

The hospital triage process has to be fluid as well as continuous and capable of dealing with incidents where the major casualties are medical rather than surgical (Myers *et al* 1977; Wardrope *et al* 1991; Buerk *et al* 1982). During an MCI hospitals have to integrate casualty triage with the triage of normal daily emergency presentations (De Lorenzo *et al* 1996). In addition, there may be an increase in normal daily emergency presentations from ischaemic heart disease or exacerbation's of airways disease in response to the occurrence of an incident (Duclos *et al* 1990; Leor *et al* 1996).

Special triage situations can arise when hospital resources are either damaged (Schultz *et al* 1996) or have to be abandoned (De Lorenzo *et al* 1996, Smith *et al* 1996) during an incident. Staffing shortages can suddenly arise as health care workers spontaneously evacuate their families in anticipation of a hazard (Smith et al 1981) or cannot reach hospitals due to disruption of transport links. Hospital triage decisions may also have to take into account those outpatients normally dependent on domicillary medical services who may have to be admitted should an incident temporarily prevent these services from being delivered.

Operational difficulties with MCI triage

Over the years a variety of different triage systems (Burkle 1984; Coupland *et al* 1992; Caro *et al* 1973; Hodgetts *et al* 1995; Lumley *et al* 1996; Mac Mahon 1985; Miller 1971; Baskett *et al* 1988) along with differing triage tag designs to document casualty triage status (Coupland *et al*1992; Finch *et al* 1982; Hodgetts *et al* 1995; Lumley *et al* 1996; MacHahon 1985; Baskett *et al* 1988) have been developed. The crash of a Boeing 737-400 in 1989 at Kegworth in the United Kingdom occurred on the boundary of three different counties whose respective ambulance services used different systems of MCI triage. This incident highlights the avoidable confusion that can arise when responding personnel attempt to use different triage systems and triage tags during an incident (Barton *et al* 1991; Malone 1990).

Experience has shown that the key operational principle for an efficient disaster response is to ensure staff work as near as practical to their normal daily routines (Pepe *et al* 1991; Rutherford 1973; Vayer *et al* 1986). Planning must be based upon what people are likely to do in the stress of an MCI and procedures should be kept simple and practical (Burkle 1984; Mitchell 1986). Accordingly, a triage system must have simple structure and be based on normal daily operating procedures that can also be applied during an MCI.

The Homebush triage taxonomy

There are clear benefits from the standardisation of disaster responses within Australia (Senate Standing Committee on Industry, Science, Technology, Transport, Communications and Infrastructure 1994). A national MCI triage system will mean, in the event of an MCI, both

Note

1. Standards Australia AS-2700 1996 Colour Standard for General Purposes.

hospitals and ambulance services are already using familiar common terminology which will allow effective and efficient communications under stressful circumstances.

A triage system must rapidly screen both children as well as adults (Kennedy *et al* 1996; Klein *et al* 1991), be cost effective, and operable in adverse conditions if they are going to be relevant to single practitioners in isolated areas. The dead and human body parts should be clearly and individually labeled as soon as possible to avoid time being wasted reconfirming death (Rutherford 1989; Burkle 1984) and to prevent the dead being transported to an active treatment area (Faxon 1948).

A simple triage taxonomy with four active treatment levels has been previously used in MCI situations (Hughes 1976; Ammons *et al* 1988; Gans *et al* 1996; Williams *et al* 1974). Increasing the number of categories has not improved the system (Gans *et al* 1996). The Homebush triage taxonomy *(table 2)* uses these triage priorities as a common core for both prehospital and hospital emergency department operations. Simple mechanisms can expand the four core active treatment groups if required for emergency department quality assurance purposes.

Using standard colors[1] means there will be consistent production standards for triage materials. Providing a common triage language for all healthcare responders eliminates potential communication problems associated with using different terminology. This will facilitate the integration of military medical services in the event they were deployed to assist the civilian response of a large-scale MCI within a State. A single common triage system reduces the problems that military personnel would also face trying to interface with different civilian medical services especially with a large number of medical evacuations across State borders, where different systems of MCI triage are used.

Classification	Priority	Priority code	Colour	Colour number[1]
Immediate	Top	A (Alpha)	Red (Homebush Red)	R 22
Urgent	High	B (Bravo)	Yellow (Homebush Gold)	Y 26
NOT Urgent	Low	C (Charlie)	Green (Homebush Green)	G 27
Dying	Terminal Care only	D (Delta)	White	N 14
Dead	Not Applicable	E (Echo)	Black	N 61

Table 2: The Homebush triage taxonomy

The use of phonetic triage priority codes instead of numerical codes takes into account the problems with radio voice transmission. Numbers are reserved to either stratify patient priorities within a particular triage category, or to quantify the number of casualties within a particular triage category.

In an overwhelming situation there will be patients for whom the difficult decision not to treat must be made (Parke *et al* 1992). However the decision on what constitutes a non-survivable injury is a balance between the magnitude of the incident, an individual casualty's relative probability of survival, and the capacity of available medical resources at different points in the casualty evacuation chain (Waeckerle 1991; Llewellyn 1992).

A specific triage category for dying patients provides clear management directions for those patients assessed as being beyond help either at the incident site (Fryberg 1988), the casualty collection point or emergency department (Rutherford 1989; Williams *et al* 1974; Sharpe 1985; Artuson 1981; Das 1983; Seletz 1990) or on the operating table (Burkle *et al* 1994). The introduction of this classification into daily emergency department operations identifies those patients with advance medical treatment directives and directs appropriate care to patients with terminal chronic illnesses.

Homebush Triage methodology

The Simple Triage and Rapid Treatment (START) and Secondary Assessment of Victim Endpoint (SAVE) (Benson *et al* 1996) attempt to apply the principles of evidence based medicine to disaster triage. START triage has been used successfully at several MCIs within the United States. These include the 1995 Oklahoma City Bombing, the 1992 Bombing of the New York World Trade Center, Hurricane Andrew, and the 1989 Northridge earthquake (Personal communication Dr Carl Schultz).

The START triage scheme

Walking → YES → Not urgent → Triage Priority Charlie (Homebush Green)

↓

NO → Breathing with airway maneuvers → NO → DEAD. Triage Echo (Black)

↓

YES → Obeys command → NO → Immediate. Triage Priority Alpha (Homebush Red)

↓

YES

Radial Pulse present → NO → Immediate. Triage Priority Alpha (Homebush Red)

↓

YES

Respiratory rate > 30 → Yes → Immediate Triage Priority Alpha (Homebush Red)

↓

NO → Urgent. Triage Priority Bravo (Homebush Yellow)

Table 3: The Simple Triage And Rapid Treatment (START) Triage scheme (modified). Combining START with the Homebush triage taxonomy allows a simple triage decision tree to be developed. Reprinted with the permission of Prehospital and Disaster Medicine.

The simplicity of START *(table 3)* allows it to be performed rapidly as a quick screening tool and can be easily remembered as:

- anyone who does not breathe with simple airway maneuvers is dead
- anyone who can walk is assigned a not urgent triage priority
- anyone who cannot walk but can obey commands, with both a radial pulse being present and a respiratory rate less than 30 breaths per minute, is assigned an urgent triage priority
- anyone else has an immediate triage priority

SAVE guidelines look at a number of parameters (table 4) which are designed to answer two key triage questions at a major incident site (Benson *et al* 1996):

- What is the victim's prognosis if minimal treatment is provided?
- What is the victim's prognosis with the treatment resources available at the area medical center?

There has never been a situation to date that has required the implementation of both START and SAVE triage criteria.

Paediatric triage

The basic principles of triage remain the same for children as they are for adults (Holbrook 1991). The START methodology will tend to overtriage children. This is acceptable given the higher probability of children surviving head injury (Luerssen *et al* 1988) and multiorgan system failure compared with adults (Wilkinson *et al* 1986), along with the fact that most blunt abdominal trauma is managed conservatively in children compared with adults (Powell *et al* 1987). The initial Glasgow Coma Score following head injury in children does not reliably predict outcome unless there is associated hypoxia and hypotension present (Lieh-Lai *et al* 1992).

Triage documentation

Triaging patients into geographic areas has been raised as an alternative to the use of triage tags (Rutherford 1989; Vayer *et al* 1986; Vukmir *et al* 1991; Kerns *et al* 1990). Geographic triage provides a major time saving in triage documentation especially when there is a large influx of patients. (Waeckerle 1991; Kennedy *et al* 1996; Vayer *et al* 1986; Angus *et al* 1993). In a series of six major air accidents within the USA the largest incident, involving 297 people with 59 critically injured and 124 less severely injured, had the shortest prehospital time using geographic triage instead of triage tags, combined with efficient ground and rotary wing transport systems (Anderson 1995).

SAVE Guidelines

- Mangled Extremity Severity Score (MESS) (Johansen et al 1990) to assess crush injury to extremities
- Glasgow Coma Score less than eight in adults with significant head injury.
- Abdominal trauma with refractory hypotension
- Chest trauma with abnormal vital signs
- Spinal trauma
- Burns with < 50% probability of survival or adults over 60 years of age with an inhalational injury.
- Adults with pre-existing diseases
- Non traumatic emergencies
- Special triage categories such as healthcare workers with minor injuries who with simple treatment may be able to assist in the medical response

Table 4: Secondary Assessment of Victim Endpoint (SAVE) Guidelines

Triage is generally carried out once the casualties have been taken to a casualty collection point (Burkle 1984; Vayer *et al* 1986; Orr *et al* 1983). Triage flags provide the first ambulance on scene at an MCI with the capability to lay the foundation for the site medical response irrespective of the number of casualties. Geographic triage may reflect the normal disposition of trauma patients at an incident (Vukmir *et al* 1991) that can assist single practitioners with limited site resources to triage casualties efficiently.

The casualty profile following an MCI typically has 6 to 25% of patients requiring medical or surgical treatment within 12 hours to prevent loss of life or severe morbidity (Anderson 1995; Sklar 1987). The bulk of the casualty load consists of patients with non-urgent injuries who have little to gain from immediate medical care. Using expensive triage tags to identify them or label dead bodies is an inappropriate use of resources especially in a large scale MCI (Rutherford 1989; Waeckerle 1991; Angus *et al* 1993). In 1974 a Turkish DC10 crashed into a forest at Ermenoville, France killing 345 persons. Nearly 20,000 fragments of human tissue were produced from the impact with the remains of 188 victims subsequently positively identified (Personal communication Mr. Peter J. Stuart).

Triage procedures should avoid unnecessarily complicating the subsequent investigation of the incident. Labelling human remains with numbered chemically resistant tags helps to document the location of human body parts and their relationship to objects such as motor vehicles at the scene. This facilitates their systematic removal from the site for subsequent forensic examination and can play an important role in victim identification.

Conclusion

Australia has the opportunity to build upon past experience and develop a nationally integrated system of casualty triage. Appropriate preplanning can mitigate some of the problems that complicate the triage process, but those involved in the medical response to an MCI must have a common language and understanding of triage issues to remove existing fundamental barriers to good communications.

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EMA Safer Communities Awards

EMA Safer Communities Awards

From flood recovery processes to innovations in firefighting, the entries in this year's Emergency Management Australia (EMA) Safer Communities Awards have shown excellence in many areas of emergency management.

More than 75 entries were received from across Australia. They were submitted by State Government, Local Government, private sector and volunteer organisations, and covered both pre and post-disaster emergency management.

The innovation and leadership exhibited in the entries demonstrated real achievement in helping communities prepare for, as well as recover from, disasters such as flooding, cyclones or bushfires.

Following the selection of 26 winners at a State and Territory level, the judging panel chose the following eight National winners, with five commendations made to other entries. The winners were presented with their Awards at a ceremony hosted by the Minister for Defence, Mr John Moore MP, at Parliament House, Canberra, on 28 June 2000.

Department of Human Services, Gippsland (VIC)

Post-disaster category
Federal/State Government Stream

For its pro-active response in resourcing, implementing and monitoring the immediate welfare and recovery activities following the severe flooding of the East Gippsland Shire in 1998.

Wollongong City Council (NSW)

Post-disaster category
Local Government Stream

For the work of their geo-technical team which had the task of assessing landslide risks following flash flooding in the area. The team's knowledge and expertise saved valuable resources by evacuating only those who absolutely had to be evacuated.

EMA Safer Communities Awards

Australian Red Cross (NSW)

Post-disaster category
Volunteer Organisation Stream

For the work of the NSW State Enquiry Centre which acts as the humanitarian interface between people affected by a disaster. The centre also helps friends and families of those affected by a disaster.

Richard Bryant Post-traumatic Stress Disorder Unit, University of New South Wales (NSW)

Post-disaster category
Private Sector Organisation Stream

For his unit's work in developing the Acute Stress Disorder Scale (ASDS), the world's first scientifically derived instrument to identify individuals at risk of developing post-traumatic stress disorder.

NSW Fire Brigades (NSW)

Pre-disaster category
Federal/State Government Stream

For its Static Water Supply Program, which identifies static water resources such as backyard swimming pools in high-risk bushfire areas. Identification plates are placed outside the resident's property so that the water resource can be easily found during a fire.

Shire of Augusta, Margaret River (WA)

Pre-disaster category
Local Government Stream

For the development of a new memorandum of understanding which now means that emergency management procedures for Margaret River, Augusta, and surrounding towns are addressed at a local level.

New Norfolk Fire Brigade (TAS)

Pre-disaster Category
Volunteer Organisation Stream (joint winner)

For its Home Fire Safety Audit program which involves inspecting the homes of sick, aged or frail people in New Norfolk to ensure they are fitted with appropriate safety measures in the event of a fire.

Australian Red Cross (NSW)

Pre-disaster category
Volunteer Organisation Stream (joint winner)

For the development of its Team Leader handbook which, by containing step-by-step guides, forms, policies, practical exercises and background information, aims to better equip and support Team Leaders for the task of leading a Personal Support Team.

Commendations

Melbourne Water (VIC)

Pre-disaster category
Federal/State Government Stream

For work in improving community knowledge about urban flood risks, as well as promoting appropriate building development, following significant drainage work in the greater Melbourne area.

Albany Coastal Safety Committee (WA)

Pre-disaster category
Federal/State Government Stream

For its *Fish Safe, Be Coast Safe* public education program, designed to raise awareness about safety along the south coast of Western Australia.

NSW Fire Brigades and ACT Fire Brigade (NSW)

Pre-disaster category
Federal/State Government Stream

For the production of a CD-ROM which aims to train rescuers and volunteers in the principles of Urban Search and Rescue.

Gold Coast City Council (QLD)

Pre-disaster category
Local Government Stream

For its Nerang River flood mitigation project which aims to reduce the magnitude of river flooding, raise community awareness, as well as address land use controls.

Success Management International Learning Enterprises (NT)

Pre-disaster category
Private Sector Organisation Stream

For its four major hazard mitigation projects: the Public Cyclone Shelter Study: Greater Darwin region (1998); the Public Cyclone Shelter Study: Coastal Communities of the Northern Territory (1999); the Katherine District Flood Disaster Study (1998) and the Lifelines Northern Territory Study (1999).

The National judging panel commented that the task of picking the winners from the exceptional standard of entries was particularly difficult.

For more information on the EMA Safer Communities Awards visit the EMA website at www.ema.gov.au

How long is too long at the sharp end?

Critical incident staffing: prevention is better than cure

by John Lunn, Course Coordinator, Master of Emergency Management and Bachelor of Social Science (Emergency Management), School of Public Health, Charles Sturt University, Bathurst, New South Wales

Background

This paper is about a model for the scheduling of staff at Critical Incidents.

The scope of this paper is confined to Critical Incidents. It is not concerned with the 'normal' shift of the emergency service worker. For example 80% of an ambulance worker's time is taken with patient transfer and non-emergency transport. Less than 20% of their time is taken with emergency response, and responding to critical incidents is only a small part of that time. Fire Department workers are operational between 2% and 7% of their available working time, within that, only part is involved in an actual emergency response to critical incidents (as opposed to false alarms). Within the Police Department 12% to 17% of their time is used on what may be called emergency response, and again only a part of that would involve critical incidents (Tasmanian Police & KPMG 1995). This paper is not concerned with shift times for the normal day of an emergency service worker. What this paper does address are shift times for the abnormal day and the proposition that the scheduling of emergency service workers for the abnormal day, needs to be different.

This paper does not include in its scope the optimal active time for staff and managers of command and control centres, but I hope that it will encourage similar research into that aspect of emergency/disaster response.

The incidence of distress among emergency service workers, and their subsequent burnout represents significant financial and social costs to the individual and their organisation.

This distress and the costs are phenomena that have been the subject of considerable research, but with very few conclusions or recommendations with regard to management of the response aspect of a critical incident, and the minimisation of exposure of the emergency services worker.

Part of the problem occurs because each event is unique, and until an incident has been running for some time, there is no opportunity to gather information about the event, i.e. how long it may last, and some of the consequences in terms of deaths, injuries and their severity.

Atitudes of scene managers

These aspects conspire to create a situation where the first emergency service workers on-scene will often be subjects of the following conscious or unconscious reactions:

- 'I was here from the beginning and I am one of the few who really knows what has been going on from the start, so I had better stay'
- 'It probably won't last much longer so I might as well see it through'
- 'There's no point in handing over to someone else and putting them through it as well'
- 'This is my chance to put all my training into practice and make it all worthwhile'
- 'Other people will think I've gone soft if I ask to be relieved'
- 'I will think I've gone soft if I ask to be relieved'
- 'This is my chance-in-a-lifetime for fifteen minutes of fame, and I'll show myself and others what I can do'
- 'I know what's going on and what needs to be done. I'm not sure the relief crew would know as much, as they weren't here from the start. No matter how well I brief them there could be a mistake and it would be my fault'
- 'It's mine and I'm not about to let go!'
- 'It lasted for over 36 hours and I was there from go-to-whoa. On reflection I may have done some things differently if I hadn't been so tired, but hey I was there from go-to-whoa'

Traumatic Stress—is prevention better than cure

'Many individuals are routinely and predicably exposed to potentially traumatising events in connection with their employment. 'High risk' groups include servicemen and members of the emergency services, aid workers and journalists who cover conflicts and disasters.' (McFarlane 1986).

In the general population the prevalence of post-traumatic stress disorder (PTSD) is as low as 1–2% (Helzer, Robins & McEvoy 1987), but it may be 30% or more in observers and rescuers after serious accidents and disasters (Duckworth 1986; Cobb & Lindemann 1943). The study of Gulf War body-handlers revealed symptoms of post-traumatic stress in 50% of the sample nine months after the conflict. Serious psychological distress has also been reported in second-line support workers such as administrators, control-room and reception staff, switchboard operators, hospital ancillary and volunteer workers, as well as the families of emergency service personnel (Deahl 1998b).

Legislation and regulations

What specific legislation or regulations exist with regard to exposure to distress of emergency service workers?

My searches to date indicate no regulations that have been put into place, with the specific purpose of reducing or managing the exposure to distress of emergency service workers.

The only legislation would appear to be the general 'Duty of Care' legislation which only becomes relevant after the case, when 'blame' has to be apportioned.

Critical incident

What constitutes a critical incident and who deems it to be one?

There are many definitions of what is a critical incident, including one which I think includes the key aspects of most definitions:

> 'An event which has a stressful impact sufficient enough to overwhelm the usually effective coping skills of either an individual

or a group' (Boudraux & Mandry 1995).

Who deems it to be one, and what are the criteria?

Firstly who deems it to be one?

It is easy to say who it should not be. It should not be the people at the 'sharp end'. By their nature they tend to be unwilling to call it a 'critical incident' with the inherent implication that they will need assistance of some sort.

The 'critical incident' call has to be made back at base according to some objective criteria. If there is doubt, the tag should be applied and then, if necessary, relaxed to a lower grade afterwards, rather than not making the call and then, after seeing the consequences, saying 'I wish I had'.

Based on intelligence received by the communications operator at base, the shift supervisor should be alerted to the possibility that there might be a 'critical incident.'

The shift supervisor then reviews the incident intelligence with the 'critical incident' criteria and, if appropriate, activates their organisational protocols for managing 'critical incidents'.

What are the criteria?

Multiple deaths, horrifying deaths and injuries, or when intervention went all wrong make the call easy at one end of the spectrum.

A 'cot death' would not appear to qualify for tagging as a 'critical' incident until it was perhaps realised that the incident responders had young children, one of their own children had been a victim of the 'sudden infant death' syndrome, or they were close to the upper threshold of their incident coping abilities.

But how are we to know about all of the emotional luggage that each and all of the responders are carrying with them? (You can't!)

Most emergency service responses are not to critical incidents. All incidents involving sudden death and injury have the potential to be 'critical' incidents. All should be considered to have the potential and treated as such. Many will be handled by the responders and filed away successfully as 'not a nice one' but without disabling the responders.

Early appropriate support will reduce the incidence of responders ending up as victims.

Risk

Voluntary and involuntary risk.

When you get out of bed in the morning you are taking a voluntary risk; the risk of falling over your slippers, choking on your breakfast, crashing your car etc. There are also involuntary risks that you are subject to ie. the pollution of the atmosphere that you breath, the driving skills of other commuters etc.

We can do things to decrease our vulnerability by increasing resilience and decreasing susceptibility.

In driving, we might slow down, improve our skills, chose routes and times that are less hazardous etc.

To seek employment as an emergency service worker displays an implicit willingness to expose oneself to potentially distressing situations and the associated risks to well-being. By accepting employment as an emergency service worker there is a voluntary risk that one takes as part of accepting the position. The worker can reduce their vulnerability by increasing resilience and reducing susceptibility. The devices that may be used include improving coping skills, reducing exposure to unnecessary risk and recognising one's stress threshold.

There is also an expectation/hope within the emergency service worker that their employer will implement appropriate management strategies to enhance the resilience of the worker, reduce their susceptibility, and reduce the overall vulnerability of the worker to the risks associated with their work.

Emergency Service Worker temperament profile

According to a study by Herbison R.J et al. (1983), featured in a National EMS Burnout Survey, the personality profile of EMS responders to the survey resulted in the identification of a strong tendency toward dependence and obsessive characteristics as well as the need for structure and rules among the respondents.

Simply put this appears to indicate that the temperament of many emergency service workers tends to have or need:

- high levels of self control of objectivity
- cautious self critical
- methodical detail minded

According to Mitchel and Bray (1990) 'individuals who work in emergency services are characteristically 'can-do', adventurous persons who in the course of helping others, seek out and encounter risks, excitement and challenge. They seem to like being in control of situations, harbor exceptionally high performance expectations of themselves, like to see the results of their work and have great professional pride in their duties. Extreme loyalty and dedication to task contribute to their high sense of frustration with failure and low tolerance of shortcomings in others. These tendencies, coupled with risk-taking, tend to drive them to perform their duties to point of exhaustion. Their tendency to jeopardize their own safety to help others is intensified by their belief in their emotional and physical indestructibility (Spitzer & Neely 1992).

Work schedules

Most of the emergency services provide a twenty four hour a day, seven days a week service to the community. This means that most emergency service workers are part of a shift work roster, which in itself has a significant impact on the physical and mental well-being of the worker. Shiftwork and its impact is not part of this paper other than to mention that it is another factor that has influence on the affected persons and could well form the subject of further research in this area.

Indicators and effects of burnout

Increased adrenaline secretion, blood pressure elevation, gastric disturbance, sleep disturbance, job dissatisfaction, injury rate, substance use/abuse, quality of response diminished, self-harm and suicide.

Emotional exhaustion, the inability to take on any more 'feeling' without becoming distressed. An event reported in the media, a television drama, a 'heart tugging' advertisement can be sufficient to distress an emotionally exhausted person.

Depersonalisation, an apparent detached, uncaring, or negative attitude towards the public and or co-workers. A strategy unconsciously adopted, which aims to protect the worker from 'feeling' but which may only delay the onset of acute distress.

Reduced feelings of personal accomplishment, a feeling of lack of worth. They feel inadequate to the task and the standards they set themselves and what they believe are others expectations of them. Because they are distressed they cannot cope, and because they cannot cope they become more distressed.

Selection processes

As a way of reducing the incidence of critical incident stress it would seem useful to identify any person with a predisposition to critical incident stress and screen them out at the recruitment selection stage.

However it is worth noting that in research carried out by Atkins et al in 1983 it was concluded that:

'Psychological screening may rule out

certain major psychiatric problems, but has questionable effectiveness in preventing burnout.'

From the work that I have done with emergency service personnel a temperament profile for Emergency Service workers could include something like:

- high self control/objectivity
- average/low self centredness
- high average gregarious/energetic
- high cautious self critical
- average/low introspective imaginative
- average/high power exerting
- high methodical detail minded

This profile could indicate that the person is temperamentally better suited to emergency services work than someone with a different profile. But this profile also has implications for a higher degree of susceptibility to critical incident stress than others.

The dilemma then appears to be, do we try and recruit people with profiles that are best suited to the work to be done, or do we recruit people who are least susceptible to critical incident stress? Given the proportion of work that involves critical incidents it would appear rational to select the best profile for the work, but also recognise that the person could be susceptible to critical incident stress and manage that appropriately when incidents arise.

Employee obligations

One of the cardinal rules of emergency service workers is 'never put yourself or others in a situation where the rescuer has to be rescued'.

This rule applies as much to the mental welfare of the rescuer as their physical safety.

If we keep in mind the principle that it is the strongest person who can admit their 'weakness', then each worker needs to:

- know their physical and mental limitations
- let other people know their limitations
- recognise when they are getting close to their limits of coping
- let other people know when they are getting close to their limits of coping
- recognising when they have to call for help
- call for help when needed.

A distressed worker is not a fit worker and is not able to provide the optimum service to the community. It is an obligation of the worker to do all they can to maintain all aspects of fitness for their work.

Employer obligations

A concern expressed by Gerald A Cannon, a division chief with the San Diego Fire Department in March 1998:

> 'One concern addressed was the high turnover for paramedic personnel. This turnover seemed to be linked to two factors: compensation (pay and benefits) and burnout caused by a high volume of high stress calls. The factor of pay and benefits can be easily understood; the more you pay your employees the more costly your Emergency Medical Services becomes. However, there are several personnel management experts who will be quick to point out that pay will not in itself be a complete cure for turnover. Employees will leave for lack of adequate pay. But they may not stay, no matter what the pay level is, if other job factors are perceived by the employees to be adverse. A constant high volume of calls without a break can be such a factor.'

In subsequent studies requested by the San Diego Council the question was posed (Cannon 1988):

'Why not rotate paramedic personnel between high-volume and low-volume posts?' It made sense to 'spread the wealth', that is, to spread the number of total incidents in the system as evenly as possible among all the paramedics. But what about seniority? Or bidding for a steady post? Or even having a steady post in a desired area? Rotation of personnel in a large system needs to address these and several other issues to be fair and workable and to provide adequate breaks in the high volume of incidents for paramedics.

With all that in mind, the design team settled on a rotating schedule which they felt addressed clinical-skills enhancement and employee burnout associated with high call volume. The system that was developed they called the 'Paramedic Triad System'.

The concept was based around teams serving in one of three locations for about one month in turn so that each team took their turn at 'quiet' and 'high' volume locations.

Did it work?

'Management experts of the '80's (Cannon 1998) are now espousing the principle of service management. Briefly, that principle states that if you don't serve the public directly, then your functions should be involved with providing service to those who deal with the public. In no other field does this principle ring truer than emergency services. Our front line personnel need to know that management is there to help them do a better job through: reasonable salaries, career stability, promotional opportunities, comprehensive health care including employee assistance programs,, critical incident stress management, and even a rotation model to relieve burnout from stress.

Their model remains just that, a model, not a reality currently in use. Their design team thought it had merit and that it addressed the issues in a rational, cost effective way. They still believe that the high cost of employee turn over will mean that this or a similar approach will be tried and the cost benefit proven.

The military, emergency services, aid organisations and the media routinely send their employees into potentially traumatising situations. All employers have a statutory 'duty of care' to protect the health of employees and minimise the impact of occupational health hazards, but the focus is on the observable (broken bone versus broken brains).

There is now sufficient evidence to suggest that psychological debriefing, by itself, is inadequate—indeed, mandatory PD (as advocated by many banks and building societies following robberies) may itself be harmful. If PD is used at all it should be one part of an overall strategy to minimise the long term impact of trauma. This should include primary preventative measures, careful recruit selection, realistic training, stress-inoculation and operational stress packages.

Whatever strategy is adopted in the workplace, employers must not become complacent and assume that their workforce is now immune to PTSD and other psychiatric disorders because they have received PD or any other psychological intervention. Employers should arrange systematic follow-up of workers exposed to potentially traumatising events, and ensure that individuals who develop PTSD and other psychiatric disorders receive appropriate treatment and support. PD alone is an inadequate preventative occupational health measure. Employers and occupational health physicians should become more actively involved in research to identify interventions that reduce psychiatric morbidity after trauma, particularly in occupations that predicably expose workers to traumatising events (Atkins et al 1983).

In the past, emergency service systems tended to perpetuate the myth of individual indestructibility by not explicitly acknowledging or responding to the concept of occupational stress. When first responders did show evidence of stress related emotional problems, their

superiors tended to refer them to outside agencies for counselling. These referrals were often perceived as disciplinary action rather than an effort to help the individual with work induced concerns (Spitzer & Neely 1992).

Despite the concerns expressed by some people about mandatory debriefing it is my belief that everyone involved in a critical incident should be included in a mandatory initial debriefing. This enables the macho 'tough guy', who feels unable to stick up their hand and say I need help because of their self-image and the image they feel they have to project to others, to get access to the help they might need. Quite often it is the person who needs the most help who is least able to ask for it.

Current strategies

The treatment of established PTSD is far from satisfactory. Psychological and pharmacological interventions have been used separately or in combination, but often give only partial symptom relief (Deahl 1996a). Lately, efforts have focused on early intervention to minimise long-term psychological sequelae, PTSD in particular. Secondary preventative strategies of this kind, widely employed in civilian and military practice, include various forms of brief counselling as well as more specific interventions such as psychological debriefing (PD) or 'critical incident stress debriefing' (Mitchel 1983; Dyregrov 1989).

Designed for groups of emergency service workers, debriefing is thought to help victims of psychological trauma process their experience cognitively and emotionally. Immediacy is deemed important because the earlier debriefing occurs, the less the opportunity for maldaptive and disruptive cognitive and behavioural patterns to become established (Rachman 1980). Diverse groups, not only from the voluntary sector—lay counsellors, psychologists, social workers, psychiatrists—advocate these techniques and have sought to establish a role for themselves following traumatic incidents (British Psychological Association 1990).

Although intuitively appealing, and a response to perceived need, these methods have been extremely difficult to evaluate (Bisson & Daehl 1994), and it is only lately that PD has been subject to randomised controlled clinical trials. Bisson *et al*, studied 110 burn victims, the treatment group being debriefed on average six days after their injury.

In this study the debriefed group actually had a worse outcome, although it was suggested that they had a greater pre-incident vulnerability. Although debriefing was originally designed for groups of emergency service workers, there have so far been no randomised trials of group debriefing.

The incidence of Workers Compensation claims for work related stress and the need to control costs has spawned a current strategy whereby most claims are disputed routinely by the employer and their insurer and the current view adopted by some tribunal commissioners is that, because of a psychological predisposition by the worker, the claim by the worker is denied. This psychological predisposition is why many emergency service workers choose to do the job that they do and why they tend to be very good at doing that job. ie. individuals who work in emergency services are characteristically 'can-do', adventurous persons who in the course of helping others, seek out and encounter risks, excitement and challenge.

They seem to like being in control of situations, harbor exceptionally high performance expectations of themselves, like to see the results of their work and have great professional pride in their duties. Extreme loyalty and dedication to task contribute to their high sense of frustration with failure and low tolerance of shortcomings in others. These tendencies, coupled with risk-taking, tend to drive them to perform their duties to point of exhaustion. Their tendency to jeopardize their own safety to help others is intensified by their belief in their emotional and physical indestructibility (Spitzer & Neely 1992).

Prevention

Primary prevention programs are increasingly employed to prepare high-risk occupational groups for trauma. There are numerous anecdotal reports that preparation and training for traumatic events can substantially modify the emotional impact of subsequent trauma and may also protect individuals from long term sequelae (Chemtob et al 1990). Unfortunately, although prevention, (like debriefing) is intuitively sensible, primary preventative techniques have not been evaluated in randomised controlled trials. The topic straddles medical and non-medical disciplines including occupational psychology, risk management, human resources, occupational medicine and psychiatry, each with its own tradition and methodology; thus research in this area is difficult.

Simple stress-inoculation techniques such as the exposure of prospective body handlers to human remains and necropsies have long been practised within the military and emergency services. The factors associated with high levels of distress in servicemen and emergency service workers are well known: the emotional impact of actual trauma can potentially be reduced by teaching rescue workers the physiological basis of anxiety, by anxiety reducing techniques, by strategies to minimise identification with victims, as well as by maintaining social support. Similarly managers can be taught the protective effects of positive leadership, the maintenance of morale, realistic training and the use of ritual.

In its broader context primary prevention includes recruit selection and the exclusion of vulnerable individuals from high risk occupations (e.g. those with a history of psychiatric illness or a previous severe reaction to trauma) as well as training of high-risk individuals to cope with anticipated trauma. Training reduces uncertainty, increases a sense of control and mastery, and teaches automatic responses that are not 'eroded' under stress. Training may also limit or alter the type of exposure to potentially traumatising events, decrease the unexpected, maximise a sense of hope, and prepare individuals for the unexpected need to act (Hytten & Hasle 1989).

Perhaps by boosting self-confidence, the psychological benefits of training may even exceed the benefits of any practical skills acquired. Helplessness is minimised by an understanding of behaviours that aid survival. The intensity of exposure and reality of threat may be modified by the use of learned adaptive behaviours, e.g. automatic routines when coming under fire or handling human remains (Weisah 1989). Training must be as realistic as possible, and will be least effective when the trauma is prolonged or uncontrollable. This indicates a dichotomy, on one hand there is the proposition that we 'trauma proof' people through controlled exposure to potentially traumatising realistic training situations, then on the other hand we need to minimise exposure to trauma.

It is my belief that we all have a ceiling or limit to our ability to cope with trauma. Our life experiences, training, physical and mental well-being can lower or raise that ceiling, but as we get older we all get closer to that ceiling. Events that happened to us in our twenties we thought had no effect, but they form part of our emotional luggage and as our life experiences add more, our strength or resilience diminishes. I am therefore concerned that 'trauma proofing' may enhance short term coping capabilities, but reduce long

term resilience as it adds, artificially, to an overall life-load of trauma.

Conclusions

How long is too long at the sharp end? Simply, when the length of exposure has led to an incidence of critical incident stress or post traumatic stress disorder.

How long this is for any individual will vary according to the individual, the events and their impact. But the incidence, along with the social and economic cost, are reasons enough to conclude that current strategies of critical incident stress management are not sufficient, and that more work has to be undertaken to reduce or prevent critical incident stress.

The foundation of any community wide initiative lies in legislation. Laws, regulations, policies are the authority that provide the incentive and power to act. Individual organisational initiatives take a long time to bring about community wide changes through their establishment and acceptance as precedence. A consortium of employer and workplace safety insurer organisations would be an appropriate lobby group to encourage the politicians to pass legislation which would put into place regulations and policies that reduce the incidence and cost of critical incidents.

The vulnerability of workers would be reduced by the adoption of strategies to reduce the susceptibility of workers and enhance their resilience.

These strategies would include:

- recruiting workers with more suitable temperament profiles, while recognising that they might be more susceptible to critical incident stress
- provision of training for workers about critical incident stress management and their obligations
- provision of training for supervisors and managers about critical incident stress management and their obligations

As we get to the end of this millennium, economic rationalism appears to be the mantra of executive management. Maximum return to the 'shareholder' will not be achieved if we do not control the costs of critical incident stress. In controlling these costs we will also achieve a social benefit, a 'win-win' that will be good for all concerned.

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The genesis of this paper was a course conducted in September 1998, at the State Rail Authority Fire Training Centre, Redfern by Helen Webb. Helen is a lecturer for Charles Sturt University in the area of Pre-hospital Care. The course was for Ambulance Officers and I was asked to present a session on emergency management. During discussion with the students the issue of accumulated critical incident stress management was raised. I said it was an area in which I was interested and I would write a paper about the topic.

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Recommendations

Many conclusions in this paper are themselves triggers for necessary initiatives. In the abstract for the paper concerns were raised about the lack of critical incident stress management initiatives during the response aspect of an event. Recommendations have been therefore confined to a specific recommendation with regard to the management of exposure of the emergency service worker during the response aspect of an event.

Critical incident staff scheduling

For an example take an event that has the first teams on scene at 1200 and finishes at 0100 the following morning.

The first team on scene is designated the C team and they will remain 'up front' on scene for the first two hours. This will enable them to commence activities including establishing communications and the flow of intelligence back to the command and control points. After the first two hours, progressively, two other teams will be scheduled through one hour each at the 'up front' position through a one hour 'stand-by' position at the scene. The one hour 'up front' will be followed by a one hour stand down.

The 'stand-by' position is in support of the 'up front' position and enables the stand-by team to learn about what is going on and what they will have to do when they take over at the 'up-front' position. The 'stand down' is close to the scene, but ideally far enough away for the team to be able to get some rest and refreshment and get away from the sounds and smells of the incident scene.

The schedule would look like *Table 1*. In an operation that lasted for 13 hours the total activities for each team in hours are as in *Table 2*.

If an operation were to last longer than 13, but less than 26 hours then the same teams could be used in the same rotation until the end of the operation. If it is expected that the operation will last more than 24 hours, then a further set of three teams should be scheduled with team D on stand-by at 1200, E stand-by at 1300, and F stand-by at 1400. If it is expected that the operation were to last longer than 48 hours then a further three teams will be scheduled into the operation G, H and I. For further protracted operations teams C, A & B ; then D, E & F and so on will be progressively rescheduled through the incident following the same sequence until the operation is completed. In protracted events teams which have completed a 25 hour sequence of 'active duty' that is either on 'stand-by', 'up front' or on 'stand down' would have about 48 hours before they were required to be back on 'active duty'. One should also prepare contingency plans and have reserve team members 'on call' should a team member needed to be replaced for any reason.

The teams may be made up of as little as two members or hundreds depending on the context. The principles remain the same if we wish the rescuers to operate at their optimum effectiveness with the least harm to themselves and those they are helping.

Teams	Stand-by time	Up-front on scene	Stand down
C	1500	1200	1400
A	1300	1400	1500
B	1400	1500	1600
C	1500	1600	1700
A	1600	1700	1800
B	1700	1800	1900
C	1800	1900	2000
A	1900	2000	2100
B	2000	2100	2200
C	2100	2200	2300
A	2200	2300	2400
B	2300	2400	0100

Table 1: team scheduling for a 13 hour incident

Exceptions

As with most principles or rules it is the exception that proves the veracity of the rule. The same is true of the proposed principle of critical incident staff scheduling.

There are events when it would not be appropriate to replace an emergency service worker with another. These events are those where a vital part of the management of the incident has been the establishment and maintenance of a relationship between the emergency service worker and the person whose effective recovery is the objective. These events could include those such as:

- hostage negotiations,
- long term rescues from extreme locations and conditions.

In these situations the negotiators/ rescuers must be treated as victims as well, particularly, but not only, when the result was not successful.

Teams	Stand-by time	Up-front on scene	Stand down
C	4 Hours	5 Hours	4 Hours
A	4 Hours	4 Hours	4 Hours
B	4 Hours	4 Hours	4 Hours

Table 2: activities for each team in hours over a 13 hour incident

Preventing disaster by building a risk-prevention ethic into corporate governance

by Rick Sarre, Associate Professor of Law and Legal Practice, University of SA; Convenor of the Legal and Business Regulation Research Group University of SA, and Meredith Doig, Management Consultant and PhD candidate, RMIT, Principal Investigator, Corporate Responsibility project, University of SA.

The recklessness, or reckless indifference, of corporate entities often causes disasters. It is certainly the case that modern corporations and business enterprises are bound by strict legal responsibilities that require them to operate in a safe fashion. The consequences for those entities whose conduct falls outside of the acceptable parameters of the law, however, are difficult to construct, given that corporate entities are artificial 'persons', and given that the required mental element attaching to corporate criminal conduct is difficult to establish let alone prove. The mere setting of legal and administrative rules to control reckless behaviour, either by legislation or by organisational rules and policy, may be necessary, but it is not sufficient, for, as history records, accidents and tragedies still occur. In this paper the authors show how corporate entities can and should employ principles of corporate social responsibility in framing their organisational culture. The task of lessening the risk of corporate irresponsibility may best be achieved, they conclude, in linking social responsibility as a fundamental principle of corporate governance.

Introduction

To say, as many corporate controllers do, that their companies are abiding by the letter of the regulatory law under which they operate, is no longer an acceptable response to the threat of corporate irresponsibility, if it ever was. An example is provided by the story of the roll-on/roll-off passenger car ferry *Herald of Free Enterprise* which sank soon after leaving the Belgian port of Zeebrugge, en route to Dover on March 6, 1987. Five hundred and thirty-nine people were on board, and at least 188 people lost their lives. The *Herald of Free Enterprise* had capsized because her bow doors remained open as she left port. The ferry ended up half submerged in shallow water. Only a fortuitous turn to starboard in the last moment prevented the boat from moving to deeper water, which would have meant her sinking completely[1]. The *Herald of Free Enterprise* had been a member of the Townsend Thoresen Car Ferries fleet. Townsend Thoresen had become part of the P&O fleet in January of that year (Boyd 1990).

Justice Sheen conducted a formal investigation into the disaster between April and June 1987. His Honour concluded that the accident was partly caused by the 'serious negligence in the discharge of their duties' by the captain, chief officer and assistant bosun. Suspensions of Certificates of Competency were ordered. He also found the company had been at fault, remarking that

> ' ... a full investigation into the circumstances of the disaster leads inexorably to the conclusion that the underlying or cardinal faults lay higher up in the Company. The Board of Directors did not appreciate their responsibility for the safe management of their ships. They did not apply their minds to the question: What orders should be given for the safety of our ships? ... The Directors did not have any proper comprehension of what their duties were. There appears to have been a lack of thought about the way in which the *Herald* ought to have been organised for the Dover-Zeebrugge run. All concerned in management, from the members of the Board of Directors down to the junior superintendents, were guilty of fault in that all must be regarded as sharing responsibility for the failure of management. From top to bottom the body corporate was infected with the disease of sloppiness ... [revealing] a staggering complacency ... Individually and collectively they lacked a sense of responsibility.' (Boyd 1990).

In October 1987 the Coroner's inquest into the tragedy delivered a verdict of 'unlawful killing', and in June 1989, after a 15 month police investigation, seven individuals were charged with manslaughter and the company P&O European Ferries[2] was charged with corporate manslaughter[3]. But on October 19, 1990, after only 27 days of a trial expected to last 6 months, the judge instructed the jury to find the defendants not guilty, and dismissed the case against the individual and corporate accused. The judge had become satisfied early in the prosecution case that it had failed to establish that the defendants should have perceived the possibility of the ferry sailing with its bow doors open to be 'an obvious risk' (Boyd 1990, Crainer 1993).

This outcome was perhaps not surprising. In the UK and in Australia a corporate manslaughter prosecution must show that someone who represents the controlling 'mind' of the company is also guilty of the offence. Hence, the chance of a corporate conviction is always slight (Cahill and Cahill 1998, Bergman 1998).

There are, of course, other examples that quickly come to mind, two of them occurring within two days in July 1997. Firstly, 12 year old Katie Bender was killed on July 13 when struck by debris while watching a demolition of the old Royal Canberra Hospital in a fun day organised by the Canberra City Council. The next day, the collapse of a make-shift bridge at Ramat Gan stadium, Tel Aviv, just as 370 Australian athletes were entering the arena for the start of the Maccabiah Games killed 4 and injured 60 other competitors. Three years later the civil and criminal liability questions arising out of both

Notes

1. The death toll was the worst for a British vessel in peacetime since the sinking of the Titanic in 1912.
2. The name Townsend Thoresen was changed in October 1987.
3. A first for British law, although the possibility has been there since 1965: refer *Northern Strip Mining Co Ltd, The Times*, 2, 4 and 5 February 1965. The French have had corporate criminal liability since 1 March 1994 and the rules apply to other organisations like trade unions and local authorities (Cahill and Cahill 1998: 23).

incidents remain to be fully resolved. Any criminal proceedings, assuming prosecutions proceed and succeed, are unlikely to achieve anything more than scapegoating individuals for what may be systemic failures. The same outcome is a probable final scenario for the Swiss canyoning disaster of 27 July 1999 (21 drowned including 14 Australians), and the Paddington, London rail crash of 5 October 1999 where over one hundred died when a Thames train bound for Bedwyn collided with the Great Western Express at Ladbroke Grove. Rarely is there any satisfaction with the way in which the legal processes drag on, and the lost lives can, of course, never be recovered.

Each of these tragedies provides a good illustration of the weaknesses of the criminal legal sanction as a regulatory tool. It has become evident that in order to *prevent* corporate irresponsibility, indeed, to attempt to prevent the phenomenon of 'corporation as victimiser' (Elias 1996) and to limit the broader social implications of the dangers of corporate disasters[4], the threat of legal sanction to punish individuals (after the event) if things do go wrong is cumbersome and largely ineffective[5]. It has long been the view of researchers that proactive management systems, put in place by senior executives[6], are far more effective in the fight against irresponsibility than reactive measures (Sarre 1995, Sarre and Fiedler 1999).

Corporate responsibility as a way of business life

With Western governments withdrawing from active participation in the operational economy, commercial organisations are moving inexorably into areas previously undertaken by the public sector. At the same time, there is growing pressure on corporations to become more accountable for their actions. Facing up to accountability is the community's perspective on corporate responsibility[7]; from a manager's perspective, corporate responsibility also implies minimising corporate risks[8]. Its self-regulatory aspects bring it within modern notions of the ideal forms of corporate governance, which forms have been the subject of much research and theoretical exploration in the last decade (Berns and Baron 1997, Bosch 1990, Ermann and Lundman 1992, Frank and Lynch 1992, Haines 1997, Prosser and Miller 1997, Ramsay 1999 and Wells 1993)[9].

In order to understand the concept of corporate responsibility, it is valuable to review some aspects of its development. The 1970s saw the introduction of much 'social' legislation designed to ensure corporations acted responsibly. Examples include consumer protection legislation (for example, Part VA of the Commonwealth *Trade Practices Act* which came into effect in July 1992, extending the liability of manufacturers for defective goods), environmental legislation (the importance of the Commonwealth *Environment Protection (Impact of Proposals) Act* 1974 in the development of Australian environmental law cannot be over-stated), and equal opportunity legislation (for example, the Commonwealth's *Sex Discrimination Act* 1984 and *Disability Discrimination Act* 1992). However, during the increasingly competitive 1980s and 1990s, further globalisation of world trade and the threat of merger or acquisition forced a stronger focus on shareholder value and financial responsibility. While this may appear at odds with the demand for social responsibility, some are now linking the two. Explaining his environmental consulting firm's decision to work with Shell, a company that has provoked anger from both environmentalists and human rights activists in recent years, John Elkington wrote, 'At the heart of the emerging value creation concept is a recognition that for a company to prosper over the long term, it must continuously meet society's needs for goods and services without destroying natural or social capital' (Elkington 1998). In other words, financial responsibility to shareholders is dependent, in the long term at least, on both responsible environmental management and responsiveness to societal needs and demands[10].

Despite the dominance of 'economic rationalism' in developed countries, with its connotation of remorseless pursuit of profit, the idea that corporations are responsible to more than just shareholders is gaining ground[11]. The Australian Prime Minister John Howard has made corporate/community relations a high priority, arguing that 'business has a strong stake in ensuring that communities remain dynamic and prosperous. Enterprises can only be as strong as the communities in which they operate. A company that derives profit from the community has an obligation to contribute to its development' (Howard 1998)[12].

Thus the managerial responsibility to minimise corporate risk and fulfil society's demand for accountability can be seen at three levels. The third strategy is the one that has the greatest potential benefit.

- Legal: by obeying the law, and meeting relevant standards and codes of conduct.
- Discretionary: by building goodwill through acting as a 'good corporate citizen'.
- Strategic: by contributing to global

Notes

4. The fallout from corporate disasters—for example, industrial pressure, poor publicity, class actions, falling share price and criminal penalties—may not be limited to the organisation. There may be consequences for the wider community—for example, environmental catastrophe, dangerous or fatal activities, the collapse of allied industries and even potentially the economy.

5. A criminal trial is expensive, and the pursuit of a scapegoat from a corporation which has seemingly endless supplies of funding for legal assistance may be a choice which should be seriously questioned.

6. While a sense of corporate responsibility must pervade an organisation to be effective, it must begin with responsibility at the level of Chairman and Managing Director.

7. One definition of 'corporate responsibility' is the onus and obligation placed upon corporations and other business entities to conduct themselves in a fashion that makes them accountable for their choices. It is a broad and moveable notion encompassing established policy, management practices and organisational mandates within societal boundaries time and place. It often includes the notion that companies should make choices that are beneficial to the common weal, not simply those that have regard for the economic bottom line.

8. Risks can be categorised into three main areas: risks to people, risks to the environment and risks to the business. Corporate risks include: accidents, natural disasters, betrayals of trust, hostile takeovers, unpredictable behaviour of stock markets, the failure of alliances, pressures from advocacy groups, unfavourable political actions, product failures and the failure of market strategies (Francis 1997: 14).

9. And an excellent OECD website: http://www.oecd.org/daf/governance/principles.htm

10. This raises the fundamental question of the purpose of a company. There are two major schools of thought on this subject. Some agree with Milton Friedman (1962) that 'the business of business is business' and that pursuit of shareholder value and maximum profit is the only valid purpose of a company. Others, like management consultant Charles Handy (1991), suggest managers should think of themselves as custodians of corporate assets to be preserved and enhanced for a range of current and future stakeholders. In this sense, corporate assets refer not only to physical plant and equipment but to employee knowledge and skills, supplier goodwill, investor confidence, customer satisfaction and community respect.

11. For example, in the UK, there has been the development of the concept of 'stakeholder capitalism' that accepts capitalism as an economic framework but argues that there are multiple legitimate constituencies that should be involved and benefit from it.

12. On 26 March 1999 the PM announced a policy of paying Aus$50 million in tax incentives for those entities that played a role in their communities. "It will take more than tax breaks to encourage a love of mankind manifested as acts of practical benevolence, but they would help", (Editorial, *The Weekend Australian*, March 27-28 1999 p 20).

sustainability through responsible environmental and social management.

Legal responsibility

In a society that respects the rule of law, most companies will accept the need to obey whatever laws exist and to meet standards relevant to their industry and/or profession. However, while meeting legal standards is only a minimum requirement for corporate responsibility, even this is hard to achieve. The complex decision-making process of large modern organisations makes individual liability difficult to prove (Ridley and Dunford 1997), and if individuals are prosecuted, there is a likelihood they may be used simply as scapegoats. Also, the entire process takes an inordinate amount of time, which is less likely to have the deterrent effect offered by swift prosecution and penalty[13].

Discretionary responsibility

Good corporate citizenship is a growing concept that attempts to prick the conscience of individuals who lead companies. However, this relies on the ethical orientations of individual managers, and one could suspect a weak inclination in many industries to reciprocate trustworthiness generally (Cherney 1997). Also, not all corporations acknowledge the strategic advantage of fostering public goodwill.

Strategic responsibility

Strategically, corporate risk is reduced by minimising the possibility of society withdrawing the corporate 'licence to operate', a privilege accorded corporations through the laws of limited liability. The fiduciary duty of directors to have regard to the interests of shareholders is not related to present shareholders but rather to the general body of shareholders from time to time, and therefore to maximising company value on a sustainable basis (Goyder 1998). Sustainability involves responsible management of 'the commons' (the natural environment) as well as care of corporate reputation through ethical behaviour. However, it has always been notoriously difficult to get companies to focus on long term goals and persevere in their pursuit in the face of the market's demands for short term 'results'. Nevertheless, this third category of responsibility is crucial to our thesis, and is explained in the following section.

Corporate responsibility as a tool of disaster prevention

With the weaknesses identified above in the legal and discretionary responsibilities especially, it is clear the concept of corporate responsibility requires further development, especially where corporate practices may involve serious, if not life-threatening, risks. Such development must include not only appropriate organisational policies, procedures and systems, but also ways to cultivate an organisational 'culture of mindfulness', including realistic awareness of the possibility of disaster, a personal ethic of care and assumption of individual responsibility, and the organisational empowerment to act when necessary to prevent or minimise damage. There must be an organisational commitment to the constant evaluation of corporate health, safety and environment practices to ensure they *conform* with the law and, at the same time, *perform* to a minimum standard that is both safe and environmentally sustainable. Since standards evolve with changing societal norms and technological developments, continuous improvement is essential. Evaluation must involve dialogue up and down the hierarchy. If this does not occur, businesses will not be sustainable over time (Doig 1999, South Australia 1999).

This is not an entirely novel approach. The report of the Treadway Commission (United States 1987) recommended public companies should develop and enforce written codes of corporate conduct in order to foster a strong ethical climate, to open channels of communication and to help protect against criminal activity[14]. In the allied discipline of fraud prevention, Braithwaite (1985) and Clarke (1987) found that simple business changes to structure reduced the opportunities for dishonest conduct. In some US jurisdictions, corporations can be penalised if they are *not* actively engaged in the development of an ethos or corporate policy in which law breaking is discouraged (Tomasic 1994). The US government, in its 1991 *Sentencing Guidelines*, makes the existence of an internal compliance program that seeks to minimise corporate crime a mitigating factor in penalty upon conviction for such a crime (Cahill and Cahill 1998). There is no reason why these sorts of approaches to corporate governance should not be further encouraged generally in this country as a means of encouraging safe and sustainable business practices.

However, given the limited ability of legal sanctions to regulate for a positive corporate culture, other constructive mechanisms should be sought. These might include market-based mechanisms, government incentives, or peer group approbation by industry bodies where companies demonstrate exemplary behaviour. The 'carrot' may be a far more powerful agent than the 'stick' in seeking change (Freiberg 1986). It might have saved the *Herald of Free Enterprise*.

Conclusion

Corporate social responsibility is an idea whose time has come. It involves encouraging and rewarding moves towards industry self-regulation, while at the same time insisting upon international harmonisation of standards and the building a culture of risk-management. Governments and industry associations alike must encourage — through incentives — risk-prevention propriety in day to day business affairs. The proponents of corporate social responsibility assume, correctly, that these types of initiatives are preferable to using, and thereby enlarging, the formal (and therefore expensive) apparatus of the criminal justice processes when something goes sadly awry.

Proactive corporate social responsibility strategies that are sensitive to commercial priorities and designed to encourage rather than constrain business performance should be pursued as a matter of priority by governments, corporate conglomerations and regulatory bodies alike. It is more likely than not that, in such an environment, risks can be reduced, business performance can be improved and corporate accountability can be assured. Indeed, explorations into different types of regulatory governance promise to provide much interest for academics interested in the phenomenon of corporate governance generally[15].

Notes

13. The Royal Commission into the Longford gas explosion that killed two Esso workers in September 1998 identified up to 18 breaches by that company of the Victorian *Occupational Health and Safety Act*. (Editorial 1999). Prosecution of Esso has now been launched (February 1 2000), 16 months after the explosion. There are 36 charges, against the company not individuals, arising out of the failure to provide a safe workplace and the failure to train and supervise workers adequately.

14. The Commission recommended the following steps:

-Establish and communicate specific goals articulating corporate ethical standards;

-Develop and implement procedures to use in achieving corporate ethical standards;

-Create and install reward systems that encourage acts of moral courage;

-Define and provide resources employees need to perform their ethical duties;

-Create a work environment where supervision at all levels is characterised by consideration and humanness, thereby serving as a role model.

15. Some researchers are currently reviewing the value of regulatory systems by hypothesis testing and theory building (Ayres and Braithwaite 1992, Grabosky 1997: 201, Sarre 1994).

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International law and armed conflict: implications for emergency and humanitarian organisations

by Robyn Layton QC, LLM Barrister, Member of International Labour Organization Committee of Experts (Geneva), Chair of the Human Rights Committee of the Law Society of SA; and Victoria Bannon, BA, LLB (Hons) International Humanitarian Law Officer, Australian Red Cross, SA Division

Introduction

Emergency and humanitarian workers are increasingly likely to find themselves operating in countries experiencing armed conflict. Despite the lawlessness that appears to characterise modern warfare, there are laws that attempt to limit the devastation of war and protect non-combatants from violence, displacement and deliberate attack.

This paper outlines some key features of international law which operate during times of armed conflict. Attention is also drawn to provisions of particular relevance to emergency and humanitarian workers operating in and around conflict zones.

The areas addressed are as follows:

- International Humanitarian Law
- Human rights
- International criminal law
- War crimes
- Genocide
- Crimes against humanity
- Proposed International Criminal Court

Rather than provide a comprehensive guide, the aim of this paper is to give an overview of the relevant law as an introduction to a more detailed examination of the provisions as found in the relevant sources.

The changing nature of armed conflict

When discussing the law in operation during armed conflict, it is useful to consider the historical background that has led to the development of some of the widely accepted protocols applied in international law. Many of the laws that are currently in place have evolved in response to the changing nature of armed conflict over the decades.

This change is most clearly reflected by the dramatic increase in the proportion of civilian casualties. During World War I, ninety per cent of the casualties were soldiers. In that war, many of the battles were fought away from densely populated areas and were reasonably well restricted to specific theatres of war. Since this time improvements in technology and the lucrative weapons industry has resulted in the development of devices capable of mass destruction. By World War II, wide use of these new weapons, accompanied by systematic bombing and genocide campaigns directly targeted at civilians, increased the casualties of the civilian population to over fifty per cent of the total casualties.

Significantly, the nature of today's armed conflict presents the most disturbing statistics of all. In contrast to World War I, it is the civilian casualty rate that is almost ninety per cent, many of whom are women, children and the elderly.

The consequence is that emergency and humanitarian organisations operating in areas of armed conflict have never been so vital in sustaining and rebuilding communities during and after times of armed conflict. Moreover, increasingly aid workers and delegates are being caught up in the conflict, having their safety compromised and their ability to carry out their protective functions severely restricted. Workers are finding that they can become witnesses to wartime atrocities and sometimes become victims themselves.

For these reasons, it becomes imperative for medical workers, aid workers and emergency service workers to have an understanding and appreciation of the laws that govern their safety and protection, as well as an appreciation of the limitations that may be placed on their activities.

The operation of international law during times of armed conflict

There are several bodies of international law that can apply during times of armed conflict. Each area differs in its philosophical standpoint, its aims and its criteria for application but there are instances of overlap and the universal objective is the minimisation of human suffering.

International Humanitarian Law

International Humanitarian Law (IHL) is found predominantly in the Geneva Conventions of 1949 and the Protocols Additional to the Geneva Conventions of 1977. IHL is specific in its application, in that it applies only during times of armed conflict. Consequently it has been referred to as 'the laws of war'.

The historical background to the establishment of IHL is significant, as its gradual development documents the changing nature of warfare between the first Convention in 1864 to the Additional Protocols of 1977.

The first principles of IHL emerged in 1864 as a result of the experiences of a Swiss Banker, Henry Dunant. In 1859 Henry Dunant was travelling in northern Italy in pursuit of lucrative business deals, when he found himself witness to one of the most ferocious battles of the century, known as the Battle of Solferino. The battle formed part of the ongoing war between the allied forces of Italy and France against Austria and raged for 15 hours involving some 300,000 men. It was not only the sight of battle but the aftermath that affected Henry Dunant so profoundly. Over 40,000 soldiers lay dead or dying in the summer heat, and with the field hospitals failing dismally to alleviate the suffering, Henry Dunant organised local villagers to assist with the provision of water, medical supplies and shelter. He urged his corps of volunteers to act according to need alone, regardless of nationality of the wounded.

Soon after, Henry Dunant graphically described his experiences in the book *A Memory of Solferino*, and postulated:

Would it not be possible, in time of peace and quiet, to form relief societies for the purpose of having care given to

the wounded in wartime by zealous, devoted and thoroughly qualified volunteers?

The book aroused significant international interest and sparked much public debate on the creation of an international treaty to provide assistance to the wounded of armies in the field. In 1864 a treaty was drawn up in a special conference attended by 26 representatives from 16 countries which became known as the Geneva Convention of 1864 and provided the basis for many of the subsequent laws of war that followed.

After the formulation of the first Geneva Convention in 1864, various other conventions arose to provide protection for other individuals during war. However, it was not until World War II, when the international community was shocked by the large scale atrocities committed against civilians, the appalling treatment of prisoners of war and the mass destruction of urban areas, that these conventions were broadened in scope and codified into the Geneva Conventions of 1949. These conventions now constitute the body of IHL and are divided as follows:

First Convention: the Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (1949)

Second Convention: the Geneva Convention for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of the Armed Forces at Sea (1949)

Third Convention: the Geneva Convention Relative to the Treatment of Prisoners of War (1949)

Fourth Convention: the Geneva Convention Relative to the Protection of Civilian Persons in Times of War (1949)

The First Geneva Convention provides for protection and care of members of armed forces who are wounded or sick, as well as volunteer corps and civil members accompanying armed forces. They are entitled to be treated humanely and this includes taking all possible means to search for and collect them and not to leave them without medical assistance.

The First Convention is also significant in that it establishes the distinctive emblems of the Red Cross, the Red Crescent and the less well known Red Lion and Sun. It provides that the legitimate use of these emblems by medical and relief personnel during times of war signifies the individual or premises upon which they are displayed as being neutral and not to be attacked.

The Geneva Conventions are also inextricably linked to the existence of the International Red Cross and Red Crescent Movement. This encompasses the International Committee of the Red Cross, established by Henry Dunant, which has the responsibility of monitoring the adherence of signatories to the laws of the Geneva Conventions and disseminating information about the Geneva Conventions to the international community. In this way, the International Red Cross and Red Crescent Movement has been described as being the custodian of IHL. National bodies such as the Australian Red Cross, also have this role of dissemination to ensure that their own military forces, government and members of the public are aware of and adhere to the laws of armed conflict.

Since their introduction in 1949, the four Geneva Conventions have been ratified by 188 of the 191 States (countries) in the world. However, the ongoing development and complexity of modern warfare and weaponry continued to supersede that which had been contemplated in the 1949 conventions. There has been large scale environmental and human devastation caused by chemical warfare and other methods, used for example during the Vietnam war. In addition, armed conflict was not limited to conflict between countries but increasingly extended to conflict within countries, often motivated by racial and cultural differences. This expansion highlighted some significant inadequacies in the scope of the Conventions and led to the development of the Protocols to the Conventions.

In 1977, two Additional Protocols, called the Protocols Additional to the Geneva Conventions were drawn up to extend and strengthen protection:

Protocol I: Operates during international armed conflict (that is between countries) and extends the protection of the Geneva Conventions to civilians, in particular women and children, and members of armed forces and civil defence. It prohibits in a more general sense, attacks on civilians and civilian objects and prohibits certain methods and means of warfare.

Protocol II: Operates during non-international conflicts, (that is 'internal' conflicts within a country) such as civil wars. Rather than extend the Geneva Conventions, this protocol strengthens the provisions for internal conflict and the protection of civilians, medical personnel and hospital and ambulance services.

The overall purpose of IHL is to set minimum standards by which all parties to the hostilities should operate. A compelling feature of IHL, and perhaps one of the reasons it has been so widely ratified, is the apparent mutual benefit gained by all sides in a conflict. Parties who mutually agree to abide by the 'laws of war' can be assured that if they themselves adhere to the principles, then their own combatants who are captured or surrender to the enemy will be treated humanely, that their civilian population will not be targeted for attack and that medical personnel will provide assistance to all injured parties, regardless of their loyalties.

Human rights

Human rights are described in a number of human rights instruments, most notably:

- Universal Declaration of Human Rights (1948)
- European Convention on Human Rights (1950)
- Covenant on Civil and Political Rights (1966)
- Covenant on Economic, Social and Cultural Rights (1966)
- American Convention on Human Rights (1969)
- African Charter of Human and Peoples' Rights (1981)
- United Nations Conventions on the Rights of the Child (1989)

The philosophical basis of human rights law is that human rights are shared by all people at all times, in both war and peace. This is in contrast to IHL, where protection is only accorded in limited circumstances (during certain types of armed conflict), and to certain people (only those specified in the Geneva Conventions). However, both human rights and IHL adhere to the principle that when the protective criteria are met, the laws should operate without any form of discrimination whatsoever.

Determining which law is in operation during times of armed conflict can often be a complex task. The operation of IHL and human rights law can be seen to overlap in some situations, while in other situations there may be limitations on the applicability of some human rights. Unlike IHL, which operates wholly and exclusively during armed conflict, some human rights may be restricted in operation during such conflict. The above human rights instruments contain clauses which enable States to suspend these rights when confronted by a serious public threat. Nevertheless, in recognition of the philosophy that human rights should apply to all persons at all times, a number of exceptions have developed and certain 'hard core' rights have been

designated as applying irrespective of any public threat. Thus, the following 'hard core' human rights are enforceable even during times of armed conflict:

- right to life
- prohibition of torture
- prohibition of inhuman punishment or treatment
- slavery and servitude
- principle of legality and non-retroactivity of the law

A further difficulty frequently arises in ascertaining, not merely which laws apply during times of armed conflict, but also how they interact with each other. There are points of convergence between IHL and human rights. For example, in relation to the Fundamental Guarantees accorded by Article 75 of Protocol I Additional to the Geneva Conventions prohibits, among other things, murder, torture and mutilation. Article 4(2)(f) of Protocol II prohibits slavery. Such acts if committed during armed conflict would potentially offend both the Protocol to the Geneva Conventions and the human rights instruments.

Conversely, while the Geneva Conventions and Additional Protocols variously describe certain provisions as being 'additional to...other applicable rules of international law relating to the protection of fundamental human rights during international armed conflict' (Article 72, Protocol I), does this also operate in reverse? If so, even these 'hard core' human rights, which previously operated as universal principles to be applied to all, could be restricted by the limitations placed on the operation of IHL. Most notable is the concept of 'military necessity' embodied in the Geneva Conventions which, if successfully demonstrated, can negate much of the protection accorded by IHL and also human rights. Thus, in certain situations, the protection of the right to life could be nullified by the argument that the taking of the lives of certain individuals was a military necessity. The dividing line may sometimes be fine. Is the bombing of a strategic bridge, that also deprives a local community of vital food and medical supplies, a military necessity? Is the bombing of a radio station run by civilians, but which may be used for military propaganda, a military necessity?

How these two sources of international law converge during times of armed conflict remains the subject of much debate. The various instruments of human rights enforcement, in particular the United Nations Human Rights Committee, has shown an increasing inclination to avoid making clear distinctions between human rights and IHL. This could be an indication that these two areas of law may be able to be used in practice to bolster the other where the protection of one appears lacking.

Enforcement of International Law

Another distinction between IHL and human rights is the method of enforcement of these laws. The methods of enforcement vary depending on the nature of the breach which has been committed.

IHL identifies a range of war crimes which are prosecutable under international law. The most serious of these are deemed to be 'grave breaches' of the Geneva Conventions, prosecutable under international criminal law. However, these are limited to situations of international armed conflict.

Human rights law has a similar division with 'hard core' rights being able to be treated as international crimes whether committed in a situation of armed conflict or in a time of peace.

International Criminal Law

International Criminal Law refers to the body of law that covers the serious or grave offences of both human rights and IHL as described above.

International criminal law is derived from treaties, conventions and also what has been developed and accepted over time as crimes by the international community; that is by international customary law.

There are ranges of offences that are considered to be prosecutable as international crimes with associated universal jurisdiction. For the purposes of this paper, three categories will be discussed:

- war crimes
- genocide
- crimes against humanity

These acts, when committed, are considered to be capable of prosecution in international criminal tribunals. International criminal law can therefore be used as a means of prosecuting grave breaches of IHL and infringements of hard core human rights.

War crimes

War crimes, as the wording suggests, is referable to acts committed in circumstances of armed conflict. They are generally understood to mean acts that constitute 'grave breaches' or serious violations of laws and customs of war committed against any person who is either not or is no longer actively taking part in hostilities. In some instances war crimes will be found where there has been a grave or serious breach of one or more of the Geneva Conventions and their Additional Protocols, so it is apparent IHL is an element of international criminal law.

There is, however, a distinction as to whether an act amounts to a war crime depending on whether it occurs in the context of international conflict (between countries) or non-international (referred to here as 'internal' conflict occurring within a country).

In situations of international conflict the following acts are deemed to amount to the necessary severity to be a war crime:

- wilful killing
- torture or inhumane treatment
- wilfully causing great suffering or serious injury to body or health
- extensive destruction and appropriation of property
- compelling a prisoner of war to serve in the forces of the hostile power
- willingly depriving a prisoner of war the rights of fair and regular trial
- unlawful deportation, transfer or confinement of a protected person
- taking hostages

This would appear to be broad enough to outlaw war altogether. However, there is one important and much debated qualification. As previously mentioned, the above acts are only prohibited when they are not justified by military necessity and are carried out unlawfully and wantonly.

In situations of 'internal' armed conflict, there are fewer breaches set out in the Geneva Conventions that are deemed to be so grave as to amount to war crimes. Common Article 3 of the Geneva Conventions specifies the following acts:

- violence toward life and person, in particular torture, mutilation or cruel treatment
- taking hostages
- outrages upon personal dignity which includes inhumane or degrading treatment, adverse treatment on the basis of race, colour, nationality, religion, beliefs, sex, birth or social status
- passing of sentences or carrying out executions without previous judgement by a regularly constituted court

Supplementary to Common Article 3 is Protocol II of the Geneva Conventions which extends the list of prohibited acts in internal conflicts to include particular acts against civilians.

The result of this distinction between international and 'internal' armed conflict is that less protection by way of available war crimes is accorded by the Geneva Conventions during situations of internal armed conflict.

In addition to the Geneva Conventions, certain actions occurring in international armed conflicts have been further identified as war crimes in Article 8(2) of the recently developed Rome Statute of the International Criminal Court ('the Rome Statute' as discussed hereafter under International Criminal Court). The Rome Statute also continues to distinguish between acts taking place during international and internal armed conflict. Thus a determination of the nature of the armed conflict may still be necessary to establish whether or not a particular act may amount to a war crime.

A further and controversial issue arises in respect of war crimes and also other areas of international law; that is, the effect of international customary law. International customary law arises when there is general recognition among States of a certain practice as obligatory or as condemned. The sources of customary law are broad ranging and include State legislation, treaties and judicial decisions over time. Where international customary law can be found, it can be binding on a State even if that State has not ratified any treaty or protocol to this effect. Thus, it has been argued that even a particular convention which has not been ratified by a State, or where the acts committed do not strictly satisfy the requirements of a particular convention or protocol, the State may still be subject to international customary law and can be prosecuted by the appropriate enforcement mechanism for that breach. The effect of international customary law is the subject of much ongoing debate.

Genocide

The Convention on the Prevention and Punishment of the Crime of Genocide (Genocide Convention) 1948 defines genocide as: 'acts committed with the intent to destroy in whole or part a national, ethnical, racial or religious group'. Unlike war crimes, genocide is an international crime whether it is committed in peace or war. It is also considered to be separate to the body of law that constitutes human rights.

Acts amounting to genocide can be summarised as:

- killing members of the group
- causing serious bodily or mental harm to members of the group
- deliberately inflicting conditions of the life calculated to bring about physical destruction of the group in whole or in part
- imposing measures intended to prevent births within the group
- forcibly transferring children of the group to another group

The important ingredient is that the acts must be committed with 'intent to destroy'. Such intent is notoriously difficult to prove. The International Criminal Tribunal for Rwanda considered this very issue in the Akayseu case and determined that intent can be inferred from the general context of the commission of the act. This includes such factors as whether the actions were systematic, the scale of the atrocities in the region or district and the targeting of certain persons with common characteristics. It must then be determined whether it was reasonably foreseeable that these actions would result in the destruction (of all or part) of the group.

Rape and sexual violence may also constitute genocide as these acts may have the effect of destroying the group, particularly if they occur within cultures in which men may reject women who have been the victim of rape or sexual violence.

In addition, the Genocide Convention includes conspiracy to commit genocide, direct and public incitement to commit genocide and complicity in genocide.

Crimes against humanity

Crimes against humanity are based on the Nuremberg Charter and Judgement of the Nuremberg Tribunal. The definition of 'humanity' as contained in the Nuremberg Charter includes a requirement that the prohibited acts be committed in connection with crimes against peace or war. However, the International Criminal Tribunal for the Former Yugoslavia has determined that crimes against humanity do not require a connection to international armed conflict.

More recently, Article 7 of the Rome Statute describes crimes against humanity as prohibited acts which are part of a widespread or systematic attack against any civilian population with knowledge of the attack. The acts can be committed in other than armed conflict but must be committed pursuant to or in furtherance of a state or organizational policy to commit such an attack. In summary the prohibited acts are:

- murder
- extermination
- enslavement
- deportation
- imprisonment
- torture
- rape
- persecutions on political, racial, national, ethnic and religious grounds
- enforced disappearance
- apartheid
- other inhumane acts

While many of the crimes mentioned above appear to also fall into the ambit of human rights law, the distinction between the two lies primarily in the scale of activity required to constitute a crime against humanity. Where human rights abuses can be perpetrated by one individual against another, a crime against humanity is characterised by the systematic, large scale perpetration of abuses against a group of people.

International Criminal Court

On 17 July 1998 the Rome Statute was adopted by the United Nations Diplomatic Conference of Plenipotententiaries on the Establishment of an International Criminal Court. This was a very important step towards the international recognition of the abhorrence of crimes against humanity, genocide, and war crimes and the need to have an international and independent process available for their adjudication. The Statute was adopted by an overwhelming vote of 120 nations, with 21 nations abstaining and 7 nations opposing. Australia was one of the counties that voted for adoption and also played a significant role in the successful outcome. This statute not only states the procedures and jurisdiction of the Court but also provides a description of the crimes that have now become internationally recognised.

The Rome statute will not come into effect until ratified by 60 States. Also the Statute will not have retrospective effect and will only apply to crimes that are committed after the entry in to force of the Statute. The Court will be permanent and will be able to be set up when a need arises. It will then replace the present difficult process of establishing Ad Hoc War Crimes Tribunals for specific conflicts where the alleged abuses occur after the establishment of the Court.

Implications of International Law for humanitarian and emergency organisations

While much of the law described above would appear to concern those involved in the hostilities and civilians caught in the line of fire, there is significant scope for these laws to offer protection to humanitarian and emergency workers in the field albeit depending on the particular organisation and the nature of the work being carried out.

Humanitarian and emergency workers as civilians

One of the most obvious ways inter-

national law can impact on humanitarian and emergency workers in the field is as civilians. Protection of civilians is primarily accorded under the Fourth Geneva Convention. This Convention was specifically designed to protect all civilians caught up in armed conflicts, but it predominantly protects civilians who find themselves in enemy or occupied territory. This Convention was adopted after the atrocities against civilians in World War II and therefore its provisions reflect the kinds of abuses which occurred during Nazi occupation including torture, taking hostages, gassing, shooting, hanging, floggings torture, medical experiments, starvation and neglect. The overall message is that an occupying force must distinguish between soldier and civilian and ensure that civilians are protected and treated with dignity.

Article 15 of the Fourth Geneva Convention provides for the agreement between belligerents to establish neutral zones, which can be used as a refuge for civilians and the wounded. Also under this Convention, aliens or foreigners who find themselves in a country at war are entitled to leave the country, or if they do not wish to do so, they are accorded all the rights of aliens in peace time, including rights to medical attention, hospital treatment, religious freedom and access to relief supplies. Confinement of foreigners under supervision, for example in camps, should only occur when 'absolutely necessary' to security.

The protection of civilians has also been extended by the introduction of Additional Protocol I, which provides special protection to civilians who find themselves, not in enemy hands, but in the hands of their own forces. In this way, civilians can be protected from the actions of their own government.

Humanitarian and emergency workers as part of civil defence

Protocol I contains a number of Articles that give special protection to civil defence workers. They are contained in Chapter VI Articles 61 to 66. In Article 61, civil defence is defined as the performance of one or more of humanitarian tasks 'intended to protect the civilian population against the dangers, and to help it to recover from the immediate effects or hostilities or disasters and also to provide the conditions necessary for its survival'. The humanitarian tasks are listed as follows:

- warning
- evacuation
- management of shelters
- management of blackout measures
- rescue
- medical services, including first aid, and religious assistance
- fire-fighting
- detection and marking of danger areas
- decontamination and similar protective measures
- provision of emergency accommodation and supplies
- emergency assistance in the restoration and maintenance of order in distressed areas
- emergency repair of indispensable public utilities
- emergency disposal of the dead
- assistance in the preservation of objects essential for survival
- complementary activities necessary to carry out any of the above tasks including planning and organization

Special protection is given to 'civil defence organisations' and their 'personnel'. Civil defence organisations are defined as establishments and units organised or authorised by the competent authority of a Party to the conflict to perform the above tasks. Personnel of such organisations and also civilians who respond to an appeal by a Party to the conflict are given respect and protection while carrying out the above activities. In addition, their equipment and facilities are protected from attack.

It is important to note that such protection under the Protocol is only accorded where the activities of such organisations, personnel or civilians, are 'devoted exclusively' to the above tasks. Also under Article 65, protection is lost if they commit, or are used to commit, acts harmful to the enemy after an appropriate warning is given and is unheeded. The Article does not define the acts that could be harmful to the enemy but instead Article 65(2) indicates acts which shall not be considered harmful to the enemy. The Article excuses tasks that are carried out under the direction or control of military authorities, the performance of civil defence tasks in cooperation with the military personnel and also the performance of civil defence tasks that incidentally benefit military victims. Article 65(3) also permits civil defence workers to bear light individual weapons for maintaining order and self-defence.

Therefore, while there can be co-operation between military personnel and civil defence personnel, this co-operation must remain solely for the purpose of performing tasks that are in the interests of the civilian population. That is, civil defence workers cannot use their protected status to military advantage

In addition, Protocol I assigns a distinctive emblem to be used by civil defence personnel and on their installations. This emblem consists of a blue triangle on an orange background. Civil defence personnel are also permitted to carry light arms for maintaining order or for self defence.

The most significant limitation of the protection of civil defence personnel is that the above protection is only accorded in conflicts of an international nature. Civil defence has not been incorporated into the provisions relating to internal conflicts in Protocol II. Therefore, in situations of internal armed conflict, civil defence personnel are accorded the same protection as civilians, but cannot invoke the special protection accorded under Protocol I. This is an important practical limitation when most armed conflict today is internal armed conflict rather than international.

Conclusions

International law requires that there must be a determination as to whether or not there is armed conflict and if there is, whether it is armed conflict between forces within a country or between counties. The answer to this may determine the extent and degree of protection that is available to citizens, civil defence organisations and personnel. Depending on the nature of the actions that are committed, those actions may be infringements of different areas of law and sometimes more than one area at the same time. In the absence of the coming into operation of the International Criminal Court, it is necessary to identify which area of law is infringed as the remedies are different for each. This process will be considerably simplified with the ratification of the Rome Statute as an International Criminal Court could be a one stop shop for all serious infringements which occur after the Court is established.

Australian organizations are likely to be increasingly sought for their expertise, organising skills and calm diplomatic approach in situations of emergency. They may in particular be requested to help in situations of international or internal conflict in the Asia-Pacific region. It is essential for them and their personnel to understand the aspects of international law that may apply to them so that they can provide the greatest assistance with the least risk of inadvertent offence.

As can be seen from the above discussion, there are a number of areas that

require particular close analysis in relation to the activities of emergency and humanitarian organisations and their rights and responsibilities in circumstances of armed conflict. Those issues include:

- Are the activities of NGO's being organised or authorised by a competent authority of a party?
- Are the NGO's solely performing humanitarian tasks as specified in the Protocol for the protection of civilians?
- Could the actions of NGO's be interpreted as committing acts harmful to the enemy?
- Can particular actions be justified by belligerents as being required as a 'military necessity' in a manner which may limit protection to the NGO's?
- Finally, to the extent that NGO's may witness acts that may amount to breaches of international criminal law, to what extent is the NGO prepared to report potential breaches to the appropriate body?

It is hoped that the above discussion will operate as a useful general framework for addressing these questions. There are still a number of nuances involving each of the areas of law that would have to be considered in the particular circumstances under consideration.

Disclaimer

The views expressed in this paper are the views of the authors and do not necessarily represent the views of the Australian Red Cross.

Report from the Australian Medical Disaster Coordination Group

Welcome to the first of what will become a regular contribution from the Australian Medical Disaster Coordination Group (AMDCG). Many readers may already be familiar with the AMDCG, but for others, this article will provide a short background to the group as well as discussing current initiatives of the Group.

The AMDCG was formed in 1992 as a working party of the Australian Health Minister's Advisory Committee (AHMAC). It has representatives from the Commonwealth Department of Health, the Department of Defence, Emergency Management Australia, the Royal Flying Doctor Service and key medical and health representatives from all States and Territories. It's objective is to develop and maintain a comprehensive and integrated national capability for the management of health aspects of major incidents and disasters in Australia and Australia's region of interest so as to mitigate their adverse health effects.

Some key achievements to date:

- a national Disaster Medicine Training Course, held annually at the Australian Emergency Management Institute in Victoria. This course is also held on an as needs basis by individual states or territories
- the Australian Emergency Manual on Disaster Medicine, 2nd edition, an authoritative reference manual for health professionals in disaster medicine;
- the Pharmaceutical and Medical Equipment List which provides a list of drugs and medical supplies necessary for 500 persons for three days in a disaster affected population of 50,000
- the Mass Gathering Guidelines manual which provides a guide on how to ensure crowd safety at public events
- a training course and provisional manual on the health aspects of a response to Chemical, Biological and Radiological (CBR) Incidents.

Current initiatives include:

- identify and develop strategic issues for disaster medicine in Australia
- a review of triage in Australia with a view to developing a national system
- consideration of national training guidelines in the disaster medicine area
- identify and prioritise research requirements in the disaster medicine field
- continue to develop health aspects of CBR incidents.

The AMDCG can be contacted through:

The Secretary
AMDCG
Department of Heath and Aged Care
MDP 27
GPO Box 9848
Canberra ACT 2601
Phone: 02 6289 7777
Email: peter.channells@health.gov.au

Disaster Events Calendar

November 1–4, 2000
Alberta, Canada

Disaster Forum 2000

Offered by:
Disaster Forum Association, Edmonton

Contact:
Disaster Forum Association
11215 Jasper Avenue
Suite 437
Edmonton, AB T5K 0L5
Canada
phone: 780 427 8626
fax: 780 422 1549
email: disaster@edmc.net
www.edmc.net/disaster

November 4–7, 2000
Austin, Texas

International Association of Emergency Managers (IAEM) Annual Conference and Exhibition

Contact:
IAEM
111 Park Place
Falls Church, VA 22046-4513
phone: 703 538 1795
fax: 703 241 5603
email: iaem@aol.com
www.iaem.com

November 6 – 10, 2000
Draguignan, France

International Conference on Prevention of Hazards in Storage Areas (protecting archived cultural property)

Sponsors:
International Council of Archives, International Council of Museums, and others.

Contact:
Laboratoire de Conservation
Restauration et Recherches (CNRS-CRA/CAV)
Congres 2000
19 rue Frederic Mireur
83300 Draguignan, France
email: wmourey@cav-researches.org

November 6–24, 2000
Bangkok, Thailand

26th Course on Disaster Management

Offered by:
Asian Disaster Preparedness Center (ADPC)

Contact:
Learning and Professional Development Program
ADPC
Asian Institute of Technology
P.O. Box 4
Klong Luang
Pathumthani 12120
Thailand
phone: 66 2 524 5378/5354
fax: 66 2 534 5360
email: lpdadpc@ait.ac.th
www.adpc.ait.ac.th

November 7 – 9, 2000
San Jose, California

Fifth International Conference on Corporate Earthquake Programs

Contact:
Dr. Steven Vukazich
San Jose State University
Department of Civil and Environmental Engineering
One Washington Square
San Jose, CA 95192-0083 USA
phone: 408 924 3858
fax: 408 924 4004
email: vukazich@email.sjsu.edu

November 12–15, 2000
Palm Springs,California

Sixth International Conference on Seismic Zonation

Sponsor:
Earthquake Engineering Research Institute (EERI).

Theme presentations will be organized around six topics: new mapping technologies; new developments in hazard estimation; seismic hazard mapping for engineering and codes; seismic mapping planning and local government policy; financial risk management; and lifelines and utilities. Contributed papers will be presented in poster sessions to be held each day.

Contact:
EERI
499 14th Street
Suite 320
Oakland, CA 94612-1934 USA
phone: 510 451 0905
fax: 510 451 5411
email: eeri@eeri.org
www.eeri.org

November 13–17, 2000
San Antonio, Texas

Combined Humanitarian Assistance Response Training (CHART)

Offered by:
Center of Excellence in Disaster Management and Humanitarian Assistance (CEDMHA).

Course description:
www.coe-dmha.org, or contact:
Center of Excellence in Disaster Management and Humanitarian Assistance
c/o Tripler Army Medical Center
1 Jarrett White Road (MCPA-DM)
Tripler AMC, HI 96859-5000
phone: 808 433 7035
fax: 808 433 1757
email: pr@coe-dmha.org

Registrations:
Lt. Jessie Gee
Defense Medical Readiness Training Institute
MCCS-TEV
1706 Stanley Road, Building 2263
Ft. Sam Houston, TX 78234-6100 USA
phone: 210 221 9523
fax: 210 221 9061
email: jgee@dmrti.army.mil

November 13–December 1, 2000
Pretoria, South Africa

HELP 2000 — Health Emergencies in Large Populations Course

Sponsors:
International Committee of the Red Cross (ICRC), American Red Cross, and Pan American Health Organization

Contact:
International Committee of the Red Cross
GEN_SAN Help Courses
19, avenue de la Paix
1202 Geneva, Switzerland
phone: 41 22 730 28 10
fax: 41 22 733 96 74
email: pperrin.gva@icrc.org
email: maritzc@postillion.up.ac.za
www.icrc.org

November 15–16, 2000
Hobart, Tasmania, Australia

Australian Earthquake Engineering Society Annual Conference

Contact:
Barbara Butler
P.O. Box 829
Parkville, Victoria 3052
Australia
phone: 03 8344 6712
fax: 03 8344 4616
email: b.butler@civag.unimelb.edu.au
www.aees.org.au/News/2000_AGM.html

November 20 – 23, 2000
Perth, Australia

Hydro 2000: Third International Hydrology and Water Resources Symposium: 'Interactive Hydrology: Interactions Between Hydrology and Climate, Environment, Economics, and Society'.

Sponsors:
International Association for Hydrological Science and others.

Contact:
Congress West Pty Ltd
PO Box 1248
West Perth, WA 6872
Australia
phone: 61 8 9322 6906
fax: 61 8 9322 1734
email: conwes@congresswest.com.au
www.ieaust.org.au

November 27–December 1, 2000
San Diego, California

Fire Conference 2000: The First National Congress in Fire Ecology, Prevention, and Management

Presented by:
International Association of Wildland Fire and others.

Disaster Events Calendar

Contact:
Sandra Cooper
University Extension, UC Davis,
phone: 530 757 8948
email: scooper@unexmail.ucdavis.edu
www.universityextension.ucdavis.edu/fire

November, 28–30, 2000
Brighton Centre, Brighton UK

Interspill 2000

British Oil Spill Control Association/Institute of Petroleum

Contact:
Pauline Ashby
Conference Department
Institute of Petroleum
61 New Cavendish St
London, W1M 8AR
phone: 020 7467 7100
fax: 020 7255 1472
email: pashby@petroleum.co.uk

January 2–5, 2001
Plymouth, U.K

Coping with Catastrophe: Innovation and Integration

Royal Geographical Society/Institute of British Geographers

'This session of the annual RGS/IBG conference will explore contemporary issues in the construction and distribution of risk and vulnerability in urban and rural contexts. Papers draw from physical as well as human geographical traditions and especially from interdisciplinary approaches and address issues of integration and innovation in methods or in the presentation of findings.'

Contact:
Mark Pelling
Department of Geography
University of Liverpool
email: pelling@liverpool.ac.uk

or Stephan Harrison
Department of Geography
Coventry University
email: s.harrison@coventry.ac.uk

February 12–16, 2001
Auckland, New Zealand

Cities on Volcanoes 2

Organisers:
Institute of Geological and Nuclear Sciences, Auckland Regional Council, Massey University, University of Auckland, and the International Association of Volcanology and Chemistry of the Earth's Interior.

Contact:
Secretary
Cities on Volcanoes 2
Wairakei Research Centre
Private Bag 2000
Aupo, New Zealand
phone: 64 7 374 8211
fax: 64-7-374 8199
email: citiesonvolc2@gns.cri.nz
www.gns.cri.nz/news/conferences/cities.html

March 19–April 6, 2001
Melbourne, Australia

HELP 2000 — Health Emergencies in Large Populations Course

Sponsors:
International Committee of the Red Cross (ICRC), American Red Cross, and Pan American Health Organization.

Contact:
International Committee of the Red Cross
GEN_SAN Help Courses, 19, avenue de la Paix
1202 Geneva, Switzerland
phone: 41 22 730 28 10
fax: 41 22 733 96 74
email: pperrin.gva@icrc.org
email: azogopou@nat.redcross.org.au
www.icrc.org

April 24–25, 2001
Boston, Massachusetts

CPM (Contingency Planning and Management) 2001.

Sponsor:
Contingency Planning and Management' Magazine
Contact Alicia LoVerso
Conference Coordinator
WPC Expositions
84 Park Avenue
Flemington, NJ 08822
phone: 908 788 0343 (ext. 154)
Fax: 908 788 9381
www.ContingencyPlanExpo.com

May 9–12, 2001
Lyon, France

12th World Congress on Disaster Medicine.

Organiser:
World Association for Disaster and Emergency Medicine

Contact:
WDCEM 2001
1 rue de la Banniere
69003 Lyon, France
Fax: 33 04 72 60 92 89
email: wcdem2001@aol.com
http://pdm.medicine.wisc.edu/pdmcalendar.html

May 21–24, 2001
San Diego, California

2001 Technology Partnerships for Emergency Management Workshop and Exhibition

Sponsors:
Federal Emergency Management Agency and others.

Contact:
Dr. Brenda-Lee Karasik
phone: 619 553 2101
email: brenda@spawar.navy.mil

Mr. Dale Gurley
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www.foundation.sdsu.edu/technologysolutions.

June 3–8, 2001
Charlotte, North Carolina, USA

Association of State Floodplain Managers (ASFPM) 25th National Conference

The Association of State Floodplain Managers is an organisation of professionals involved in floodplain management, flood hazard mitigation, the National Flood Insurance Program, and flood preparedness, warning and recovery. The group has become a respected voice in floodplain management practice and policy in the United States because it represents the flood hazard specialists of local, state and federal government, the research community, the insurance industry, and the fields of engineering, hydrologic forecasting, emergency response, water resources, and others.

Contact:
ASFPM
2809 Fish Hatchery Road
Suite 204
Madison, WI 53713-3120, USA
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fax: 608 274 0696
email: asfpm@floods.org
www.floods.org/conf-aus.htm

June 17–22, 2001
Newport Beach, California

Eighth International Conference on Structural Safety and Reliability (ICOSSAR '01)
(Includes sessions on hazards analysis, earthquake engineering, wind engineering, and other hazards-related issues.)

Organised by:
International Association for Structural Safety and Reliability.

Contact:
ICOSSAR '01 Secretariat
University of Colorado
College of Engineering and Applied Science
Campus Box 422
Boulder, CO, 80309-0422 USA
phone: 303 492 7006
fax: 303 492 0353
email: corotis@colorado.edu -or- icossar@usc.edu
www.colorado.edu/engineering/ICOSSAR

Mid–2001
Washington, DC

Second World Congress on Natural Disaster Reduction

Sponsor:
American Society of Civil Engineers (ASCE)

This meeting is in the formative stages.

Contact:
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