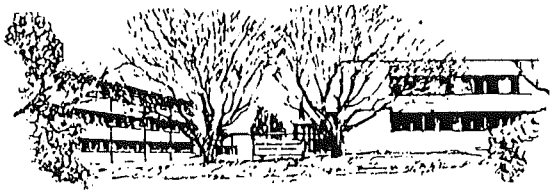
THE MACEDON DIGEST



Vol.1 No.2 June 1986

Produced by the Australian Natural Disasters Organisation

CYCLONE WINIFRED

Disaster impact studies are to become a regular aspect of College research. The information gained and problems identified should be of use in the future planning and management of disasters. College staff have an opportunity to gain external experience; teaching at the college will benefit through the expansion of information, case-study material and staff expertise.

Colin Wilson, Manager (Training Programs) at ACDC, reports on Cyclone Winifred.

Cyclone Winifred impacted upon the coast of northern Queensland, in the Innisfail region, on the afternoon and the evening of February 1st, 1986. A team consisting of Professor John Oliver, retired Professor of Geography, James Cook University, and myself, flew to the area on February 5th with the purpose of collecting factual details of the cyclone impact, and detailing where possible, ways in which disaster response could be further improved. Although a brief outline of the study findings is given here, a more detailed account will be found in the published report, which should shortly be available.

The cyclone impact resulted in widespread damage, an unusual feature of which was the amount of damage to the north of the track. Three people died, one through drowning, one struck by flying debris, while a third fell from a roof while trying to secure loose iron. Building damage tended to be exaggerated in early reports. Although there were some cases of complete demolition, insurance sources suggested that major structural damage was not widespread, and a large percentage of claims would be as a result of water ingress which could still be severe with relatively minor structural damage. Power supplies were lost over a wide area, although telephones, while suffering congestion, were not generally affected (being underground).

Agricultural crops suffered the most significant damage. Most serious was the banana industry, with losses put at around $48 million. Reduced yields from wind damaged cane will be a crippling blow to a depressed sugar industry, and many fears were expressed after the cyclone impact, concerning the future viability of local mills. Fruit crops such as avocado, lychee and paw paw, which have a long lead time from planting to fruiting, fared badly. It is important that special plans to deal with the problems of disaster impact on farming activities, in particular the longterm recovery, form a part of pre-disaster planning.

Charges of inadequate warning were raised against the Bureau of Meteorology, but serious faults in the warnings could not be uncovered. It appears that three main factors contributed to difficulties in this area. Firstly, most people lack education in cyclone forecasting. The erratic changes in direction, and the problems of complete precision are little understood. Similarly, many are inclined to see a cyclone as a central point, rather than a broad, complex, dynamic storm. Lastly, beliefs lingered that the general area would, on past re-called experience, be bypassed by the cyclone. Public education on cyclone nature may be a solution to this problem.

Fortunately Winifred crossed the coast at a period of low tide. Should this have been otherwise, the damage and possible loss of life at settlements such as Kurramine Beach, Flying Fish Pt. and Mission Beach (where houses are built right on the foreshore), could well have been extreme. Evacuation planning appears to be critical in locations such as these. Comprehensive regional disaster plans in general were also needed.

While Winifred has a severe impact on the region, which should not be discounted, the post-impact period was characterised by parliamentary visits, pronouncements of devastation and consequent promises. A coordinated recovery response resulting from careful, extensive and objective assessment of damage may be disrupted by such snap assessments and dramatic general statements. The pressure to announce an early disaster relief package may take precedence over more considered, and perhaps appropriate relief. The media also tended to exaggerate damage and effects.

Other areas which need investigation are seen as - the communications system, particularly with outlying areas; the sometimes excessive pressure on local disaster managers, often due to shortage of personnel; the system for delivery of welfare and relief; registration, transport and reception of evacuees; equipment stockpiles such as generators and tarpaulins; and building repair procedures. The report deals with all these in greater detail.

REFLECTIONS

The Melbourne Herald of 10 July 1957 reported that :

> "Organisers of the Civil Defence School at Mount Macedon have invited all State Premiers to spend a few days at the school, to study the theoretical effects of atomic blast on big cities. They expect a good roll-up from the Premiers. The date suggested is the first week in November when, in case you've forgotten, there's a certain race meeting at Flemington."

Between 2 and 5 November 1957 a Study Period for Premiers and Ministers responsible for Civil Defence (Course No 43), was held at the Australian Civil Defence School, Mount Macedon.

PUBLICATIONS

Report of Proceedings of a Study on Remote Area Disasters

Between 28 October and 1 November 1985, a Remote Area Disaster Study was held at the Australian Counter Disaster College. The aim of the Study was to assess Australia's ability to respond effectively in the event of a major and, perhaps, unexpected disaster in a remote location, to identify problems and consider ways in which the national capability could be enhanced.

The Study was attended by various Commonwealth and State Departments and Authorities, together with a number of other interested organisations such as, the Australian National Railways Commission, the National Rural Press Club and the Royal Flying Doctor Service.

A Report of Proceedings has been produced and is available from the College; contact either Tony Davis or Marilyn Summers.

1986/87 ACDC Handbook

The 1986/87 edition of the ACDC Handbook has now been produced. Included in the Handbook is information on the 1986/87 Activities Program, a College history, course administrative details, the Disaster Management Development Program, descriptions of specific activities and enrolment procedures. For those only requiring course information, an Activities Program extract is also available. Copies of either can be obtained from Marilyn Summers.

INTERNATIONAL

General Becton and FEMA

As reported in the March TMD, General Julius W Becton Jr has been appointed Director of the US Federal Emergency Management Agency. Further background information on General Becton and FEMA, has come to hand.

General Becton. aged 59, enlisted immediately after high school graduation and rose to the rank of platoon leader, by the end of the Second World War. By the Korean War he was a company commander and was twice wounded in action. His army career took him to Vietnam, Fort Hood Texas and Stuttgart West Germany. He retired in 1983, having risen from Private to Lieutenant General, with many decorations. He is married with three daughters and a son. He is a physical fitness fan, who spent 20 years as a football and basketball official in the Southwest Athletic Conference.

His new job upon leaving the US Army was as Director of the Office of US Foreign Disaster Assistance, under the Agency for International Development. Projects included flood relief in Mozambique, food to Ethiopia and aid after the Mexican earthquake. He learned of not only the generosity provided to disaster victims, but also the problems of an uneducated public who often provide inappropriate items in times of disaster.

General Becton accepted his posting to FEMA in November 1985. He leads a team of about 2300 FEMA employees and 3000 reservists, all of whom have open and direct access to their Director, to discuss FEMA operations and improvements to the organisation. FEMA relies heavily on its 3000 on-call civilian "disaster reservists". They are paid when needed. Also, some 1500 military officers and reservists serve 2 weeks active duty each year prepared to man radios or staff civil defence positions. General Becton sees the FEMA role as the continuity of government, to be visible during emergencies.

FEMA has an annual budget of between $500M and $600M although budget cuts will result in freezes to hiring and salary costs, with curtailment to travel expenses.

Source : The Washington Times, Monday February 17, 1986

FEATURES

Human Responses to Natural Disasters

This is the first in a series of articles by Ruth Wraith and Rob Gordon from the Department of Child & Family Psychiatry at the Royal Childrens Hospital, Melbourne, on understanding human responses to disaster. Ruth is a Child Psychotherapist and Rob is a Clinical Psychologist. Their experience includes clinical work with inpatients and outpatients and their families, and with hospital staff in high stress areas. They both worked in the Macedon area for over three years following 'Ash Wednesday', and recently with the Maryborough community, following the January 1985 fires. This issue of TMD covers the context and scientific study of human responses to natural disaster.

In a natural disaster situation the predominant experience is confusion. It occurs because disastrous events, by their very nature, disrupt the expected familar pattern of life. The physical environment is usually drastically altered; sometimes it is almost unrecognizable. Death, injury or the threat of them, introduce new and powerful experiences of danger. Evacuation and the influx of combatant and relief workers, replace ordered and familiar community life with a disoriented, emotional mass of people.

In this, as in any situation of confusion, people fall back on what is familar, to orient themselves. This means they may not immediately recognise what is new and unique to the disaster. They tend to focus on definite, tangible problems. The overwhelming physical needs are quite rightly the first to be addressed. Many physical requirements have to be met in a matter of hours. When concentrating on providing necessary services, it is difficult to be understanding of the many new personal and community responses that take place.

People's contact with each other falls into one of two categories :

1. People trying to direct or organize each other: relief workers function within an organizational structure and the victims are either organizing their own families, or being organized by the disaster executives;

2. People identifying and meeting emergency needs: these may be for material requirements such as food, shelter, medical treatment; or emotional needs like sympathy, support, reassurance, help with planning and decision making, or the need for information.

All these interactions have one thing in common, they are geared towards responding to immediate, obvious things and require a direct response to the situation.

But it is not obvious that behind these immediate needs for direct action, there are other aspects of the experience that do not claim attention, but become more obvious later when the intensity and excitement subside. As recovery proceeds, the real human response becomes evident and lack of understanding or recognition of personal needs in the initial stages of the recovery may become important problems.

Human response, here, refers to the overall impact of the disaster on the personality, life and experience of people caught up in it. The disaster represents a major life experience for all those involved, including those who come into the situation as part of the recovery process. Major life experiences are those which have a powerful formative or shaping effect on the person's future development. We normally think of them in terms of loss of loved ones, marriage, birth of children, migration or other changes in living sitautions, and major illness. Everybody can look back on such events and see how both their personality and the course of their life has been influenced by them. It is characteristic that the effects are often only seen clearly much later in life.

The kind of influence such events have is not so much a matter of what happens, but of how people feel about it and what sense they make of it. Even very painful experiences can be enriching provided the person receives the understanding, support and help he needs in coming to terms with it, and feeling he has gained something from it.

Understanding the human response means relating the disaster experience (whatever that may be), to the deeper responses which make a life experience of it and only show its effects in the future. This involves all workers having some understanding how in their particular role they can help people to integrate the experience, so that it will become as growth-promoting as possible.
Tragedy cannot be denied when it occurs in life, but the task is to undertake the recovery process so that the effects of the tragedy are not repeated and multiplied as time passes. It is then necessary to add a dimension of recovery of human experience as part of the other aspects of material, economic and social recovery.

To place human recovery in its context the following graph (Fig.1.) portrays the impact of the disaster and the consequent physical and human needs. As can be seen, the physical needs are met relatively quickly, with a minimal ongoing requirement after some months. The human needs, (including both individual and community responses), are at a peak on impact then rapidly drop during the short post-disaster activity phase, when personal/emotional issues are put aside. They rapidly reach a new peak in the disillusionment phase which follows and then take a fluctuating course. The provision of human services contrasts with the physical needs and usually lags well behind the actual need.

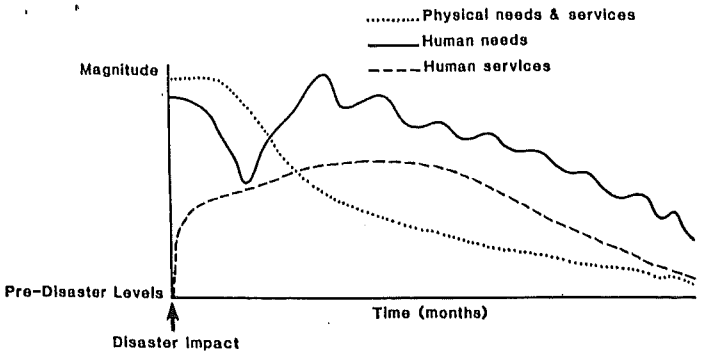


Figure 1. Contrasting physical and human needs following disaster

There have always been reports of human reactions to disasters. Following the first and second World Wars, attention was given to the psychological disturbances of combat, known as 'shell shock' and later 'combat fatigue'. Gradually, attention was paid to the experiences of people involved in other types of disasters. Many of these studies, up until the 1960's, were concerned to understand how people reacted to the dramatic lifethreatening, traumatic experiences of the disaster impact. In the last 20 years, however, attention is being increasingly directed at understanding other effects such as dislocation, loss of familiar surroundings and objects, disruption of community life, etc. Besides dreams, fears and flashbacks, attention is being paid to some of the longer term effects such as physical and psychosomatic illness, depression, loss of identity, feelings of alienation and disorientation and others.

Vietnam veterans and their families, are beginning to show the type of problems which can develop a decade or more after disaster experiences, and the study of families of the Nazi Holocaust, is providing an understanding of the way extreme disaster experiences can also affect children, and even grandchildren.

The current focus is on stress, in particular, post-traumatic stress. This refers to the stress arising after a person has been exposed to a traumatic experience (in other words an experience too massive or painful for him to deal with).

Stress in itself is an indicator that the person is facing circumstances which he is not well adapted to meet, hence he is forced to function in a manner which overloads his capacities. While most people can cope with this for a time, eventually everyone finds some part of their system no longer operates properly and they develop stress symptoms of some sort. Stress then becomes distress. Support for people before they reach this stage is the most effective help, personal services can offer to both workers and victims.

However, stress is a very genuine concept. It tends to focus on the individual as a whole, and does not always indicate the actual factors responsible for the stress. It is important, therefore, to combine stress research with a more detailed understanding of the particular processes following the disaster in the individual or family, in relation to their pre-disaster history.

Increasing research is being done, to gain a better understanding of the effects of disasters. A body of reliable knowledge is accumulating from many different sources, to serve as a basis for anticipating the effects on people, families and social systems, in recovering from them and avoiding the possible longer term repercussions. However, the understanding of these effects is at an early stage and the knowledge of how to avoid or assist them, is even less well developed. Unfortunately, it is only by accumulating more experiences of human suffering in disasters, that this knowledge can be gained.

Continued in September TMD - "Common myths about human responses".

The Warning Lead Time for Natural Hazards

In this edition of TMD, Professor John Oliver of the University of Queensland, discusses the warning lead time for natural hazards. The September edition will conclude Professor Oliver's paper and will cover hail storm, lightning, bushfire, volcanic eruption and earthquake, tsunami and frost.

Counter-disaster response has many of the features and needs of military operations. The nature and behaviour of each type of natural hazard must be properly understood. This demands a sound appreciation of the warning signs, of the time likely to be available for taking the necessary evasive or preparatory steps to counter adverse impacts, and of the degree of uncertainty about the way a threat will eventuate in different localities.

Australia experiences a wide range of natural hazards, but only some are of practical concern to counter-disaster organizations. Some natural threats, important though they are, reflect deficiencies in environmental management rather than situations requiring emergency measures. Hazards such as river, coast or soil erosion, landslips, subsidence, salinization, drought or atmospheric pollution develop over time. It is some time before the threat is appreciated. The appropriate response is longer term, since it usually requires changes in the patterns of human behaviour. that contribute to the problem. Other threats, such as lightning, heat waves, snow or fog, cause hardship to individuals or small groups and occur on a limited scale or in a dispersed manner, so that existing community organizations can deal with them within their normal operational framework. Some hazards, such as volcanic eruptions, though theoretically possible, have a remote probability and are likely to be allowed for in general preparedness planning, rather than being covered by specific counter-disaster plans.

A limited list of hazards, which require specific recognition in detailed counter-disaster plans, remain. In Australia these include:

Floods-regional, flash and urban floods
Wind storms-tropical cyclones, gales, tornadoes, thunderstorms
Hail
Bushfires
Frost
Earthquakes and tsunami

Recently Dr John Zillman, Director of the Bureau of Meteorology, made the point that "Fundamental to the design and operation of any surveillance or warning system is the question of the size and lifetime of the process or phenomenom which must be detected and predicted" (Zillman 1985). Awareness of the time and space scales are similarly fundamental to counter-disaster response. The following discussion examines some of the problems and prospects of the lead time available for counter-disaster measures.

Floods Floods are caused either by short periods of localized high intensity rain, that exceed the natural capacity of the drainage system and of the infiltration rate of the soil, or by longer periods of heavy rain over a whole catchment that generate major run-off. The latter situations are often the outcome of tropical cyclones, monsoon convergence or extra-tropical depressions and fronts.

Large, populated river flood plains, known to be subject to inundation after heavy rain, are usually carefully monitored and relevant data on rainfall and river heights are telemetered, or otherwise transmitted to those responsible for flood warning. The response time of a large catchment is at least several hours, even days or weeks where the threatened areas are distant from the headwaters. The behaviour of floods in such situations, which can affect extensive areas to-day is usually well documented from previous experiences. Carefully designed flood response and relief plans can be drawn up well before an emergency arises. The Bureau of Meteorology plays a major role in the warning system.

Flash floods have a much shorter response time. They often combine high water levels and destructive flow velocities. It is usually possible from knowledge of the rainfall climatology of an area and the nature of the catchment topography to identify catchments at risk. Thunderstorm downpours in steeply sloping small catchments, often at most a few hundred square kilometres, can cause dangerous downstream conditions.

Urban floods have most of the characteristics of flash floods, but surface conditions, introduce further complications. Buildings may block or disturb natural drainage channels. Concentration of people activities increases the damage or disruption potential. Flash and urban floods are difficult to deal with except by long term pre-planning. The warning time, other than a general warning of intense local rain (which may give a few hours lead time), for such floods may be in minutes rather than hours. Under such circumstances the emphasis in the counter-diaster plans is likely to be on the steps than can be usefully undertaken after the flood.

Windstorms A variety of atmospheric situations cause windstorms. The most serious threat, because of the area affected and the intensity of the wind, is the tropical cylcone. Using satellite cloud imagery, synoptic analyses and (nearer the coast) radar, the threat to a large area can be indicated at least one and often several days ahead. Rarely is the lead time for the activation of counter-disaster organizations less than 24 hours. Until within radar range (not likely to exceed in practice 350 km and more often 150 - 250 km), errors in locating the centre may be 20-50 km and a 12 hour predicted location of landfall, has a potential average error of about 100 km. The uncertainties in the final hours are complicated by difficulty to predict variations in intensity and speed and direction of movement.

A tropical cyclone is a complex hazard, since it may cause concurrent violent winds, heavy flood rains and, in coastal regions, storm surges. Planning requires actions to meet one or all of these threats. The wind and rain, depending on the size, intensity and speed of approach, may well be at dangerous levels several hours before the arrival of the cyclone centre. At this stage it is too late to take counter-disaster measures without endangering lives and equipment. The height of the emergency is likely to last for 6 to 12 hours, or longer if the cyclone moves slowly or erratically.

Thunderstorm squalls or tornadoes have a much shorter lead time. This makes counter-disaster response before the storm more difficult. Atmospheric conditions conducive to thunderstorm instability may be predictable some hours ahead, especially when the cause is the movement of a trough or cold front, rather than heat convection. It is rarely possible, however, to give precise warning of the timing, location or intensity of a thunderstorm. Weather watch radar is a great help but it must be appreciated that a thunderstorm can build up to severe intensity in 30 minutes or less. Counter-disaster units can be forwarned of the general possibility of a severe storm, but many actions cannot be initiated until a storm occurs. Destructive thunderstorms can develop anywhere in Australia, even the arid areas, but regions with higher probabilities are identifiable. Their destructive effects may well last no more than a few minutes.

Tornadoes or water spouts over inshore seas are more common in Australia than popular impressions suggest. Many go unrecorded in rural, sparsely populated areas. Their impact is limited to a narrow swathe a few hundred

metres wide, which irregularly makes ground contact along a sinuous track of a few, to over a hundred kilometres in length. A tornado often develops out of a thunderstorm situation, but is more difficult to anticipate. The warning lead time may only be a few minutes and often the sight of the funnel cloud is the only warning. No Australian area has experienced a sufficient frequency of impact to encourage the building of tornado shelters. Counter-disaster action is mainly limited to that following the impact.

Regional gales, associated with extra-tropical depressions or troughs, affecting the southern margins or the southeast coast of Australia, can be identified on synoptic weather charts, with considerable reliability. Their strength may be less easily predicted than their location. The warning time is usually more than adequate to forewarn responsible organizations to be prepared. The total damage may well be considerable and extensive, but is not usually as concentrated as that caused by a tropical cyclone and is thus more easily managed. Strong winds can generate extensive duststorms over dry unprotected surfaces, but this is a long-term land use planning matter, rather than one for counter-disaster organizations.

Reference : Zillman, J.W.(1985) Surveillance and Warning Systems for fire, flood, storm and drought, 9th Invitation Symposium, Natural Disasters in Australia, Sydney, October 1985, Pre-print No. 5, Australian Academy of Technological Sciences.

VISITS

Professor Jiri Nehnevaja, Professor of Sociology, University of Pittsburg, USA.

Professor Nehnevaja recently spent two months in China, advising and lecturing on technology impact and counter-disaster strategies. He visited Australia for a few weeks in April, to observe the Australian counter disaster scene. He spoke to staff at ACDC on 28 April during which he reinforced the now well known facts on human response to disasters. For instance, panic is very rare, looting so insignificant as to be almost ignored, altruistic behaviour is the norm and self help recovering commences immediately that the diaster has impacted.

Significantly, he has established with FEMA, a data bank on disaster behaviour. It has some sixteen staff, maintaining a source of current disaster research and survey information, for re-analysis by research workers. Prof Nehnevaja will be investigating ACDC accession to the data bank. His address for any further information is, Department of Sociology, University of Pittsburg, Pittsburg, PA, 15260, USA.

Professor E L Quarantelli, Director, Disaster Research Centre, University of Delaware, USA.

Professor Quarantelli arrives in Australia for a short visit on 31 July. Professor Quarantelli is the respected author of a number of publications, including "Disasters :Theory and Research". Evacuation Behaviour and Problems : Findings and Implications from Research Literature", "The Role of Local Civil Defence in Disaster Planning", and the highly regarded "A Perspective on Disaster Planning". During his 10 days in Australia, he will visit the following organisations :

- Centre for Disaster Studies, James Cook University (1 August)
- Australian Overseas Disaster Relief Organisation (4 August)
- Natural Disasters Organisation (5 August; and
- Australian Counter Disaster College (7 August)

EARTHQUAKES

Frequency and Measurement

The frequency of earthquakes is fairly well-documented. Evidently, there is one shock per minute of the order of Richter magnitude 2 or greater. While the vast majority of the world's earthquakes are small ones, the greatest preponderance of energy released by earthquakes is concentrated in a few large shocks. Depending on the geology of a region, the depth of the hypocentre (the point of origin of the earthquake), and the proximity of human land-use patterns to the epicentre (the point on the earth's surface which is vertically above the point of origin of the earthquake), earthquakes over Richter magnitude 5 are potentially damaging.

	Richter Magnitude	No. per year
Great earthquakes	8 -	1
Major earthquakes	7 - 7.9	18
Destructive earthquakes	6 - 6.9	120
Damaging earthquakes	5 - 5.9	800
Minor earthquakes	4 - 4.9	6,200
Smallest generally felt	3 - 3.9	49,000
Sometimes felt	2 - 2.9	3,000,000

The most widely used method of measuring earthquakes is by gauging the magnitude of the tremor. Magnitude is a measurement of the total amount of energy released by the quake. The most widely used magnitude scale is the one devised by Dr. Charles Richter in 1935 (who died in October 1985 aged 85 years, not long after the Mexican earthquake). This is a logarithmic scale, with each consecutive Richter magnitude number representing 31.5 times the energy released as the preceding number. Hence, the difference between a Richter 4 earthshock and a Richter 5 is that

the latter has released over thirty times the energy, and hence has thirty times more destructive potential, as does the former.

The magnitude of an earthquake however, does not provide a reliable guide of potential or actual damage to the built environment. Earthquakes can cause differential damage even if they are of the same magnitude. This is because different geological conditions terrain and building design, for example, can diminish or emphasize the damage an earthquake produces. To overcome this specific difficulty, another earthquake scale has been devised which gives scientists an indication of the size of the earthquake in terms of its damage potential or destructive power. This other scale measures the intensity of an earthquake. The most widely-used scale is that devised by an Italian scientist called Mercalli, and is known as the Modified Mercalli Scale. Earthquakes are not assigned a single number when this scale is used, unlike the Richter scale. Rather, because the felt intensity of and earthquake usually diminishes as the distance from the epicentre increases, different intensities are observed at various locations and are plotted on an intensity, or isoseismal map. Modified Mercalli readings are thus also useful for estimating the epicentre of an earthquake. Modified Mercalli readings are always given in Roman numerals whereas Richter measurements are provided in the more familiar numbering system.

Source : Neil R Britton, AODRO Newletter, Vol. 3, No. 4, December 1985

TRAINING

ACDC

29 June - 4 July	Counter Disaster Planning Course
13 July - 18 July	Counter Disaster Planning for Local Government Course
24 August - 29 August	Disaster Recovery Management Course
1 September - 4 September	Disaster Management Briefing for Local Government Officials
8 September - 11 September	Disaster Management Briefing for Local Government Officials

Enrolment procedures vary according to the type of activity. Details are outlined in the 1986/87 College Handbook, or can be obtained by contacting the College direct on (054) 261 205.

Counter Disaster Support Welfare Managers Course

A recent initiative in the ACDC program, has been the Counter Disaster Support Welfare Manager's Course. This course has a primary focus on the Recovery process, and is geared towards those in senior positions within the State and Territory Welfare Organisations and Voluntary Agencies, who have planning and management responsibilities for the delivery of disaster welfare services.

The course resulted from long-term planning by the Welfare Training Group, the training body in disaster management for the Australian Council of Social Welfare Administrators, in liaison with ACDC.

The aim of the course is to enable particpants to build skills and knowledge, leading to more effective management of the disaster welfare recovery process. The course is structured under the following broad headings :

1. The Role of the Disaster Welfare Manager.
2. People,Communities & Workers in Disaster.
3. Planning Principles & Techniques in Disaster Welfare Management.
4. Strategies for the Provision of Disaster Welfare Services.
5. Adaption of Welfare Management Systems to the requirements of Disaster Welfare Management.

Experienced disaster welfare managers acted as group leaders, along with ACDC staff and provided valuable insights during formal and informal sessions. Speakers spoke of the effects of major disasters on individuals and families, future involvement of welfare organisations and the problems of disaster welfare managers. The following points were made in the plenary session:

1. There is a need for welfare involvement from the onset of a disaster and increased understanding of the nature and length of the recovery process.
2. Involvement of Local Government was critical in the successful reconstruction and redevelopment of the community, with a recognition that affected residents and groups should participate in the local disaster-making process.
3. Planning for disaster was essential, incorporating a clear delineation of the roles of Government and non-Government organizations and the establishment of valuable liaison mechanisms.
4. Disasters are stressful situations, not only for the affected individuals and communities, but also for the workers who must be prepared for the rigours of managing the recovery process.

Hydrology and Water Resources Symposium

This symposium will be held in Brisbane from 25 - 27 November. It will provide a forum for papers and discussions on all aspects of hydrology and water resources management,

with special emphasis on river basin management. For further information contact the Conference Manager, Hydrology and Water Resources Symposium, Australian Institute of Engineers, 11 National Circuit, Barton, ACT, 2600. Phone (062) 733 633.

ACDC LIBRARY

The following new publications have recently been added to the College library collection. Items may be requested on inter-library loan, through your nearest library, using the approved AACOBS forms :

ADRIAN, Colin., Fighting fire : a century of service 1884 - 1984, The Sydney & New South Wales Fire Brigades, 1984; Sydney, Allen & Unwin.
363.78099441 ADR

ARNELL, Nigel., Insurance & natural hazards: a review of principles & problems, 1983, Southampton (England), University of Southampton, Department of Geography Discussion Paper, No. 23.
P368.122 ARN

CARROLL, John M., ed. Conference on Computer Simulation in Emergency Planning (1983: San Diego, Calif.), Computer simulation in emergency planning: proceedings of the Conference on Computer Simulation in Emergency Planning, 27 - 29 January 1983, San Diego, California, 1983.
F363.3480724CON

EHRLICH, Paul R., and others, Conference on the Long-Term Worldwide Biological Consequences of Nuclear War (1983: Washington, D.C.), The Cold and the Dark: the world after nuclear war, London, Sidgwick & Jackson.
574.5 CON

GEIPEL, Robert., Disaster and reconstruction: the Friuli (Italy) earthquakes of 1976, 1982 London, Allen & Unwin.
363.3495 GEI

GORDON, Barry., Economic analysis before Adam Smith: Hesiod to Lessius, 1975, London, MacMillan.
330.09 GOR

LAUBE, Jerri & MURPHY, Shirley A., Perspectives on disaster recovery, 1985, Norwalk, Conn., Appleton-Century-Crofts.
363.34 LAU

LEADERSHIP ON THE FUTURE BATTLEFIELD., Edited by James G. Hunt & John D. Blair., 1985, Washington, DC, Pergamon-Brassey's International Defense Publishers.
355.33041 LEA

NUCLEAR WAR: THE AFTERMATH, AMBIO, A special AMBIO publication published under the auspices of the Royal Swedish Academy of Sciences, 1983, Oxford, England, Pergamon Press.
355.0217 NUC

OPENSHAW, Stan & STEADMAN, Phillip., jt.auth. & GREENE, Owen, jt auth. Doomsday: Britain after nuclear attack, 1983, Oxford, England, Blackwell.
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SOCIAL SCIENCE & NATURAL HAZARDS, Edited by James D. Wright & Peter H Rossi, 1981, Cambridge, Mass., Abt Books.
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SWINDLE, Robert E. & SWINDLE, Elizabeth M., jt. auth., The business communicator, 2nd ed., 1985, Englewood Cliffs, N.J., Prentice-Hall.
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THE ECONOMICS OF BUSHFIRES: THE SOUTH AUSTRALIAN EXPERIENCE, Healey, D.T. ed., Jarrett, jt.ed., McKay, J.M., jt.ed., Centre for South Australian Economic Studies, Adelaide, 1985, Melbourne, Oxford University Press.
634.9618099423 ECO

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

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