INSURANCE RESPONSE IN DISASTER

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A disaster occurs when there is widespread disruption of social
processes, coupled with the destruction of the functional
infrastructure to the extent that ongoing routines can no longer
be supported or maintained.

A disaster is a public affair. It is a destructive agent that
affects all people within a spatially defined area. The
difference between a disaster and a non-disaster is that under
conditions of disasters, social organisation in some way becomes
disrupted. The disruption of social organisation, however is
dependent on the context within which that disruption is
produced; it is also dependent on the social setting in which
the disaster is seen to occur. Massive damage to property and
high casualty rates and a high degree of disruption on a battle-
field, for example, is not considered a disaster, although the
criteria with which we justified the distinction between
accident, emergency and disaster has been fulfilled within a
battle situation. However, the general consensus regarding wins
and losses during times of armed conflict accept these con-
sequences and conditions of warfare. A military 'disaster', to
carry on with this analogy, occurs under special circumstances,
such as when the social organisation of the armed forces breaks
down or does not operate in an efficient or integrated manner.
It is also conceivable, albeit an inaccuracy, that a military
'disaster' could occur if your side loses the confrontation.
However, as has been pointed out already, the personalisation of
unpleasant events is not a correct application of the word
disaster.

One of the ways in which people seek to minimise the effects of
disasters is by taking adequate avoidance and evasive action so
as to prevent the disaster affecting the individual or by
ensuring that its effects are minimised. Insurance is one such
method of ensuring the minimisation of such events. In a study
of 'insuring man' (Britton, Kearney, Britton, 1983) it was shown
that there were many factors which were relevant to a person's
orientation to preventative action through the medium of
insurance. They identified 32 variables which had been distilled
from 160 abstracts that had been found to be relevant in the
decision to purchase insurance. These variables were used to
suggest a formula which may predict insuring behaviour:

$$P_I = (S_N + I_R + A_A + P_N + I_F)$$

'whereby the probability of insuring against the
consequence of a natural hazard event (P_I) is a
function of the objective knowledge of the natural
hazard problem, that is salience (S_N), plus information
which is relevant to the phenomenon under consideration
(I_R), plus the accuracy of the awareness of natural
hazards (A_A) - that is experience, together with
the probability of adopting hazard mitigating devices
(P_A) and the actions of insurance companies (I_F)'
(Britton, Kearney, Britton, 1983:325)

We will return to consider the question of human behavioural
response to disaster insurance in a later section of this paper.
Before attempting this, we will focus our attention on two
questions which are of great importance to us when looking at
disaster. The first question is 'Why is it popularly believed
that people behave so badly during times of disaster?' The
second question asks 'Why do people repeat their mistakes by
relocating themselves in the same high-risk areas in which they
were previously - and in a lot of cases, knowingly - vulnerable?'

A SENSE OF PLACE

Both of these questions are of great importance to us if we are
to understand the way that man will behave in relation to his
interaction with his environment. Models of human behaviour
argue that man has a hierarchy of human needs as outlined by
Abraham Maslow. Maslow (1954) points out that the need for
security and shelter are important needs for human beings and
once the most elementary needs of hunger and thirst have been
satisfied there will be motivation to secure adequate security
and shelter so that higher order needs can be met. The erection
of shelter, the establishment of permanently secure places, such
as in caves, in defendable positions are the first stage that man
has taken to mark and to possess a territory. This territory
satisfied only the needs of the security, but takes on a special
emotional significance. A person will go to great lengths to
identify with, and to physically and psychologically protect,
this territory. This is despite contradictory environmental
evidence that a specific location may not provide physical
security. Simpson-Housley (1976) in his thesis related to the
perception of natural hazards in Newlands (Wellington) and
Reefton in the South Island of New Zealand, suggested that
topophilia - 'a love of places' - (Yi-Fu Tuan, 1974) provided an
explanation for the strong identification residents had with
their location despite the presence of a hazard threat
(earthquake) which could endanger both their private life
and property.

Even nomadic tribes tend to move from one secure position to
another secure position. Biernoff (1978) suggests the nomadic
Aboriginal Australian has safe pathways through his territory
and he will not transgress into dangerous places. Man, like
other animals, will go to great lengths to defend and protect
his territory, and classify his physical and psychological
environment into safe and dangerous places. It has been
suggested that modern warfare has been concerned about the taking
and holding of territory and its defence. Virtually all modern
warfare from the Crusades on has been concerned with the holding
and acquisition of territory. This seemingly persistent attempt
to protect property from external agents has been more evident in
the context of defence against marauders and other armed forces.
The propensity to protect one's property has not been so evident
- nor as succesful - if one considers the actions taken to
protect against an even greater potential enemy - Nature. It is
interesting to note, when considering a relationship between
warfare and natural hazard protection, that the counter-disaster
organisation in this part of the world - indeed throughout the
western world - had their origins in the armed forces, part-
icularly the civil defence movement. It is only recently that
Australia deliberately and consciously moved away from the
nuclear warfare civil defence frame of mind towards an
orientation on counter disaster. In New Zealand, whilst this
trend is also following similar lines, the civil defence concept
has been replaced less rapidly, in name, if not in function
(Britton, forthcoming).

If territory is so important then it is logical to assume that
man will take extreme measures to defend that territory. Whilst
not engaged in warfare and other activities, he is at relative
peace and liberty to pursue and fulfill his goals. These goals
will be concerned with the utilisation of that territory and
that space, and they become part of his person. In an
illuminating study of aboriginal territoriality, Hamilton (1972)
demonstrated that it was permissible for people living in
aboriginal communities to make offensive and provocative comments
to their neighbours provided they stayed within a defined
proximity to their own shelter. This proximity was demarcated by
an imaginary boundary. However, once this boundary had been
crossed the same comments or statements would automatically and
inevitably place the speaker at great risk because he would then
be placed in an agressive relationship with his neighbours and
they would throw spears or stones or other implements at him to
indicate that the security of his territory had been broken and
he was now vulnerable.

There are many examples of the way in which people will protect
and defend territory. A seemingly irrational holding on to an
area of land has been recorded through the ages. It is probably
more sharply observed when there are conditions of stress. For
example, submariners occupy a very restricted space and feel more
stressed when anybody invades their own personal territory.
Similar conditions have been observed of people in lifeboats and
on life rafts. The possession of individual space and territory
is most important when there are a lot of other people present or

where there has been some uncertainty of what the territory may be. The easiest way to stop invasion of a territory or space is to establish markers or boundaries which signal to other individuals that this area is reserved or already occupied. The animal kingdom has a large number of such mechanisms for demarcating territory. In human space we find this most evident where people place objects or other boundary markers around a space they wish to occupy. It is by the personalisation of space, by photographs, by some individual marker, or some other physical item, which will demarcate that space. Even by the great experiment in open plan architecture we have found that people generated all types of reasons why they needed individual space. They argued they need the space so they can discipline junior staff, to conduct confidential interviews with clients, to conduct personal interviews with colleagues and so on. The occupants of an open-floor plan space will demonstrate great enthusiasm that an individual has to establish potplants, glass screens, photographs and every other type of item which will demarcate that space for him.

Because people are so committed to the individualisation of space it is perhaps not surprising that people will go to greater lengths to occupy that territory under conditions of stress, particularly when a disaster strikes. It is under conditions of uncertainty and ambiguity that there will be most pressure to occupy that territory. In fact, it has been established by research that has focused on aspects of human behaviour in disaster that one effect of disaster is that people actually converge onto the impact site. The reasons why they do so are quite rational. They will very likely go to the scene either through curiosity, concern about kin and friends, or to render assistance if they can. Once there, they seek ways to help and if a helping role can be assumed they often exhibit altruistic behaviour that, upon retrospect, even they may find surprising (Fritz & Mathewson, 1957).

HUMAN RESPONSE TO THE UNEXPECTED EVENT

If we turn our attention to address the first question - why does a belief exist that suggests people behave badly in a disaster we must attempt to answer two further questions, namely: How important are beliefs, belief systems, and social definitions relating to disaster and disaster behaviour; and, do people in fact behave badly in a disaster.

BELIEFS AND BELIEF SYSTEMS

Beliefs are imbedded in all sociocultural systems. Beliefs that concern the relationship between human behaviour and natural forces appear to be critically important for an understanding of social response to natural disaster. In a 1979 paper, William Torry, an American anthropologist, suggested that the conception, dissemination and adoptive significance of a culture's folk beliefs and the political and religious dogma prevalent within

the social system of the society under consideration deserve considerably more attention by hazard researchers than they had thusfar received. According to Torry (1979), there is much to suggest that the cognitive dimension enshrined in beliefs about hazards exercise considerable influence over the coping mechanisms of people.

The study of beliefs and mythologies that have grown up around disasters is as sociologically relevant as the disaster event itself. Wenger (1978) refers to a twofold division of belief systems in the context of natural disasters. The first category describes belief systems that are based on unicausal, passive, and deified perspectives. Within these cultures, disasters may be viewed as acts of god. Human beings within this system are likely to be viewed as passive actors in relation to the dynamic forces of nature, incapable of direct intervention, but forced to adapt to the vagaries of the natural forces. This is a fatalistic conception. Supplication, prayer and passive accept- ance of one's fate are likely to be acceptable mechanisms for response to disaster. Submission and acceptance of one's fate are appropriate patterns of behaviour.

The second category of beliefs Wenger refers to suggests that complex, activistic, naturalistic causes will prevail. Blame can be apportioned to the natural forces but at the same time the prevailing attitude is one of manipulating and moulding the natural environment to reduce the effects of the disaster event on human settlements. This may also lead to 'blame' and 'scape- goating' (Bucher, 1957; Drabek and Quarantelli, 1967; Fritz and Williams, 1957), particularly where human actions appear to be involved for example in 'technological' or man-made disasters.

Denial, withdrawal and projection are other psychological tech- niques which are used to allow a person to structure consistency on inconsistent events and beliefs.

Belief systems can influence the attitude of people towards the causes and consequences of a disaster, and can also direct their involvement in preparing for, and mitigating against, extreme environmental intervention.

BEHAVIOUR IN DISASTER

Quarantelli (1979) has consistently argued that people do not behave badly at times of disaster. Quarantelli has argued in fact that the antisocial behaviour that is reported at times of disaster is generated by reporters who find more mileage from this type of reporting, than a story indicating that the community cooperated well together and that a great deal of sharing and cooperation in an area was the norm. He states that on numerous occasions in which he has visited sites he has found no relationship between the newspaper reports of what happens and his own observations. A similar situation was recorded in Tasmania during the bushfires of February 1982 (Britton, 1983).

Quarantelli is singularly scathing of the antisocial model. He
goes so far as to argue that during this period there is
exemplary prosocial behaviour by communities.

It has been found time and time again that in periods of stress
people can endure much more hardship, deprivation, undernourish-
ment and shock than they ever thought possible. If there is one
generalisation that does apply to the behaviour of most people
in disaster, it is that although they experience shock, fear and
feelings of inadequacy, they tend to behave in a reasonably
rational manner and to handle the immediate problem with good
sense and responsibility.

On a broad level, a natural disaster impact alters the nature
and quantity of 'inputs' to a social system, thereby producing
changes in the nature of the 'demands' made upon the constituent
elements of the system (Britton, 1980:14). The 'demand-adaption
model' (Barton, 1969) has been widely used in studies of natural
disaster and appears to be effective whether the focal system
elements are individuals, families, established organisations,
emergent organisations, communities, or total societies. This
perspective does not equate natural disaster with stress, but
suggests that natural disasters cause changes in the social
system which, in turn require system elements to adapt to
different demands. In this context, stress can be understood in
terms of the exchanges which occur between the altered social
system and its adjusting components. This also introduces a time
factor as a further variable in the equation necessary to under-
stand behaviour in a disaster situation. What makes time a
factor in postdisaster individual behaviour, and probably
accounts for the variability of 'stages' of disaster reaction, is
the social availability of, and the psychological capacity for
restructuring activity. Apart from creating individual
disorientation and disruption, a disaster also disrupts the
existing social processes, routines, and networks that have been
established, and internalised by societal members as being
available in time of need. In a situation of system overload –
which is how a disaster could be described the established social
support networks are likely to break down because of the
disruption to facilities, role encumbents, and communication
facilities, thus causing th efficiency of these support systems
to be less than optimally effective (Britton, 1980:16).

Adding the disruption of the societal support networks to the
already disrupted individual within the impact area, who has to
try and regain an equilibrium state in a new, unfamilar, and
probably terrifying social environment, individual upheaval is
exacerbated. The impairment of self, place and social support
systems combined, in some cases, to overburden the individual to
a non-coping position. Wilson (1962:131), however, states that

this is not a universal concomitant: there is some evidence that disaster experience constitutes for some people an 'optimal stress' which promotes active mental harmony rather than creates a psychiatric disorder.

THE INDIVIDUAL AND THE DEFINITION OF THE SITUATION

Disaster studies based on social science findings suggest that persons live in a dynamic or active equilibrium with their environment, both in physical and social-psychological contexts.

The specific boundaries of each person-environment equilibrium are defined by individual development and experience, by social custom, and by a sustaining network of living relationships. Within this system there is a balance between security and novelty. Too much of the same produces dullness and boredom, causing persons to seek out novelty and new sources of stimulation. Too rapid a discrepant departure from the familiar arouses fear and anxiety which motivates defensive reactions, including a rigid return to early and well-established behavioural patterns, and may also create confusion to the point of being unable to cope or operate effectively. Disasters are, of course, extreme departures from the familiar. It is their extremity which accounts, in part, for the psychological stress they arouse, as well as for reactions in which persons exacerbate the situation, and/or distort reality as they attempt to assimilate the novel or unknown to familiar and well-established patterns (Britton, 1980:18). Stress is also aroused by the obviously threatening nature of the disaster injury, potential loss of life, harm or loss of significant others, destruction of property, destruction, or impairment of psychological investment, and the like. These sources of threat also arouse anxiety and produce defensive reactions of various types.

One important perspective to understanding individual reaction to disaster is to try to understand what the individual is reacting to: that is, how does the individual perceive the disaster event, and what does it mean to him? This orientation leads the researcher to develop an understanding of the individual vis-a-vis the disaster event as it relates to the individual's past experiences, his purpose, and his experientially-based estimate of his own capacities to act effectively.

The personal and collective definitions of a disaster strongly influence the response to it by the victims as well as by out-siders. The attibution of causality and responsibility which defines the disasters as externally caused, rather than the fault of the impact-victims generally leads to a positive coping effort, and to positive welfare-giving and therapeutic responses from others. The personal reactions are generally constructive, and only temporarily disorganised (Britton, 1979).

It is not clear exactly what processes are involved in sustaining and dealing with stress, in 'coping', 'surviving' or 'getting over it', nor what are the mental sequels (Kinston and Rosser, 1974:451-2). What is threatening to a particular person which may cause psychological disruption depends on the amount of psychic pain, and the amount of painful effect that the individual can withstand at the moment he is subjected to the threatening situation. The intensity and quality and psychosocial reactions to disaster vary with the individual personality structure, his past experience with disaster, the degree of physical damage to significant persons and property, and his opportunity to define the situation in a way with which he can cope. If a person interprets a disaster situation as one in which he can overcome, 'ride out' or be useful in, the probability seems that he will suffer little, if any, psychosocial impairment. This orientation is furthered if the individual has had previous experience in life-threatening situations, or if he has prior training or insight into the likely consequences. He is thus better equipped to withstand the trauma of the disaster. If, on the other hand, the individual interprets the situation as being one out of his hands, that there is nothing he can do to mitigate the changed social environment, that the situation is defined as one in which nothing but futility, destruction, and doom is present, psychological impairment may be heightened and/or prolonged (Britton, 1980:19).

RULE DIRECTED BEHAVIOUR

Human behaviour is organised by rules which regulate the social intercourse between participants. These rules are learnt as part of the socialisation process of individuals within a society. The rules are part of cultural learning which is 'the sum total of behavioural patterns, attitudes and values, shares and transmitted by the members of a given society' (Linton, 1936).

The rules which direct behaviour must be -

a.   relatively simple;

b.   easy to understand;

c.   obvious to participants;

d.   reinforced by members of the society.

The rules of behaviour cover both simple and complex situations. They are highly structured but flexible enough to allow participants to interact to new and novel contexts. Appropriate and permissable responses are prescribed in everyday situations such as turntaking, speaking sequences, introductions, and tele-phone manners, etc. More complex behaviours such as funeral rites, parliamentary procedure, marriage arrangements, crowding and queueing, are equally precisely prescribed.

Even in rare and sometimes dangerous situations legitimate and approved behaviours are available for the guidance of partici-pants on occasions such as the order of departure from the

sinking ship, fire drill, and traffic accidents.

When the rules become inoperable for some reason then another set of rules must be borrowed or developed, or the situation must be restructured to allow those rules to apply.

> 'Humans are the valuators, who in the very act of valuating are engaged in moulding their world, making themselves adequate to the environment and their environment adequate to themselves'.   (Rollo May, 1982:21)

In a prisoner of war camp the survival of the inmates demands the establishment of an informal set of rules to determine the relationships, not only of the guards and prisoners, but also the relationship between prisoners themselves. Arneil (1983) demonstrates the importance of such rules.

Rules do break down on occasions in situations such as -

a.   overcrowding

b.   inconsistent treatment

c.   brutalisation

d.   isolation

e.   solitary confinement

f.   sensory deprivation

g.   continual lack of privacy.

However, it is not inevitable that behaviour does become unregulated and non-rule directed.

Under conditions of overcrowding there has been some evidence of antisocial behaviour, such as with the lemmings who ritually commit suicide by running headlong into the sea. Other destructive patterns have been observed which are called a 'behavioural sink'. However, man is able to live under conditions of great overcrowding by the manipulation mechanisms of social and physical distance.

The problem of finding rules under conditions of inconsistency does lead to neurotic and inconsistent behaviour. The famous McGill University studies of Hebb (1949) demonstrated that dogs which had been inconsistently handled had more psychological problems than dogs which had been harshly treated. Inconsistency is essentially the lack of any discernible rule.

When Festinger, Riecken and Schachter (1956) joined with a movement who believe the world would end on 21 December 1954 they were able to demonstrate that the failure of the Apocalypse to

occur did not interfere with the beliefs of many of those who
survived the 'fateful' December day. Disconfirmed expectancies
therefore do not necessarily destroy beliefs. Man develops
systems to incorporate cognitive dissonance between firmly held
beliefs and behaviour.

The effect of brutalisation on individuals has been shown to
seriously interfere with their stability and psychological well
being but there has been evidence that those with a sufficiently
strong sense of values and prescribed rules can survive brutal
treatment. Bettelheim (1960) himself an inmate of Dachau and
Buchenwald, demonstrated his ability to withstand torture,
punishment and cruelty. In general, isolation, solitary
confinement, and sensory deprivation are seen as the most
debilitating influence (Altman & Haythorn, 1967). There have
been reported cases of Japanese soldiers still fiercely loyal to
their Emperor being found hiding from capture in the Philippines
as late as 1973 some 27 years after the cessation of hostilities,
during which time isolated soldiers remained in hiding unaware
that the war had ended. It is not the intention to minimise the
almost inevitable social and psychologically degenerative effects
of social isolation and sensory deprivation, but to demonstrate
that there are degrees of protection afforded if a person can
determine a set of rules and operate by them.

In general we find high consistency of behaviour from time to
time and for situation to situation. Occasionally traumatic
events will interfere with this consistency. An early example
of this is found in the description of Pavlov's (1941) research
when in 1924 the river Neva flooded Leningrad and entered
Pavlov's laboratories. It appeared that the dogs who had been
used in conditioned learning experiments would be drowned. The
actions of a courageous laboratory attendant in swimming into the
basement laboratory and rescuing the dogs resulted in saving
them. However, Pavlov soon found that some dogs had completely
forgotten all their previous learning and took months to re-
establish the conditioning which had already taken place. It was
as though all previous learning had been completely obliterated.

Biochemical effects such as the blood sugar level, the use of
drugs/alchohol, the use of neurotoxins, car emissions, food
additives and colour agents, all affect behaviour but this is
the receptor phase rather than the rule-determining phase.
Whilst rules remain available to individuals, human behaviour
remains very robust and resilient to changes in external
conditions.

It has been argued by Kearney and Reser (1980) and Kearney (1981)
that under conditions of great stress and uncertainty there is a
powerful and pervasive drive on the part of people in a community
to reduce and minimise the uncertainty and ambiguity in which
they are placed. There are several ways of re-establishing
rule-directed behaviour which allows a society to function.,
This process of reducing uncertainty is described as a period in

which norms, roles and social obligations and the rules which
govern them are temporarily suspended. Once the roles of an
individual in society are in abeyance the very essence of the
social fabric has been placed at risk and members are placed in
jeopardy. We can only exist in society when we occupy roles and
positions. These roles and positions are supported by the
holding of attitudes, beliefs and values. Sometimes these
attitudes, beliefs and values become stereotypes or even
prejudice but nevertheless they do provide an important adjustive
economy for individuals which facilitates and allows social
interaction. It is an impossible psychological strain for an
individual to simply not have the available roles, norms and
values on which to refer. In Kearney (1981) it is argued that it
is essential for any community where the normative behaviour
patterns have been disrupted to have these re-established as
quickly as possible. It is further argued that these important
stabilising and socialising norms, roles and values can only be
established by the community itself, they cannot be established by
outsiders imposing that sense of community on a group of people.
The community must 'heal itself' or become the 'therapeutic
country' (Fritz, 1961). Chamberlain, Hartshorn, Mugglestone,
Short, Svensson and Western (1981) in reporting on the Brisbane
floods of 1974 note -

> 'What is quite apparent from this part of the study is
> that, in time of disaster, people turn for preference to
> people they know well and only when more personal
> resources are lacking do they seek help from public
> sources.' (Chamberlain et al, 1981:221)

In this aspect the psychiatric medicine is sharply different from
physical medicine.

One great lesson that was learned in Vietnam was that a person
who is injured should be removed as far as possible from the
scene of battle and taken immediately to the best possible
medical attention. The normal line in the military forces may
include a first-aid post, a casualty-clearing station, an
advanced dressing station, a field general hospital, and a base
hospital was circumvented so that medical evacuation took place
by helicopter. Injured soldiers were taken directly to a base
general hospital and all the intermediate stages were eliminated.
Thus a battle casualty received the very best possible medical
attention in the very shortest time. It is, however, the case
under the conditions of stress reactions that it has been
observed on many occasions that the further a soldier is removed
from the front line, the less likely he is to be able to return
to the front line fit for service. McBride (1979) said

> 'As soon as soldiers started showing the typical signs of
> diarrhoea, headaches, nightmares, trembling, sweating
> and the fear symptoms, they were taken out of action and

sent home for hospitalisation. When this happened they
never returned to the front line again and this is the
real tragedy, they also tended not to get better.'
                                              (McBride 1979:72)

Effective psychiatric emergency care is best carried out at near
as possible to the place where the casualty occurred and
preferably by people involved in the same experiences. Quite
often this will not be a member of the helping profession, but
may be another significant person such as the man's commanding
officer, company commander, the local padre, friend or any other
individual to whom he is close. A period of rest, a cup of
coffee, a little discussion, may alleviate the traumas of fatigue
and stress that could otherwise in the long run cause a person's
hospitalisation and subsequent lack of rehabilitation.
Communities who have been devastated by a disaster are much the
same. They have been placed under conditions of great stress and
great uncertainty. In order for them to re-establish their roles
and the positions, it is essential that they do so with a minimum
of interference from outside members. Whilst there will always
be a great response to a large disaster and many willing workers
wish to move into an area to offer assistance, it is sometimes
the case that helpers of this type are more hindrance than of
benefit to the community. This outcome has been described by
Fritz (1961) as the 'cornucopia effect'. Communities may reject
the outside helpers and drive them away from the area. They may
be described as being ghoulish, tourists, 'do-gooders', 'grand-
standers' or in some other such negative term. This is because,
although such people are of potential benefit to the society,
they cannot participate in the task role, value and norm
reconstruction. Not only can they not participate but they
hinder the re-establishment of the sense of community and their
very presence interferes with the re-establishment of the
community. This is not to say that such helpers are not
potentially valuable. To be effective their role has to be
carefully monitored and they must limit themselves to doing only
those essential tasks which are providing a particular type of
service (Britton, 1980). Quite often they are better being
resource people to members of the community who are re-
establishing themselves rather than taking over that role.
Certain types of roles lend themselves more easily to the help of
outsiders, for example the re-establishment of a secure water
supply or sanitation systems or perhaps the provision of
emergency surgical and resuscitation teams in an area, However
the leadership, organisational and other important social roles
should remain within the local community wherever this is
possible. If this is done it is suspected that the long-term
psychological effects of disaster will be minimised. The
National Health and Medical Research Council (1982) report -

        'Optimal adjustment is facilitated by an individual's
        active involvement in rebuilding his own life and the
        life of his community.'

                              (NHRMC 1981, 1982)

The effects of Cyclone Tracy on Darwin in 1974 were the most devastating experience of a disaster in Australia. This event resulted in the largest mass evacuation of a community in the history of Australia and one of the largest evacuations in the western world. In all some 23,000 people were evacuated from Darwin over ten-days following 25 December 1974. Many people who were evacuated did not wish to leave Darwin but it was an assessment at that time that there had been a complete breakdown in the water supply, communications and power supply and that it was not possible to maintain the population as it was prior to the disaster without there being a serious health risk to the total community. It must be remembered that Darwin was in the middle of the monsoonal 'wet' season, with temperatures constantly in the 30's and extremely high humidity. It was envisaged that had a serious health risk developed, it would have been almost impossible to provide adequate medical assistance because the nearest large town is 2500 kilometres away. Evacuation was undoubtedly the correct decision at the time. Major General Alan Stretton (1976,1978) indicates the dilemma in which he was placed. Although there has been criticism of the decision to evacuate, there can be no doubt that it was the best decision under the circumstances. However, this is not to say that there is not a heavy cost to be borne by the evacuation. Milne (1977a, 1977b), Western, and Milne (1976) and Chamberlain, Doube, Milne, Rolls and Western (1981) have written about the effects of the decision to evacuate. In Table 1, Milne (1977a) shows response patterns before and after the disaster.

TABLE 1:   Response to Before and Now Disaster Checklist Items:
            Sum of Weighted Difference Expressed as Percentages
            of Each Group

	STAYERS	RETURNED EVACUEES	NON-RETURNED EVACUEES
Maladaptation			
A restless person	19.1	28.3	57.9
Worried about the future	35.9	50.0	84.7
Nervous and depressed	25.0	36.5	55.3
Lacking in confidence	2.2	1.9	31.9
Short tempered	16.9	17.0	35.0
Addictiveness			
A smoker	4.5	5.7	7.4
Fond of alcoholic beverages	3.4	4.8	7.5

Taking pain killing drugs	5.6	0.0	10.2
Psychosomatic disturbance			
Prone to headaches	7.9	13.5	23.3
Troubled by a skin complaint	1.1	3.8	11.2
Lacking in energy	18.4	7.8	36.0
Without appetite for food	1.0	6.6	4.6
Troubled by indigestion	11.4	0.9	8.4
Overweight	5.7	6.6	15.0
Asthmatic	0.0	1.9	2.3
Having bowel trouble	6.7	-0.9	6.5
Underweight	1.1	4.7	2.8
Family stress			
Finding the children difficult	0.0	21.9	33.8
Worried about my marriage	-10.7	22.5	2.2
Taking it out on the children	1.9	10.9	30.7

(Milne, 1977a)

In Table II (Milne, 1977b) he indicates the incidents of children's emotional and physical disorders. From this it can be seen that people did suffer emotional and psychological effects of the experience of Cyclone Tracy. More importantly those people who were evacuated and returned showed more stress than those who were not evacuated and those people who were evacuated and never returned, showed the greatest degree of stress.

TABLE II: Incidence of Children's Emotional and Physical
             Disorders

	STAYERS		RETURNED		NON-RETURNED	
	n=111	%	n=190%		n=348%	
Fear of rain and wind	22	19.8	46	24.2	102	29.3
Fear of dark	12	10.8	26	13.2	40	11.5
Fear of jet aircraft noise	5	4.5	15	7.9	54	15.5
Clinging to mother	7	6.3	10	5.3	44	12.6
Bed wetting	3	2.7	13	6.8	27	7.6
Thumb sucking	0	0.0	3	1.6	7	2.0
Temper tantrums	3	2.7	2	1.1	25	7.2
Fighting, biting, kicking	1	0.9	6	3.2	17	4.9
Deliberately breaking things	3	2.7	2	1.1	12	3.4
Injuries	0	0.0	5	2.6	19	5.5
Diseases and infections	11	9.9	11	5.8	38	10.9

(Milne, 1977b)

In a follow-up study as yet unpublished Milliken (1983) seeks to
modify Milne's (1977a, 1977b) finding to indicate that the single
biggest indicator of stress was the group who sought to return,
but could not return for some reason or other.

> 'It is possible that the interpretation on p391 of Western
> & Doube might be revised somewhat against the possibility
> that some of the non-returned evacuees were suffering
> from the very frustration of not being able to get back
> to Darwin 'to get on with it'. The latter was not a
> result of the evacuation but of the sluggishness of the
> Housing Reconstruction Programme.'
>
> (Milliken, 1983:175)

Even where the community is not removed or is only removed for a
brief period, there can be long term effects of the disaster.
Tichener and Kapp (1976), in discussing the effect of the Buffalo
Creek disaster in West Virginia in which 125 people were killed
and 4,000 left temporarily homeless, indicate -

> 'Disabling psychiatric symptoms, such as anxiety,
> depression changes in character and lifestyle, and
> maladjustments and developmental problems in children
> were evident more than two years after the disaster
> in over 90% of the individuals we interviewed.'
>
> (Ericksen, 1979)

It should be mentioned that Buffalo Creek is a disaster because of the literal desolation of the town plus the fact that every family lost at least one member. A group action was taken by the residents and at that stage compensation of US $13.5M was paid, of which US $6M was for psychological damage. Such findings and actions and settlements will be more commonplace in the future. It is important that we take whatever action we can now, to ensure that the threat to the community is minimised. It has been suggested that if adequate support personnel are taken to a disaster area, they should always include people who are specialists in the field of therapeutic mental health. Specifically these people should not be the front - line counsellors, but rather be the support for those individuals who can provide direct-service counselling to the inhabitants. Where, however, it is demonstrated that the community has been so thoroughly destroyed that permanent damage has been done to the community, eg Buffalo Creek, or in fact there was no community in the first place, such as victims of an aircraft crash (really an emergency) who do not know each other prior to the disaster, then the outside expert must provide the front-line help and take on the role of providing the normative reference for those members.

To return to our first question, it might be argued that the individuals only behave badly in those circumstances where there has been a total breakdown of community, or in the Buffalo Creek situation, and where the norms and values are no longer available to act as a referrant for them. The observations have rather been to the contrary that there is an immense amount of prosocial behaviour, if the community is allowed the opportunity to heal itself and the adequate support infrastructure is made available, so that it will not interfere with, and prevent, the re-establishment of the community infrastructure. The literature indicates countless examples of immense actions of heroism and sacrifice on the part of individuals in order to facilitate the community and members of the community. It is suggested that by the judicious use of appropriate resource personnel and the provision of facilities which will allow the community to function, that every attempt should be made to let that community re-establish itself.

RETURN TO ONE'S PLACE

The second question addressed the topic of why do people make the same mistake twice. Why do people who have been flooded return to the area in which they were flooded, why do people who have been flooded several times still return to the same area? An example of this is the Northey Street flood area of Brisbane, in which people have been evacuated on multiple occasions in the last ten years, yet on every occasion they returned to the same place. It would appear to be evident that the level of risk and the level of probability of re-occurrence is extremely high and the question is whether people accurately perceive the risk in which they place themselves. There is enough evidence to suggest

that people are poor perceivers of risk and that they do not accurately assess the situation (Britton, 1981). It is also observed that individuals will have different levels of acceptable risk. Fischoff, Lichtenstein, Slovic, Derby and Keeney (1981) give some insight as to how acceptable risk may be perceived by individual members. It would seem that the ordinary linear models that argue for a rational economic man are in themselves, not sufficient to describe the behaviour of people who remain in areas that on all objective criteria must be seen as high-risk areas. Rather, it seems we need a new type of model.

The most exciting new theory in this area will be found in catastrophe theory, which is a mathematical model derived to deal specifically with landslides, and to try to explain the seemingly non-linear relationship between the calculated moments of force and the actual observed landslip. Such a model is of equal if not more relevance of a marriage relationship, or any similar event, but a new model taking into account all the social factors will not accurately predict events such as a breakdown in mental health, a breakdown of a marriage relationship, or any such similar event, but a new model such as that encompassed in catastrophe theories (Woodcock and Davis, 1980), may enable us to develop our understanding. It would demonstrate why people do return to areas where the pressures would indicate to an independent, seemingly rational observer that rebuilding in areas should not take place.

It is a relatively safe assumption that four disastrous events are likely to occur. The first is that there will be a major volcanic eruption, which will destroy or cause major damage to the township of Rabaul in New Guinea. Vulcanologists have predicted this for many years. During the early post-war administration of Col J K Murray of the Combined Territories of Papua and New Guinea he sought strenuously to have the town of Rabaul relocated. It was this attempt which angered the planter community and he believes it led to his replacement as Administrator and the triumph of the planter community who wished to retain their old plantation sites, and who were prepared to ignore the risk and certainty of further volcanic eruption. In California many homes are built on the San Andreas Fault. It is certain that at some time in the future there will be a major catastrophe in that area. It has been suggested that people who come to California from the eastern states tend to carry adequate home insurance cover for the first year and then on the advice of their neighbours terminate their policy and remain unprotected from the effects of a disaster. It is highly likely that there will be another major catastrophe along the fault line running from Napier (through the centre of Wellington) to the South Island of New Zealand. Wellington will be highly vulnerable because of its lack of alternative access roads and the limitations which exist on its airport which would prevent or hinder relief operations should there be a major earthquake.

In the Australian context it has been suggested that there is pervasive belief in many areas that government compensation and public contribution will be adequate to protect people in times of disaster (Smith, 1983). The disastrous bushfires in Australia on Ash Wednesday 1983 caused tremendous damage to property and were responsible for 65 known deaths. The bushfires following the tinder dry months were at times reported to move on a front travelling at a speed of some 60 kilometres per hour. There was nothing that could be done to prevent the bushfire spreading. Nevertheless it is almost certain that there will be minimal land rezoning in those highly attractive areas of South Australian and Victoria. Already there is evidence of people building in exactly the same location with exactly the same type of structure as before. In a few years they will have established the same type of gardens and undergrowth which will lead to another disaster of the same type.

Perhaps these are examples of acceptable risk which will be shared by the inhabitants and their insurers; or more likely the inhabitants, their insurers and the Australian public, through the political largesse of politicians who seem always to respond to the need for assistance during times of national disasters. The only real disaster is to suffer alone, because the sympathy in minimal. Perhaps people do make the same mistake twice and rebuild in high risk areas. In the absence of alternate models, rules and strategies, it is clear that all learning and adapted behaviour must revert to a previously learned mode of adaption. In the case where there is no other model it is inevitable that a person must revert to this earlier mode of adaptation. Yet this seems insufficient to describe all those occasions on which people have returned to disasters. It has been estimated that 5% of the Australian housing stock is at risk from flood because it's location in flood-prone areas. This represents approximately A$50M to A$60M in buildings which may be in jeopardy (Britton, 1982b).

This does not include business or other non-residential con- structions. Post-flood surveys in the Queensland area of Brisbane/ Ipswich, and Lismore in New South Wales (both of which had severe flooding in 1974) have suggested that residential losses are only a minor component of the total flood in urban areas. It has also been suggested that it would be possible to purchase and rezone every flood prone house in Australia on a 1:100 flood return period for a relatively cheap sum of A$300M. This over a period of years would not seem an excessive amount. Yet it is certain that such an action will draw immense resistance from the people who would be relocated in flood-free areas even when adequate compensation is paid. It is not only the loss of the initial dwelling which may be psychologically significant to the individual, but it is also the loss of neigh- bourhood and community that becomes important. In an innovative relocation program in Brisbane (Western & Cribb, 1983), in which the residents of Cribb Island were relocated, it was found that the residents moved to the same area and re-established exactly the same community in other parts of Brisbane as they had previously enjoyed on Cribb Island. The community was thus preserved.

FACTORS IN INSURANCE

At the beginning of this paper mention was made that one of the options available to people for minimising the effect of disaster, and to enhance the economic recovery of the individual and his family or business following natural hazard impact is through the purchasing of natural disaster insurance. Insurance has often been cited by natural hazard researchers as the key to the adoption of hazard-mitigation adjustments. It has also been recognized that insurance is a prime incentive in the move towards the efficient usage of hazardous areas. Within the natural hazard mitigation program insurance is seen as having two main functions. First, it is a loss-distributing device. Insurance coverage provides a means of recovery for affected persons and their damaged properties, and distributes losses without having to resort to more severe mitigatory devices, such as relief and welfare payments, loans for restoration, or declarations of bankruptcy. Second, insurance has the capability of guiding the development of hazard-prone areas by which people expose themselves to risk from hazard agents (see Britton, 1982b).

John Oliver, from the James Cook University's Centre for Disaster Studies, has summarised the role of natural disaster insurance thus -

> 'Insurance has been a time-honoured strategy for the mitigation of the impact of disaster for over a century. It has the potential for softening that impact. If an insurance cover can be economically effected, the victim of the material damage wrought by a natural disaster has more prospect of recovering himself, replacing his home, renewing damaged contents and re-establishing disrupted production facilities since he has at least the financial resources of the insurance payment with which to operate.'
> (Oliver, 1983:1)

Members of the insurance fraternity will no doubt realise the significance of Oliver's statements, and recognise their veracity. As members of that fraternity, however, it will come as no great surprise to you, albeit an unwelcome one, to be told, probably yet again, that even though people may be aware of the positive qualities of procuring insurance, a large proportion of individuals do not actually purchase insurance. Even fewer appear to buy an insurance cover that safeguards themselves and their properties from natural disaster. Why is this?.

This is a question which we set out to find some answers to in a recent paper (Britton, Kearney, Britton, 1983). Nothing not

already known or hinted at by researchers interested in the relationship between hazard insurance and the propensity to purchase insurance was found, but a reasonable contribution to that body of knowledge may have been made by codifying what was known and what had been published in a wide range of research literature. Perhaps the most significant contribution was the identification of a number of variables used by previous researchers who found them to be of importance in understanding the purchase of insurance policies. The formulation of these variables into groups of specific categories allowed the 32 identified variables to be placed within a more meaningful context. The five categories which we grouped these variables in were salience, information, awareness, experience, and insurance factors.

Salience, or the objective knowledge of a natural hazard problem which may have some effect on an individual's future behaviour, was found to be a function of the frequency of hazard events; the previous experience of a hazard event; the awareness of the proximity of the hazardous area in question to the individual; and the recency of the last hazard event.

Information is knowledge on which an individual modifies, initiates, or ceases action. Information is a set of facts or ideas gained through investigation, experience, or practice. Consequently, relevant information as it relates to the purchasing of natural hazard insurance is a function of the degree of lack of knowledge of the hazard's characteristics; intellectual overload; the socio-economic position of the individual; and the degree to which an individual under-estimates the potential threat; plus the factors identified as being relevant for salience.

Awareness is being alert to an action and paying attention to an action process. Awareness was mentioned in a number of the studies we examined, and can be regarded to be a function of the following variables: the level of risk-taking propensity; the types and number of defence mechanisms adopted by an individual; the influence of a person's significant others; the land occupancy rate; government policies and practices; sociol-cultural beliefs; and the time horizon which individuals (their encompassing cultures) orientate themselves to, together with the factors identified as relevent to the awareness group.

Experience is the internalising of events. Past experience is of immense relevance to current and future behaviour. When looking at the propensity to purchase natural hazard insurance cover, experience was found to be a function of the assets an individual has got which could be placed at risk; plus the loss of any previous assets especially through natural hazard inter-vention; tradition, or the 'accepted' way the sociocultural system achieves specific aims; the economic dependency a person has on the hazardprone area; the attitude an individual has got towards mitigatory devices; the cost of the mitigation devices;

the preferred risk level of the individual; the age and sex of
the individual (the 'biodata'); the attitude of the individual
towards insurance in general; and the attitude the individual has
on hazards in general; plus those factors identified in the
relevant information formulation.

The last category of significant variables which our study
identified as important in the decision-making processes
relating to natural hazard insurance purchase was insurance
factors. The relevance of the insurance policy (including the
cost of the premium); the policies and practices of the insurance
company; together with the attitude of the insurance agent, are
all important determinants in the actions of an individual to
their insuring behaviour.

CONCLUSION

Our aim is to try to prevent those disasters which are prevent-
able by structuring the physical and social environment. The use
of land zoning provisions, building codes, warning systems,
shelter provision and the vigilance of professionals and members
of a community will do much to help manage the effects of a
disaster.

It is important to go further and provide for those who have
been affected. Adequate insurance, government assistance and
public help do that to a greater or lesser degree depending on
the circumstances. It is the social and psychological trauma
which needs to be provided for. The most important help comes
from the community itself immediately following the event. Both
short and long-term effects will also be community based.
There is a need to better understand these processes so that our
help giving and support will not be counter-productive. This
understanding is the research goals at the Centre for Disaster
Studies at James Cook University of North Queensland.

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