COMMUNITY ATTITUDES TO NATURAL HAZARD INSURANCE;

WHAT ARE THE SALIENT FACTS?

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Synopsis

To the social scientist disasters produced by natural hazards are the result of complex interactions between human and environmental systems. In general, people cope with natural hazards through a series of adjustments which might lead to (1) a reduction of losses through a modification of the hazard; (2) a modification of vulnerability by changing human systems; or (3) a reduction in losses through re-distributing losses. These adjustments imply an interventionist stance. Another possible adaptation to hazards is to do nothing. While this might imply fatalism, it could also be regarded as a deliberate hazard adjustment. If an intervention option is chosen, strategy choice is dependent on several other factors, all of which require information. Research relating to a specific loss-reduction scheme - hazard insurance - indicates that this is an under-utilised option, and there are several reasons why this is likely. The paper illustrates that time and space horizons for most people are limited, and most individuals tend to make errors in their judgement when faced with novel situations or insufficient information. At the individual and community level, natural hazard impact is relatively rare and thus disaster is a novel event. Under these conditions individuals are unlikely to develop hazard reduction contingencies. Furthermore, most community members do not understand the way insurance operates, and they are often not able to judge the merits and functions of insurance. This leads many to the conclusion that insurance is not worthwhile. In an indirect way, this situation is exacerbated by the insurance industry itself, which does not pursue an active programme of public information despite the fact that the industry possesses one of the best data-banks on hazard events, impact vulnerability, and hazard loss potential. It is also in a prime position to provide others with information on the merits of insurance as a mitigation device. Research on decision-making under conditions of uncertainty illustrates the importance of information as a prerequisite for appropriate action. It is probable that more people would purchase hazard insurance if they were made more aware of (1) the riskiness of their environment and (2) the availability of insurance.

1 Introduction

Risks are as varied as life itself. Not quite so diverse however, are the agencies to whom victims look for assistance when large-scale adversity befalls their community. Whereas members of traditional societies coped with large-scale collective stress by engaging in reciprocal relationships aided by ritual, contemporary citizens are more inclined to abrogate personal responsibility and view the alleviation of collective problems to be the concern of governments. Writing in the context of the 'government overload' thesis, Etzioni-Halevy (1985) cites King who states that,

> 'Once upon a time, then, man looked to God to order the world. Then he looked to the market. Now he looks to Government' (King, 1975:288).

Thus, writes King, the government has come to be regarded as a 'sort of unlimited-liability insurance company, in the business of ensuring all persons at all times against every conceivable risk' (p.286). Governments however, have trouble playing God. Etzioni-Halevy's analysis of Australian governments leads her to conclude that while their range of responsibilities has increased, the capacity of governments to fulfil these responsibilities and other expectations of the electorate has steadily declined (1985:45). However, one area that governments regularly meet the expectations of citizens is when disaster strikes. Governments in Australia have routinely been quick to provide financial assistance to victims of natural hazard impacts. Needless to say, these actions do little to reduce the proclivity of individuals to ignore personal responsibility for hazard-induced losses by, for instance, purchasing hazard insurance. While it may temporarily bolster government-community relations, critics of relief assert that action of this sort is a disincentive to self-help, including the inclination to seek insurance (see Oliver, 1988).

Hazard insurance and disaster relief are examples of measures which society can take to adapt and adjust to the perils of the natural environment. By adaptation, is meant, 'the long-term arrangement of activity to take account of the threat of natural extremes' (White and Haas, 1975:57). By adjustment is meant, 'all those intentional actions which are taken to cope with the risk and uncertainty of natural events' (ibid.). In broad terms, adaptation can be either fatalistic or interventionist. Accepting hazard impact and the associated losses by regarding it as an inevitable component of one's condition of life is a fatalistic adaptation. At the other extreme is direct intervention. Interventionist actions produce more positive adjustments. These adjustment can be grouped into three major classes:

1 Modifying the hazard. The desired purpose here is to reduce potential losses by changing the harmful characteristics of the hazard agent (such as cloud-seeding);

2 Modifying the human use system. The aim here is to reduce vulnerability by altering the social landscape (for instance, building levees, designing seismic-resistance structures;

3 Reducing hazard losses through re-distributing the effect of the impact (for example, procuring insurance, or developing post-impact relief and rehabilitation operations).
(after White and Haas, 1975)[1].

There is another adaptive act which is an extension of the third point above, but which is neither fatalistic nor interventionist. Indeed, some observers, like Epple and Lave (1988) contend, with some justification, that this approach is a sophisticated, informed, and rational one. Unfortunately however, it is not a sustainable long-term alternative, in spite of its relative popularity. This is the 'Sit-Back-And-Wait (SBAW)' approach. Reliance on this adaptive measure could be due to the rational and deliberate intention on the part of victims to have the government reimburse losses. In this situation, individuals may if they so wish, take advantage of governments in pursuit of good public relations, by doing nothing apart from waiting for the low-interest loans, grants and donations to come. After all, why spend one's own money helping yourself if the government is going to open its coffers anyway? If people expect to be bailed out after disaster, there is no point in pursuing self-help options (hence Epple and Lave's conviction that this approach is based on informed rationality). Further support for the SBAW approach to hazard adjustment is gained from general community attitudesn towards disaster victims. Unlike many other relief systems, such as the welfare and social security system, disaster relief does not carry with it a social stigma. Drabek (1986), for instance, cites a study which found that when asked to rate the two, respondents were more supportive of disaster than welfare services:

> 'Over half (60%) of the respondents rate disaster services as very important compared to one third (34%) who rate welfare services to be very important. ... Support for disaster relief is relatively stable across all categories (income, education, age, gender).
> (Leitko, Rudy & Peterson, 1980:736).

While there is some evidence which may indicate a contrary position (see for instance, Chamberlain et al, 1981; Hannigan & Kueneman, 1978 - both cited in Oliver, 1988), there is considerable evidence that a high degree of public sympathy is given towards victims of disaster. As a result, it is almost to

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[1] Oliver (1988) elaborates these points by offering a nine-fold division of adjustment strategies.

be expected that governments will try and capitalise on this sentiment by 'doing the right thing' for the victims. This, in turn sustains the SBAW tendency.

On the other hand, this 'do-nothing' method could be due to ignorance or naivity on the part of victims. The generally accepted reason for this position is that residents are either unaware of their vulnerability to hazard impact, or that they do not know that viable self-help hazard reduction options are available. Many people, for example, are unaware that they are at risk unless there has been a recent hazard impact in their region or unless they personally, or someone they know well, has been victimised. Similarly, a significant number of citizens are unaware that hazard insurance, for instance, can be purchased. There are many other possible explanations why people do not take action to individually adjust to the vagaries of natural hazards. However, it is not the intention here to either itemise, discuss or speculate further on these possibilities. Rather, it is the intention of this paper to highlight some of the salient factors which hazard and disaster researchers, who along with decision scientists, have reason to believe are associated with the failure of individuals to adopt a specific form of self-help hazard-reducing measure - that of hazard insurance.

2 Risk Perception

One of the processes that must take place in contemplating the possibility of disaster is the weighing up of the relative risks. Perception of hazards and the risk they are likely to bring is a significant determinant of individual and public response to disaster. Risk perception requires a capacity to weigh up, and to some degree, quantify future possibilities in order to reduce uncertainty. At its most fundamental, community acceptance and selection of adjustments is based on the perception of risk:

> 'People respond to the hazards they perceive. If [however,] their perceptions are faulty, efforts at public and environmental protection are likely to be misdirected' (Slovic, Fischhoff & Lichtenstein, 1979:14).

The first element in risk management is estimating the frequency distribution of a hazard. For some hazards extensive statistical data is readily available for people to develop an understanding of the probable risks involved. A case in point is motor vehicle accidents. For other hazardous events though, evidence is not as forthcoming. Natural hazards tend to fall in this latter category primarily because, on the whole, we are still learning about the mechanisms which create hazardous conditions, and we do not have adequate historical records from which to calculate the precise periodicity of impact episodes. This last point highlights another problem. Statistics are not always easy to understand and most people have a hard time

interpreting small probabilities, and may even refuse to consider those below some threshold (see Kunreuther et al., 1978). Thus, people have a difficult time managing catastrophic events whose annual probability might be one-in-one-hundred-years or so. They have no personal experience of such an event and are unlikely to know anyone who has (Epple & Lave, 1988:429). Additionally, when people are asked to evaluate risks, they seldom have statistical evidence on hand. In most cases they must rely on inferences based on what they remember hearing or observing about the risk in question (Slovic et al., 1979).

Irrespective of these specific difficulties, the 'hard facts' of statistical data can only go so far to explain the risks. Beyond that, human judgement is needed to interpret the findings and to determine the relevance of the information. Judgement of risk however, is fallible, and this becomes more problematic when future events have to be considered. There are, apparently, limitations to our temporal and spatial perspective which place constraints on our ability to plan for future events. We are, it seems, limited in our ability to internalise the significance of future events (see Bjorkman, 1987; Boniecki, 1980; Doctor & Chandler, 1988). Boniecki, for instance, studied a group of 200 adult Australians to find out peoples concern for their future. He concluded that,

> 'A period of 10-15 years seems the most distant practical horizon that the contemporary Western man may see as related to his own life experience. Planning for longer periods is likely to fail to obtain any endorsement from [the] general public' (Boniecki, 1980:174).

Problems like this are not restricted to future events however. Humans also have difficulty recalling past events accurately. Apparently, we are not very good at accurately reconstructing past events, tending to minimise the problems encountered and over-emphasising the successes (Bjorkman, 1987; Fischhoff, 1976):

> '... we are over-confident in the predictability of the past, that is, in our present knowledge, and this knowledge is unreliable for making inferences about the future. ... All this makes it impossible in principle to predict the future from the past and the present' (Bjorkman, 1987:13-14).

In assessing personal risk, concern centres upon the individual's perception of the chance that the impact of the hazard agent will result in damage or destruction to his/her property. Unless a person is convinced that impact is certain and that he/she is in danger, there is a general reluctance to take evasive action. Hence, people react to the risks that they come to believe exist, and these risks tend to be the ones which have a reasonable frequency of occurring or are otherwise indelibly stamped in the minds of individuals, either because

they have had direct experience of a risk event or know someone who has, or because they have regular information reminding them of the possibility that a specific risky event is very likely to occur in which they are certain to become involved.[2] Tversky and Kahneman (1974) state that an event is not cognitively 'available' if the individual and his/her friends have not experienced it. If the event is 'available' individual action, perhaps even community action, might take place, although the consequent action need not necessarily be related to direct risk-reduction preparedness. The linkage between information and preparedness however, is not a simple one. Similarly, people do learn from experience but they tend to believe that they have a better picture of the truth than they really do, especially in dealing with rare events. The assumption therefore, that relevant information, previous impact experience, or even heightened awareness will alone be sufficient to lead the individual to adopt appropriate mitigatory measures is under-estimating the complexity of the problem.

Mileti and Sorensen note that people vary in their ability to process risk information. Variability exists because of factual differences between people such as education, cognitive abilities, pre-emergency knowledge, experience with a hazard, and the degree of fatalism with which life is approached (1988:37). Added to this is the relative salience of hazards and concomitant risk. There is considerable evidence to suggest that some risks are not conspicuous enough for people to be overly concerned about them. Natural hazards are one such group of risks. Amidst the many things in the world to worry about, natural hazards are more often than not assigned to the 'think about it tomorrow' category. This attitude is likely to be reflective of senior policy and decision-makers just as much as the public-at-large. In one study for instance, which canvassed the views of 2,000 hazard managers from 20 states and 110 communities throughout the USA, researchers documented persuasively that, compared to other problems, natural disasters have low salience for both public officials and the general public (Rossi et al., 1982). This study indicated that because disasters are infrequent experiences for both individuals and communities they tend not to receive sustained attention. The consequence of low probability hazards results in low salience which in turn results in inaction:

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[2] A recent example of the latter condition is the large number of Australians who have expressed their concern over the likelihood that their country would be a likely target should nuclear warfare occur. This reached a peak during the (USA) presidency of Ronald Reagan when media reports regularly reported on Reagan's aggressive 'cold war' stance towards the Soviet Union. It was also prompted by the screening of movies such as The Day After and The War Game, together with the development of the USA 'Strategic Defense Initiative'- the so-called 'Star Wars'.

> 'These findings are all the more remarkable when one recalls that the positions sampled by the survey are heavily skewed toward those with presumed interests in or responsibilities for natural hazards issues, just as the states and local communities sampled are those with disproportionately high levels of hazard risk. If anything then, the data probably overstate the perceived seriousness of hazards issues [in the USA] relative to what would be found in a simple probability sample taken from a simple probability sample of communities and states' (Rossi et al., 1982:65-66).

In fact, the Rossi study showed that officials in one hazard-vulnerable state in the USA, California, regarded pornography to be a more serious community problem that floods, fires, or earthquakes. Unfortunately, this is not an attitude which is unique to natural hazards. In a study of the emergency preparedness activities of a specific technological hazard - at the site of the largest hazardous waste landfill in the USA (in Sumter County, Alabama) - researchers discovered that residents ranked education, the local economy and racial relations in the county above any concern they might have about the presence of hazardous waste. Indeed, a local county exclaimed that more complaints were received about dirty water when fire hydrants were being flushed than about the hazardous waste (Faupel & Bailey, 1988).

It seems clear then, as Epple and Lave (1988) suggest, that under some conditions people accept risks when they must or when there are perceived offsetting benefits. Past disasters make it clear that there can be considerable risks associated with living in particular geographical localities. Tropical cyclone impacts in Townsville (1971) and Darwin (1974); wildfire in Tasmania (1967, 1982), the Adelaide Hills and the Dandenong (both in 1983); and the repeated flooding in northern New South Wales throughout the period of European settlement, make it apparent that there is a risk of property destruction and death associated with these particular areas. People are generally aware of these risks, but they nevertheless elect to accept it as a risk worth taking in order to receive the benefits of living in these areas[3].

3 Attitudes to Hazard Insurance

Hazard insurance is one of the most significant non-structural approaches to disaster mitigation, although it is an under-utilised option within Australia (see Britton, 1982, 1989,

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[3] White has hypothesised that four different types of justifications might be obtained from people living in a known hazardous area: (1) superior economic opportunity (2) lack of satisfying alternative opportunities (3) short-term time horizons (4) high ratios of reserves to potential loss (1974:4).

Britton & Kearney, 1984; Britton et al, 1983; Kearney & Britton, 1983). Within the natural hazard context insurance plays two significant roles. Firstly, it guarantees policy-holders some recompense in the event of loss. Secondly, although it does not result in a decline of aggregate losses, insurance can be used to encourage the adoption of measures to mitigate future damages (Arnell, 1983; Sorkin, 1982). Our understanding of attitudes towards hazard insurance, and the decision-making processes associated with it is somewhat limited however, and it is likely to remain so until more basic work is completed on adoption behaviour by potential purchasers (see Drabek, 1986:349). Even though there are many important areas which currently remain unresearched, especially in the Australian context (in many cases due to a lack of funding opportunities), some preliminary findings have emerged which may be useful in the attempt to understand processes associated with hazard insurance acquisition. However, such findings require more rigorous testing and study before we can be confident about their general applicability. Nevertheless, it is worth reviewing what social, behavioural and decision scientists believe apply.

In a study of 'Insuring Man' (see Britton, Kearney & Britton, 1983; see also Britton & Kearney, 1984; Kearney & Britton, 1983), it was shown that there are many factors which are relevant to an individual's decision to use insurance as a deliberate preventative action against hazard impact. These authors identified 32 variables which had been distilled from 162 research papers that had been found to be relevant in the decision to purchase hazard insurance. The formulation of these variables into groups of specific categories allowed the 32 identified variables to be collapsed into five related groups: salience, information, awareness, experience, and insurance factors. The role of the insurance company will be explored more fully in the next section. In this section, comments will be restricted to the first four variable-sets. There is however, a close inter-connection between all five groups of factors when it comes to deciding whether or not to purchase hazard insurance:

Salience: or the objective knowledge of a natural hazard problem which may have some effect on an individual's 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 that of the individual; and the recency of the last hazard episode.

Information: is knowledge on which an individual modifies, initiates, or ceases action. Information is a set of facts or ideas gained through investigation, experiences, 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 hazards characteristics; intellectual

overload; the socio-economic status of the individual; and the degree to which an individual underestimates the potential threat; plus factors identified as being relevant for the 'salience' group.

Awareness: is being alert to an action and paying attention to an action-process. Awareness can be regarded to be a function of the following variables: the level of risk-taking propensity of the individual or family decision-maker/s; the types and number of defense mechanisms adopted by the decision-maker/s; the influence of a person's significant others; the land occupancy rate; government policies and practices; socio-cultural beliefs; and the time and spatial horizon to which individuals (and their encompassing cultures) orientate themselves; together with the factors identified as being relevant 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 hazard insurance cover experience was found to be a function of: the assets of an individual/family which could be placed at risk in the event of impact; the loss of previous assets by hazard impact; tradition, or the 'accepted way' a particular social group has adopted to achieve specific aims; the economic dependency the individual/family has on the hazard-prone area; the attitudes an individual has towards mitigatory devices; the cost of the mitigatory devices; the attitude the individual has towards insurance in general; the attitude the individual has to hazards in general; the preferred risk level of the individual; the age and sex of the decision-maker/s; plus those factors identified as being relevant to the 'information' group.

Insurance Factors the last category of significant variable which the study identified as being important in decision-making processes relating to natural hazard insurance purchase focussed on: the knowledge that hazard insurance policies exist; the relevance of the insurance policy (including the cost of premiums); the availability of insurance; the polices and practices of the insurance companies; and the attitude of the insurance agent.

These variables were used to develop a formula which, it was suggested, may be able to assist to predict the propensity of

an individual's decision to purchase hazard insurance:

$$P_1 = (S_N + I_R + A_A + P_N + I_F),$$

whereby,

> the probability of insuring against the consequence of a natural hazard (P_1) is a function of the objective knowledge of the natural hazard problem affecting the region within which the individual resides, that is salience (S_N), plus information which is relevant to the hazard 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).

It needs to be emphasised that despite the relatively high plausibility of each variable and variable-set, these propositions must be regarded as 'hypotheses meriting careful empirical testing' (Drabek, 1986:353). As Drabek observes in his discussion of the 'Insuring Man' formula, 'in many cases it is clear that the variable is relevant, but the precise nature of the relationship is ambiguous' (ibid).

Although ignorance of natural hazard risk may explain some of the lack of insurance purchase, misconception of the risk might also contribute to the lack of participation. Sorkin (1982:134) cites an early study by Kates who, after a study encompassing several USA communities situated in flood-hazard areas, concluded that people persist in locating in these places because of various types of perceptions beyond total ignorance of the flood risk. Kates' conclusions are worth quoting in full:

> 1 They are aware of the flood but personally do not expect a future flood, and therefore are not unduly concerned.
> 2 They expect a flood but do not personally expect their property to be damaged, and therefore are not duly concerned.
> 3 They expect to bear a loss, but not a serious one, and are therefor not highly concerned.
> 4 They expect to bear a serious loss and are concerned.
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> (R W Kates (1962), Hazard and Choice Perception in Flood Plain Management. Chicago, Illinois: Research Paper #78. Department of Geography. University of Chicago. p135).

Sorkin suggests that the under-estimation of the flood risk and the consequent lack of interest on the part of residents' in these communities to purchase flood insurance might well be explained because the majority of them perceived 'the state of nature to fall in one of the first three categories' (1982:134). This hypothesis by itself however, is still an inadequate explanation. In a similar study conducted 16 years later,

Baumann and Sims provided a more complete portrayal of the flood-vulnerable 'Insuring Man':

> 'The insured homeowner is he who has suffered damage from a flood, who enjoys a relatively higher social class position, and who is internally-oriented, that is, feels that the effects of the future on him are determined by his own current behaviors' (Baumann & Sims, 1978:3).

Kunreuther (1984:212) also provides an insight into the nature of those individuals who purchase hazard insurance when he states that of those who do buy insurance most do not delve too deeply into the cost and benefits associated with purchase, but rather do so if they have had previous hazard impact experience and if they think the threat still exists. In a way, this adds to and reinforces the vignette sketched by Baumann and Sims. Kunreuther's observation reinforces other available evidence which suggests that disaster stimulates hazard insurance sales. Hazard insurance purchase is more evident during the latter stages of the disaster recovery period (Drabek, 1986:278). With respect to attitudes towards various types of hazard adjustment, there does seem to be a process of re-definition which takes place following hazard intervention. Once victimised, people do evidence a tendency to increase their insurance. This attitude shift and its behavioural manifestation - actual purchase increase - persists in the years ahead (ibid.). However, accompanying this process of re-definition is a 'decay curve' associated with some mitigation adjustments:

> 'Thus, while there is evidence that disaster events do open up the constraint structures that typically restrain the adoption of mitigative adjustments, such effects are temporary. What we don't know is how temporary. Nor do we have much of a sense of how this may vary according to properties of the adjustment or community characteristics. Available evidence is limited to notions of enhanced vulnerability - we have weathered past storms - and a suggestion of gradual erosion and questioning of mitigative actions that were adopted when memories were fresh' (Drabek, 1986:366).

Oliver provides a startlingly vivid Australian example of the rapidity with which disaster impact experiences are diminished and potential hazard adjustment opportunities can be lost:

> 'Within two years of [the 1971 tropical cyclone] 'Althea' depressed prices for land and properties in coastal areas [around Townsville] at risk from storm surges have recovered, and newcomers, who have purchased properties, are oblivious of the risks. Soon codes for improved building standards are questioned on the grounds of additional cost' (Oliver, 1975:109).

Likewise, with the implementation of structural 'solutions', the view may emerge that the problems have been 'solved'. This attitude is very evident with flood protection works, leading to the 'levee syndrome' (see Britton, 1988, 1989). The question is whether either a decay curve or a 'tech fix' attitude is likely to be associated with hazard insurance. In a similar vein, we know relatively little about any differentials that may exist among victim populations: are there differences between ethnic groups, between age groups, or between types of family units with respect to the purchasing of hazard insurance, for instance? These questions illustrate the point that we do not know the limits or universality of much of the material the research community has so far collected in the general field of hazard insurance purchasing.

Finally, it should be pointed out that while there is considerable reluctance to procure hazard insurance, inertia can be a positive force as well:

> 'The major effort in having an insurance policy is to be found in taking the policy out in the first place. After that, inertia is likely to operate: the cost of premiums usually becomes part of the expected expense, and the decision to renew is repetitive, while the decision to take out the policy in the first place is innovative and more resisted' (Schiff, 1977:250).

4 Conclusion: The Role of the Insurance Industry

It is conceivable that individuals may simply be unaware of the true level of risk involved in locating on a flood-plain, a tornado-belt, a storm-surge zone, or in areas that have high wildfire or tropical cyclone risks. If they were unaware of the risk, they would also obviously be unaware of either the necessity or desirability of insurance. However, one might retain a degree of skepticism about this. Baumann and Sims, for instance, declare that ignorance of a hazard in a hazard-prone area is rare (1978:189). Epple and Lave's argument that it is neither ignorant nor irrational to refuse to buy insurance especially if governments insist on spending money for disaster relief (1988:423), is both compelling in and of itself, as well as providing a partial explanation as to why hazard insurance purchase is low. What is clear however, is the need for a change in attitude towards hazards in general and in the role that hazard-reduction measures play, and in particular the role of self-help adjustment measures. Such an attitude change is required at many levels: individual, community, government, as well as organisational and industry-specific levels. The key to change is information - information about hazards and information about hazard-reducing adjustments. The insurance industry has a major role to perform here, and may well become the vanguard for such a change, should it wish to take up the challenge.

If one refers to the literature on public response to hazard

warnings, it is clear that information is the significant factor. The content and timing of the message is of paramount importance if appropriate actions are to be taken by the vulnerable public.[4] There is a clear message here for the insurance industry, because something must be done to counter the false imagery that most people have concerning the hazardousness of their environment, and the responsibility that citizens have to reduce that risk. The insurance industry ought to regard itself as being part of the nation's hazard warning system. In particular, the industry should see itself as having a major role to play in the development and maintenance of public awareness and education programmes. If the industry is serious about its concern that under-insurance is a problem - and it clearly is a problem - which is not only affecting their business but is also preventing vulnerable populations from having the opportunity to adopt insurance as another risk adjustment measure, then by adopting the position of public educator it can directly intervene and assist both themselves and the public.

The insurance industry has far greater access to hazard relevant data: actuarial information, impact and vulnerability statistics, and the like (see for instance, the work undertaken by Friedman, 1974, 1979, 1983a, 1983b; see also AIRAC, 1986). Furthermore, it has greater access to material in general on natural and technological hazards, probabilistic documentation regarding future threat occurrences, and so on.[5] It also maintains records of insured losses caused by hazard impact.[6] In addition, the insurance industry has access to relevant researchers and tends to consult with them regularly, perhaps more frequently than any other section of the community (including the established disaster-relevant organisational network). In addition, the insurance industry is better able to understand and appreciate the probabilistic nature of hazard impact occurrence, and of dealing with future-oriented events. It is quite obvious that these specific areas are difficult for the public-at-large to come to grips with. This could well be an area that the insurance industry might succeed at explaining to the general public. Given all this, the insurance industry should consider it as one of their obligations to share that knowledge with the wider community.

In his review paper, Arnell states that the results of studies

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[4] See, for instance, Aguirre, 1988; Drabek, 1986; Lindell & Perry, 1987; Mileti & Sorensen, 1988; Nigg, 1982, 1987; Perry, 1983; Perry & Nigg, 1985; Saarinen, 1982.

[5] The publications produced by the Munich Reinsurance Company, such as the World Map of Natural Hazards (1988), and the series Schaden Spiegel: Losses and Loss Prevention, are illustrative of this.

[6] The material produced by the Insurance Council of Australia is a good example of this.

of hazard perception and the reasons why relatively few hazard-zone occupants buy insurance imply that the accuracy of perceptions of the hazard must be improved if more people are to buy insurance (1983:24). If the message content the industry gives is an accurate portrayal of the situation, if it clearly portrays the nature of threats, if it provides information as to how insurance can benefit policy-holders; and if the industry augments this with additional material, such as information relating to general impact survival, all the while assuring that all this information is consistent with other material the public can access, then the public-at-risk may take notice and act. By couching the specific insurance message in the context of additional relevant material, the message can be seen to be a community service message, rather than an elaborate advertising programme. Indeed, the insurance industry ought to regard the programme as one which is being undertaken for the benefit of the entire community rather than the narrower interests of the insurance industry. This is essential if the industry wishes to overcome problems of source credibility. Individuals must be convinced that hazard is severe enough for insurance to be a worthwhile purchase, and thus awareness campaigns need to be aimed at increasing hazard awareness rather than simply selling insurance (Arnell, 1983).

As a final point, perhaps the insurance industry might like to take this issue up with another vested interest group that has also done little to increase community hazard awareness - the banks. Writing in the context of the USA environment, Epple and Lave (1988:432) ask why banks do not routinely demand flood insurance for properties located on flood-plains in the same way that they require fire insurance. Kunreuther (1984:214) suggests that if banks were to mandate earthquake or flood coverage on new dwellings as a condition of mortgage, insurance would substitute for the liberal disaster relief that currently follows large-scale disaster.

The insurance industry has nothing to lose from pursuing these actions assuming they are done properly and sincerely. There is, in fact, everything to gain. There is the potential of a significant spin-off for the industry in the form of a wider policy-holder base. There is the potential amongst the community for a greater awareness and understanding of environmental hazards. There is the potential for the government to reduce its involvement in the potentially unfair provision of disaster relief by lessening the tendency of SWABing (sitting back and waiting). And should the banking system wish to join the insurance inductry in pursuing a public hazard education and awareness programme, it might begin to shed the poor image Australian banks are currently tarnished with, by being seen to have concern for the wider community.

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