Reading

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Community Analysis

Some Considerations for Disaster Preparedness and Response

by Chas Keys, State Planning and Operations Co-ordinator, NSW State Emergency Service.

It is a fundamental tenet of emergency management that there is no hazard without people. Accordingly it is the existence of a community which turns a mere event into something which is threatening in human terms and which therefore brings about a reaction.

It is equally true, but much less widely recognised, that both preparedness for and response to hazards are greatly facilitated by an understanding of the community on whose behalf preparation and response are undertaken. Sadly, in some of emergency service organisations there is no more than a rudimentary understanding of the nature and dynamics of communities and the relevance of a comprehension of community characteristics to disaster management. The cultures which have developed in these organisations tend to be hands-on and crisis-focussed in their stances; in general, they have paid little attention to careful examinations of the communities which they protect.

The consequences are numerous. In particular, there is little consideration of the nature of vulnerability in society and the identification of the most disaster-vulnerable groups in the community—at least in advance of hazards actually occurring—with the result that emergency managers are unable to optimally target assistance to those most liable to hazards.

Fortunately, there are ways in which these deficiencies can be addressed. The tools and insights of the social sciences should have utility to disaster managers as they seek to improve their understanding of their communities in the context of hazard preparedness and response. In particular, consideration of demographic structure seems likely to pay dividends.

Community Analysis through Demographics

Everyone is vulnerable to disaster — though different individuals are not equally exposed to disastrous occurrences or to particular types of disaster. Some people are especially susceptible because they live in unusually hazardous environments, but others are vulnerable because of in-built characteristics which impair their ability to protect themselves from or respond to critical situations. For many, the risk becomes about from their inability to move quickly out of the way of an impending disaster, while for others the susceptibility relates more to their lack of knowledge or understanding of the hazards they may face.

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Vulnerability then has both environmental and social dimensions. When cast in social terms it relates to a lack of personal or physical resources or of independence of action:because of their deficiencies, some people require special assistance at times of crisis or special consideration in the process of planning for disasters.

But who are these people? Using population censuses it is possible to identify, on an area basis, the numbers or proportions of 'vulnerables' according to several characteristics. In general terms, people who belong to the following groups may be considered as being especially susceptible to hazards whether natural or technological:

- The elderly, especially if living alone and/or frail
- The poor (those with low incomes, including the unemployed and others on pensions)
- Single-parent families, especially if large or with very young children
- Those without a motor vehicle
- Newcomers (those newly resident in their communities).
- Those lacking skills in the language of the host society.

All these types can be identified from the Australian census for communities down to the level of the suburban neighbourhood covering only a few street blocks or to small rural communities numbering only several people. Not all the people in these groups are necessarily highly vulnerable, of course—and equally there are many people not in these groups who are very susceptible to disaster—but certainly the most vulnerable people are disproportionately to be found within them.

Members of the first four groups are likely to need particular help in the event of their evacuation becoming necessary during or immediately prior to disaster. For the elderly, the reasons are obvious—old people are often frail and unable to respond quickly without assistance. The poor tend to lack resources which would give them independence of decision making and action, while single-parent families are often characterised by unfavourable adult-child ratios rendering evacuation or any kind of rapid movement difficult. Households without motor vehicles frequently require special transport provision to facilitate escape from threatening circumstances.

Members of the last two groups are also problematic, mostly because they may have difficulties in responding to disaster because of lack of awareness or understanding of hazards. Newcomers to an area are likely not to appreciate the threats their new environment poses, whereas people who are unable to speak the language of the host culture will have difficulty in understanding emergency service workers in times of crisis. In preparing plans for response, such groups need particular targeting in the context of threat education and the communication of warnings.

These groups are by no means small. The population census is an imperfect instrument from which to measure how large they are, but it provides a useful indication nevertheless. The 1986 census, the latest for which detailed data are available, showed that:

- About 10.6% of the Australian population were aged 65 or more, and 4% were over 75
- Some 26.9% of all families had annual incomes below $15,000 and 18.7% had incomes below $12,000
- About 18% of the families with children had only one parent present—in almost 90% of cases the mother
- Some 13% of households had no car
- 22.4% of the population had changed their place of residence during the previous year and 47.7% had done so over the last five years
- Some 19.6% of the overseas-born who had come from non-English speaking countries claimed to speak English either 'not well' or 'not at all' this amounted to about 2.4% of the total population aged five years and over.

Many individuals, of course, are members of more than one of these groups—a situation which implies heightened vulnerability.

Vulnerable groups within the Australian city

Individual communities are not simply representative microcosms of the wider society in social or demographic terms. Rather, each is unique in terms of social content and therefore in the representation of the various vulnerable groups within it. Moreover, a community's most disaster-prone people tend to be spatially concentrated as regards their places of residence: thus some urban neighbourhoods may have percentages of elderly.

Taking the proportion of families receiving less than an arbitrary number of dollars in a year represents a very rough way of identifying the poor. Poverty is a complex concept incorporating considerations of both resources and need, and the census defines resources only in terms of income while providing no information at all on the question of need. But even given that some 'families' as defined by the census are made up of only one person and that not all people with low incomes are necessarily in poverty, the figure suggests—as is known from other sources as well—that a substantial proportion of Australians can be defined as poor in relation to contemporary economic standards.

A portion of the residential differentiation in our cities comes about by virtue of the principle of segregation by elevation. There is a well established norm, to which harbourside and beachside locations are often exceptions, for higher-income people to be disproportionately well represented on hillslopes with views while lower-income groups predominate on the valley floors. One consequence is that the victims of flooding within cities tend in the main to be drawn from the poorer strata of the community: thus applicants for flood relief tend disproportionately to come from the ranks of the recipients of Commonwealth social security benefits (Olney, 1991) despite the fact that the poor are less adept than others at negotiating the bureaucratic maze in search of help. Caravan parks, in which substantial numbers of low-income people live, are often harbingers of impending flooding. Frequently located on the banks of rivers, they are invariably amongst the first residential areas to be evacuated when floods occur.

Topographic separation, of course, is simply one illustration of the segregative forces operating within the urban environment. More generally, the rule is that the wealthy can buy space in desirable areas well separated from nuisance or hazard, and in doing so bid up land values in locations remote from heavy industry, major arterials, rubbish dumps, floodplains and the like. Exclusion principles then operate, keeping out those who cannot pay. The same thing occurs at each broad level of wealth, until at the bottom of the economic spectrum the poor cannot afford to live anywhere but adjacent to or within the least desired and most hazardous environments. Middle-income people, incidentally, often form a buffer between the wealthy and the poor as a result of this process. Distancing and gradation, then, become principles governing the development of the social topography (Johnston, 1980, 149-79). An interesting exception to the principle that the well off are distanced from hazardous environments related to vulnerability to bush fires: generally speaking, high-income people in Australian cities are more susceptible to this hazard than are the poor.

The characteristic of low income, of course, overlaps with—indeed is associated with—many other characteristics. Thus areas with large numbers of individuals or families surviving on low incomes are usually areas of below-average educational attainment within the adult population, above-average levels of unemployment and high ethnicity. The overseas-born in such areas tend to be the recently arrived, the less completely acculturated, and those without English language skills. In the same way that low-income people cannot escape the less desirable, lower-paying occupations which others can avoid, they are prisoners of the less salubrious, more hazardous environments.

There are numerous kinds of environment within which low-income people tend to predominate. Some are in the old inner city, although in recent times many working-class families have been displaced from terraces and other old housing by the process of gentrification (Walmsley, 1988, 122-23). In these same areas, past generations of overseas migrants tend more frequently to congregate in enclaves in middle-distance or outer suburbs. Low-income people also predominate in low-rental suburban public housing estates where single-parent families and the unemployed are to be found in larger numbers than in most other parts of the metropolitan environment.

Not all segregation, of course, is a function of income or wealth. Age, too, is a differentiating factor, and there are city-to-city regularities in the distributional patterns of elderly people and of young families. The latter tend to be most heavily concentrated in newly-developed suburbs near the metropolitan fringe, whereas the elderly are much more likely to be found in the older, usually inner-city areas where dwellings are more often flats or home units than separate houses. With the development of retirement villages in suburbia, significant numbers of older people are now proliferating there, but those of the elderly who do not live in such villages are less suburbanised in their distributional patterns. They are also more difficult to deal with in situations requiring evacuation, of course, because their residential locations are not so easily known to emergency managers. The Meals on Wheels organisation however maintains lists which provide a reasonable though incomplete picture of the locations of such people.

All of Australia's cities illustrate the outcomes of these segregative processes. All have areas which are known as being wealthy and areas which are known not to be—in

Sydney, the difference between the north shore and the eastern harbourside suburbs on the one hand and the western suburbs on the other are well embedded in the popular consciousness. What is more, the social topographies of our cities are similar in terms of the distributions of the various constituent groups relative to one another to industrial areas, the centre of the city, high and low ground, major water bodies, concentrations of housing of different kinds and areas of bushland. Knowing the locations of these elements of the urban environment gives the researcher an excellent idea as to where the various groups will be most strongly concentrated, and from that where the emergency manager's resources will need to be focussed in terms of hazard education, the communication of warnings, and evacuation operations.

A central variable in the analysis of hazard vulnerability relates to accessibility to private transport. Car ownership is very high in Australia, the number of cars approaching one for every two people overall, but about thirteen per cent of dwellings have no 'associated' car—that is, their occupants own no vehicle between them. Such households are particularly problematic when evacuation is necessary, since they are not in a position to move without assistance.

New suburbs are not always areas of high wealth, of course: these are the areas in which young families who are struggling under large, recently-acquired mortgages are concentrated. They are also areas in which, by definition, the residents are newcomers who presumably will have a still-undeveloped sense of the particular hazards their new environment poses. The other part of the modern Australian city where this is true is the area surrounding the central business district. There, high turnover within a predominantly rental housing market brings in a steady flow of newcomers. Both the inner city and outer suburbia, then, are likely to need special attention as regards hazard education programs. Residential stability is more the norm in the intermediate suburbs, where numbers and proportions of newcomers are generally much lower.

These various generalisations about the locations of different groups of people are confirmed by the data in Australia's quinquennial censuses through the literally dozens of urban social atlases produced for metropolitan regions and individual local government areas over the past twenty years (see, for example, Horvath et al, 1989). Despite the considerable differences between our major cities as regards site conditions and natural environments the strength of the similarities in social topographies is striking. Clearly, our cities are the products of very similar developmental forces. One consequence is that the various disaster-vulnerable groups tend to be similar concentrated or distributed in each, and the same patterns of association tend to repeat themselves from city to city.

Locating these groups by the creative use of census data and social atlas representations should help disaster managers to come to grips with planning and response tasks by indicating where the hazard education needs are greatest and where the emergency resources should be focussed in times of crisis. The fact that such managers have so far made little use of these sources of information should not mean that they will not use them in the future: increasingly user-friendly software systems such as Supermap are rapidly making censes less daunting to use and more readily accessible than they traditionally have been. The 1990s should see emergency planners and responders become educated in the use of these tools for identifying sub-elements within the populations they serve. In doing so, they will be able to generate their own specialised atlases electronically (Forrest and Poulsen, 1986), mapping with precision those elements they need to focus upon. The process is now simple and affordable, and the possibilities are bound only by the constraints on the census data themselves.

Demographic Change and Vulnerability

To this point the discussion has focussed on the identification of vulnerable groups at the present time. It is worth noting, though, that in some ways the evolution of modern urban society is exacerbating the problems of disaster managers by increasing the relative sizes of vulnerable groups within the population and dispersing them across the urban landscape. Both the numbers of elderly people and the proportions they make up of the population have ben increasing steadily and both trends have strong momentum to carry them into the future: the proportion of the Australian population made up of people aged 65 and over is expected to rise from eleven per cent in 1990 to about twenty per cent in forty years time (Bureau of Immigration Research, 1991, 60). Moreover, the 'old-old' (roughly, those aged 75 plus) are increasing more rapidly in numbers and in share of the total population than are the elderly in general, and this trend too id predicted to continue. The ageing trend has, of course, been in existence for decades and has coincided with the gradual disappearance of extended-family living and the supportiveness it traditionally gave to the elderly within the community.

Other social and demographic trends, too, are of significance to disaster management. Unemployment has increased massively since the days of virtually full employment during the so-called 'long boom' of the 1950s and 1960s. Each new recession appears now to send unemployment to a new post-war high, and the lows during successive periods of economic recovery are not as low as in earlier such periods. Long-term unemployment, with all that it implies in terms of the diminution of personal resourcefulness on the part of those unable to find work, has become embedded in some areas, particularly in the low-income parts of the inner city and the outer suburbs. Family breakdown and divorce continue at high rates, ensuring that numbers of one-parent families increase still further. Meanwhile, gentrification of inner-city neighbourhoods intensifies, continuing the process whereby disaster-vulnerable low-income people are dispersed throughout suburbia and become more difficult for emergency managers to locate. Poverty and disability, both more common in the older, inner suburbs in the past than elsewhere (Stimson, 1982, 207-11), are being suburbanised. In terms of the distribution of vulnerable groups, the Australian metropolis is becoming more complex.

Conclusion

Traditionally, emergency management in Australia has been of the crisis response kind—that is, it has tended to be reactive at the moment of onset of disaster rather than preparing for it some time before-

hand. Such as stance is antithetical to the development of proper preparedness for either the emergency services or for the communities on whose half they work. It is not surprising, in the circumstances, that the notion that people are vulnerable to disaster in different ways and to different degrees has not been translated into effective programmes of identifying the most vulnerable members and making sure that appropriate resources are provided to cater for their special needs.

The underlying message which arises from this discussion is that there is no single public, but rather a host of them, society is differentiated along numerous planes and we need to know how to identify the elements most in need to help before and in times of crisis. By understanding more full the conseo''nces of this pluralism, the emerge...y management 'industry' will be able to serve its community more effectively.

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