

Chapter 6: COMMUNITY RECOVERY

Anita Dwyer
Geoscience Australia

6.1 Introduction

Risk assessments

Beyond the damage estimates from the earthquake modelling results outlined in Chapter 5, any measurement of the impact of natural hazards must also consider social factors. Technical risk assessments have often neglected community recovery and how people cope after a natural hazard has affected their community. The factors influencing recovery are complex, however, key aspects of recovery are recognised by researchers, practitioners and the recent Council of Australian Governments (COAG) Review into Natural Disasters, and these can be incorporated into a natural hazard risk assessment for a community (COAG, 2004). They include environmental, financial and economic, physical, community, psychosocial and emotional factors (COAG, 2004; Emergency Management Australia (EMA), 2004a; Ministry of Civil Defence and Emergency Management, 2004).

This chapter discusses three factors it is suggested underpin community recovery:

- household financial capacity,
- social networks (an element of community capacity) and
- distance to services.

There are many more factors that influence the recovery process, as the anecdotes of recovery managers and sociologists studying natural disasters make clear. Other integral factors influence recovery, such as local economic activity, business interruption, environmental impacts and infrastructure effects. These are not explored in this chapter because no adequate data sets are available at the national level. Characteristics of available data are discussed in Dwyer *et al.*, 2004).

Geoscience Australia is developing a national risk assessment framework to assist the whole of government to better manage the risk from natural disasters. Any such framework must incorporate factors influencing community recovery from a natural disaster. However, for any risk to a specific community, such as the Perth metropolitan area, local knowledge and local data are essential in contributing to measures of recovery.

The research outlined in this chapter emphasises that community recovery issues should be included with any geological, engineering and economic assessment of natural hazards in Perth.

Floods, earthquakes, severe storm and bushfire are some of the more frequent hazards that affect people in the Perth community, disrupting the lives of anywhere from one to more than ten thousand households. The early chapters in this report have outlined the scientific methods defining the magnitude and probability of hazards in Perth. This chapter will focus on some of the social factors that may be relevant to the Perth community's capacity to recover when any of these hazards affects the Perth metropolitan region.

Perth recovery services

The West Australian government has numerous mechanisms in place to assist people who have experienced a natural disaster or trauma. The Department for Community Development has a

website dedicated to information on coping and recovery, a telephone helpline, referral services and a list of assistance available. The website makes an integral link between emergency management and community development, stating that ‘This website can help you with recovery, coping, healing and starting to make sense of it all...’ It is essential reading for all involved with the development of a risk assessment for the Perth community. The website can be found at: <http://www.emergency.communitydevelopment.wa.gov.au/>.

Factors influencing community recovery

Recovery can have different meanings, describing both a process and an outcome and with different measures. This chapter aims to highlight that recovery ‘is more than simply the replacement of what has been destroyed and the rehabilitation of those affected. It is a complex social and developmental process.’ (EMA, 2004).

The framework

Enduring a natural hazard can have a significant, if not devastating, effect on people, their households and their communities. The extent of the impact is reflected in people’s recovery, a complex process involving many factors. The January 1997 bushfires at Wooroloo, the 1979 Cadoux earthquake, the 1961 Dwellingup bushfires and the 1983 flood on the Canning River are just some of the natural hazards that have affected people living in the Perth region (EMA, 2004b; Insurance Council of Australia, 2002). How each person, household and broader community has recovered from these events has related to a range of factors, including physical, social, emotional, psychological, economic and financial circumstances (EMA, 2004a).

Emotional and psychological recovery is complex. Some people’s psychological recovery may be strongly linked to financial stressors, while some may be more linked to feelings of safety. Each person will have an individual path to recovery, but there are some common themes or factors that will influence it. A framework has been developed to capture some of these factors in a simple but useful manner. It draws on some of the factors reported to contribute to recovery, using national data sets so that a picture of recovery factors can eventually be developed for all of Australia. The framework does not provide a holistic measure, but rather a guide to better understanding some significant factors. Three factors explore different aspects of recovery; household financial capacity, social networks and access to services (Figure 6.1). Four aspects of each factor will be discussed: concept, measures, Perth assessment and interpretation. The intention is to provide decision-makers with an insight into some of the issues facing communities during the recovery process.

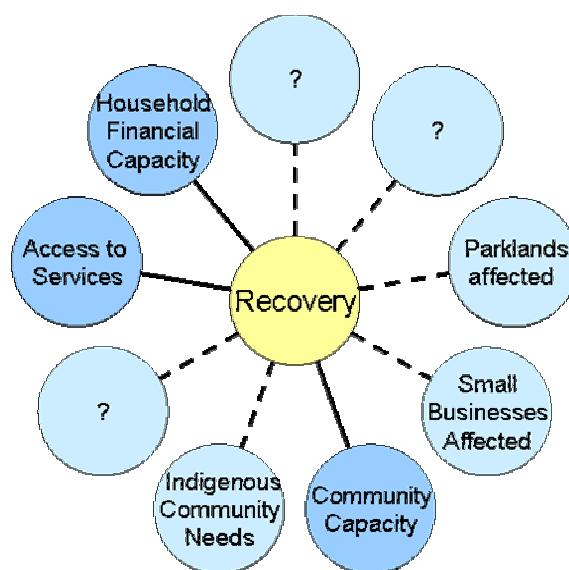


Figure 6.1: A simple framework of factors influencing recovery from natural hazard events. Only three of many factors influencing community recovery are explored here

6.2 Household Financial Capacity

Concept

The financial situation of a household is important to both how fast and effectively people recover from a natural hazard. The capacity to buy house insurance, access temporary accommodation, build a new house, purchase new clothes and household goods, access on-going medical treatment and take time off work clearly contributes to the recovery of a person or a household from a natural hazard. Research has demonstrated that people's vulnerability to natural hazards is strongly affected by the relationship between their income level, tenure type and house insurance level (Dwyer *et al.*, 2004). Limited financial options can contribute to stress that, in turn, can adversely affect personal relationships. It is, therefore, important to know which households may require financial assistance in both the medium to long term.

Table 6.1: The Perth LGAs divided into quartiles for the Index of Economic Resources ranked for all of Australia (no LGAs are in the first quartile)

Quartile	LGA Name	Population	Rank
2 nd	Kwinana	19452	934.1
3 rd	Belmont	28999	951.2
	Armadale	50108	967.0
	Bassendean	13322	971.1
	Rockingham	69163	980.6
	Gosnells	80049	983.9
	Wanneroo	79959	985.3
	Bayswater	54390	986.5
4 th	Swan	82201	989.2
	Victoria Park	25716	989.3
	Fremantle	24315	995.4
	Cockburn	66108	1000.2
	Stirling	168747	1004.0
	Serpentine-Jarrahdale	10855	1010.5
	Mundaring	32582	1011.6
	Kalamunda	46245	1017.6
	Canning	73727	1017.8
	Vincent	25618	1038.5
	Perth	9831	1055.4
	Joondalup	148268	1066.2
	Melville	91385	1068.1
	South Perth	36108	1075.6
	Mosman Park	7824	1090.2
	East Fremantle	6345	1091.0
	Subiaco	15673	1115.0
	Claremont	8733	1137.1
	Cambridge	22451	1144.3
	Nedlands	19274	1166.6
	Cottesloe	6987	1181.7
	Peppermint Grove	1540	1210.2

Source: ABS 2001 SEIFA, 2004a

Measures

Some financial attributes of a household that may contribute to a quicker or longer recovery include appropriate house insurance, tenure type, income, disposable income and savings. These data are captured by the SEIFA Index of Economic Resources (ABS, 2004a), developed from the Australian Bureau of Statistics (ABS) 2001 Census. The variables for this index relate to income, expenditure and assets – for example, family income, rent, mortgage and dwelling size – and

capture the financial situation of individuals within a household. The SEIFA Index ranks each administrative area on a relative scale according to the proportion of households with high and low economic resources (ABS, 2004a). The index is not designed to specifically measure vulnerability to natural hazard, such a detailed national index does not yet exist. It does provide a very thorough insight into the differing financial capacities of Perth households.

Perth assessment: local government areas

There are 30 local government areas (LGAs) in the Perth metropolitan area. Each has a relative rank in the SEIFA Index of Economic Resources (ABS, 2004a). The Perth LGAs are listed in Table 6.1 from lowest to greatest proportion of household financial capacity. As the index is relative, it is important to compare the areas against the Australian total. As such, the index can be divided into quartiles. No Perth LGA is in the lowest quartile and only Kwinana is in the second quartile (Table 6.1). Of the other 29 LGAs in the top 50% of all LGAs in Australia, 22 are in the top 25% of Australian LGAs. When compared with the Australian average (1000.0), the Perth metropolitan area has a high proportion of households with high financial resources, and a low proportion of households with very low financial resources.

The distribution of the LGAs, ranked by SEIFA quartiles, is shown in Figure 6.2. All the LGAs in central Perth are in the top 25% of all LGAs in Australia, indicating that these areas have a high proportion of households with high financial capacity. The areas with a lower proportion of households with high financial capacity are located in the very north (Wanneroo), the very south (Rockingham and Kwinana) and the central-east (Belmont, Armadale, Bassendean, Gosnells and Bayswater).

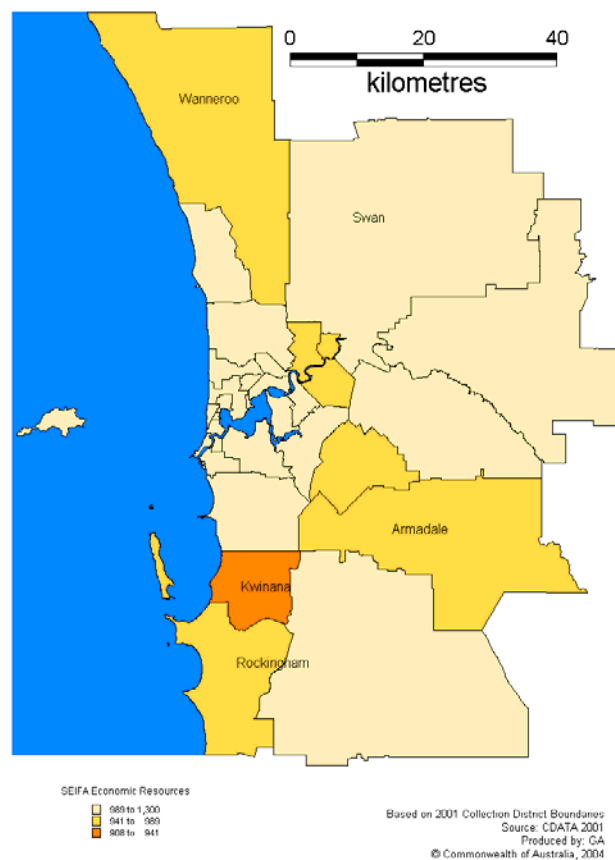


Figure 6.2: The SEIFA ranks for the 30 LGAs in the Perth metropolitan area

Perth assessment: Census Districts

One benefit of using the SEIFA Index is its capacity to analyse small areas, such as census districts. While Census District (CD) analysis can look like an unhelpful patchwork quilt over very large areas, it can be useful in observing trends in small areas, giving us more insight than the LGA rankings. There are 2,772 CDs in the Perth metropolitan area, ranging from 80 to 280 households, with an average of approximately 220 households (ABS, 2004a). Figure 6.3 shows the CDs for the Perth area, with some trends observable in the metropolitan fringe areas.

Unlike the LGA SEIFA ranking, which did not have any Perth areas in the first quartile of LGAs, the CDs of metropolitan Perth span all four quartiles when ranked against all Australian CDs. It is important to note that the difference between the top ranks of some quartiles and the bottom ranks of adjacent quartiles can be very small, so the quartile classification should be viewed in context with the values of all areas, remembering that the Australian average is 1000.0. There are CDs in the first quartile scattered across the Perth area, but there are four distinct clusters of CDs in the first and second quartiles, indicating a high proportion of households with reduced financial capacity and a low proportion of households with high financial capacity. These clusters are highlighted in Figure 6.4 and shown in more detail in Figures 6.4 and 6.5. The districts that might suffer financial difficulties following a natural disaster are:

- *Inner-north*: suburbs just east of the Wanneroo Road and south of Marangaroo Road, including Girrawheen, Koondoola, Mirrabooka, Balga, Westminster, Nollarma.
- *North-east Perth*: the suburbs at the junctions of the Great Northern, Great Eastern and Roe Highways, including Midland, Midvale and Bellevue.
- *South Fremantle to Rockingham*: suburbs along Rockingham Road, including Medina, Orelia, Parmelia, Calista, Hillman, East Rockingham, Rockingham, Hamilton Hill, Coolbellup, Cooloongup.
- *South-east Perth*: suburbs along the Albany Highway from the junction with the Great Eastern Highway down to the junction with Armadale Road, including Belmont, Bentley, Cannington, Kenwick, Thornlie, Kelmscott, Gosnells, Armadale, Langford.

Interpretation

The clusters of households with low financial capacity, as shown in Figure 6.3, tend to be along major highways or freeways in Perth, or at major intersections, with the exclusion of the Rockingham area in the south of cluster 4. While it is beyond the scope or expertise of this report to discuss why households with low financial capacities are located in these areas of Perth, it is possible to suggest a relationship with the lower real estate values associated with houses along major road networks. Houses with lower real estate values provide an opportunity for people with lower financial capacity to access housing. However, the important point to note is that households in these four clusters may take longer to repair or rebuild their house, or replace damaged items, due to a lower household financial capacity.

6.3 Social Networks

Concept

Other factors than financial strength contribute to the recovery of a household, including our social networks. These include interactions with our neighbours, friends, family and the wider community. Social networks, support in times of crisis and our feelings about our community will influence aspects of our recovery. People and communities who have a greater degree of self-determination are better placed to recover (EMA, 2004a). Having an input into re-planning or contributing to community development, being able to access services or people for support, volunteering in your community or participating in activities may assist in the recovery process.

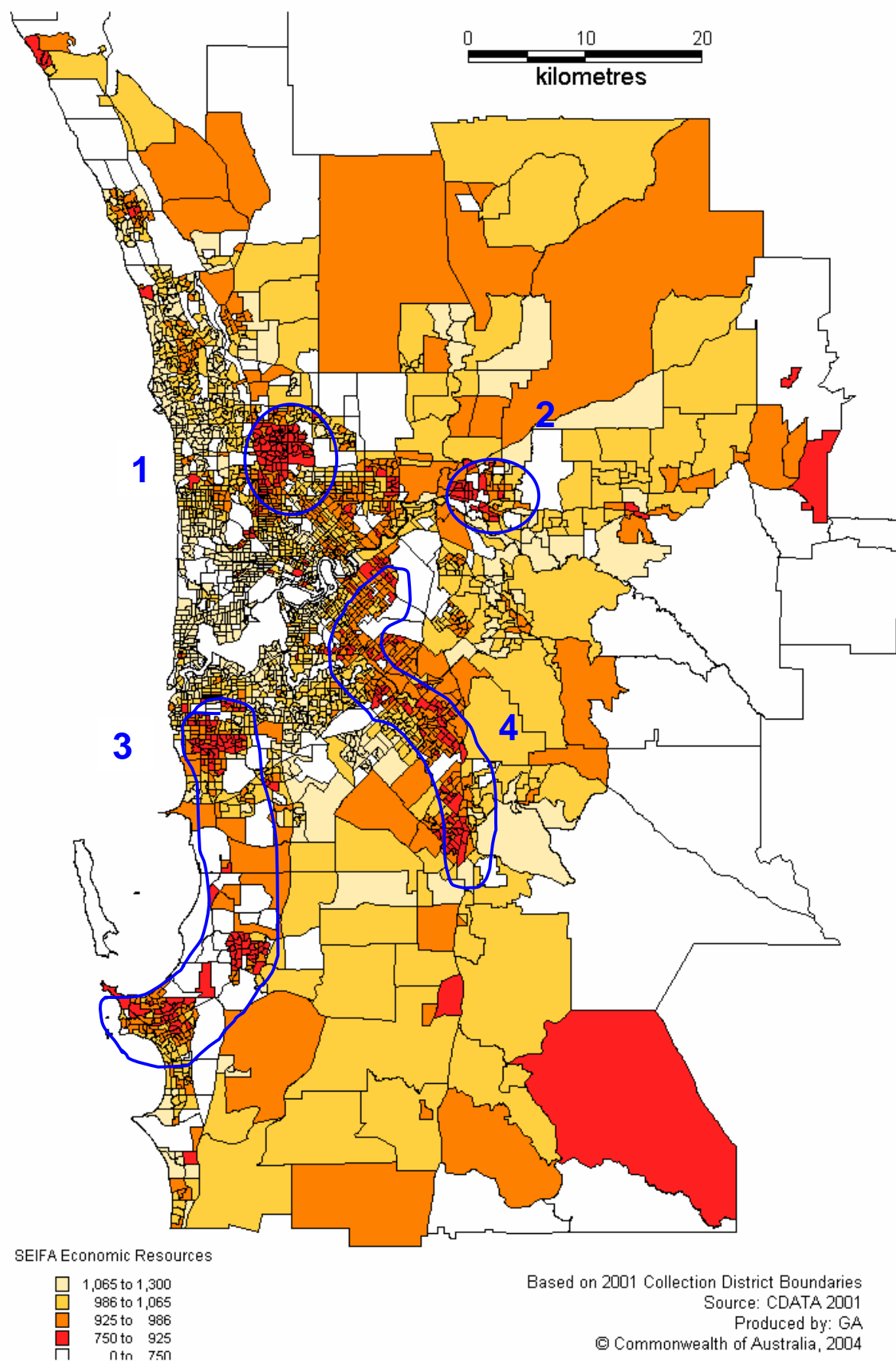


Figure 6.3 The four clusters of areas with a high proportion of households with low financial capacity in the Perth metropolitan area.

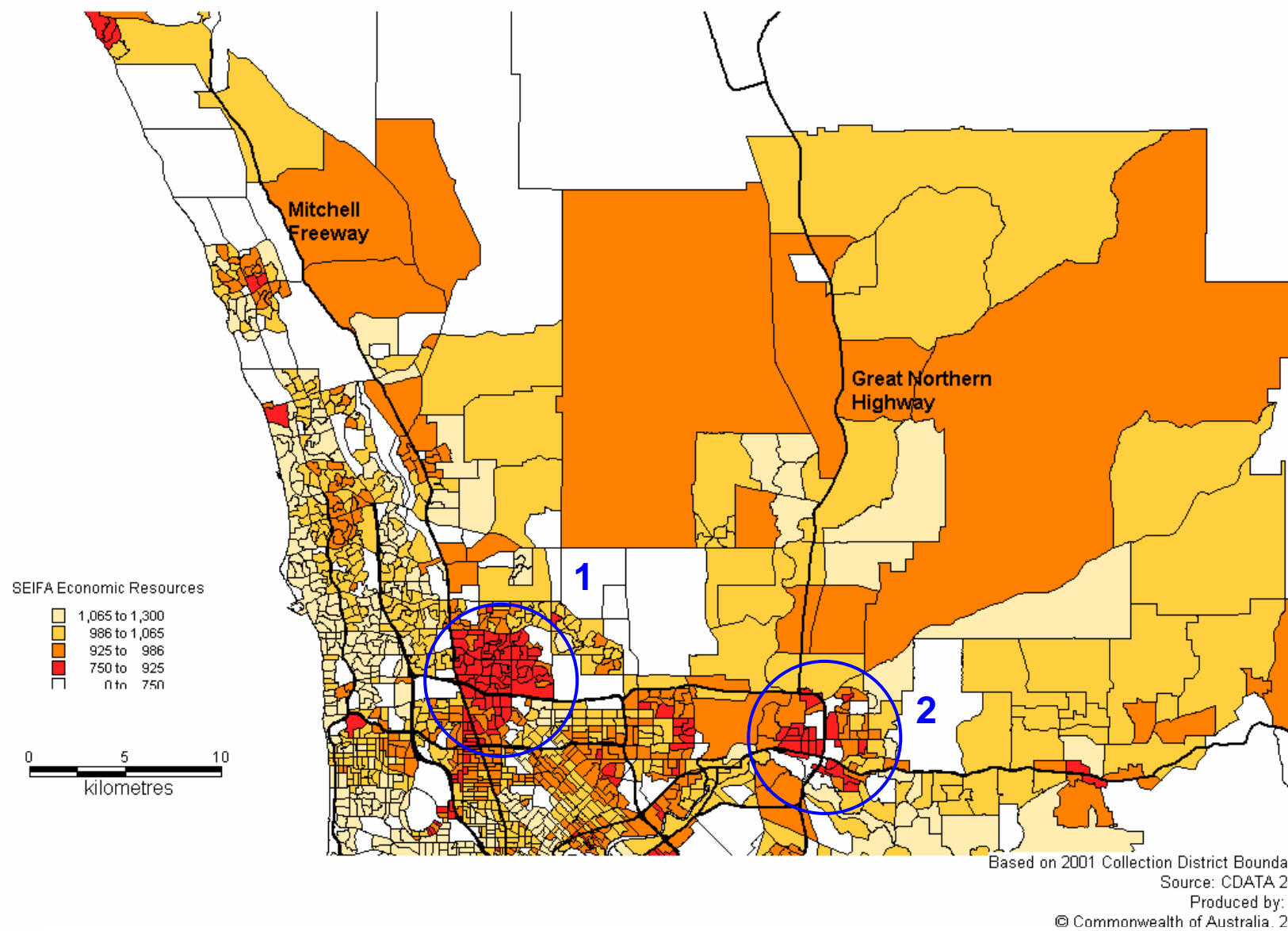


Figure 6.4 Two of the clusters of areas with a high proportion of households with low financial capacity: Inner-north and North-east Perth.

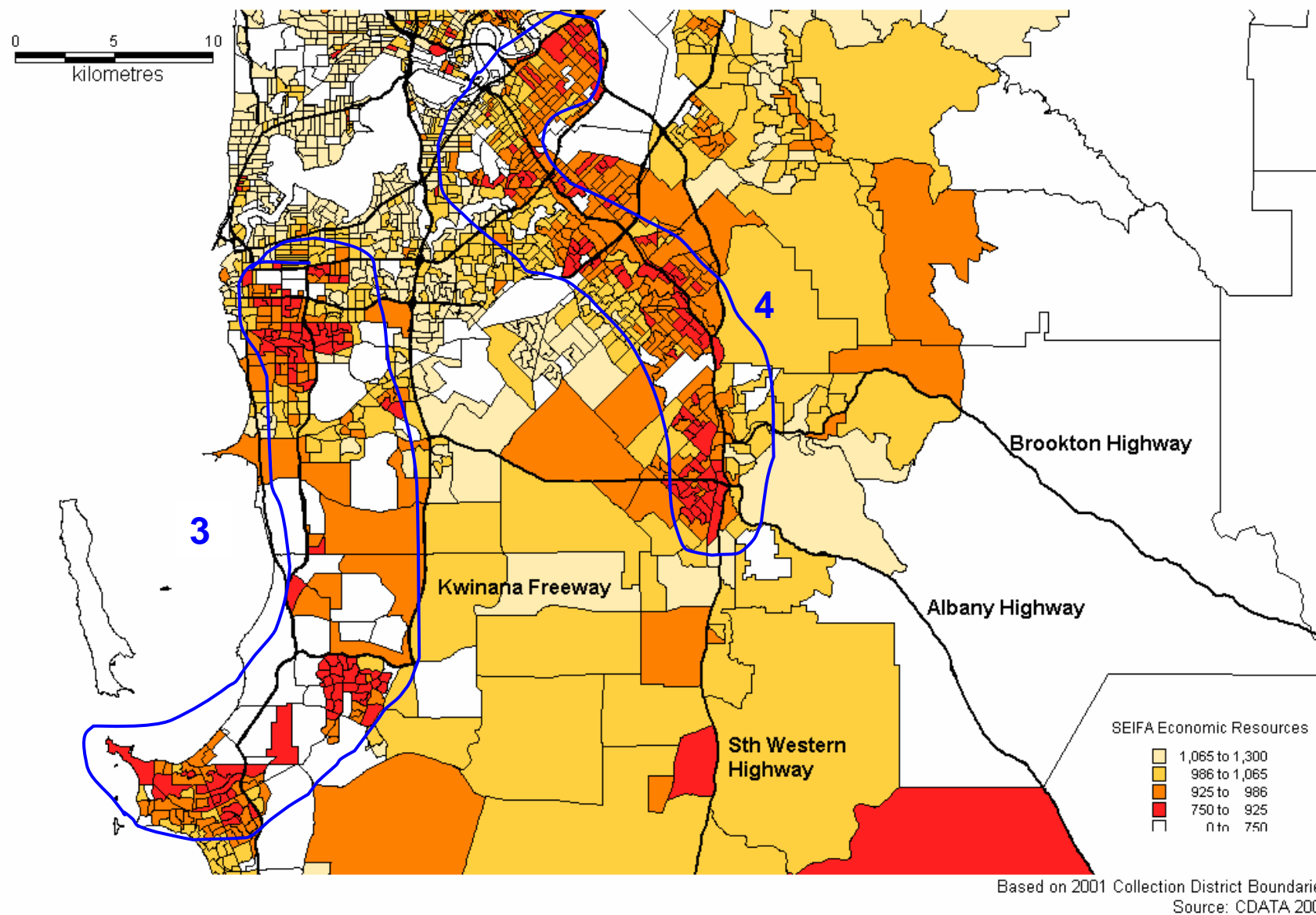


Figure 6.5 Two of the clusters of areas with a high proportion of households with low financial capacity: South Fremantle - Rockingham, Southeast Perth

Methods of communication are also very important in the recovery process, as different people and communities access information through different means. To ensure that information about recovery services, community meetings, and building and financial services reach those who have been affected, the characteristics of the affected community need to be taken into consideration. For example, some communities may rely on town meetings to disseminate information, other communities may have a high home internet use rate and some, especially rural and remote communities, may rely on local radio networks. Methods of communication are an aspect of social capital, a concept which aims to define and sometimes measure characteristics in communities often considered difficult to capture (Productivity Commission, 2003). Knowing what social attributes, including methods of communication, are specific to communities affected by natural hazard events allows planners to better assist in the recovery process.

Measures

General Social Survey (GSS) data provides an insight into the community characteristics across Australia at state level, and also for cities, inner regional areas and other localities (ABS, 2004b). The data collected in the first GSS, conducted in 2002 by the ABS, measure aspects of social capital and other socio-economic issues that are generally considered 'unmeasurable'. The World Bank (World Bank, 2004), the United Nations, the ABS (ABS, 2004c) and numerous other socio-economic research agencies are attempting to develop and refine measures of social capital – an individual and community concept that relates to social networks, trust, support and social cohesion. These agencies view social capital as an important aspect of community resilience, but acknowledge that it is very difficult to measure. Nonetheless, there have been common data items collected by various agencies, some of which include questions about membership in organisations, community groups and volunteerism. Other questions relate to contact with family and friends, and feelings of safety and trust in the community (World Bank, 2004; ABS, 2004c).

As well as collecting general measures of social capital, the GSS asks specific questions about safety and support in times of crisis, the use of government and charity services, frequency of contact with friends and families, attendance at social/sporting events and purpose and frequency of internet usage. Seven data items from the GSS have been used to assess community recovery issues in the Perth Cities Project. This data can provide insight into some of the unique social needs of a city or region, which is important when assisting the recovery.

Perth assessment

A comparison of the Western Australia results for each of the seven data items provides an insight into some of the unique attributes of the West Australian population compared with the rest of Australia. Perhaps even more importantly, the data provides a discussion point for how and why some of these items are important in understanding the many complex factors that may influence long-term community recovery.

1. Ability to raise emergency money

The GSS defines an ability to raise emergency money as being able to access \$2,000 in one week. Possible sources of the money include personal savings, loans from financial institutions or from family and friends, providing insight into both financial capacity and relationships with friends and family. In the event of a natural disaster, government relief arrangements assist people in the immediate relief and response period, but access to emergency money is an important indicator of longer-term financial resilience.

The results across Australia were fairly uniform, with an average of 82.4% of all respondents indicating that their households could raise emergency money. The ACT had the highest capacity, with 90.5% of respondents able to raise emergency money: Western Australia had the next highest rate at 83.4%. While the difference between the states is negligible, it is

worth noting that West Australians have a greater capacity to raise emergency money than the rest of Australia, excluding the ACT.

2. Ability to ask for small favours

Natural hazard impacts can greatly interrupt the routine of a household and require people to ask for help. It is important to know people's capacity to ask for assistance, as those who don't ask may need pro-active assistance from government during times of disaster. It also gives an insight into the strength and reliability of informal networks, which are an important factor in the recovery of households and their communities. Respondents in the GSS were asked if they could ask someone who does not live with them for a small favour.

The GSS found that between 92.5% and 95.7% of Australians can ask someone for a small favour when help is needed (Figure 6.6). West Australia has the highest percentage (95.8%) of respondents who could ask someone outside their home for a small favour. However, like the previous data item, the difference between the states is relatively negligible.

3. Frequency of face-to-face contact with family or friends

Contact with people is at the foundation of social capital. How often we have contact with family and friends provides an insight into the strength of our social networks, which is an important aspect of support during the recovery from a natural hazard. According to the GSS results, between 80–90% of Australians have face-to-face contact with family or friends outside their household, on a weekly basis. At only one per cent lower than the ACT, 89% of WA residents indicated that they have face-to-face contact with friends or family outside their household at least once a week.

4. Feelings of safety at home alone after dark

Perception of safety at home provides an insight into how people feel about the community they live in, as well as previous experiences that may influence their judgement. Feelings of safety after dark also suggest the level of trust that people may have in unannounced visitors at night. If a natural hazard were to occur after dark, people who feel very unsafe may be less willing to open their doors to listen to emergency services or police. Approximately 8.5% of West Australian respondents feel neither safe nor unsafe at home alone after dark, which is the lowest proportion across all states and territories. The Australian average is 40 and 41% respectively (Figure 6.7).

5. Sources of support in times of crisis

Knowing who people turn to in times of crisis is essential information for risk managers involved in community recovery after a natural hazard impact. The GSS asked respondents whether or not they turned to seven different areas of support (Figure 6.8). While the trends across Australia are relatively similar, there are some unique state identifiers. Western Australians are more likely to turn to a health, legal or financial professional than residents of other states, or to a community, charity or religious organization. However, they are most likely to turn to a family member/friend, neighbour/colleague. This indicates that informal networks are the strongest in times of crisis, and also that in WA people are more likely to use some formal sources of support.

6. Participation in organised and non-organised activities

Activities that are associated with leisure time are an important part of recovery. Participation indicates either that people have spare time and money to attend such events, indicating a relatively good lifestyle, or that such events are important enough to warrant financial sacrifice to take part. More West Australian respondents are likely to participate in non-organised activities (36%) than any other state except the ACT. They are also more likely than the residents of other states to attend both organised and non-organised activities,

indicating a strong informal network in conjunction with more formally organised activities (Figure 6.9).

7. Type of unpaid voluntary work

Volunteerism is thought to contribute directly to the Australian economy (in 1997, it was estimated to be worth between \$24 billion and \$31 billion) and also indirectly. Indirect benefits include increased levels of trust, greater engagement in public affairs and increases in personal satisfaction and worth (Mayer, 2003). Between 35% and 41% of Australians responding to the GSS undertook unpaid voluntary work in the past 12 months. Voluntary work done by West Australians was more likely to involve a sport, recreation or hobby, or welfare/community activity (Figure 6.10).

Interpretation

The GSS is an encouraging first step in obtaining national-level data on complex social capital issues. However, due to privacy and confidentiality restrictions, the data are unsuited to analysis of regions or smaller communities. The few questions presented in this report show that West Australians have a slightly higher capacity than is average for social networking and community involvement. It would be useful to be able to separate the results for various communities within West Australia, and this could be a research priority for the future.

It is beyond the capacity or expertise of this report to analyse why people have provided the answers they did to the questions asked in the GSS. Complex social capital and perception of community issues affect recovery from natural hazards. State and local government community development agencies and staff are best placed to capture the relevant data, as well as interpret and mitigate these issues in order to assist the recovery process. These agencies need to be consulted in all stages of risk management to ensure that the recovery process, as well as other social factors contributing to mitigation, is a priority for emergency management planning and action.

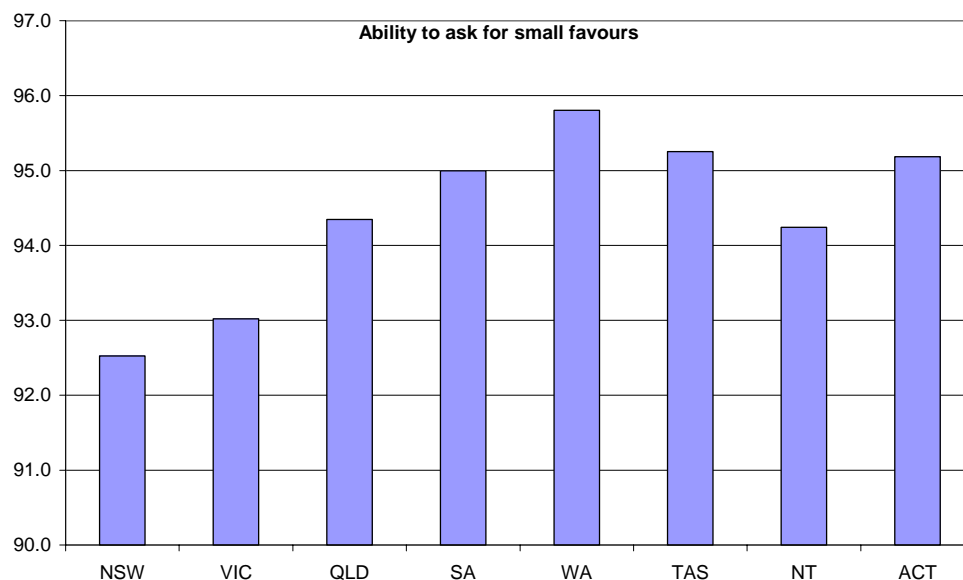


Figure 6.6: Ability to ask for small favours by state. WA respondents indicated the highest ability

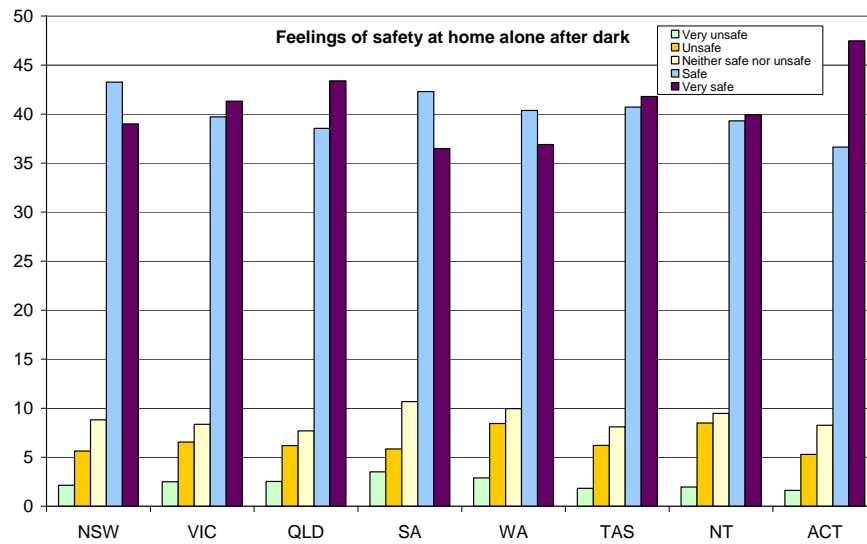


Figure 6.7: Feelings of safety at home alone after dark

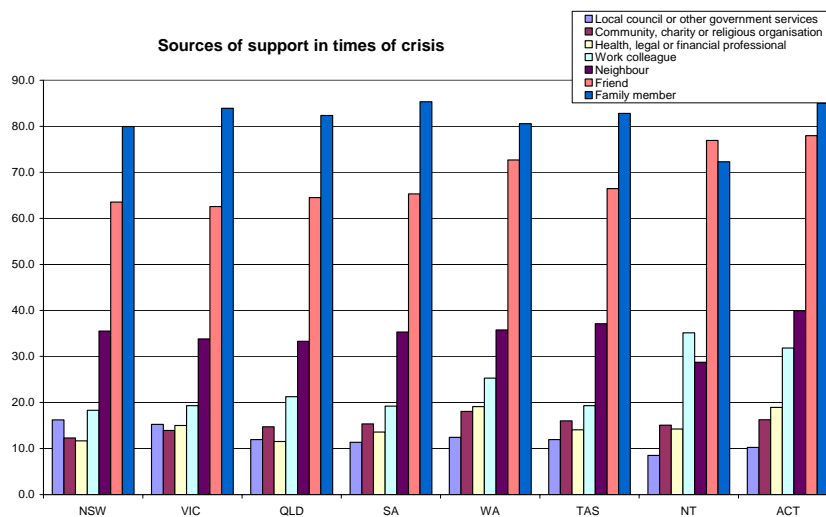


Figure 6.8: Various sources of support used in times of crisis

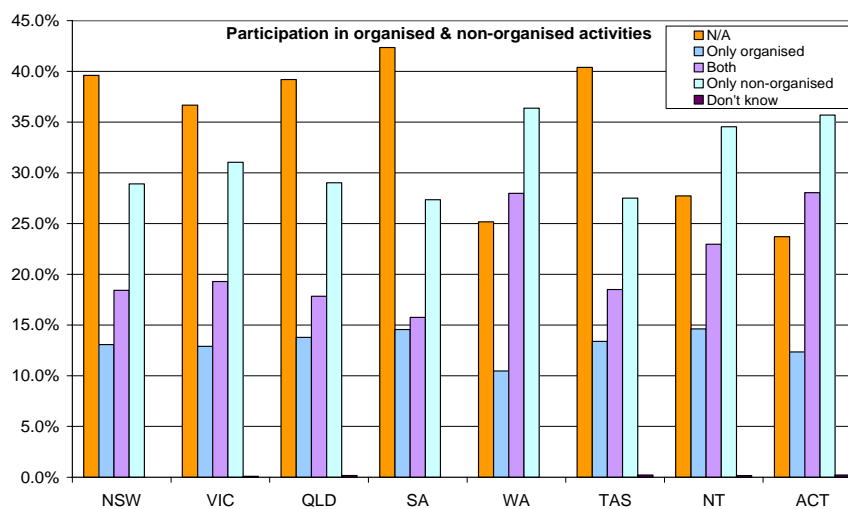


Figure 6.9: Participation in organised and non-organised activities

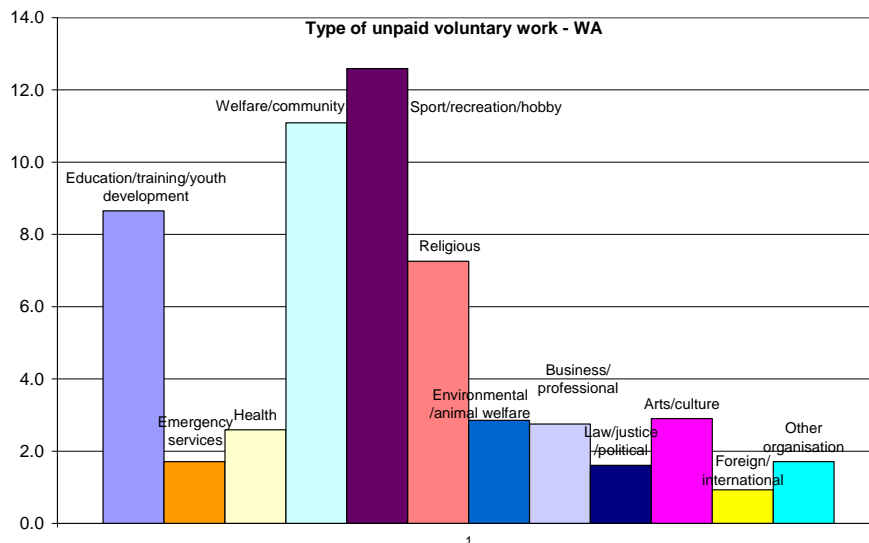


Figure 6.10: Type of unpaid voluntary work undertaken by West Australian respondents

6.4 Access to Services

Concept

Distance is still an important factor in the recovery of many communities, particularly outside major cities. Following a natural disaster, people may need regular visits to medical and welfare services, so the ability to access these is an important factor in recovery. Reconstructing houses, rebuilding local playgrounds and reconnecting water, electricity and gas depends, among other factors, on the distance between the disaster and the available materials and workforce. Other obstacles to service access – cultural, psychological and other barriers are just as significant as distance – are difficult to measure and an index including them does not yet exist for Australia.

Measure

The ABS Remoteness Classification aims to capture some of these issues by measuring the distance of an area or town to a centre with major services. The Remoteness Classification takes into account the types of services that different sized centres provide. For example, while some medical services may be found in the classifications ‘Inner Regional’, ‘Outer Regional’ and ‘Remote’, specialised medical services, such as obstetrics or burns care, may only be found in a ‘Major City’ (ABS, 2001b). The classification is therefore weighted according to the level of services provided and provides a valuable insight into the distance issues that may affect the recovery of some households and communities. It is important to note that some regional areas have some significant services, such as the large regional hospitals found in both Armadale and Kalamunda, two LGAs that the ABS classification identifies as partially outside the ‘Major City’ classification.

Perth assessment

The Perth metropolitan area falls into two remoteness classifications; Major City and Inner Regional (ABS, 2003). Of the 30 LGAs in the Perth metropolitan area, 23 are Major City areas, only one (Serpentine–Jarrahdale) falls into the Inner Regional classification and 6 LGAs straddle both Major City and Inner Regional areas. Table 6.3 lists the remoteness classification for each LGA in metropolitan Perth. This information allows us to consider where disaster recovery might be affected by distance from a major service centre. The areas are Serpentine–Jarrahdale, northern Wanneroo, northern Swan, southern Rockingham, southeastern Kwinana, eastern Kalamunda and eastern Armadale.

Table 6.2: The remoteness classification of the LGAs in metropolitan Perth

LGA Name	ABS Remoteness Classification
Armadale, Kalamunda	City/Inner Regional
Kwinana, Rockingham	City/Inner Regional
Swan, Wanneroo	City/Inner Regional
Serpentine–Jarrahdale	Inner Regional
Bassendean, Bayswater	Major City
Belmont, Cambridge	Major City
Canning, Claremont, Cockburn	Major City
Cottesloe, East Fremantle	Major City
Fremantle, Gosnells, Joondalup	Major City
Melville, Mosman Park	Major City
Mundaring, Nedlands	Major City
Peppermint Grove, Perth	Major City
South Perth, Stirling, Subiaco	Major City
Victoria Park, Vincent	Major City

Source: ABS 2001 Census Data, 2003

Interpretation

West Australia has some of the most remote communities in Australia, so distance to services is a particularly important factor in the recovery process for many communities. Perth communities are generally close to the major services that would be needed in the recovery process. Residents of the outer communities of Armadale, Kalamunda, Kwinana, Rockingham, Swan and Wanneroo have greater distances to travel to major services. If transport routes are affected by a natural disaster, people in these communities will be more physically isolated than central areas.

6.5 Findings

Most households in the Perth metropolitan area do not have very low economic resources. In the event of a natural disaster that damages residences, many households can draw on their own economic resources to assist their recovery. However, it must be noted that there are some areas, or clusters, of households that may experience difficulties in the recovery process due to limited financial capacity.

The strong informal network that is indicated by the results from the GSS suggests that for many in Perth, recovery may involve a strong utilisation of friends, family, neighbours and informal organizations. The strong community network in WA is also evident. Almost all residents indicated that they can ask someone outside of their home, including a health, legal or financial professional, a charity or religious organization, for assistance in an emergency, which is much needed during recovery from natural disaster. Recovery managers should consider this when tailoring programs and services for people in the Perth community. People in some outer suburban areas may have much further to travel to major services. Access to services, whether medical, welfare, social, physical or cultural, may be an important factor influencing the recovery of outer communities. This information may assist recovery managers in understanding some access/transport issues for people living in this part of the Perth metropolitan community.

The three factors explored in this chapter show that the Perth community has many characteristics that will influence the recovery process following a natural hazard event.

While the 'household financial capacity', 'community and social networks' and 'distance to services' only skim the surface of the many factors influencing recovery, the framework presented in this chapter shows Perth to have attributes that will influence and assist the recovery process of many households.

6.6 Recommendations and Future Research

We need to know more about the social processes of disaster recovery and how better risk assessments can be developed. The following points highlight some key recommendations:

- Local community development agencies and state recovery managers have an invaluable role and *must* be involved in risk assessment development and strategic risk management decisions. Only then can government begin to more effectively reduce the impact that natural disasters have on Australian communities.
- We need to better understand the emotional and psychological factors associated with accessing services during recovery.
- The effect of environmental factors on recovery should be studied.
- The role local economies play a community's recovery needs to be better understood.
- Finally, we need to involve people who are familiar with technical and social aspects of risk management in the development of risk assessments, so that they provide a more accurate picture of the issues involved in natural disasters.

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