



GOVERNMENTS AND THE CONSEQUENCES OF DISASTER

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SUMMARY

A society's approach to disaster response and recovery lies along a spectrum from *lessaiz faire* to central control. The prevalence of fatalism and attitudes to self-help or charity are influences. New Zealand's system is based on central and local government involvement and is a set of building codes, land use regulations, local body civil defence responsibilities and a compulsory insurance scheme for homes. New Zealand is a seismically active country with a sparse population and an agricultural economy. It set up the Earthquake Commission (EQC) after the second world war, during which it experienced two damaging earthquakes. The central policy framework for EQC is a social benefit delivered in a quasi-commercial way, aimed at community-wide disaster rather than individual misfortunes and a risk management agency rather than just a dispenser of compensation. The steps to designing a government disaster scheme are to establish the basis, legislate, develop the fund, manage the scheme, plan for community recovery from disasters, organise protection for the fund and research the risk and communicate it. The current EQC management take an active approach to catastrophe recovery planning and to providing a high standard of claims settlement service. It puts considerable effort and resources into research support and knowing the risk. In doing so, it is trying to establish best practice for government schemes and, indeed, any insurance company.

INTRODUCTION

The way any society deals with the consequences of disaster varies along a spectrum. At one end, citizens are expected to live with the consequences of their decisions about where to live and work. This is a society based upon individual responsibility. A little further along the spectrum lies a society with a tradition of charity and informal help for those members of family, tribe, race or other grouping who suffer misfortune. There is a general expectation that spontaneous arrangements will assist with rehabilitation.

The availability of insurance will probably influence the position that a modern society adopts and the State may institute regimes of prudential supervision and regulation to enable the existence of a healthy insurance market. Moving towards the further (politically left-leaning) end of the spectrum, some societies set up disaster financing schemes like the EQC scheme in New Zealand. This scheme is a little short of the end of the spectrum at which there would be no preparations made for disaster. The consequences would be shared among the whole of society through a medium like taxation. A large degree, if not total, central control of the response and recovery processes accompanies this "ultimate"

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form of government involvement. The old Turkish scheme (pre-Turkish Catastrophe Insurance Pool) is, perhaps, an example of this.

THE NEW ZEALAND SYSTEM

In New Zealand, building codes with accompanying compliance arrangements apply. These are aimed at making certain that built structures are sufficiently robust to ensure the safety of occupants or users, taking account of the particular hazards to which the region is vulnerable. Land use regulations are intended to influence the siting of built structures away from hazardous areas.

The new Civil Defence and Emergency Management Act places the onus on regional authorities (local government) to plan for, and take charge of, the response and recovery phases following a natural disaster. There is also a responsibility to encourage or enforce mitigation measures.

Compensation for the financial losses caused by natural disasters is shared between the insurance industry and the government-controlled EQC scheme for residential property. The Earthquake Commission, which administers the insurance scheme, sees its role increasingly as one of involvement in the repair and reinstatement of housing rather than merely quantifying damage and writing cheques.

THE NEW ZEALAND CONTEXT

New Zealand consists of two main islands in the southern Pacific Ocean, separated by a strait about 40kms wide. The islands lie between latitudes 34°S and 47°S, a distance of some 1600kms. New Zealand is about 2000kms east of Australia, its nearest neighbour. The country is slightly longer than California, with a land area two-thirds of that of Japan or about the same as the United Kingdom's.

Our population has just reached 4million, giving a density of 14 per square kilometre, compared with Japan at 335 and the United Kingdom at 241.

The economy relies on agriculture (sheep, dairy, forestry) but tourism is also a major earner. Gross domestic product is about US\$50billion.

The main centres are Auckland (now with a population of over 1million), Wellington, and, in the South Island, Christchurch. 80% of the population is of European origin, with 15% Maori, and the rest Polynesian or Asian.

The New Zealand landscape is one of mountain ranges and hill country. The South Island's many lakes are glacial, whilst those in the north are typically in volcanic calderas or craters. The country was formed by seismic activity as it lies astride the boundary of two of the earth's tectonic plates. New Zealand is riven by faultlines, especially through the centre of the country where the highest level of seismicity is experienced. There is also volcanic activity, and New Zealand's geothermal fields are a tourist attraction. Auckland sits on top of a volcanic field of some 50 vents.

Nowhere is New Zealand's seismic predicament displayed more strikingly than in the Southern Alps which mark the boundary between the two tectonic plates by the long straight gash of the Alpine Fault.

The nation's capital is Wellington, which lies across four earthquake faultlines. The one that runs closest to the central business district is active, with an estimated return period of 600 years. Its last break was before European settlement but the neighbouring Wairarapa fault gave in 1855. The resulting 8.2 Richter

magnitude earthquake destroyed the village of Wellington with the help of a subsequent fire. Many settlers took fright and some moved to what they thought was the safety of San Francisco.

The traditional New Zealand housing construction is light, timber-framed, with an iron roof. Lateral bracing is contained within the timber frame, the cladding being relied upon for little, if any, structural integrity. New Zealand lies generally below the Pacific Cyclone belt so the need to build to cope with that peril is avoided. Degrading tropical storms and southerly gales are not infrequent visitors to New Zealand but it is the geological hazards that threaten the greater impact.

New Zealand's worst earthquake in European times was the 1931 event at Napier which killed 256 people. The silver lining to this dark cloud was that it showed the dominant house construction method, which resulted from the plentiful supply of timber and comparative scarcity of building stone, performed well under attack from earthquake shaking, even if susceptible to ensuing fire.

Although modern building materials and claddings have now replaced some traditional ones, New Zealand's housing is still based upon the timber frame, light roof construction method. The cost of building such a house today ranges between NZ\$140,000 and NZ\$200,000, plus tax.

THE EQC SCHEME

One of the roles of the Earthquake Commission (EQC) is to manage a scheme of insurance on residential property, independently of the insurance industry. The Commission is a government agency, and purchasing its insurance is a compulsory addition to taking out normal householder's cover with a commercial insurance company. Compulsion works both ways – EQC has no underwriting power or authority to decline cover.

The scheme covers the first \$100,000 of damage per individual home and the first \$20,000 of damage to contents. The premium is undifferentiated throughout the country at a rate of 5¢ per \$100 of cover taken. Thus, for coverage to the above limits against damage caused by earthquake, volcanic eruption, tsunami, landslide, or hydrothermal activity (including fire following any of these), a householder pays NZ\$67.50 including tax per year.

The scheme commenced in 1945, EQC then being titled the Earthquake and War Damage Commission. Until the late 1980s, the Commission was part of the government-run State Insurance Office. Up until then, the insurance scheme covered every physical asset insured in New Zealand with the same rules of compulsion as now and the same flat premium rate on everything.

Reforms came in 1993 following the privatisation of the State Insurance Office. War damage cover was dropped and the Commission was renamed to, simply, the Earthquake Commission. Compulsory cover was restricted to residential property only and the Commission was withdrawn from the non-residential property market.

The establishment of the Earthquake and War Damage Commission coincided with a quiet seismic period in New Zealand and EQC has faced little challenge in the claims settlement area. The most costly disaster with which it has had to cope was in 1987 when an earthquake near the middle of the east coast of the North Island resulted in payments of NZ\$135million. Before that, in 1968, at the top of the South Island an earthquake resulted in 10,000 claims.

This benign period has enabled the Commission to accumulate capital and reserves of NZ\$4.3billion from premium and investment income. Additionally, we have reinsurance protection of NZ\$1.6billion. The

Commission enjoys a tax-free status and built into its enabling legislation is an obligation on the government to meet all liabilities (for which it charges a fee).

The dark side of this rosy picture is that a movement on the fault line which runs near the central business district of Wellington could result in claims on the Commission of up to NZ\$6.8billion.

The EQC insurance scheme has some limitations: it covers only some types of disaster, insures physical damage to residential property only (and excludes some items), is limited in the amount of cover provided, and extends insurance only if the owner has bought a fire insurance policy. There is no pricing incentive to safeguard property because everyone pays the same premium rate but some individual responsibility remains through the application of a small excess on claims and some exclusions to cover.

FRAMEWORK FOR AN INSURANCE SCHEME

Any such scheme must contain trade-offs of the kind exhibited by the EQC Scheme. These compromises should have some consistency so strategic positions need to be established in order to achieve this.

The first set of policy issues addresses the degree to which the scheme should be commercially based as opposed to providing a social benefit. A normal business operates in the interests of its shareholders, is in competition with others in the market, must comply with any regulation applicable to that market and has performance measures related to financial outcomes. Premium levels and terms of the cover provided by a scheme would depend upon the extent to which the scheme must operate on this basis or as an agency with community welfare as its *raison d'être*. Of course, the conclusion arrived at may be between the two extremes, in which case special attention is required to disaggregate aims and objectives to ensure the behaviour of the entity is as expected.

Another determination to be made is whether the disasters contemplated for cover by the scheme are those which encompass a community or extend down to individuals. A house fire is a disaster for the family affected but is not a community disaster. Questions of the minimum cover offered may be involved. The EQC scheme has very low excess levels so pays out for very minor earthquake damage which, whilst distressing for the claimant, is hardly an event of national concern.

A third decision spectrum is the extent to which the scheme is expected to engage in risk management as opposed to mere benefit delivery. A government-run insurance scheme could be the vehicle by which the government quantifies its risk arising from community damage following natural disaster and transfers away a proportion of it in accordance with its own risk appetite. The manager of the insurance scheme could be merely the conduit for compensation payments to those who qualify, or it could also provide risk management for the government. If the preference is for the limited process function, then the benefits of the scheme should be aligned to the level of government responsibility. This could be characterised as a modest compensation for damage in the event of extraordinary and widespread disaster.

DESIGNING A GOVERNMENT RESPONSE

The process for establishing a government role in disaster recovery has several steps:

1. Establish a basis

New Zealand has chosen to establish a Natural Disaster Fund based on the accumulation of compulsory levies on general insurance policies acquired by home owners. Over the years, the New Zealand fund has grown considerably despite calls on it from small-to-medium size disasters from earthquakes, volcanic

eruption and landslip. EQC purchases reinsurance protection on the world market and the government guarantees its obligations.

There are various other ways a fund can be created, for example by grant from the World Bank or other funding body, by setting aside other public money or by levying property owners through local authority taxation. A combination of these can also be used.

The New Zealand scheme is based on the principles and practice of the insurance market. Property owners pay a premium and are indemnified for their losses. Other bases that could be chosen include rehousing grants, a welfare benefits scheme or taking control of the means of home repair at the state's expense.

2. Legislation

Enabling legislation, decree or regulation must first be drafted to give effect to the establishment of a fund. In New Zealand, this is the Earthquake Commission Act (1993) and Regulations. It established the structure of the Commission, controls its activities and set up the insurance scheme backed by the Natural Disaster Fund.

Again, there are alternatives. The hallmarks of the New Zealand model are a small, efficient administration (made possible by the provision of levy collection through the insurance industry), independence from the insurance market and from other arms of government, simplicity in premium setting and extent of coverage provided, and comprehensiveness of cover (it is virtually compulsory).

3. Fund Development Process

Growth of the fund can be planned for by allocating a portion of general taxation, continuing a levy on home owners (as in New Zealand) or crediting investment income. Certain protection can be afforded in the formative years by limiting payouts through entitlement hurdles like insurance excesses, covering few types of event, or applying maximum amounts per household. The New Zealand scheme applies a maximum sum insured per home, although this is from ground up, so does not limit claims to a great degree.

4. Management of the Scheme

EQC collects premiums by way of a levy on insurance companies' invoices, invests its capital and reserves on a "management of managers" basis and settles claims through a third party claims administration agreement. This agreement is not with insurance companies, but that is an alternative that would involve a trade-off between utilising the claims handling expertise of the insurance companies and retaining control of claims processing and decisions.

These arrangements enable EQC to be run with a very small core staff – almost as a virtual organisation - relative to the size of the fund to be managed and the potential for claim numbers.

5. Catastrophe Response Programme

A critical element of the New Zealand model is the ability of EQC, a government agency, to plan its response to a serious natural disaster in detail, in collaboration with other entities that will be involved and without pressure on short term financial results. This combination often places EQC in a leadership role in recovery planning.

The EQC practice of outsourcing has developed expertise in New Zealand to perform these contracts, and business clusters have formed to facilitate the marketing of these services overseas. The web address is www.naturalhazards.co.nz

6. Fund Protection

The New Zealand Natural Disaster Fund (i.e. EQC's capital and reserves) is protected by:

- the investment strategy approved by the government,
- one of the largest property catastrophe reinsurance programmes placed in the world market and
- the government's guarantee.

It is important to diversify the risk carried by the Fund and this can be achieved by exporting that risk through capital and reinsurance markets. This is an area of growing opportunity and complexity.

7. Risk Information

To manage a risk, it must first be understood. The elements of hazard and vulnerability must be explored. EQC has commissioned an earthquake hazard model, which applies seismicity source, damage attenuation and building vulnerability assumptions to its portfolio of residential properties. The resulting projected liabilities can then be applied to an asset accumulation model to create a dynamic financial analysis programme.

This suite of computer programmes assists in financial and operational planning for a catastrophe response. They help assess the relative values of competing reinsurance or capital market protections and project forward likely financial results of altering terms and conditions of the cover provided to householders. Output assists Board decisions and informs the reinsurance market.

Such models produce a range of results because they cannot forecast the future, only suggest likely outcomes. They are reliant on the data available and the accuracy of this can be maximised by ongoing and relevant research. New Zealand research institutions are at the leading edge in this area.

8. Risk Communication

In order to smooth the progress of recovery and minimise crises, it is necessary to maintain a regular information flow to several different audiences, from the government to the general public and particularly including the news media. This flow is especially important at the time of a disaster and, like every other aspect of a catastrophe response, planning and preparation are critical.

Messages and advice that people would rather not have to consider have to be designed and planned carefully if they are to be effective. EQC's functions include providing information on how to mitigate damage and loss.

CONCLUSION

There is little doubt that governments have a role with regard to the vulnerability to natural disaster of the communities for which they are responsible. Before the event there are the questions of controlling development through planning, standards and codes (a very real challenge for many governments), and of intervening in the market to ensure that financial and other assistance is available to assist a community to recover.

Once the catastrophe has occurred, then governments' responsibilities become sharply focused on:

- Housing their citizens displaced by the event
- Law and order
- Co-ordinating the response and rescue efforts
- Channelling international aid
- Crisis management
- Learning the lessons and deciding how they can be utilised to drive future improvements.

Central governments will be brought into community recovery efforts when these are perceived to be inadequate. Recovery (rebuilding and repair) is an essentially private sector function and governments may be ill prepared for any intervention. A central government agency centred upon disaster recovery, as well as helping ensure recovery is accomplished, would be a source of information for the government and a means by which its influence could be exerted.