

EARTHQUAKE INSURANCE IN NEW ZEALAND

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1. Introduction.

"Earthquakes in New Zealand are a natural condition that must be faced. Our geology, our land forms and our history remind us that earthquakes are part of our environment With the present incomplete data the degree of liability to damage of any particular district cannot be accurately assessed. No one can tell when the next destructive earthquake will occur, where its focus will be, or how great will be its energy". (Dr Henderson "Earthquake Risk in New Zealand 1944").

Since earthquakes cannot be prevented or controlled and must be recognised as part of our natural environment, we must do two things:-

- (i) Build better than we have done in the past so that structures will resist earthquake shock.
- (ii) As the loss is a national community matter, provide means of spreading any earthquake losses by means of insurance.

When earthquake insurance is considered it must be borne in mind that New Zealand contracts insure not only damage caused by shock but also fire resulting from earthquake. Conversely the normal fire insurance contract expressly excludes earthquake fire.

2. History.

As far as I can discover the first earthquake insurance policies taken out in New Zealand appear to be those negotiated in 1900 by Mr G.H. Scales representing Henry Head & Co., Brokers at Lloyds. However, the demand was very light.

Following the Murchison earthquake on the 17th February 1929 the market expanded a little. Some property owners with multi-storied buildings began to be interested in earthquake policies and a number of lending institutions made earthquake insurance a prerequisite to a mortgage on unit masonry buildings.

On the 3rd February 1931 the Hawke's Bay earthquake occurred. This shock was followed by a fire and caused the greatest property damage (and loss of life) in New Zealand's history. Only a few properties were insured against earth-

quake and the devastation was such that the Government was compelled to assist by making special finance available. A few insurance offices, notably the State Fire Office and the North Island Motor Union, although their policies expressly excluded earthquake fire, made payments to their policy holders who suffered fire damage following this shock.

This date, 3rd February 1931, marks the real start of the demand for earthquake insurance in New Zealand. At this time too came the first suggestions of some form of national scheme. These suggestions, many of them advocated through newspaper editorials, involved some form of a compulsory levy subsidised by the Government. All such schemes were doomed to failure for two reasons:-

First, New Zealand was passing through a severe financial depression and any scheme which involved a further large drain on Treasury resources could not be favoured by financial interests.

Secondly, most schemes envisaged a retrospective application to the property damaged in the Hawke's Bay earthquake. This meant that a fund carrying a heavy contingent liability would be bankrupt before it started.

However two suggested schemes are worthy of note:-

- (1) A private Bill entitled "Earthquake Protection" was introduced in 1935 by the Speaker of the House of Representatives, Mr W.E. Barnard M.P.

Under this Bill it was proposed that an insurance tax should be levied quarterly on all fire insurance offices at a rate of 1/- per cent on amounts of all contracts of fire insurance. This tax was to be collected by the Commissioner of Taxes and paid into a Reserve Fund within the Public Account.

Every property owner who paid tax under the Act and who suffered earthquake loss would be entitled to participate in the distribution of the insurance tax moneys subject to such conditions as Parliament imposed. This Bill did not get beyond the stage of a Second Reading.

- (2) The other scheme was contemplated in Sect.57 of the Finance Act 1933 (No.2) which authorised the making of Regulations controlling the policy conditions of fire insurance contracts issued in New Zealand. One of the proposed conditions was the inclusion of earthquake fire cover in

all fire insurance policies. Mr J.H. Jerram I.S.O., the then General Manager of the State Fire Office endeavoured to obtain the agreement of English Underwriters to this proposal, without success.

3. Attitude of Insurance Offices to Earthquake Insurance.

At this stage we should have a look at those aspects of earthquake insurance which cause concern to Insurance Companies and limit the availability of this type of cover:-

- (a) Property owners believe that earthquakes occur in narrow zones where shocks have occurred in comparatively recent times. Accordingly, they select against the Insurance Companies by insuring only in those areas considered vulnerable and those buildings which do not have a good measure of earthquake resistance. This results in large numbers of policies in narrow areas and the consequent possibility of a large group of losses occurring from the one event. Such aggregations of loss could threaten the stability or the very existence of companies even those with substantial resources. Ironically such a state of affairs causes high premium rates and this in turn discourages the seeking of earthquake insurance in the zones popularly thought to be less vulnerable. This again tends to restrict the spreading of the risk. Successful insurance is dependent upon the spreading of the risk.
- (b) One of the methods of spreading the risk in normal insurance is by reinsurance. However in earthquake insurance the reinsuring sources are faced with the same adverse selection as the direct insurers and accordingly reinsurance facilities are comparatively limited, and are often subject to restrictive conditions.
- (c) The loss experience in earthquake insurance is subject to violent fluctuation. There tends to be long periods practically free from losses and then in one event the loss is catastrophic. This has a number of undesirable effects from the Company point of view:-
 - (i) The profits available for dividend purposes are erratic.
 - (ii) Taxation in the good years is on a high scale. When the disaster occurs there is often a limited period over which losses may be carried forward for tax purposes.

(iii) It is difficult under these conditions to build up the adequate reserves which are essential in any form of catastrophe insurance.

4. Position of Earthquake Insurance by 1944.

In 1942 during the Second World War two earthquakes, verging on major, affected Wellington and the neighbouring area of Wairarapa. This caused a renewed request for more earthquake cover on buildings.

Two new types of insurance had been growing up during the years prior to 1944 - Replacement Value or Reinstatement policies and Loss of Profits policies. Replacement Value policies differ from the conventional indemnity policies in that they provide for the replacement of the building in new materials of the same type, no depreciation factor is taken into account. Some forms of Replacement Value policies go even further and provide for replacement in superior materials to the existing structure.

These three factors combined in a demand for earthquake insurance which was beyond the capacity of the insurance industry to meet. I saw at this time waiting lists of property owners who wished to take out earthquake policies but who were unable to obtain policies from the Companies.

5. Introduction of the Earthquake and War Damage Act 1944.

In 1941 New Zealand had developed a scheme for War Damage Insurance. The basis of this scheme was that where any property was insured against fire in New Zealand it was automatically insured to the same amount against war damage. Fortunately there were few calls on the War Damage and it was decided to use the £4,000,000 Fund as a nucleus and to extend the application of the Fund to Earthquake damage. Accordingly the Earthquake and War Damage Act 1944 was introduced. Under Section 14 of this Act tangible property which is insured against fire is automatically insured to the same amount against earthquake damage. It should be clearly understood that the insurance provided under the Act is on tangible property and is restricted to indemnity value.

In addition to the automatic insurance provided under Section 14. The Commission is empowered to accept earthquake insurance on a voluntary basis. Property which is not normally insured against fire - hydro-dams, swimming baths - and property which is insured outside New Zealand are often so insured.

To administer the Fund a Commission was set up. This Commission consists of :-

The Minister (who is the Chairman)
The Secretary to the Treasury
The State Insurance General Manager
Four other members appointed by the
Governor General

There is provision for the appointment of one member as the Deputy Chairman. There is no statutory requirement as to the background of the appointed members but it has been customary for at least one member to be a New Zealand manager of an Insurance Company.

The staff of the Commission are all Public Servants and is small. At present it consists of nine members with the Secretary as the executive officer.

Claims are dealt with by the Commission using the normal independent insurance assessors. Expert advice from engineers, architects and contractors is obtained if necessary.

The Earthquake and War Damage Fund is financed by the charging of 1/- per £100 of fire insurance. This levy is paid monthly by insurance offices who have the right of reimbursement from the policy holders.

The annual income of the Commission is at the present time more than £3,000,000. Of this about £1,000,000 is investment income and £2,000,000 is from premiums. The claims experience has been surprisingly light over the twenty years of operations and the accumulated funds exceed £30,000,000.

With the introduction of the Earthquake and War Damage Act the Companies' earthquake policies insuring tangible properties declined although there are still a few such policies. However, the demand for earthquake loss of profits and replacement value policies has grown.

6. The Present Position of Earthquake Insurance in New Zealand.

At the present time there are two general systems of Earthquake insurance in New Zealand.

- (1) Tangible property - private and commercial buildings, commercial stocks, domestic property, insured under the Earthquake and War Damage Act at a standard rate of 1/- per £100.
- (2) Loss of Profits and Excess of Indemnity Contracts issued by the Insurance Offices.

These types of policy are generally taken out by commercial interests and to a great extent are aggregated around Wellington, Lower Hutt, Manawatu, Wairarapa and Hawke's Bay areas. The selection is against the Insurance Offices and the aggregation into confined zones is such that many of the Insurance Companies are having difficulty in obtaining adequate reinsurance facilities.

Typical basic premium rates charged in the Wellington area are :-

1. (a) Structural steel frame) with reinforced concrete) throughout)	Firm ground	4/-
(b) Reinforced concrete) throughout)	Filled or reclaimed ground	5/-
2. Brick, stone, or tile without) structural frame)	Firm ground	8/6
	Full or reclaimed ground	10/-

7. Claims Experience.

In New Zealand fairly extensive statistics of fire insurance experience are prepared by the Government Statistician. However, except for the Earthquake and War Damage Commission accounts no earthquake statistics are or have been kept.

Accordingly, it is impossible to get a proper picture of the premiums or claims experience of the Insurance Companies. However, I think that it would be fair to say that prior to 1942 the total amount of earthquake claims would be small mainly because the amount of business underwritten had not developed into large totals. However, by 1942 larger totals had been reached and when two fairly severe earthquakes occurred in the Wellington and Wairarapa areas comparatively serious losses must have fallen on the Insurance Offices.

In the last 20 years since the inception of the Earthquake and War Damage Act 1944 and the change of emphasis to Loss of Profits and Excess of Indemnity Contracts the claims experience must have been very good indeed.

As far as the Earthquake and War Damage Commission is concerned its 20 years' experience has fortunately coincided with a period of low seismicity which has allowed the accumulation of useful funds even when considered against the estimated total amount at risk of £4,000,000,000. The experience is shown in the following schedule :-

<u>Premium Income</u>		<u>Amount of Claims Paid</u>
1944/45	320,274	82
45/46	365,861	507
46/47	410,065	1,779
47/48	494,938	7,917
48/49	540,704	12,876
49/50	563,009	2,161
50/51	631,982	19,341
51/52	754,127	4,044
52/53	860,215	893
53/54	939,109	12,196
54/55	1,064,569	2,093
55/56	1,172,894	4,554
56/57	1,296,990	8,575
57/58	1,382,814	8,697
58/59	1,509,425	5,213
59/60	1,580,432	36,771
60/61	1,720,529	15,518
61/62	1,867,870	8,329
62/63	1,972,809	124,112
63/64	<u>2,121,755</u>	<u>5,092</u>
	<u>£21,570,371</u>	<u>£280,750</u>

About 90% of the claims are for damage to domestic chimneys. The development of a type of chimney with a good resistance to earthquake would greatly reduce the unnecessary damage in light earthquakes.

The extremely favourable claims experience over 20 years must not be accepted as normal. The time base is far too short. During the period no major earthquake has occurred close to a densely populated area. A study of the 20 years prior to the inception of the Act discloses a very different picture. Numerous damaging earthquakes occurred notably Murchison 1929, the Hawke's Bay 1931 and Wellington and Wairarapa in 1942. Had the Earthquake and War Damage Fund been commenced 20 years earlier the Government would have had to contribute large sums to keep it solvent and the premium rate would undoubtedly have been increased.

8. Conclusion.

Since 1944 the Earthquake and War Damage Act has been extended to include other forms of natural disaster insurance but these are subsidiary to the main purpose of the Act and lie outside the scope of the Conference.

I think that it can be justly claimed that the earthquake insurance provided under the Earthquake and War Damage Act goes a long way to providing at a reasonable rate a measure of financial relief for those owners whose property is damaged in an earthquake. However, how much better it would be if all our buildings were resistant to all but the most severe earthquakes. Then both property damage and loss of life would be reduced to a minimum. Perhaps there would be no need for the Earthquake and War Damage Commission.

EARTHQUAKE INSURANCE IN NEW ZEALAND

BY J. R. BENNETT

QUESTION BY: I.L. HOLMES - NEW ZEALAND

The insurance described is for replacement in the same state as the building, for instance, was at the time of the earthquake. Does this mean that damaged buildings are rebuilt within the limit of the funds available to the owners; that is in the same potentially dangerous state as was their condition before the earthquake. If this is the case, how does the Commission regard this in view of the fact that it does not improve the insurance risk for future earthquakes?

AUTHOR'S REPLY: Replacement value insurance is available in New Zealand and its application is becoming more widespread. Perhaps this development may solve the problem posed.

It is clear that if the Commission were to pay out on a more costly basis than on which the premium is paid, the fund would be rapidly depleted.

This question is closely allied to the enforcement of building bylaws. If building codes are enforced inferior structures will not be erected.

I think that the greatest weakness in the application of the New Zealand Standard Model Building Bylaw is that there is no obligation upon Local Authorities to adopt it as a Minimum Standard and even if it is adopted the Local Authority may not enforce it.

QUESTION BY: M.M. SWEETMAN - NEW ZEALAND

In view of the comment in the paragraph below the table on page 7 of the paper, has the department any plans for financing research into this subject and other subjects relevant to the prevention of earthquake damage and thus conserving funds.

AUTHOR'S REPLY: The Earthquake and War Damage Act, as it is at present, does not provide for expenditure in Research. Consideration has been given to amending the Act to provide authority for such expenditure. This, of course, is a matter of Government policy.

My personal opinion is that it is desirable that the Commission should finance some research. In particular I would like to see research in fields outside those which are regarded as important by engineers. Such things as the development of an earthquake resistant

domestic chimney would relieve the community of considerable unnecessary expense through earthquake damage. I do not consider that the Commission should finance all research in the building field. Prospective property owners should be expected to contribute to the cost. Vendors of new materials and designs should also expect to provide the research necessary to demonstrate the proper use of their product. Again, normal Government research should not be financed by the Commission.

COMMENT BY:

R.G. NORMAN - NEW ZEALAND

Concerning the matter of research towards the construction of better chimneys to reduce damage claims, the Building and Construction Committee of the National Research Advisory Council is recommending to Government that Research Funds be specifically allocated to studies in seismic security.