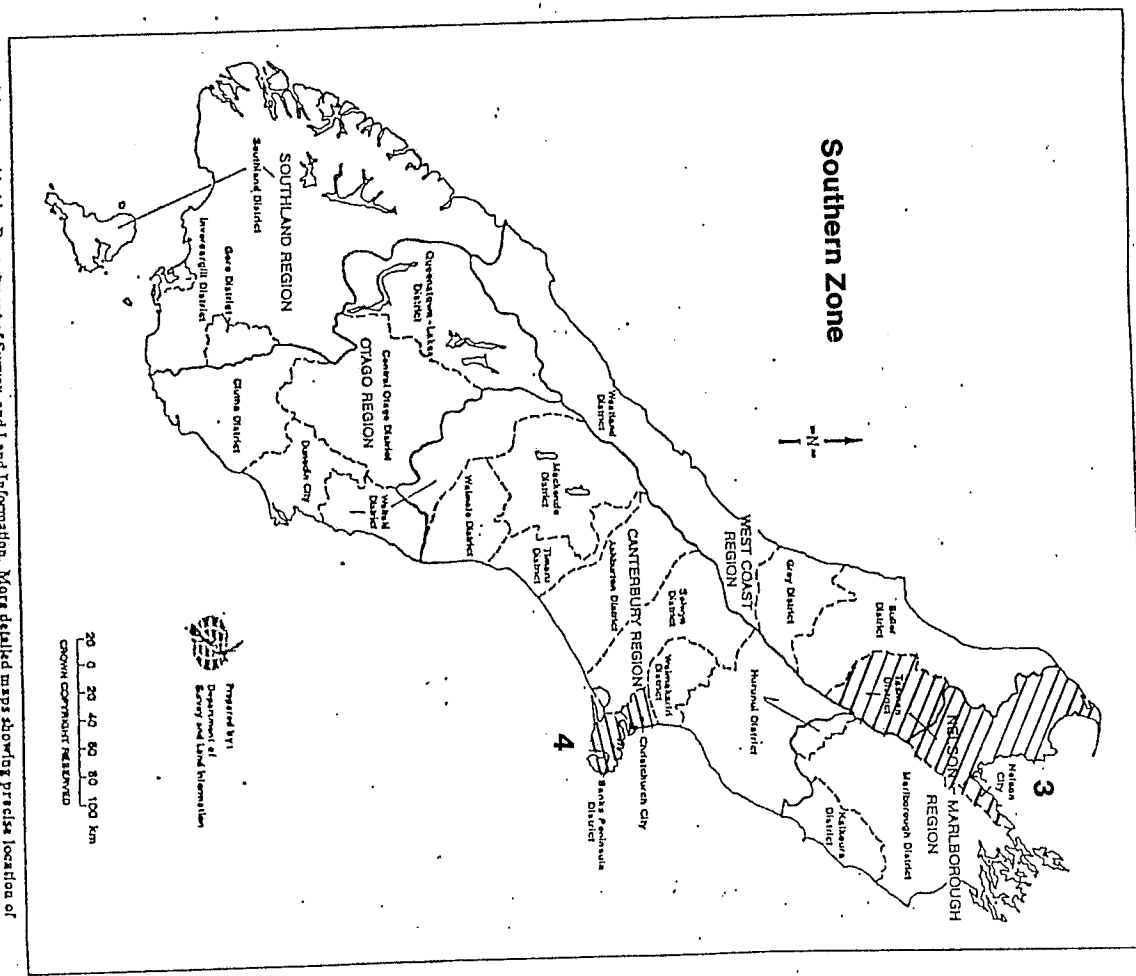
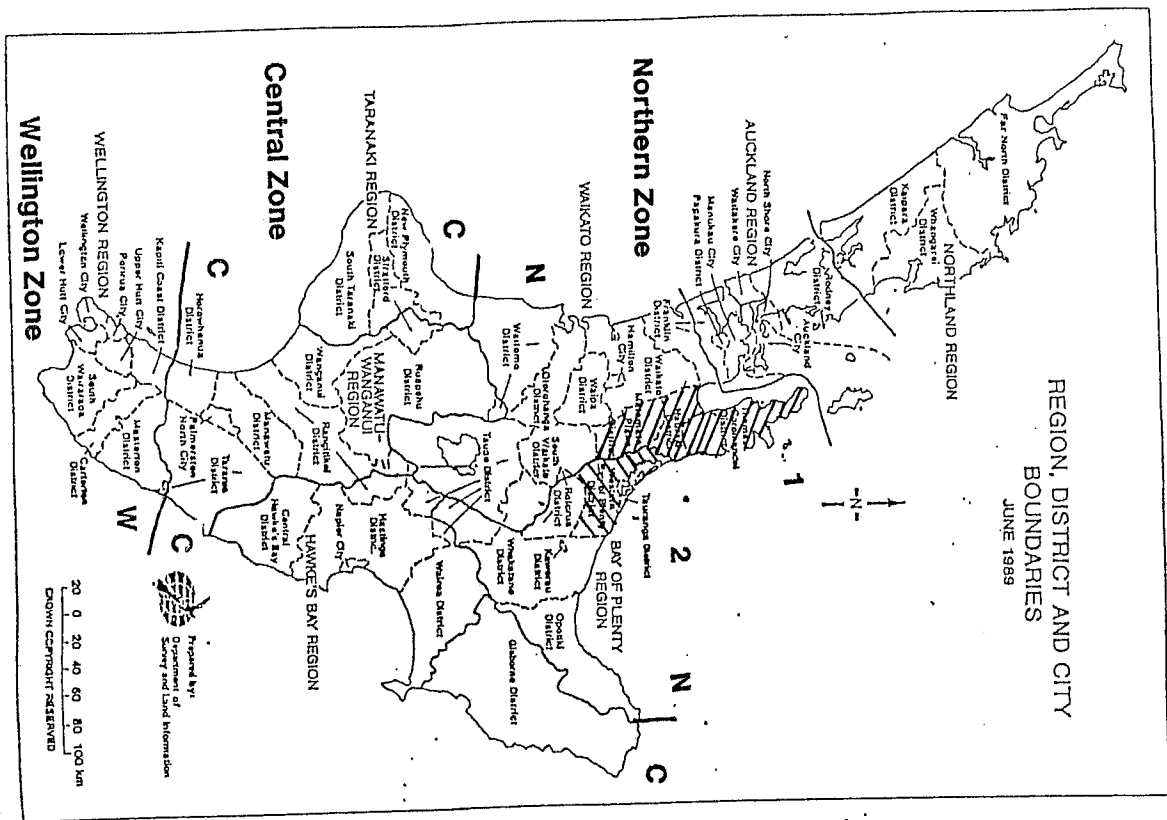


**CIVIL DEFENCE
AND NEW ZEALAND
SCHOOLS**

**Dallas Moore
Ministry of Civil Defence
NEW ZEALAND**

FIGURE 1



1,2,3,4 - Combined civil defence districts

Maps provided by Department of Survey and Land Information. More detailed maps showing precise location of boundaries are available from your local office of the Department of Survey and Land Information.

CIVIL DEFENCE IN NEW ZEALAND SCHOOLS

Introduction

Civil defence in New Zealand is understood to be an all hazard approach to natural and technological threats in a changing environment. It is the responsibility of cities and districts and of 13 regional councils. They are supported by the Ministry of Civil Defence (MoCD) formed in 1959. It is a small Ministry with 40 staff and a vote of something over \$5 million (in a total Government Budget of some \$25 billion) (The \$NZ is worth about 55c US). The Ministry has four "zones" (three in the North Island and one in the South) whose staff relate to the 78 local and regional civil defence organisations and their civil defence officers (CDOs). Figure 1 illustrates this.

New Zealand has a population of 3,300,000. Civil defence is about the safety of those people.

Like other people New Zealanders spend half their time at home (and two thirds of that half in bed asleep). About one million stay at home during the week (the elderly, the unemployed, those looking after children, and the children themselves). The workforce is somewhere between 1,250,000 and 1,500,000 (depending on unemployment levels). Something like 778,000 children and students attend, five days a week and about 40 weeks a year, some place of care or learning (62,000 pre-schoolers, 424,000 primary school pupils, 234,000 secondary pupils and 58,000 in full time tertiary study). Table 1 sets out some of this.

	No.	At home	At work/ school	At leisure	Commuting	Away	Total
Workers	1.5m	4563	2115	1613	133	336	8760
Homekeepers	1.1m	5613	-	2698	113	336	8760
Students	0.8m	4563	1200	2548	113	336	8760

At school as elsewhere, civil defence has two messages it wants to promote. One is about safety at that place. We want to be sure that staff and students are not put at risk. The other message is about safety at the other places the people go - at home, at leisure venues and so on. The messages can be made available through a variety of curricula activities.

Safety

The first sort of teaching has been a feature of New Zealand civil defence since the late 1960's. The 1969 Annual Report noted:

"A number of schools both primary and secondary, with the full support of the Department of Education, are in co-operation with local civil defence authorities instructing their pupils in civil defence. Teachers training colleges are also assisting."

In August 1969 two civil defence courses for school teachers were held.

In 1974 the practicality of school rescue and first aid teams was considered. A programme of training was approved in the following year. This safety work has been more recently supplemented by Civil Defence Survival Games and School Emergency Days, outdoor activities in which pupils, teachers and parents can take part. Some of these have been promoted by MoCD, but others result from the initiatives of CDOs. This work is especially valuable where the school would be a place of assembly for the community in the event of a disaster.

While Civil Defence has always had an interest in school safety, the main responsibility lay until recently with education boards and boards of governors. The Department of Education provided standards of construction and produced guidelines such as **Earthquake and Emergency Precautions in Education Buildings** (1983), and **Fire Precautions in Educational Buildings** (1979). The abolition of the 16 education boards (and creation of 3,000 boards of trustees), the growth of pre-school centres and the demise of the Department of Education, have rather changed the traditional situation.

The new Ministry of Education continues to offer guidance on building and pupil safety in schools, although direct responsibility lies with the boards of trustees. In 1990 MoCD and the Ministry of Education began collaborating in preparing a new set of guidelines for safety in schools and pre-school centres. The guidelines are expected to appear in mid 1992.

Curricula and Resources

The 1974 and 1975 Annual Reports noted that civil defence teaching was to be included in the new Form 1-4 (ages 11-14) syllabus for Social Studies. *"Supplies of teachers' kit set material are being distributed to schools"*, the report continued. In 1975-76, 1000 kit sets were provided.

"These kit sets comprise posters showing the organisation of civil defence and its functions and responsibilities, precautions that should be taken in the event of an emergency, and other general information including reports and photographs of earthquakes, floods, and other disasters" (Annual Report 1976).

Under this syllabus aspects of civil defence were studied as an example of a formal social control (Form 3) or of community activities (Form 4). Later some Form 2 content was added as an example of interaction between people and their physical environment.

TABLE 2 - TOPICS/LEVELS IN THE CIVIL DEFENCE PROGRAMME

Civil Defence	Earthquakes			Floods			Volcanic Storms			Eruptions			Tsunami			Human made Fire			Disasters			Epidemics		
		Earthquake Preparedness	What happens in an Earthquake	Learning how to keep safe during a flood	Storm Preparedness	Storm Observation	Volcano Size	Tsunami - An Introduction	Fire Preparedness, Hazard Reduction	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit						
A Civil Defence Worker	Earthquake Preparedness	What happens in an Earthquake	Learning how to keep safe during a flood	Storm Preparedness	Storm Observation	Volcano Size	Tsunami - An Introduction	Fire Preparedness, Hazard Reduction	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit						
What is Civil Defence	Earthquake Preparedness The Cause of Earthquakes Earthquakes of New Zealand's Living with Earthquakes Earthquakes - How to measure them	Flood Preparedness The Cause of Results of Flooding	Flood Preparedness The Cause of Results of Flooding	Storm Preparedness The Cause of Storms Storms of New Zealand's Past	Storm Preparedness The Cause of Storms Storms of New Zealand's Past	Volcanoes have a Variety of Shapes Volcanic Eruptions of New Zealand's Past Studying Volcanoes	Tsunami Preparedness	Fire Preparedness Fire Survival Hazard Reduction	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	No specific Unit	A Brief Exploration of the Cause and Effects of Epidemics					
Emergency Disaster, and the Relationship with Civil Defence	Earthquake Preparedness What Causes Earthquakes to happen A Study of the World's Major Earthquakes Earthquake Monitoring	Flood Preparedness New Zealand's disastrous floods	Flood Preparedness New Zealand's disastrous floods	Storm Preparedness Forecasting Storms A Study of a Major Storm	Storm Preparedness Forecasting Storms A Study of a Major Storm	Predicting Future Volcanic Activity	The Tsunami Warning System	Fire Preparedness Study of a Major Fire	An Exploration of the Concept of Human made Disaster	An Exploration of the Concept of Human made Disaster	An Exploration of the Concept of Human made Disaster	An Exploration of the Concept of Human made Disaster	An Exploration of the Concept of Human made Disaster	An Exploration of the Concept of Human made Disaster	An Exploration of the Concept of Human made Disaster	An Exploration of the Concept of Human made Disaster	An Exploration of the Concept of Human made Disaster	An Exploration of the Concept of Human made Disaster	Influenza, the Great New Zealand Disaster					

At the senior secondary level a new integrated geography syllabus was introduced in 1986, including the formal study of natural hazards. As John Macaulay, Director of the Geography Resource Centre has noted: "*At the fifth form (age 15+ years) level it was given 'top billing' as the Prescribed Common Topic with definite physical elements yet one where these were inextricably linked with human phenomena, often with disastrous outcomes*". An opportunity had opened for a new connection between the school curriculum and civil defence.

Meanwhile two Wellington Regional Council civil defence staff, Margaret Laird and Alan Bridle, had been working on resources for primary school use. They started with what they believed were the important hazards, and they looked at current resources and appropriate teaching methods. The programme they devised is illustrated in Table 2.

In 1986-87 following these initiatives, MoCD developed and issued a new primary school education kit. The kit included a teacher's manual, class materials in five modules and an audio cassette. It was followed in 1988 by a secondary schools kit of similar design. They were provided free to all schools (about 3,000 primary and 500 secondary) and larger schools were given a second copy. Both proved very acceptable and in 1990 the primary school edition was reprinted. By that time NZ\$350,000 had been spent on the kits. (For the subjects of modules see Table 6 below).

It was then decided to develop a computer based teaching resource called **Civil Defence and the Fruit Tree**. This followed the pattern of a Singapore product which MoCD staff had seen. Late in 1990 intermediate and secondary schools (568 of them) were sent a trial disk and invited to use and evaluate the full package. Because it requires IBM compatible equipment, not all schools could use it, but in response to requests, 138 sets were despatched to schools for use and appraisal in 1991. (This resource has so far cost about NZ\$130,000 in development and production).

In some parts of the country civil defence organisations have taken space in commercially produced school "homework diaries" or "student handbooks". In late 1990 MoCD took a contract to place a student-directed message in 135,000 of these. The message emphasised the value of a survival kit, at home and at school. The contract was renewed for 1992 and the advertisement is shown in Figure 2.

In 1991 some of the 23 Science Fairs around the country (in which pupils present science projects) were used as a means of interesting intermediate and secondary school pupils in civil defence projects. These have the advantage that they require only a modest outlay in prizes, and the pupils provide a more intensive contribution than is likely to be obtained if their role is more passive.

Two other resources should be mentioned. In 1990 MoCD produced a 24-minute video, *Threatening Behaviour*, which reviewed some natural and technological hazards. This item has not been offered to schools. It would be possible to provide a copy to all 568 intermediate, area and secondary schools for about NZ\$12,000. The question is whether that would be the best approach or whether they should be encouraged to borrow it at need.

A renewed emphasis on the Maori language, as a teaching medium in some schools, besides the general desire to ensure survival of this taonga or treasure, provides an opportunity to supply material for language as well as civil defence purposes. A poster and two leaflets (on flood and earthquake) were produced in 1990. They are not primarily school-directed resources.

FIGURE 2



DISASTER CAN STRIKE AT ANY TIME

If you can be prepared at home.....



- water
- torch
- radio
- batteries
- finned food
- can opener
- warm clothing
- first aid kit
- essential medicines

Use the telephone only to save life

In an emergency
listen to your radio
for instructions

My civil defence centre
is

You can be prepared at school



MY SURVIVAL KIT

- muesli bar
- fruit juice
- strong shoes
- essential medicines
- weather proof clothing

Besides geography, social studies, computer studies, science and language, the health curriculum also has been the vehicle for civil defence studies in some schools.

Evaluation

Schools are a favourite target for people with campaigns, and it is easy to be sceptical of their impact. It is encouraging to note that of those surveyed in a national study in 1989 who knew anything about civil defence, 18% spontaneously gave "school" as a source of knowledge, and when confronted with the word "school", 18% again affirmed that they had learned about civil defence there. About 6% of all those replying were in the 10-19 year age group, which suggests that a significant number of people besides the pupils gain from the school work.

In 1991 a couple of studies were done which illuminate the effects of this educational effort. David Etchells, CDO of Upper Hutt, surveyed the 22 schools and colleges in his city. Bill Morley, CDO of the Combined Tauranga/Western Bay of Plenty District surveyed schools throughout that area. John Macaulay of the Geography Resource Centre sent a questionnaire to area schools and colleges across the country (he got 200 returns, a response of just over 51%).

For their School Certificate examination (at age 15), geography candidates (of whom there were 21,111 in 1989) are required to have studied:

1. a New Zealand natural hazard selected from: earthquakes, landslips, volcanic eruptions, coastal erosion or floods;
2. a study of either drought in Australia or hurricanes in the south-west Pacific Islands (not New Zealand).

They must cover an outline of the processes producing the natural hazard and the sequence of events that occur; the hazard's effect on the land and people and the ways people may increase or decrease the likelihood or effects of the hazard. (It will be noted that civil defence is not explicitly mentioned although teachers can include some civil defence aspects.) The choices made are shown in Table 3

**Table 3 - Natural Hazards in 5th Form
Geography (Macaulay 1991)**

<u>Topic</u>	<u>%</u>
Earthquakes	53
Flood	36
Volcanoes	30
Landslips	3
Coastal erosion	2
SW Pacific cyclones	95
Australian droughts	5

(The figures of the New Zealand hazards add up to over 100% because some schools study more than one hazard).

In looking at teaching resources both Morley and Macaulay asked about the civil defence education kits. The replies were as follows:

Table 4 - Use of Civil Defence Education Kits

	Morley % All classes	Macaulay %				
		3rd (n=78)	4th	5th (n=200)	6th	7th Form n=78)
Do you have one?	76	-	-	-	-	-
Do you use it?	43	37	85	38.5	15	17

John Macaulay's study discusses why teachers chose particular hazards. Table 5 shows his results.

Table 5 - Reasons For The NZ Hazard Selected

Reason	% n = 200
A major local hazard	74.5
Good resource material	67.5
Field trips possible	7.0
Other	22.0

Clearly availability of resources is an important consideration in the choice of topic. It is interesting to compare the subjects covered in the two civil defence kits and the fifth form syllabus. This is done in Table 6 below:

<u>Subject</u>	<u>Primary Kit</u>	<u>Secondary Kit</u>	<u>5th Form Syllabus</u>
CD Awareness	/	/	
Earthquake	/		/
Floods	/		/
Storms	/		
Fire	/		
Volcanoes		/	/
Landslips			/
Coastal Erosion			/
Epidemics		/	
Man-made Disasters		/	
Responses		/	

It can be seen in Table 6 that MoCD had failed to provide the high schools with a suitable edition of the relevant material it had made available to primary schools on earthquake and flood.

At the same time it is interesting to compare what is going on in fifth form geography with the hazards that are specifically mentioned in the Civil Defence Act. In Table 7 we compare the CD Act list with the causes of civil defence emergencies in the period 1963-1991, a list of natural hazards spontaneously offered by respondents in the 1989 survey and those identified by John Macaulay.

CD Act	Civil Defence Emergencies	Public Perception 1989 (Ranking)	5th Form Geography (Ranking)
Earthquakes	2	(1)	(1)
Eruptions	-	-	(3)
*Explosions	-	na	na
*Fires	6	(4)	-
Floods	51	(2)	(2)
*Leakages	3	na	na
Land movement	2	(7)	(4)
Storms	8	(3)	na
Tornadoes	1	-	na
Tsunamis	-	(6)	na
	*2 water supply problems	na	na
	*1 industrial action	na	na
		drought (5)	na
		cold weather (8)	na
			coastal erosion (5)

* These, of course, are usually hazards of human rather than natural origins. In New Zealand very few fires start without human agency.

From a civil defence point of view, the intensity of study of floods and earthquakes seems appropriate. MoCD considers the volcanic hazard to be generally underrated. No one in the 1989 survey mentioned it. So the number of students considering that hazard is pleasing from the Ministry's point of view. But the omission of fire (which may be included in social studies earlier at school) and the inclusion of coastal erosion in the geography curriculum (often at Form 7 level as well as at 5th Form) are issues which show differing priorities.

John Macaulay's study suggests that MoCD has not fully exploited its opportunities to provide relevant resources for senior secondary studies. This failure to match supply with need is made clearer when we look at the fate of **Civil Defence and the Fruit Tree**.

Of the 138 schools sent **Civil Defence and the Fruit Tree**, 74 have provided some evaluation. Of those, six had mislaid the resource and 15 had found that it would not run on their computer. Another four had not had time to use the material. That leaves only 49 who have used the resource and commented on it.

Questions asked of respondents included:

- (1) Does the intent of the programme meet the teacher needs?
- (2) Is the time frame for each section appropriate?
- (3) Describe how easy the programme is to use, the availability of help, and the language used.
- (4) Give your impression of the suitability for different class levels.

Replies were graded between 1 ("no", or "useless") and 5 ("excellent" or equivalent). Results are shown in Table 8

Table 8 - Evaluation of Civil Defence and the Fruit Tree

Question Score of:	(1)	(2)	(3)	(4)
5:	3	1	2	-
4:	23	22	10	9
3:	10	14	16	22
2:	4	3	8	5
1:	2	-	3	3

Several factors were identified which need attention. Twelve schools recommended more attractive graphics and seven suggested that the screens had too many words. Five reported frustration with the limited provision for synonyms in quiz answers. (The resource tended to demand answers provided in texts in the earlier education kits.) Rewards for success were considered by some to be too prosaic. A number of teachers needed substantially more documentation than had yet been provided (or had been envisaged). The resource also lacks a clear place in the curriculum. For some it was a social studies resource. For others it fitted into computer studies or health.

The surveys done in 1991 also examined general civil defence preparedness. Some of the replies are shown in Table 9.

Table 9 - School Civil Defence Preparedness (%)

	<u>Morley</u>	<u>Etchells</u>	<u>Macaulay</u>
Is CD awareness taught?	26	77	58
Do you have:			
Earthquake drills?	76	80	-
Fire drills?	-	95	-
A Response plan?	16	(82 in prep)	-
Radio?	-	100	-
First aid kit?	-	100	-
Emergency power?	-	87	-
Food	-	7	-

It may be hoped that the lack of a response plan can be corrected with the help of the overdue Ministry of Education guidelines, which we hope to see in all schools in the middle of this year.

Conclusions

We can conclude that the civil defence input in schools has resulted in a good number of people learning something of safety in the school, and at other places. The effort over the past six years has cost about NZ\$500,000 from the vote of MoCD (without counting the time of staff or of locally employed CDOs). It is possible to identify some clear deficiencies in what has been done.

To some extent we have distributed the wrong material. The lack of flood and earthquake material in the high schools kit is the best example. The emphasis on civil defence organisation in some of the material may also be not as relevant as we could achieve.

In addition we have not reached our destination. It is easy to send material to "The Principal". It is difficult to find out what happens to it when the principal's hard pressed secretary opens the packet. The final destination of the material may depend on an admin person's first impression of an unsolicited item. The potential competition for resources between computer studies, science and geography has not been recognised in the despatch of material.

We have not obtained a curriculum which reflects the civil defence view of hazards. Civil defence is about public safety, rather than economic loss or environmental degradation. It is reasonable that geography (and other studies) should be driven by different imperatives.

What to do? Some measures for improvement can be identified, and may offer guidance generally as well as to New Zealand.

Check your funds. Whatever is offered will have to be updated. Consider what proportion of public education money, staff time and creative talent can be given to the school setting. Make sure you are not tackling this audience just before it is captive in its seats.

Think what you want the recipients to do. In New Zealand, 85% of those 10 and over can imagine some natural hazard that threatens their community. They don't need more information on that. They need to be moved to simple precautions, at school, at home and so on.

Select your approach. We have been concerned mostly with social studies and geography teaching though to some extent with science, computers and language. Resources should be tailored to the subject matter. Close collaboration with geography, social studies (or other) teachers, and the developers of the appropriate curriculum will be needed.

Get clear what can be offered. The day-to-day operations of civil defence will lead to encounters with much up-to-date domestic and foreign material in diverse media (eg: printed work, photos for poster use, video footage). Turning such raw material into usable resources needs continuing contact with teaching staff and professional resource producers.

Civil defence in New Zealand has had former school teachers (usually as CDOs) to help its efforts, but has not systematically pursued a constructive relationship with the world of formal education. We are now beginning to take a more strategic view of what we are about. We hope that others will find our experiences useful in their work.

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