

WEST COAST FLOODING
SEPTEMBER 1988

Disaster Recovery
Co-ordinator's Report

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APPENDICE ASSESSMENT OF THE EFFECT OF WEST COAST FLOODS
ON THREE SHEEP AND BEEF AND TWO DAIRY FARMS.

WEST COAST REGION

SEPTEMBER 1988

DISASTER RECOVERY CO-ORDINATORS REPORT

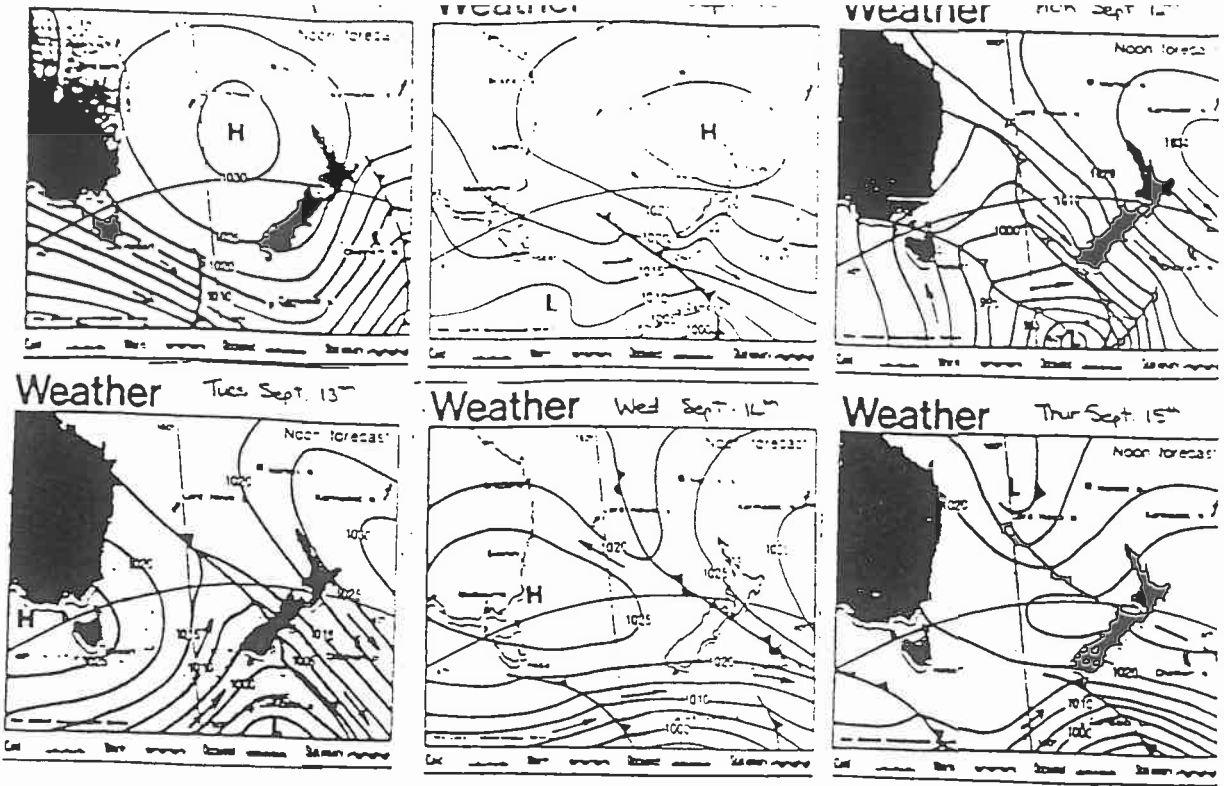
1/ APPOINTMENT

- 1.1 The appointment was made, and the position taken up, on Friday 16 September. By that time a Regional Civil Defence Emergency was in force and all activities were concentrated in either the Westland Catchment Board or Greymouth Borough Council buildings. At the Catchment Board were the normal occupants of Board as well as United Council staff plus the Regional Civil Defence headquarters and the Grey County Administration (Grey County office having been flooded). The Greymouth Borough Civil Defence organisation was operating from their own building. This concentration of activity in two conveniently close buildings certainly helped me to get a very rapid appreciation of the overall situation.
- 1.2 The decision to lift the Regional Emergency was made in the late afternoon of 16 September. This freed space in the Catchment Board building and as the disaster was flood generated obviously much of the recovery would involve liaison with Catchment Board staff so the offer of accommodation in the Board building was accepted.
- 1.3 When the Regional Emergency was lifted Greymouth Borough declared a local Emergency and this remained in force until midnight Thursday 27th September.

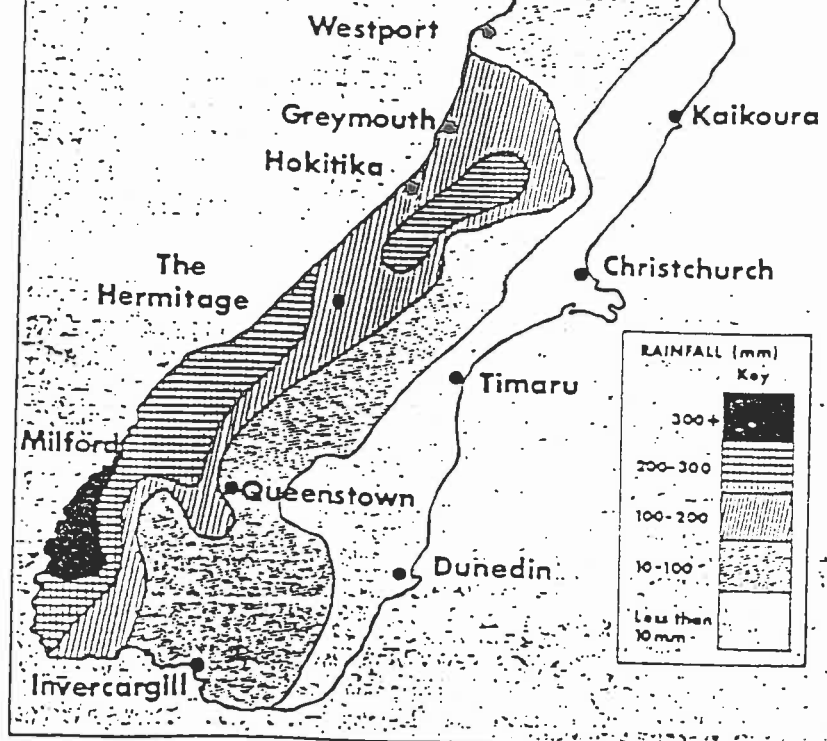
2/ THE FLOOD EVENT

2.1 Pre-Warning

Although the flood is dated Tuesday 13 September the event really began the previous weekend when heavy rain saturated the catchments and raised rivers and lakes to high stage. Meteorological Service issued heavy rain forecasts on the afternoon of Sunday 11 September. These were passed on to all



**24 HOUR RAINFALLS
TO
9 AM, SEPTEMBER 13
1988**



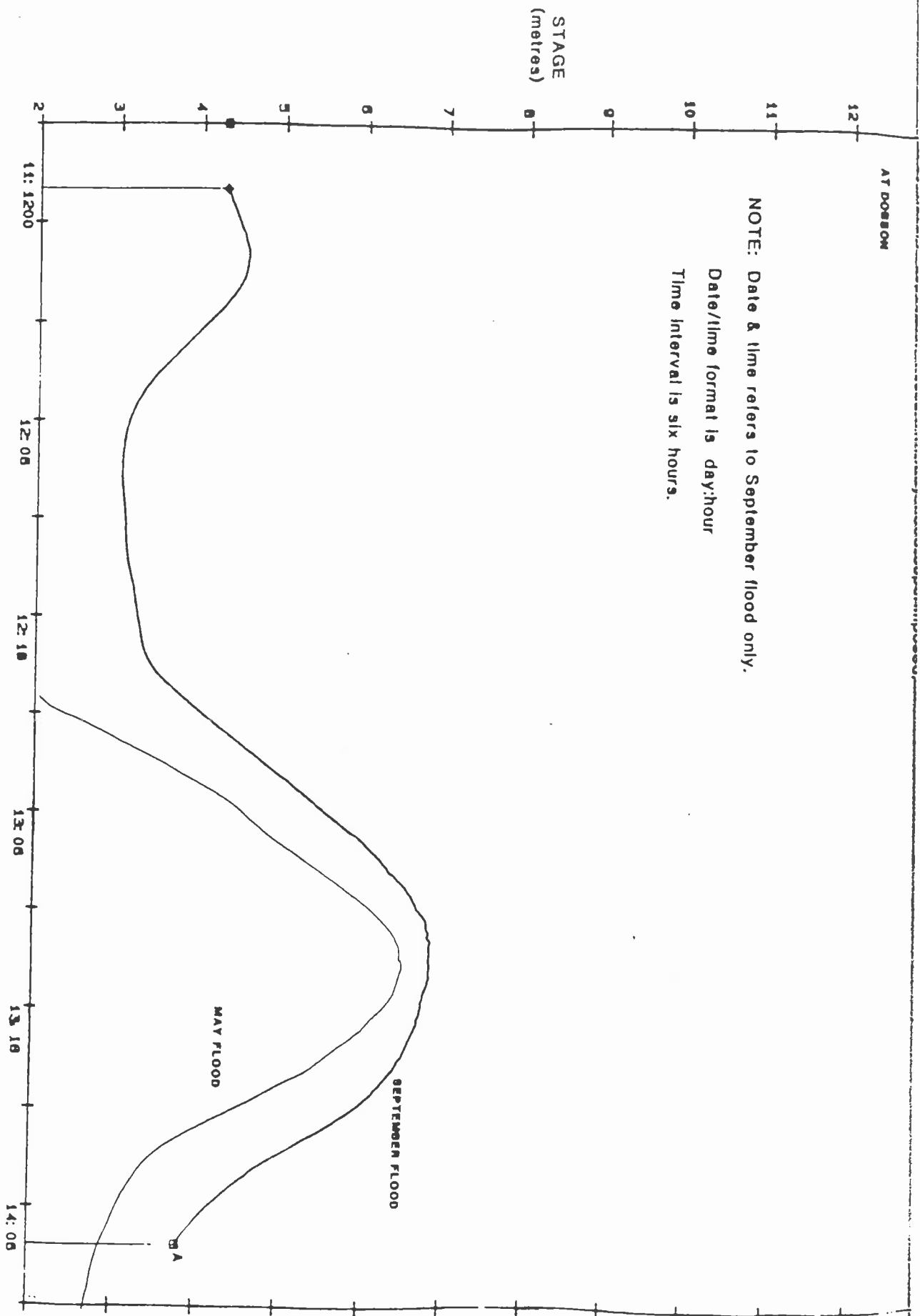
A Christchurch Meteorological Service analysis of the South Island's heavy rainfall in the 24 hours up to 9 a.m. yesterday.

AT DOBSON

NOTE: Date & time refers to September flood only.

Date/time format is day:hour

Time interval is six hours.



West Coast Civil Defence organisations and the news media by Catchment Board. Farmers were advised to move stock to higher ground. Close liason was maintained between Meteorological Service and Catchment Board staff from then on, and up-country recorders were monitored until the flood peak had passed. Grey River tributaries in the Haupiri-Rotomanu area received the greatest intensity of rainfall (150mm at Haupiri 9 a.m. Monday to 9 a.m. Tuesday). Identification of the full extent of area of rainfall was not possible as the Taipo bridge recorders in the immediately adjacent Taramakau catchment were inoperative due to vandalism. Total rainfall recorded Saturday to Tuesday was 291mm in the Upper Grey, and 169mm at Greymouth.

2.2 Greymouth Borough

2.2.1 Advice to lift carpets, stock etc in the lower lying areas of Greymouth was given in the evening of Monday 12 September. Even at this time there was no certainty that floodwaters would enter the town. The very short lead times between heavy rainfall in the upper catchments of West Coast rivers and the passing of flood peaks to the sea mean that indicative warnings of the order of 12 hours are the most that can be given. The Grey River topped the wharf at 7.30 a.m., peaked at 2.45 p.m. and stopped flowing over the wharf during the night. The high tide followed midday. Peak flood discharge was gauged at Dobson, one flood hour upstream of Greymouth, at 5800 cumecs by DSIR staff.

2.2.2 Flood levels in Greymouth reached heights that had not been recorded before. Many old, high, buildings such as the BNZ (built 1924) and Post Office (built 1929) at the upper end of the town and Grey County Chamber (built 1924) and Harbour Board offices (built 1884) at the lower end of the town were entered by flood waters for the first time.

2.3 Grey Inangahua and Buller Counties

Although publicity has focussed on Greymouth Borough the event was for wider spreads. The Taramakau, Grey and all its tributaries, Inangahua, Maruia and Buller Rivers were all in high flood and great damage was done to existing river works and farmland. Stock losses were relatively light because of the adequate pre-warning given but in a few locations such as the Crooked River Valley (a feeder of Lake Brunner) traditional stock refuge areas were overwhelmed and individual stock losses were very high.

2.4 Public Health

The overtopping of a long standing stopbank at Coal Creek about 1 k.m. upstream of Greymouth and its consequent demolition presented a threat to the intakes of both the Greymouth and Runanga Borough water supplies. Finance for reinstatement was quickly arranged with a Central Government grant assisting

greatly. Unfortunately a further flood on 5th October demolished all the repair work that had been completed up to that date. At the time of writing further funding to enable re-instatement had not been arranged.

2.5 Other Services and Communications

Damage in these areas was surprisingly light. Broadcasting telephone and Power supply authorities had their moments in Greymouth, there were many slips and washouts to road and rail but the only location where reinstatement of at least a temporary access took any time was a large slip just out of Greymouth. This blocked both the Midland Railway and SH7 and was not cleared until Wednesday 21 September. Further damage was caused to both the wharves and breakwaters of Greymouth Harbour and several Greymouth Borough stormwater outlets to the Grey River collapsed in the immediate vicinity of the wharf.

3/ PRE AND POST SEPTEMBER FLOODS

- 3.1 The historic record indicates Greymouth has been heavily flooded once in each decade since the time of early settlement although there was a period between 1940 and 1970 when there were no really major floods. This period of relief has been more than made up for. Prior to 1988 the largest properly recorded flood was in 1936 but both the May and September flood of this year flooded a wider area than that in 1936.
- 3.2 The September flood had been preceded by a flood in May which was certainly the largest since 1936 and exceeded that of 1936 in terms of area flooded in Greymouth. To experience two major floods in the same catchment in such a short period is unprecedented even on the West Coast. It has been suggested that clearing of native bush in the catchment has been the reason for this increase in flood frequency. This suggestion does not explain the lack of flooding between 1940 and 1970 and is negated when the fact that 86% of the Grey river catchment is in an unmodified state is considered. F.R.I. trails on modified and unmodified hill catchments in the upper Grey catchment at Mai Mai indicate there is little effect on major flood peaks from logging and re-forestation particularly when the catchment are already saturated prior to the flood generating storm. It is too easy to lose sight of the simple fact that flooding is caused by natural, random, high rainfall events and when such rain falls on already saturated catchments the result is compounded. The degree of modification of an area of land on the West Coast is considered to have little impact on the discharge from it when it is already on a saturated state.
- 3.3 Outside Greymouth Borough the May flood caused damage to existing river works in the Taramakau, Grey, Inangahua and Buller catchments and new damage estimated to cost \$1,150,000 awaited repair. Farmers, householders and business people in

Greymouth were still recovering from this May flood when they were hit for the second time in four months in September. This flood indicated an additional \$1,000,000 of damage in the above mentioned catchments. It is understood insurance claims in Greymouth Borough for the May and September floods are of the order of \$10,000,000.

- 3.4 Householders, rural and business people were still adjusting financially and mentally from the May flood when they were hit for the second time in four months, and the absence of major social problem says much for the resilience of these people. That they cannot take much more was well demonstrated on 4/5 October when yet another flood poured down the Grey Valley. In the end this did not enter Greymouth but tremendous stress was generated. Further damage was done to river works in the Grey and Taramakau catchments at least.

4/ RECOVERY PHASE

4.1 Welfare

- 4.1.1 The basic human needs are food, potable water and shelter. Provision of food and potable water provided no insurmountable problems but 183 houses, including pensioner units and 356 people had been evacuated to temporary accommodation. A welfare centre was already established immediately at the Salvation Army Hall and this was ably manned by volunteers with assistance from D.S.W. Self supporting Red Cross teams had moved into Greymouth from Canterbury and these teams rendered great assistance in the initial recovery.
- 4.1.2 At the time of my appointment there was an efficient welfare organisation up and running and a welfare committee was established that was built around the organisation already in place. This committee met daily initially and thereafter as considered necessary. Housing was obviously the top priority.
- 4.1.3 The usual problems were encountered - stress build up in billets, reluctance of people to move back into accommodation that had been flooded (most of it for the second time in four months); shortage of available alternative accommodation (especially for the elderly), confirming that transients who had just packed up and gone had in fact done just that, and well meaning people and organisations despatching food and goods such as furniture and clothing to Greymouth before actual needs were known. Most of this material was unsorted or was not accompanied by a manifest so that voluntary organisations already under a heavy load were put to unnecessary work.

RECOMMENDATION 1.

OUT-OF-DISASTER-AREA RECEIVING, SORTING AND DISPATCHING CENTRES BE SET UP IMMEDIATELY IN ANY CIVIL EMERGENCY.

4.1.4 Housing

- 4.1.4.1 Local Housing Corporation staff accepted the bulk of the burden in relocating those from flooded properties and made contact with all Government Departments and S.O.E's as well as local land agents who may have had housing available. A housing package was put together and widely advertised. The details are listed here as it is considered such a package should form part of Disaster Recovery policy.
- All disaster victims are treated as first home owners
 - The Homestart assistance package is available up to \$7000.00 maximum.
 - Guaranteed affordable mortgage repayments are based on variable interest rates from 9% to 15.5%.
 - In extreme cases up to 100% financing may be available but a minimum of 5% personal contribution is preferred.
 - Finance is available to Pensioners where applicants pay interest only on loans, the principal being repaid upon non-occupation of the property at the time of sale.
 - Finance available to purchase alternative property or build if this is affordable; to relocate existing homes on new sites outside the disaster area and to raise existing homes above flood level where practical.
- 4.1.4.2 It is understood in some cases existing mortgagee were written off so as to give low income families a reasonable start after relocation. With Housing Corporation leading the way they were able to influence other lending institutions to at least partially meet them with holds on interest payments from the day of the flood and the like.
- 4.1.4.3 One matter that should be resolved is that of Family Benefit Capitalisation. With Housing Corporation going as far as writing off existing mortgages it seems to be excessively niggardly for D.S.W. to refuse to write of Family Benefit Capitalisation and to demand repayment when disaster effected families are having to start again.

RECOMMENDATION 2.

A HOUSING PACKAGE SIMILAR TO THAT DEVELOPED BY HOUSING CORPORATION FOR THE SEPTEMBER WEST COAST DISASTER BE ADOPTED AS NATIONAL DISASTER RECOVERY POLICY.

RECOMMENDATION 3.

THAT DEPARTMENT OF SOCIAL WELFARE WRITE OFF FAMILY BENEFIT CAPITALISATION REPAYMENTS FOR DISASTER EFFECTED FAMILIES WHO ARE HAVING TO REHOUSE.

- 4.1.4.4 Following the May flood Greymouth Borough adopted a policy of buying up flood abandoned residential properties at post flood

Government valuation. Not only did this give those relocating a quick source of cash it has the added advantage of a single organisation, and that with the planning responsibility, being able to accumulate worthwhile areas of land for alternative use or redevelopment.

RECOMMENDATION 4.

TERRITORIAL LOCAL AUTHORITIES BE ENCOURAGED TO PURCHASE DISASTER ABANDONED PROPERTY.

4.1.4.5 Housing Recovery

Of the 183 homes evacuated on 12/13 September by 22 September 1988 the best information position was:-

73 Reoccupied
92 Could be reoccupied
16 Would not be reoccupied

By the 7th October, and following movements to State and private rental accommodation only 8 accommodation units were required for:-

2 Families with children
3 Couples with no children
2 Pensioner families
1 Disabled person.

Housing Corporation were confident they would be able to place the families with children in the near future and the remainder following that. Greymouth Borough Council was expediting construction of further pensioner units and would give preference to the permanent accommodation of the 2 pensioner families and the disabled person if he was not in suitable accommodation at that time.

One of the major problems that slowed the rate of re-occupation of homes was the wet, humid weather that has persisted since the flood. D.R.E.S. teams working with large portable industrial heaters found it took at least a day to dry out an average home. Assistance with drying houses was still being given at the time of writing of this report.

4.1.5. Insurance

4.1.5.1 Virtually all Insurance Companies have withdrawn cover from flood effected properties in the area. There is general confidence in the flood protection scheme but there is an inevitable delay between approval of funding and completion of construction. Lack of insurance cover during this period is the major stress generator for all those in flood prone areas and is a real and serious welfare problem. The probability of a flood during this period can be calculated and it should be

possible to set insurance premiums to this probability. The problem then becomes finding a Company to accept the risk. It is suggested the Government owned State Insurance Office has a part to play here and because of the welfare implications it may not be unreasonable for Department of Social Welfare to partially underwrite the State Insurance Office in the event of further flooding.

RECOMMENDATION 5.

GOVERNMENT TAKE THE LEAD IN ARRANGING SHORT TERM FLOOD INSURANCE ON THE WEST COAST FOR THE INTERIM PERIOD UNTIL PROTECTION WORKS ARE COMPLETE.

4.2 Greymouth Flood Protection Scheme

4.2.1 Greymouth Borough was in the second year of a five year program to provide flood protection in the form of stopbanking around flood prone areas. Work had been completed in Cobden on the north bank of the river and no properties were flooded despite the flood being in excess of the the design flood. Contracts had been let to stopbank Blaketown but unfortunately the work was not complete. Had these stopbanks been to height Blaketown, where the bulk of the effected residential property was located, would not have flooded. Work had not started on protection for the Central Business District.

4.2.2 It was considered that the only short term flood mitigation solution available was an engineering one that required acceleration of the five year scheme. Outstanding objections to the scheme were able to be resolved. Westland Catchment Board redesigned and re-estimated the works to take advantage of information provided by a real event and Greymouth Borough and Westland Catchment Board put a joint submission to Government requesting acceleration of the scheme. This was approved at a grant rate that did not disadvantage Greymouth Borough compared to that originally approved because of the need to bring forward expenditure to meet their share.

4.2.3 Although the short term engineering solution has been approved and will proceed it is considered Greymouth Borough must face up to producing a long term planning strategy for the flood prone areas. Setting minimum floor levels in the residential areas of Cobden and Blaketown may be realistic as significant differences in level between ground and floor can be accommodated on a reasonably sized section. A single lift in the Central Business District with its generally very small titles does not seem practical.

RECOMMENDATION 6.

GREYMOOUTH BOROUGH COUNCIL BE ENCOURAGED TO INCORPORATE LONG TERM PLANNING REQUIREMENTS IN ITS DISTRICT SCHEME TO ELIMINATE UNREASONABLE RISK OF FLOODING IN THE FLOOD PRONE AREAS OF THE BOROUGH.

4.3 Greymouth Borough Flood Mitigation Report

4.3.1. To move the Central Business District (C.B.D.) out of the flood prone area is an obvious solution to the problem. In order to get some indication of what the relative physical costs might be between the C.B.D. remaining in its present location and rebuilding on a new site the production of a report to a very tight timetable was commissioned from the Christchurch Consultancy of Works and Development Services Corporation (N.Z.) Ltd.

4.3.2. A summary of this report is:

- The approval flood protection scheme is designed for a 50 year return period flood with 900mm of free board.
- These works would contain a 150 year flood with zero free board.
- Discussions with insurers indicated even this may be an unacceptable insurance risk.
- Addition of a further 250mm to stopbank heights would contain a 300 year return period flood with zero free board and this would certainly be an acceptable insurance risk on the level of risk would be no higher than that at a relocated site.
- The cost of relocating the C.B.D. is some \$32 million and even with the additional 250mm of free board on the stopbanks the costs of flood protection to the C.B.D. are only of the order of one tenth of this \$32 million.

4.4 Follow on from the Flood Mitigation Report

4.4.1 It is considered assistance with the provision of protection to a 300 year return period flood is beyond the responsibilities of Central Government. It is also considered the opportunity for the retail and commercial community to obtain from their customers the additional profit to fund a shift is not very high.

4.4.2 I am told that a worthwhile proportion of retail trade is generated by foot traffic. A split C.B.D. can be expected to generate less foot traffic to the detriment of both portions. It would seem that it is now over to the Greymouth Borough Council, those with any financial interest in the C.B.D. and the insurers to get together and agree as to what level of flood protection is insurable and then, if any additional protection is required over and above that being provided by the present approved scheme, how it is to be funded.

4.5 Central Government: Relocation/Flood Proofing of Buildings

4.5.1 Many Government Departments and S.O.E.'s were flooded out - Police, parts of Social Welfare, Labour, Inland Revenue, State Insurance, Post Office, Telecom, Post Bank and Justice at

least. Understandably many of the Departments and especially those with a Civil Defence responsibility are keen to relocate out of the flood prone area. To approve of such relocation could not be seen as an expression of confidence in the flood protection works. Flood proofing of buildings is an alternative that should be explored. Telecom's main exchange building was originally designed to be flood proof and with additional pump capacity, staff were able to hold a head of 500mm of water outside down to 10mm inside. The demand for pump capacity would have been much less if the cable ducts through the walls and floor had been property sealed.

- 4.5.2 Flood proofing would eliminate pagmentation of the C.B.D. and should be less capital intensive than relocation. More importantly Government would not only seen as expressing confidence in the protection works but would also be setting a positive example to others as to what could be done. It is conceded that access to critical buildings, such as the police station could be a problem but this is not considered to be insurmountable.

RECOMMENDATION 7.

GOVERNMENT CONSIDER FLOOD PROOFING OF ITS EXISTING BUILDING STOCK BEFORE APPROVING NEW BUILDING AND RELOCATION.

- 4.6 Disaster Recovery Employment Scheme - (D.R.E.S.)
- 4.6.1 A scheme to enable 100 unemployed persons to be engaged for up to six weeks was approved by Cabinet shortly after the flood. This scheme has been an unqualified success. All the administering local authorities have received nothing but favourable and highly complementary comment on the quality of the performance and the willingness to work of these engaged on this scheme.

RECOMMENDATION 8.

GOVERNMENT PROMPTLY APPROVE DISASTER RECOVERY EMPLOYMENT SCHEMES FOLLOWING ANY NATURAL DISASTER.

5/ THE RURAL SECTOR

5.1 The Basic Problems

- 5.1.1 As previously mentioned in paragraph 3.3 and 3.4 damage to assisting river works plus the cost of new works now required is estimated at \$2.15 million. Further costs are being added with every heavy rainfall. Non insurable farm losses (stock, fencing, silted pastures etc.) are estimated by M.A.F. at \$300,000 for the May flood and \$210,000 for September. These costs needs to be considered alongside the \$3.88 million already approved at 80% grant rate to complete the Greymouth Borough Protection.

5.1.2 Ministry for the Environment has suggested that priority lists be prepared to determine what works can be delayed in time and so be deferred to forward years. The great risk in priority lists is that dynamic, not static, systems are being considered and there is no guarantee that mother nature is going to wait for man. After discussions with Catchment Board staff it was agreed two categories of work could be defined as below:-

Category 1.

- a) Work that require urgent re-instalement to maintain existing river patterns.
- b) Works that if not repaired promptly will deteriorate further as that the eventual cost of reinstatement will be much higher than that is now estimated.
- c) Works that are required now to maintain the viability of existing farming units.

Category 2.

Works that should not deteriorate significantly providing there are no major floods within the next 6 months i.e. works that could be carried forward to the beginning of the next financial year.

	May Flood	September Flood
Category I	\$ 888,000	\$ 930,000
Category II	\$ <u>270,000</u>	\$ <u>70,000</u>
	<u>\$1,150,000</u>	<u>\$1,000,000</u>

5.1.3 After the May flood the Westland Catchment Board revised all its approvals and programmes in an effort to maximise the amount of grant funds that could be transferred to flood relief. I am advised by Board staff that grant funds held have been virtually exhausted by the remedial work done to date. The amount of remedial work completed is minor compared to that yet to be done.

5.1.4 Ministry for the Environment has no funds, over and above those already allocated, for disaster events.

5.1.5 At 35% grant rate little of the necessary river work will be done. As one farmer put it to me ..."I have no equity left in the farm to borrow against and cannot fund anything further from income." This is probably a fair statement of the position of virtually all farmers on the West Coast and is borne out by M.A.F. Tech study included as an appendix.

5.1.6 Discussion with Ministry for the Environment staff indicate that the 35% average grant rate results from a Government decision that Catchment works should be funded roughly 1/3 Government grant, 1/3 from a Regional contribution and 1/3 from the direct beneficiaries. There are considered to be two basic flaws in this decision. Firstly, having regard for the long time value of the soil resource to the nation and the fact that any occupier, regardless of his title, is only holding the land in trust for something like a generation then the direct Government grant of 35% is considered to undervalue the soil resource. There is also no recognition of the indirect benefit to the publically owned transport and communication facilities. Railways, P.T. and N.Z.E.D. never contributed to works concept where their plant was under direct attack. National Roads Board spends heavily immediately adjacent to its bridges and has made capital (but not maintenance) contributions to other works where direct benefit is acknowledged. Where these public facilities are sheltered by frontal farm land they have some security. Once the farmland goes then the facility either has to relocate or face up to funding river control costs on its own. It is not difficult to envisage the situation where protection works are going to have to be built and maintained by taxpayer owned facilities but only after the productive land has been lost. This is not considered to be in the National interest.

The point should also be made that while standard National policies may be administratively simple and therefore attractive they do not fit all cases. For example consider the Inchbonnie Protection Scheme. These works are designed to prevent the Taramakau diverting itself into the Grey River via the Orangipuku, Lake Brunner and Arnold River. Gradients below the works are steeper down the Orangipuku than down the existing bed of the Taramakau so the threat is very real. Should the Taramakau break out then Lake Brunner would be permanently silty, the lake level would be permanently higher, lakeside vegetation would die and an unsightly mess would result just as if the lake had been dammed (the bulk of the lake frontage is bush clad Scenic Reserve). Environmentally it would be a National disaster. The Inchbonnie scheme is locally funded by a handful of farmers. The works were under real pressure in the September flood. It is considered a contribution from the nation for higher than 35% is justified - In the days of higher subsidies it was easy to argue that subsidy included contribution for indirect and environmental benefits. This is no longer the case.

Secondly there is a total lack of inter-regional equity in the 1/3 regional share. The West Coast has 1% of the nations population, 10% of the land area (of which only a minor proportion is rateable, the bulk being Crown Land of various forms) and probably at least 30% of the national water resource. This water resource exits from the hills in large flows down steep river beds. It therefore has a high energy content that require very heavy, expensive, works to control.

To expect 1% of the population to fund the regional share of controlling the high energy 30% of the national water resource is considered unreasonable. Finally the ability of the direct beneficiaries to fund their 1/3 is almost non-existent in these times of stress in the farming community generally. With no regional contribution available to consider direct beneficiaries funding 2/3 of the cost is being unrealistic.

- 5.1.7 The bulk of the existing river stabilisation works on the West Coast were constructed when the terms of trade were quite different than those of today. When the writer first came to the West Coast some 20 years ago farm subsidies were minimal but the return from a single lamb would buy, in place, up to 10 tonne of heavy rock. This before the application of grant. Today that same lamb buys around 1 tonne of rock before application of grant.
- 5.1.8 In terms of today's replacement costs there is a huge investment in river stabilisation works on the West Coast. As things stand only minimal maintenance can be funded. The greatest problem in the Grey and adjacent catchments is that the rivers have been stabilised, more or less, by a series of mutually supporting and dependent works to hold the main channels in the same pattern. The failure and non repair of any of the major individual works will lead to the rivers getting out of their stabilised main channels and into a new pattern that will not only render virtually all the existing works redundant but also create the demand for new series. It is difficult to conceive that under any grant regime less than 100% there would be any chance of building a new series of works and it is obviously undesirable to do so. It is considered it is in the National, Regional and Local interest that existing river patterns be maintained and this means repair to existing works together with the required new works need to be funded.
- 5.1.9 It is perhaps an unfortunate fact of nature that the best and most productive land on the West Coast is the youngest and is all located on the terraces and recent flood plains lowest to the rivers. Much of the land on the West Coast is held by families with a strong Irish background and these people do not let any of the land go lightly. Generations of farmers and their families have gone without personally to hold the land from the attacks of the rivers. At this time they simply do not have the resources to continue.

RECOMMENDATION 9.

THE CURRENT GRANT RATES FOR CATCHMENT WORKS OF 35% AVERAGE IS CONSIDERED TO UNDERVALUE THE NATIONAL INTEREST IN PRESERVATION OF THE SOIL RESOURCE AND REVIEW IS RECOMMENDED.

RECOMMENDATION 10.

THE CURRENT POLICY FOR CATCHMENT WORKS THAT CONSIDERS A REGIONAL INPUT OF ABOUT 35% TO BE REASONABLE CONTAINS NO SENSE OF INTER-REGIONAL EQUITY AND REVIEW IS RECOMMENDED.

RECOMMENDATION 11.

GOVERNMENT ACKNOWLEDGE THE SIGNIFICANT INVESTMENT IN RIVER STABILISATION WORKS ON THE WEST COAST, THE DESIRABILITY OF MAINTAINING EXISTING RIVER PATTERNS, THE INABILITY OF THE FARMING COMMUNITY TO FUND THE WORKS MADE NECESSARY BY THE MAY AND SEPTEMBER 1988 FLOODS AND EXPLORES AND CONSIDERS GRANTING SPECIAL ASSISTANCE SIMILAR TO THAT MADE AVAILABLE TO GREYMOUTH BOROUGH.

5.2 AGRICULTURE IN THE WEST COAST ECONOMY

5.2.1 Employment

Agriculture has for several years been the largest single source of direct employment. After recent decline in forestry and coal mining agriculture would now directly at least the total numbers employed in the forestry, hunting, coal mining, gold mining, fishing and sphagnum moss industries or three times these in the tourist industry.

5.2.2 Land Capability

There is no class I or class II land on the West Coast. Apart from a small area of coastal dune land all the class III land is immediately adjacent to the rivers as is the bulk of the class II land. Class III land, which is 3.6% of the total land area has been assessed at 43% of the potential West Coast carrying capacity and Class IV, which is 3.0% of the total land area is assessed at 25% of the potential carrying capacity. (It is interesting to note that the area in rivers, lakes and glaciers on the West Coast is 4.0% of the total land area). Thus the river vulnerable land makes up a total of 6.6% of the land area but has the potential capacity to carry 68% of West Coast agricultural production. It is obviously the land worth keeping.

5.2.3 Production from the Disaster Area

Enquiries from the Westland Co-op Dairy Company and Phoenix Meat Company indicate that one third of all West Coast milk, beef and sheep production comes from the disaster area. The question then becomes what will be the impact on this production if control of the rivers is lost. The quickest and most obvious change would be from intensive farming (especially dairying) to extensive grazing. In the short time I would expect 3 farms to become 2 farms and in the long term 3 farms

to become 1 farm. It is not considered either the West Coast, where unemployment is running at 13%, or National economies can withstand this sort of attack on the nations productive base.

6/ NATIONAL DISASTER RECOVERY POLICY

- 6.1 It is considered that natural disasters are a fact of life in New Zealand. We are vulnerable to flood, drought, wind, earthquake and probably vulcanism.
- 6.2 There is a scale factor to be allowed for in any emergency - the significant figure is the number of people involved, not the percentage of the population in the effected area.
- 6.3 If too many people are effected it is unlikely that local Civil Defence organisations will cope.
- 6.4 The readily available source of organised, disciplined labour that is likely to be available at outside a major disaster area is from the armed forces. Training in emergency relief should be an integral part of armed services programmes.
- 6.5 Some of the recommendations in this report could be incorporated in a National Disaster Policy.

RECOMMENDATION 12.

ESTABLISHMENT OF A NATIONAL DISASTER POLICY BE CONSIDERED BY GOVERNMENT.

7/ RECOMMENDATIONS FOR FUTURE DISASTER RECOVERY CO-ORDINATORS

- 7.1 To work efficiently requires good working conditions. Ideally facilities for tea/coffee and heating meals should be continuously available. A full time office assistant, preferably one who can type and take minutes is essential. Access to a meeting room is desirable.
- 7.2 The task is that of recovery so do not get too involved in the emergency phase. This should influence location of office accommodation. If there is a choice locate with an organisation that relates to the recovery phase.
- 7.3 There is a narrow line to tread with the news media. They are needed to disseminate information but it is necessary to avoid getting involved in opinion or releasing recommendations to Government. Government is the employer and it is Government preogative to make and announce decisions on recommendations made. If anything is to be achieved for the disaster area the confidence of Government and its advisors must be maintained. To get too close to the media is to run the risk of destroying this confidence.

- 7.4 Where people are being relocated good record keeping is essential. There is a place for computers where large amounts of information have to be handled. On the West Coast Department of Social Welfare provided an admirable service that was up and running before my appointment.
- 7.5 Forms are a necessity but they are a hassle to effected people. I would suggest only two forms should be considered. The first is a simple one that records little more than personal details of those relocated - who, where from, and where to. If the Civil Defence organisation is functioning properly this form should be long done with by the time a recovery co-ordinator is appointed. The second is a follow up questionnaire and some trouble should be taken to ensure all the information required by all the agencies dealing with the event is included in the questionnaire. People under stress get very annoyed at persistent requests for information. Many people will require assistance with form completion so it is recommended a low key interview be held with the interviewer doing the filling in.
- 7.6 My experience is that it would be a relatively minor disaster that would enable an appointment, including the completion of a report, to be terminated in four weeks or less.

SUMMARY OF RECOMMENDATIONSRECOMMENDATION 1.

OUT-OF-DISASTER-AREA RECEIVING, SORTING AND DISPATCHING CENTRES BE SET UP IMMEDIATELY IN ANY CIVIL EMERGENCY.

RECOMMENDATION 2.

A HOUSING PACKAGE SIMILAR TO THAT DEVELOPED BY HOUSING CORPORATION FOR THE SEPTEMBER WEST COAST DISASTER BE ADOPTED AS NATIONAL DISASTER RECOVERY POLICY.

RECOMMENDATION 3.

THAT DEPARTMENT OF SOCIAL WELFARE WRITE OFF FAMILY BENEFIT CAPITALISATION REPAYMENTS FOR DISASTER EFFECTED FAMILIES WHO ARE HAVING TO REHOUSE.

RECOMMENDATION 4.

TERRITORIAL LOCAL AUTHORITES BE ENCOURAGED TO PURCHASE DISASTER ABANDONED PROPERTY.

RECOMMENDATION 5.

GOVERNMENT TAKE THE LEAD IN ARRANGING SHORT TERM FLOOD INSURANCE ON THE WEST COAST FOR THE INTERIM PERIOD UNTIL PROTECTION WORKS ARE COMPLETE.

RECOMMENDATION 6.

GREYMOOUTH BOROUGH COUNCIL BE ENCOURAGED TO INCORPORATE LONG TERM PLANNING REQUIREMENTS IN ITS DISTRICT SCHEME TO ELIMINATE UNREASONABLE RISK OF FLOODING IN THE FLOOD PRONE AREAS OF THE BOROUGH.

RECOMMENDATION 7.

GOVERNMENT CONSIDER FLOOD PROOFING OF ITS EXISTING BUILDING STOCK BEFORE APPROVING NEW BUILDING AND RELOCATION.

RECOMMENDATION 8.

GOVERNMENT PROMPTLY APPROVE DISASTER RECOVERY EMPLOYMENT SCHEMES FOLLOWING ANY NATURAL DISASTER.

RECOMMENDATION 9.

THE CURRENT GRANT RATES FOR CATCHMENT WORKS OF 35% AVERAGE IS CONSIDERED TO UNDERVALUE THE NATIONAL INTEREST IN PRESERVATION OF THE SOIL RESOURCE AND REVIEW IS RECOMMENDED.

RECOMMENDATION 10.

THE CURRENT POLICY FOR CATCHMENT WORKS THAT CONSIDERS A REGIONAL INPUT OF ABOUT 35% TO BE REASONABLE CONTAINS NO SENSE OF INTER-REGIONAL EQUITY AND REVIEW IS RECOMMENDED.

RECOMMENDATION 11.

GOVERNMENT ACKNOWLEDGE THE SIGNIFICANT INVESTMENT IN RIVER STABILISATION WORKS ON THE WEST COAST, THE DESIRABILITY OF MAINTAINING EXISTING RIVER PATTERNS, THE INABILITY OF THE FARMING COMMUNITY TO FUND THE WORKS MADE NECESSARY BY THE MAY AND SEPTEMBER 1988 FLOODS AND EXPLORES AND CONSIDERS GRANTING SPECIAL ASSISTANCE SIMILAR TO THAT MADE AVAILABLE TO GREYMOUTH BROUGH.

RECOMMENDATION 12.

ESTABLISHMENT OF A NATIONAL DISASTER POLICY BE CONSIDERED BY GOVERNMENT.

ASSESSMENT OF THE EFFECT OF WEST COAST FLOODS
ON THREE SHEEP AND BEEF AND TWO DAIRY FARMS

Prepared by:

Ron Miedema
Agricultural Consultant
MAFTech
GREYMOUTH

INTRODUCTION

This report contains case studies covering five farms affected by the May and September floods on the West Coast.

These case studies cover:

1. Summary of the flood damage.
2. The financial situation of the farmer.
3. How debt servicing would be affected by borrowing to repair flood damage.
4. The equity situation of the farmers and how this would change if money was borrowed to repair flood protection.
5. The affect of flooding on the farm's value and how leaving flood protection damaged would affect this value.
6. The farmers' perceptions and intention in relation to his river protection work.

SUMMARY

The debt servicing as a percentage of Gross Income of the five properties studied is:

	<u>Presently</u>	<u>After borrowing for flood protection</u>
	<u>%</u>	<u>%</u>
Curtis	24	30
Burrige	23	32
Clayton Estate	6	9.3
Egan	32.6	35
Kersten	31	36

A standard used as a sustainable level of debt servicing is 25%. Two of the properties are already above this level and cannot afford to borrow more money. two other properties have a sustainable level of debt servicing but extra borrowing would put them into a position of 30 to 32% debt servicing which is difficult to sustain.

Clayton estate has a low level of debt servicing and should be in a position to borrow extra for river protection work. It should be noted that Clayton Estate is in a poor cash position despite its low debt servicing cost.

A summary of the estimated cost of river protection repairs and loss of property values:

	<u>Cost of repairs</u>	<u>Present loss of Value</u>	<u>Potential loss of value</u>
	<u>\$</u>	<u>\$</u>	<u>\$</u>
Curtis	50,000	62,500	125,000
Burrige	80,000	86,200	120,000
Clayton Estate	96,000	62,400	180,000
Egan	20,000	13,000	152,000
Kersten	60,000	49,000	79,000

The potential loss of value figures are much higher than the cost of repairs to the river protection.

At this stage the Egan and Clayton Estate properties have lost value equivalent to the cost of repairing the river protection. In the future the losses could be very high if the river changes course and areas of farmland are destroyed.

The Kersten property has lost value equivalent to the cost of repairing the river protection plus the loss of a standoff pad. Potentially 18 ha of farmland could be threatened by the river and a large area of the neighbouring Hill Bros. property could also be threatened.

The Curtis and Burrige properties have lost the value of repairs to river protection and property damage. They also have land exposed to regular flooding which decreases its value by 25% to 30%. There is a danger in both these cases that more land will be lost to the river.

Flood Damage Assessment

1. Name: MJ and HM Curtis
2. Address: Matai
Ahaura
3. Telephone: (027) 728
4. Inspection date: 10.10.88
5. Farm area: 73 ha Freehold
101 ha Maori lease
243 ha Riverbed lease
6. Farm type: Sheep and Beef
7. Stock numbers: 185 Cattle
720 Sheep

Summary of Flood Damage

There are 3 hook groynes in place to direct the river away from the Curtis' property. Due to the flooding in May and September the groyne highest upstream has been badly damaged and will cost about \$50,000 to replace.

The flooding resulted in the loss of 20 ewes plus lambs and 8 cattle. A large area of the property was flooded and 7 acres silted. Due to the groyne damage the river is directing its flow toward the property and may threaten the whole farm and 60% of J Kersten's property also if river protection isn't completed.

Mr Curtis' View of the Situation

Over the last 6 years Mr Curtis has spent \$35,000 of his own money on river protection. The hook groynes have proven to be expensive and have not withstood the flooding. Because of this Mr Curtis does not want to spend more money on these structures.

Without all 3 hook groynes working there is insufficient protection of the property, therefore Mr Curtis is prepared to put his suspensory loan of \$14,000 into river protection work. He believes this money would be better spent on rock groynes.

Financial Situation

Forecast to Year ended March 1989.

Income

	\$
Cattle	70,667
Sheep	15,570
Wool	18,126
Other	911

TOTAL	\$105,274
	=====

Expenditure

Stock purchases	32,953
Farm working expenses	37,894
Debt servicing	25,450
Drawings and Life Insurance	14,733
Less investments	500

TOTAL	\$111,530
	=====
plus Taxation refund	2,367
Interest received	16

Expected cash result for the year	-\$3,873
	=====

Debt Servicing

The total spent debt servicing was \$25,450.

$$\begin{array}{r} \text{This is} \\ \hline 25,450 \\ 105,263 \end{array} \times \frac{100}{1} = 24\% \text{ of Gross Income}$$

This is close to the safe limit of debt servicing as a percentage of Gross Income. It is possible to service a higher level of debt but it becomes difficult to manage. The risk is also high, a decrease in income may cause problems as debt servicing as a percentage of Gross Income becomes higher.

If repairs cost \$50,000 and the subsidy from the Catchment Board is 35%, total capital required would be \$32,500.

At 17% for 15 years the repayments would be \$6,110. Added to present debt servicing.

$$\begin{array}{r} 6,110 + 25,450 \\ \hline 105,263 \end{array} \times \frac{100}{1} = 30\%$$

A level of 30% debt servicing is difficult to sustain.

Effect on Equity

A local real estate firm estimates that the property could be sold for \$250,000 land and buildings.

	\$
Therefore the value is	250,000
plus stock:	65,000

TOTAL	\$315,000
	=====

Liabilities

Westland Savings Bank	8,550
Elders pastoral	21,300
Wrightson NMA Ltd	11,500
Mortgage	40,000
Rural Bank	57,200

TOTAL	\$138,550
	=====

∴ Present equity \$315,000 - \$138,550 = \$176,450 or 56%

Borrowing \$32,000 would result in equity of \$144,450 or 45.8%

A comfortable standard for equity is 60% of the total value of the assets.

Summary

The effect of farming with flood protection in its present condition is firstly a loss in value of the property and secondly a loss of land, improvements and stock during floods.

The value of land under threat from regular flooding decreases in value by about 25% to 30%. The whole property is under threat by flooding so at 25% reduction the new value would be \$62,300 less at \$187,500.

The damage from flooding will be a recurring problem. Each flood means that fences have to be replaced and grazing is lost to silting. In times where feed supply is being carefully manipulated to meet stock demand this loss of grazing and stock control can make the situation much worse. On the personal side uncertainty is always a problem. Every time heavy rains occur there is the worry regarding flooding.

Mr Curtis does want to take action to repair the flood protection and is prepared to spend \$14,000 to do so. The farm is presently running at marginal profitability and debt servicing is at close to maximum levels. Flood protection work needs to be done but if Mr Curtis has to contribute \$32,500 his farm will have a debt burden that may become impossible to carry.

Flood Damage Assessment

1. Name: K and S Burridge
2. Address: Totara Flat
Westland
3. Telephone: (027) 857
4. Inspection date: 7 October 1988
5. Farm area: 82 ha Freehold
11 ha Lease
16 ha Freehold runoff
6. Farm type: A predominantly dairy property
running a small beef herd and sheep
flock.
7. Stock numbers:

	<u>7.10.88</u>	<u>Before May Flood</u>
Dairy cows	150	180
Beef	18	25
Ewes	72	78
Lambs	70	-

Summary of Flood Damage

The property has two levels on the Home Block. These are 41 ha of higher ground by the road which carries only dairy cows and is the area where the house and dairy shed is located. The lower block has approximately 41 ha used mainly for dairy and the 11 ha of lease used for dry stock.

The lower freehold land was used for hay and silage production and the hay was stored there.

The flooding has affected the lower riverflats. Half of the 11 ha lease has become riverbed and of the remaining lease half can still be grazed. Approximately 10 ha of the freehold riverflats were badly affected either becoming riverbed or having a thick layer of gravel and sand deposited.

The remaining riverflat area is now extremely susceptible to flooding. Since the May flood this area has flooded to varying degrees about 9 times. Certain of the more exposed pieces of fenceline have been replaced six times.

As Mr Burrige sees the problem other than loss of land there is now the constant threat of flooding. The area is no longer suitable for making supplements as the standing grass may be flattened by flood water. There is always the uncertainty of not knowing when the water will come through again leaving stock stranded or drowning them. When the flood waters recede stock are free to wander as fences are destroyed.

The risk of flooding makes this remaining area difficult to manage.

K Burridge's Budget

Income

	\$
Milkfat	93,900
Bobby Calves	3,400
Culls	6,400
Lambs	990
Ewes	325
Other	5,120

TOTAL	\$110,135
	=====

Expenditure

Farm working expenses	30,946
Repairs and Maintenance	3,400
Car expenses	3,000
Tractors and bike	6,000
Administration	3,670
Wages	7,200

Standing charges

Fire and Accident Insurance	1,500
Rates and rent	1,900
ACC levy	1,500

Finance charges

O/D interest	1,010
Mortgage	24,420
Bank charges	300

Personal

Living	5,500
Life Insurance	2,900
Income Tax	4,000
GST	5,822

TOTAL EXPENDITURE \$103,068
=====

SURPLUS \$7,067
=====

Financial Situation

This budget is a forecast of the year ending 30 June 1989.

As the budget was prepared before the September flood the repairs and maintenance figure is likely to be underestimated. The effect on income is not likely to be significant as stock numbers were already depleted by the May flood and extra feed will be bought.

Debt Level

At present debt servicing is: \$25,430

This is	<u>25,430</u>	x	<u>100</u>	=	23% of Gross Income
	110,135		1		

Cashflow

The opening balance is \$8,300 overdrawn. This increases to a maximum of \$14,900 in December before improving to a position balance of \$4,020 at the end of June 1989.

Ability to Pay for River Protection

The cost of repairing and extending the stopbank is estimated at about \$80,000.

Given a 35% subsidy this would mean the contribution from Mr Burrige would be \$52,000.

If this money was borrowed at 17% for 15 years the repayments would be \$9,776 per year.

Total debt repayments would then be:

$$\frac{35,206}{110,135} \times \frac{100}{1} = 32\% \text{ of Gross Income}$$

This level is in most cases an unsustainable debt burden. A standard for debt servicing is approximately 25%

An extra \$9,776 of expenditure would mean that the balance of \$8,300 overdraft would become \$5,756 overdraft at the end of the year.

Effect on Farm Value of Flooding

Approximate value before the September flood.

	\$
Home property (81.5 ha)	231,000
Lease (11 ha)	5,500
Runoff (16 ha)	30,000
House off-farm	22,000
Stock	69,000

TOTAL	\$357,500
	=====
Less	
Freehold land cost (10 ha)	17,300
Freehold land at risk of flooding (31 ha) less 25%	13,407
Damage to lease land	3,500
Cost of repairing river protection	52,000

TOTAL	\$86,207
	=====
∴ Value of property after flooding	\$271,293
	=====

Summary

This property has been severely affected by flooding and is very exposed to flooding in the future.

Productive land has become riverbed and an area of about 40 ha is under threat during even a mild flood.

The farming system has been affected not only by land lost but this 40 ha has become difficult to manage. Because of this farm income will decrease and extra expenditure will be required to buy supplements that would otherwise have been made on the property.

The farm's value has decreased by an estimated \$86,200.

Mr Burr ridge is in a marginal position to borrow for river protection repairs. Doing so will push his debt servicing up to a level that is very difficult to sustain. Most likely assets would have to be sold to cover the repair work.

Flood Damage Assessment

1. Name: JJ Clayton Estate

2. Address: Waimaunga
Ikamatua

3. Telephone: (027) 843

4. Inspection date: 11.10.88

5. Farm area: 1,000 ha total
580 ha effective

6. Farm type: Sheep and Beef.

7. Stock numbers: 30.6.88

Ewes	2,515
Ewe Hoggets	600
Rams	40
Breeding cows	91
Heifers	365
Steers	340
Bulls	46

Summary of Flood Damage

The floods in May and September caused both stopbank damage and stock losses. An area of 168 ha of the Clayton Estate and 64 ha of neighbouring properties is protected by rock works. These sustained a total of approximately \$66,000 damage, this area continues to gouge away.

On the western side of the river damage to stopbanks total \$30,000.

Stock losses were 90 in lamb ewes with 6 months of wool.

Total value \$2,880.

About 280 metres of fencing was destroyed. At \$6 per metre this is \$1,680.

Pasture damage by silting means that 10 ha require reworking to regain their productive levels. At \$160 per hectare this is \$1,600.

Total stopbank damage	:	\$96,000
Total property damage	:	\$6,160

TOTAL		\$102,160
		=====

Financial Situation

Year ended 30 June 1988

Income

	\$
Cattle	248,410
Sheep	30,660
Wool	70,312

TOTAL	\$349,382
	=====

Expenditure

Stock purchases	138,500
Farm working expenses	156,450
Debt servicing	20,800
Flood losses	5,000
Drawings	12,000
Tax	16,000

TOTAL	\$348,750
	=====

SURPLUS \$632
===

$$\begin{array}{r} \text{Debt Servicing} \\ \hline 20,800 \\ \hline 349,382 \end{array} \times \frac{100}{1} = 6\% \text{ of Gross Income}$$

Debt Servicing

The 6% level of debt servicing is very low. Despite this the property is in a break-even situation, the bank balance is in overdraft for much if not all of the year. Farm working expenses are 45% of Gross Income which is a standard that should keep up the present production levels.

Despite this present break-even situation the property can carry more debt than it presently has.

Mr Clayton is very reluctant to borrow more for flood protection as he believes there is presently no surplus in the system. Sheep and Beef returns are not enough to give him confidence to borrow for the future.

If repairs are done with a Catchment Board subsidy of 35%, \$62,400 would have to be found of local money.

If this is borrowed at 17% over 15 years debt servicing would be \$11,731 per year.

Total debt servicing would then be 9.3%, this is still a low level.

The Effect on Equity of Borrowing for Protection Work

The following is a simplified version of a very complex equity situation.

Assets

Valuation		\$
	L and B	601,000
	Stock	250,000
	Plant	8,919
	Vehicles	16,979

	TOTAL	\$876,898
		=====

Liabilities

NZ Guardian Trust	51,000
Estate of William Clayton	14,300

TOTAL	\$65,500
	=====

∴ Equity is \$811,398 or 92%

Borrowing \$62,400 for flood protection work would bring equity down to 85%.

This is still a very good level of equity and well above the 60% considered a desirable level.

The Effect on Property Value if No Flood Protection Work is Carried Out

The immediate effect on the property's value is a decrease equivalent to the cost of completing the protection work. The current value of \$60,000 would drop by \$62,400 to \$538,600.

Given that eventually the 168 ha becomes regularly flooded due to lack of protection, this area would lose about 25% of its value which is \$45,075, therefore total property value would drop to \$493,525.

In the worst possible situation this 168 ha could become a new path for the river and be almost totally destroyed. This would decrease the property value by about \$180,000, reducing the total property value to \$358,600.

Summary

This property has low debt servicing and high equity. Despite this it is running only at a break-even situation at present.

Based on the low debt of this property the position is very sound for borrowing further money. The total required to repair the flood protection is \$62,400 which increases debt servicing to a still very comfortable 9.3%.

Flood Damage Assessment

1. Name: J Egan & Sons
2. Address: Haupiri
Westland
3. Telephone: (027) 593
4. Inspection date: 12.10.88
5. Farm area: 493 ha total
280 ha effective
6. Farm type: Sheep and Beef.
7. Stock numbers:
- | | |
|------------------|-------|
| Ewes | 1,300 |
| Hoggets | 300 |
| Rams | 15 |
| M/A cows | 28 |
| Heifers | 45 |
| Bulls and Steers | 122 |
| Breeding Bull | 1 |

Summary of Flood Damage

Four hook groynes are in place, the one highest upstream has been damaged. These groynes deflect the river from a previous path that would take it through 120 ha of the best farmland owned by Mr Egan.

After the flood of May 600 tonnes of rock was placed in the stopbank. This cost Mr Egan \$3,500 as it was subsidised at 55%. Presently another 1,000 tonnes of rock is required at a cost of approximately \$20,000.

Mr Egan's View of the Situation

The best 120 ha of land is at risk of flooding. This area provides about 40% of income. Mr Egan feels that it is vital to keep up stopbank maintenance. Without the flood protection he believes the river could flow down what was previously a riverbed. *

Annual maintenance has been \$4,000 to \$6,000 which has been the local share at 70% subsidy.

* Egan's father took this land up as a former W.W.II soldier when the Crown purchased and subdivided a larger property. The land "that was previously a riverbed" is an old channel and was sold by the Crown as freehold.

J.P. Kerr
21. 10. 88

Financial Situation

Cash forecast for the year ending 30 June 1989.

Income

	\$
Cattle	33,000
Sheep	16,000
Wool	43,000
Deer	6,000
Rent	2,100

TOTAL	\$100,000

Expenditure

Stock purchases	17,600
Farm working expenses	38,400
Debt servicing	32,600
Drawings	9,000
Taxation	5,000

TOTAL	\$102,600

FINAL CASH RESULT	-\$2,500
	=====

Debt Servicing

Total debt servicing is \$32,600. This is 32.6% of Gross Income. If an extra \$13,000 is required now and is borrowed at 17% for 15 years the repayments would be \$2,444 per year.

After borrowing this amount, debt servicing would be 35% of

Gross Income.

A standard for debt servicing is 25% of Gross Income, therefore present debt servicing is above standard now and increased borrowing is just going to make the situation worse. Mr Egan is not in a suitable position for borrowing more money.

As at 30 June 1988 overdraft was \$25,000. The budget indicates a deficit for the coming financial year. This confirms that debt servicing is already too high.

Effect on Equity of Borrowing for River Protection

Presently

Assets

Land and buildings	380,000
Stock	130,200
Plant	23,779
Vehicles	33,620
TOTAL	\$567,599

Liabilities

Rural Bank	125,916
Bank Term Loan	14,000
L & S Deferred Payment	4,969
National Bank	24,919
Wightson NMA	14,768
TOTAL	\$184,572

Equity is presently 67%

Borrowing an extra \$13,000 for flood protection would bring equity down to 65%.

Both these levels are above the standard of 60% and are comfortable equity situations.

Effect on Farm Values if Flood Protection Work Not Completed

At the present time the farm value has decreased by the amount it would cost to repair the flood protection. This is \$20,000 or \$13,000 given the 35% subsidy.

If however the protection work is not completed and the river regularly floods the property or even changes course through it, the effect would be major on the property's value.

If this 120 ha started to flood regularly it would lose about 25% of its value. As it produces 40% of the farm's income the effect would be:

380,000 x 40%	=	\$152,000
Less 25% value	=	\$38,000

Therefore regular flooding without any land loss would decrease the total farm value by 10%.

If in the worst case the river actually carved a new channel through the property the effect would be major. Income loss would mean that at least \$152,000 would be lost. In fact more loss would occur because the property would be cut in two with access a problem and the economics of the farm as a unit would be marginal.

Summary

The effect on the property of having no flood protection could be disastrous. The loss of land and production is large compared to the \$20,000 required to repair the damage.

Mr Egan is not in a sound position to borrow more money for flood protection based on his current budget and debt servicing.

The budget shows a small loss for the coming year and debt servicing is already high at 32.6%.

Flood Damage Assessment

1. Name: JPV and T Kersten

2. Address: Matai Ahaura

3. Telephone: (027) 824

4. Inspection date: 7 October 1988

5. Farm area: 184.6 ha

6. Farm type: Dairy property predominantly with some beef

7. Stock numbers: 30 June 1988

- Milking cows 185
- Heifers 65
- Yearling Heifers 53
- Steers and Bulls 4
- Yearling Steers and Bulls 2
- Breeding Bulls 4

Summary of Flood Damage

A stopbank for deflecting the riverflow away from farmland has been badly eroded. The river has not breached the bank as yet but will do so if repairs are not made. Stone groynes placed at intervals along the bank have been damaged to varying degrees.

Behind the stopbank is a gravel area previously used as a stand-off pad, during wet weather. A silage pit was also constructed along one bank. This area is no longer safe to use for stock as the river will fill these areas when in flood and the bank may collapse.

At present there is no damage to pasture land. Some areas do become covered but this is still water and does not deposit silt. If the stopbank collapses the river will run swiftly over about 18 ha probably damaging fences and leaving silt. The neighbouring Hill's property is also likely to be affected.

Mr Kersten's View of the Situation

Recently \$10,000 was spent getting the stopbank up to a good standard. Mr Kersten isn't prepared to spend more money as the returns to him alone aren't worth it. Neighbours would benefit from the stopbank repairs and therefore should contribute to repairs.

At this stage Mr Kersten would rather take the risk of possibly losing land than spend money he can't afford.

Financial Situation

For Year Ended 30 June 1988

Income

Milkfat
Cattle
Sundry

103,592
49,619
2,068

TOTAL

\$155,278

Expenditure

Cattle purchases
Farm working expenses
Repairs and Maintenance
Vehicle expenses
Administrative expenses
Insurance
ACC

7,925
24,912
3,830
3,710
2,346
1,083
1,764

Debt Servicing

Loan - ME Kersten
RBFC
Rates/rent
Tax
Drawings

50,000
18,500
2,238
21,299
13,674

TOTAL

\$151,281

SURPLUS

\$3,997

Debt Servicing

During the 1987/88 financial year debt servicing amounted to \$50,000 repayments on a family loan and \$18,500 to RBFC.

The percentage of Gross Income going into debt servicing was:

$$\frac{68,500}{155,278} \times \frac{1}{100} = 44\%$$

A commitment of \$30,000 is to be paid on the family loan. If this minimum amount is paid debt servicing would be:

$$\frac{48,500}{155,278} \times \frac{1}{100} = 31\%$$

A standard for debt servicing is approximately 25% of Gross Income. The above levels are higher than this and are presently being sustained by low farm working expenses for example fertilizer has not been applied for several years.

Farm working expenses are \$37,645 which is 24% of Gross Income where a standard figure is 45%.

Effect of Debt Servicing on Borrowing for Flood Repair Work

Repairs to the stopbank are estimated to cost \$60,000. If 35% of this is subsidised, Mr Kersten would be required to pay a share of \$39,000.

If this money is borrowed on a table mortgage of 17% for 15 years, the repayments would be \$7,332 per year.

Total debt servicing including borrowings for flood repair work would be a minimum of:

$$\frac{48,500 + 7,332}{155,278} \times \frac{1}{100} = 36\%$$

This is well above the 25% level considered readily sustainable.

Effect on the Value of the Property if Flood Repair Work is Not Completed

Initially the value lost is equivalent to the cost of repairing the stopbank plus the value of the standoff pad. being unusable.

The standoff pad. is worth about \$10,000, the cost of building a structure of the same standard. Therefore total loss in value of the property so far is \$49,000.

If the stopbank is breached and 18 ha becomes regularly flooded this area would loose 25% of its value. This is about \$7,500 which results in a total loss of value of \$56,500.

In the worst possible case the 18 ha of land could be lost to the river at a cost of \$30,000. This would bring total loss in value to \$79,000.

Summary

Mr Kersten is not in a position to borrow more money for flood protection. The economics of doing so are marginal for him alone. They only become reasonable if his neighbours, for example the Hill Brothers, contribute to the work.