

F-A,10

BVAE North Van. Env. Can. Lib./Bib.



36 001 711

~~F-A.10~~
TC
530
F73
1985

THE FRASER RIVER FLOOD CONTROL PROGRAM

STATUS

JUNE 30, 1985

Inland Waters Directorate
Pacific and Yukon Region

LIBRARY
ENVIRONMENT CANADA
CONSERVATION AND PROTECTION
PACIFIC REGION

TABLE OF CONTENTS

	Page No.
1. INTRODUCTION	1
2. THE AGREEMENT	1
3. SCOPE OF PROGRAM	3
4. STATUS	3
TABLE I	4
5. ISSUES	5
a. Economic Viability	5
b. Internal Drainage	6
c. Indian Lands	6
6. FUTURE	8

THE FRASER RIVER FLOOD CONTROL PROGRAM

STATUS - JUNE 30, 1985

1. INTRODUCTION

The worst flood since the beginning of European settlement along the Fraser River occurred in 1894. Known as a one-in-two hundred year flood, it covered a major portion of the Fraser Valley from Prince George to Quesnel, Kamloops and the Lower Fraser Valley from the Coast Mountains to the sea.

In 1948 the river flooded to within one foot of the 1894 level. This time, because of the increased development over the intervening years, the damages were greater. The floodwaters breached dykes in a dozen districts, covered some 22 000 hectares of land and severed the CN and CP railways and the Trans-Provincial highway. The cost of compensation and damage repairs from the 1948 flood amounted to some \$20 million of which \$17.5 million was in the Lower Fraser Valley. The cost of flood damage repairs in the same area today would be far greater - some estimates are approximately \$350 million - due to the increased development.

Dykes in the Lower Fraser Valley were reconstructed after the 1948 flood and successfully resisted the flood threat of 1950. After 1950 the dyking system deteriorated and in 1968 Canada and British Columbia signed the "Agreement Covering a Plan for Flood Control in the Fraser Valley, British Columbia".

2. THE AGREEMENT

The Agreement, signed by Canada and British Columbia on May 24, 1968,

provides for the rehabilitation of the existing system of flood control works which protects low lying areas of the Lower Fraser Valley against flooding from the Fraser River, tributary streams and the Strait of Georgia. It also provides for the rehabilitation of pumps and main drains.

The Agreement requires that each project must be engineeringly sound, economically viable and practical. It originally committed Canada and British Columbia to each contribute up to \$18 million on an equal share basis. For each project the local authority is required to contribute an equitable, but unspecified, share of the project cost.

Rights-of-way for flood control works and for construction and maintenance access are provided by local authorities.

The Agreement also provided for a review of the potential for upstream storage and diversion works to provide additional flood protection for communities in the Fraser River Basin. The study cost one million dollars and results were presented in the "Fraser River Upstream Storage Review Report" dated December, 1976. Common methodology, particularly in benefit-cost analysis, was used in the study and for the construction components of work under the Agreement.

Amending agreements were signed in 1969, 74, 76 and 84 to increase the total funding to \$120.0 million on an equal share basis, to include the Kamloops area and to improve the management structure under the Fraser River Joint Advisory Board. The Agreement was extended to December 31, 1986.

A further amending agreement, the fifth, was proposed by the Board. It would increase the total joint funding to \$161.0 million so that all economically justifiable projects could be completed and would extend the Agreement to March 31, 1995. It is supported in principle by the federal and provincial Ministers of Environment.

Although not included in amending agreements, there have been other significant changes made to the Program. They include:

- elimination of the minimum 10% contribution required from the municipality towards the cost of the work and;
- deferral of internal drainage improvements.

3. SCOPE OF PROGRAM

The Program covers the most heavily populated area of the Pacific and Yukon Region - the Lower Fraser Valley - from the Coast Mountains to the sea. The area is shown on the attached map, Figure 1. In addition the City of Kamloops and the adjacent area are also covered. The municipality or area names shown on the map are based upon the areas listed in the Program Guide published with the Agreement. Areas protected under existing funding and areas to be protected under the proposed Amending Agreement are indicated by different shading.

4. STATUS

Table I lists the projects and their costs for work under the existing Agreement and under the proposed Amending Agreement.

Under the existing Agreement eleven of the thirteen individual projects and the Upstream Storage Study were complete as of March 31, 1985. The Surrey and Delta projects and the "other bank protection" will be completed by December 31, 1986 when the existing Agreement terminates. Expenditures to March 31, 1985 were \$115 million. When the total funding of \$120.0 million has been utilized it is estimated that the value of flood damages which will be prevented by the improved flood control works will exceed costs by a ratio of 3.3/1.

TABLE I

SCHEDULE OF PROJECTS

Showing Estimates of Costs in Millions of Dollars

Project	The Existing Agreement (to 1986) (\$)	The Amending Agreement (to 1995) (\$)
Kent	3.2	
Pitt Meadows	7.6	
Coquitlam South	3.9	
Chilliwack	6.4	2.50
Abbotsford	23.9	
Matsqui	3.6	
Surrey South Westminster	6.3	
Surrey Dams	1.2	
Delta	16.3	
Delta Boundary Bay Village		2.50
Delta Colebrook Closure		0.50
Richmond	18.6	
New Westminster	3.2	
Vedder River	7.3	
Oak Hills (Kamloops)	1.1	
Upstream Storage Study	1.0	
Other Bank Protection	2.1	1.00
Harrison Hot Springs		1.00
South Dewdney		7.37
Mission		1.03
Pitt Meadows #2		5.93
Glen Valley		4.00
Salmon River		0.05
Coquitlam River		5.60
Kamloops		8.50
Engineering and Administration	14.3	1.02
TOTALS	120.0	41.0

LIBRARY
ENVIRONMENT CANADA
CONSERVATION AND PROTECTION
PACIFIC REGION

In addition to the flood damages which will be prevented the regional economy has benefited significantly through the expenditure, in the private sector for engineering and construction, of approximately 93% of the \$115.0 million spent to March 31, 1985. This represents a sum of \$106.0 million channelled directly into materials, equipment and labour. The remaining 7% represents direct project management costs - primarily engineering management services. When completed in 1995, an extended program covered by the proposed Amending Agreement will prevent \$450 million of flood damages for a total cost of \$161.0 million.

5. ISSUES

a. Economic Viability

As stated before, the Agreement requires that projects must be economically viable. This is established by comparing the benefits and costs of flood prevention for each hydraulically separable portion of the municipality or district that has applied for flood control improvements. Qualified projects are recommended by the federal-provincial Fraser River Joint Advisory Board to the two Ministers for funding approval.

Submissions from local authorities to the Board and to the two governments have expressed concern that flood control works listed in the Program Guide, which formed part of the original Agreement, will not be completed for reasons of economic viability. They have argued that the total program of flood control works as originally listed is, in total, economically viable and that it is not socially acceptable to protect only those areas with high damage - cost ratios and to leave adjacent areas and areas directly across the river unprotected. In general the requirement for economic viability for flood protection is not accepted by those areas which do not qualify.

Implementation of the proposed Amending Agreement will not eliminate these concerns.

The province has recently upgraded, to a lower standard, all of the dykes around Westham Island and along the Sumas River and has provided local improvements in other areas. This work was paid for by the province and projects were not subject to analysis for economic viability.

b. Internal Drainage

Drainage improvements have been deferred by the Board since the mid-seventies in order to assign first priority, within the limited funding, to protect against flooding from the river and the sea.

Provincial and municipal organizations continue to criticize the federal government for failure to fund internal drainage as provided for by the Agreement. It should be noted that drainage and irrigation system improvements, and expansions, have been provided in some areas under a federal-provincial program - applied federally through the Department of Agriculture.

c. Indian Lands

The Agreement provides for flood control improvements to protect reserves under special cost sharing arrangements and lists seven reserve areas in the Program Guide. These areas are shown on Figure 1.

Seabird Island
Chilliwack Reserves 3,4 and 5
Katzie 1
Coquitlam
MacMillian Island
Matsqui Island
Popkum

Only the portions of Chilliwack Reserves 4 and 5 and of Katzie Reserve 1 which are behind the existing dykes receive flood protection. The parts of these reserves which are outside the existing dykes and the other listed reserves do not qualify as economically viable. In the Chilliwack area the Bands have refused permission for improvements to the existing dykes through Reserves 3 and 4. These dykes are above the design water level and practical emergency measures can provide freeboard when necessary.

Four additional reserve areas which receive protection since they are included as part of municipal projects are:

Tsawwassen	In Delta project area
Matsqui (Mainland)	In Matsqui project area
Sumas	In Abbotsford project area
Agassiz	In Kent project area

Construction of a dyke enclosing an accreted salt marsh annexed to the Tsawwassen Indian Reserve in the municipality of Delta was stopped as a result of fisheries concerns in the mid 1970's. Agreement has now been reached by the federal departments of Environment, Fisheries and Oceans, and Indian Affairs with the B.C. Ministry of Environment on a project that has been accepted by the Band. The Department of Indian Affairs and Northern Development will provide \$1.1 million of the project costs in recognition of Indian interests. The proposal has undergone an environmental impact review and the contract will be awarded by the end of June 1985.

Construction was completed through the Kent, Pitt Meadows and Matsqui (mainland) reserves on the basis of oral negotiations between the Province as the constructing agency and the local

bands. Subsequently problems have arisen in individual areas over claims for compensation for use of the land on which flood control works are located, control of access to reserve lands and access for dyke maintenance. The Department of Indian Affairs and Northern Development are aware of these problems.

6. FUTURE

The Board has authorized engineering design to proceed on priority projects which will be funded under the proposed Amending Agreement. The design of South Dewdney is now complete. The design for Mission should be started but there may not be enough funds under the current Agreement to complete the design.

LIBRARY
ENVIRONMENT CANADA
CONSERVATION AND PROTECTION
PACIFIC REGION

