

PRAIRIE PROVINCES WATER BOARD

**THIRTEENTH
ANNUAL REPORT**

1960

**c/o P.F.R.I.
Motherwell Building,
Regina, Saskatchewan**

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P E R S O N N E L

The Prairie Provinces Water Board is composed of five members. Three provincial members represent the provinces of Alberta, Saskatchewan, and Manitoba, and two federal members represent the departments of Agriculture, and Northern Affairs and National Resources. The Engineering Secretary for the Board is provided by the P.F.R.A. (Canada - Department of Agriculture).

- G.L. MacKenzie - Chairman of the Board:
representing Federal
Department of Agriculture
(Appointed 21 March 1957)
- Director, P.F.R.A.
- R.H. Clark - representing Federal
Department of Northern
Affairs and National Resources
- Chief Hydraulic Engineer,
Water Resources Branch,
Ottawa
- J.A. Griffiths - representing Province of Manitoba
- Director, Water Control
and Conservation, Winnipeg
- B.W. Boyson - representing Province of Saskatchewan
- Chief Engineer, Saskatchewan
Water Rights Office, Regina
- F.L. Grindley - representing Province of Alberta
- Director, Alberta Water
Resources Branch, Edmonton
- E.F. Durrant - Engineering Secretary to the Board
- c/o P.F.R.A.,
Motherwell Building, Regina

WARRANT AND FUNCTION OF THE BOARD

On July 28th, 1948, the Prairie Provinces Water Board was established by the Governments of Canada, Manitoba, Saskatchewan, and Alberta; consisting of two members appointed by Canada and one from each of the three provinces.

The Board's function is to recommend the best use to be made of interprovincial waters in relation to associated resources in Manitoba, Saskatchewan, and Alberta and to recommend the allocation of water as between each province of streams flowing from one province into another province.

The Board's duties are: To collate and analyze the data now available relating to the water and associated resources of interprovincial streams; to determine what other data are required from time to time and to make recommendations to the appropriate governmental organizations concerned for the carrying out of such surveys and studies which the Board considers necessary to supply information required for the performance of its duties; upon request of any one of the three provinces or Canada, to recommend the allocation of the water of any interprovincial stream among the respective Provinces; and to report on any questions relating to specific projects for the utilization or control of common river or lake systems at the request of one or more of the Ministers or authorities charged with the administration of such river or lake systems.

REVIEW OF ACTIVITIES

Since the Board was formed in 1948, many studies and recommendations have been made. Definite allocations for water have been recommended and concurred in by the governments concerned. A Summary of these transactions may be found in Appendix A. A list of the various maps and reports prepared for the use of the Board may be obtained from the Engineering Secretary.

The Saskatchewan-Nelson Study

Late in 1959, the Board instructed the Secretary to prepare a reconnaissance report outlining work and expenditure which would be required to evaluate integrated basin development in the Saskatchewan-Nelson system. The report was presented and reviewed at the July 4th meeting of the Board. At that meeting the Board adopted a resolution regarding the studies outlined by the Secretary and agreed to its transmittal to the Governments. A copy of the resolution and the letter of transmittal is appended to this report (Appendix B).

The resolution was transmitted to the appropriate provincial and federal ministers on August 30th 1960. At the December 1960 meeting of the Board, correspondence was received indicating that the governments had the proposal under active consideration.

William Pearce Project

In December 1958, the Board made a two-year reservation of 700,000 acre feet annually for the proposed William Pearce Project (Red Deer Project) based on a preliminary report submitted by the Alberta member. At the meeting in December 1960, this reservation was extended for an additional two years with no modifications. The Alberta member has undertaken to submit a more comprehensive report within the next two years to provide a basis for a tentative allocation.

Reservation for Small Projects

In December 1959, a one-year reservation of 1,000,000 acre feet was made for small projects in the Saskatchewan River Basin. Simultaneously an inventory of small projects was begun to provide a basis for a tentative allocation. During 1960, it was recognized that a large portion of the Saskatchewan Basin does not contribute run-off to the main stem, but terminates in closed basins. Since projects in non-contributory watershed would have no effect on interprovincial stream flow, the Board decided that such areas should be delineated before proceeding with the inventory. The Engineering Secretary was instructed to prepare a map in cooperation with the Provincial members to delineate non-contributing areas. Since the map and inventory were not available at the meeting in December 1960, the Board renewed the 1,000,000 acre feet reservation for small projects for an additional year.

Diversion to Qu'Appelle River from the South Saskatchewan River Project

Within the next few years, the Summit Dam in the Qu'Appelle valley will be constructed to prevent the South Saskatchewan reservoir from spilling into the Qu'Appelle River. A conduit on this dam will permit gravity release of water into the Qu'Appelle system which empties into the Assiniboine River in Manitoba. The Saskatchewan and

Manitoba members have agreed to make a joint study of water requirements throughout this area in order to evaluate the adequacy of the conduit capacity presently proposed for the Summit Dam.

Review of Hydrometric Records by Water Resources Branch

The Water Resources Branch (Department of Northern Affairs and National Resources) is planning a review and compilation of hydrometric records for all Canada. The Water Board has suggested that the Saskatchewan River Basin be selected as the starting point for the review program. This revised information would be extremely valuable for the study of the water resources of the Saskatchewan-Nelson system.

Mapping

The Water Board considers that adequate 1:50,000 mapping would be important to the success of reconnaissance studies and the proposed Saskatchewan-Nelson studies. The Board has instructed the Secretary to recommend mapping priorities to the Department of Mines and Technical Surveys as soon as a decision is reached to proceed with the Saskatchewan-Nelson Study.

Current Water Board Studies

George Underhill (Alberta Water Resources Branch) has prepared, at the Board's request, a report entitled "The Effect of a Change in Vegetation on the Runoff Characteristics of Alberta Streams". This report is now being reviewed by the Board. Some decision as to publication will be made in 1961.

The first phase of the unit run-off study being made by the Water Board secretariat has been completed. Flow Records for 232 prairie streams have been compiled and reviewed, then reconstructed where necessary to provide a continuous record for the period 1911-1956. During 1961 study will be given to the regional variations in this run-off and the causes of that variation.

The final draft of Laycock's report on the aridity of the Canadian Prairies was not received by the Board during 1960. It is expected that this report will be received and reviewed by the Board in 1961.

Return Flows from Irrigation Projects

The program of measuring and recording these return flows is continuing, and annual reports are being received from the Federal Water Resources Branch.

Current Depletions

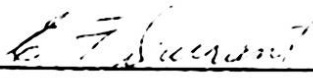
For the information of the Board, a record is being maintained by the Secretary of current stream flow depletions in The Saskatchewan River Watershed. The chart on the next page shows these depletions in comparison with the recorded flow of the Saskatchewan River at The Pas.

Meetings


During 1960 the Board held two meetings -

in Edmonton ... July 4, 1960,

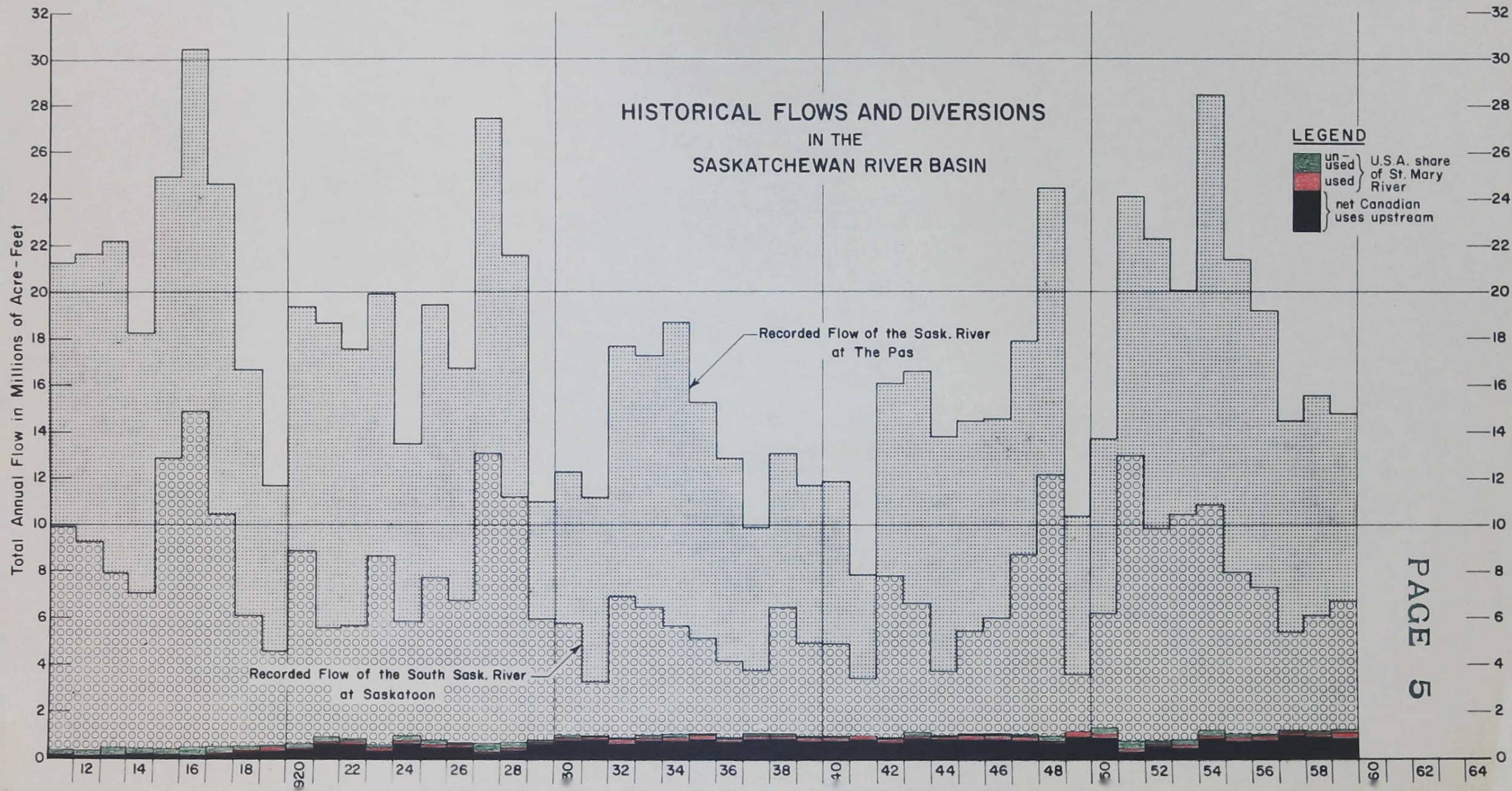
and in Regina December 1, 1960.



E.F. Durrant
Engineering Secretary



G.L. MacKenzie
Chairman



APPENDIX A

Definitions of Final Allocation, Tentative Allocation, and Reservation as agreed to January 26, 1950:

FINAL ALLOCATION

Procedure under which the Board may be requested to recommend to the governments represented in the Agreement a final allocation of water for a specific project.

TENTATIVE ALLOCATION

Procedure under which the Board may be requested to recommend to the governments represented in the Agreement a tentative allocation of water for a specific project; such an allocation to be subject to review and possible subsequent modification or cancellation, either in whole or in part, prior to final allocation.

RESERVATION

Procedure under which the Board may make a "reservation" of probable water requirements of specific projects. This will not comprise an allocation but shall represent an undertaking by the Board to the effect that, while the reservation is in good standing, no subsequent action will be taken by the Board which will have a detrimental effect upon the stipulated water without first thoroughly reviewing the status and requirements of the project for which the reservation was made and without affording to the representatives of the interested jurisdictions ample opportunity to make representations and to be heard. The Board shall, in making such a reservation, fix a period of time during which sufficiently complete plans and reports are to be prepared to enable the Board to consider further the allocation of water for this purpose: provided first, that if further information is not forthcoming in the stipulated period of time the reservation will lapse, and second, that the Board may, in its discretion, from time to time extend any period fixed for the production of such further information.

APPENDIX A (Cont'd)

<u>SUMMARY OF FINAL ALLOCATIONS</u>						
<u>in the SASKATCHEWAN RIVER BASIN</u>						
PROJECT	Province	Irrig- able Acreage Acres	Alloca- tion Ac.Ft.	Recom- mended by Water Board	Recommend- ation approved by O.I.C. from all Govern- ments	
St. Mary-Milk River Project	Alberta	465,000	796,000	6-5-49	4-7-51	
Western Irrig. District ...	"	50,000	85,700	"	"	
Eastern Irrig. District ...	"	281,000	562,000	"	"	
Bow River Irrig. District..	"	240,000	478,534	"	"	
United Irrig. District ...	"	34,000	51,000	"	"	
Leth. Northern Irr.District	"	96,135	150,000	"	"	
Mountain View Irr. District	"	3,600	6,000	"	"	
Leavitt Irrig. District ...	"	4,400	7,000	"	"	
Aetna Irrig. District	"	7,300	13,000	"	"	
MacLeod Irrig. District ..	"	5,000	8,000	"	"	
Private Projects	"	70,000	80,000	"	"	
Saskatoon - Municipal	Sask.		11,426	18-12-50	8-8-51	
- Steam Plant ...	"		31,260	"	"	
Caron - Moose Jaw Div. ...	"		12,600	"	"	
Swift Current Irr. Project	"	21,000	55,000	"	"	
Small Projects						
- Main Stem			1,500	"	"	
- Swift Current Basin			5,600	"	"	
- Other Tributaries..			4,500	"	"	

<u>SUMMARY OF TENTATIVE ALLOCATIONS</u>						
<u>in the SASKATCHEWAN RIVER BASIN</u>						
Regina-Moose Jaw Div.	Sask.		29,000	18-12-50	8-8-51	
French Flats-Valley Park..	"	6,502	11,140	"	"	
South Sask. River Project	"	470,000	960,000	15-5-53	-53	

<u>SUMMARY OF RESERVATIONS IN GOOD STANDING</u>						
<u>in the SASKATCHEWAN RIVER BASIN</u>						
Red Deer (Wm. Pearce)	Alberta	250,000	700,000	18-12-58	(Original Reservation)	EXPIRED Dec.1960
				1-12-60	(Renewed)	EXPIRES Dec.1962
Small Projects	(Alberta & Sask.)		1,000,000	2-12-59	(Original Reservation)	EXPIRED Dec.1960
				1-12-60	(Renewed)	EXPIRES Dec.1961

APPENDIX A (Cont'd)BATTLE CREEK BASIN

PROJECT	Province	Irrigable Acres	Allocation A.c.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects Richardson-MacKinnon Project	Sask.	-	10,946	18-12-50	8-8-51
	Sask.	-	3054	18-12-50	8-8-51
<u>TENTATIVE ALLOCATIONS</u>					
Small Projects	Sask.	-	2000	18-12-50	8-8-51
Vidora Project	Sask.	2136	3360	18-12-50	8-8-51
Consul Project	Sask.	1500	2400	18-12-50	8-8-51

MIDDLE CREEK BASIN

PROJECT	Province	Irrigable Acres	Allocation A.c.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	1027	18-12-50	8-8-51
Middle Cr. Reservoir Losses	Sask.	-	2335	18-12-50	8-8-51

LODGE CREEK BASIN

PROJECT	Province	Irrigable Acres	Allocation A.c.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	600	18-12-50	8-8-51
Spangler Project	Sask.	1322	2970	18-12-50	8-8-51

QU'APPALLE RIVER BASIN

PROJECT	Province	Irrigable Acres	Allocation A.c.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	20,000	18-12-50	8-8-51

PRAIRIE PROVINCES WATER BOARD

Motherwell Building,
Regina, Saskatchewan,
August 30, 1960

The Honorable D.S. Harkness,
Minister of Agriculture,
Government of Canada,
Ottawa, Ontario.

Dear Mr. Harkness:

Since its formation in 1948 the Prairie Provinces Water Board has made several recommendations concerning the allocation of water from Prairie streams which are interprovincial in nature. All of these recommendations have been approved by Orders-in-Council passed by the Governments of Alberta, Saskatchewan, Manitoba, and Canada.

These recommendations have proposed the allocation of a relatively small portion of interprovincial waters for use on some specific project or projects. However, in the near future the Board may be considering applications from the Provinces for projects which will be capable of using a large portion, or possibly all, of the average flow of interprovincial streams particularly in the Saskatchewan River Basin.

The Board feels that under its terms of reference it cannot recommend allocations covering the entire river flow without making comprehensive study of all the development possibilities and their interrelated effects on each other. The main function of the Board is to:

"-----recommend the best use to be made of interprovincial waters in relation to associated resources in Manitoba, Saskatchewan, and Alberta, and to recommend the allocation of water use between each such Province of streams flowing from one Province into another Province."

In December 1959 the Board instructed the Secretary to prepare a report:

1. outlining a program of study of the physical aspects of an integrated basin plan on the Nelson-Saskatchewan River System;
2. indicating the portions of this study which have already been completed and how they fit into an overall program;
3. summarizing the data which are lacking and indicating whether or not these can be obtained with the means at the Board's disposal.
4. estimating the scope, requirements, and recommended conduct of studies to develop such a plan."

This preliminary report has been prepared and distributed to the Members of the P.P.W.B. After reviewing the report, the Board met on July 4th, 1960, and adopted the attached Resolution.

I respectfully request that the Government give early consideration to this Resolution and to the importance of careful planning in the development of the water resources in the Nelson River Basin.

Yours very truly,
(Sgd) "G.L. MacKenzie" Chairman,
Prairie Provinces Water Board

The above letter was also forwarded to:

Minister of Northern Affairs and National Resources,
Government of Canada, Ottawa.

Ministers of Agriculture for the Provinces of
Alberta, Manitoba, and Saskatchewan.

Mr. R.H. Clark, Chief Hydraulic Engineer,
Canada, Water Resources Division, Ottawa.

Mr. F.L. Grindley, Director of Water Resources, Province of Alberta

Mr. J.J. Griffiths, Director, Manitoba Water Control & Conservation Branch

Mr. B.W. Boyson, Chief Engineer, Saskatchewan Water Rights Division

APPENDIX B (Cont'd)RESOLUTION ADOPTED BY THE PRAIRIE PROVINCES WATER BOARDJuly 4th, 1960

- WHEREAS** the Prairie Provinces Water Board was formed in 1948 by agreement between the governments of Alberta, Saskatchewan, Manitoba and Canada and instructed:
- "to recommend the best use to be made of interprovincial waters in relation to associated resources in Manitoba, Saskatchewan, and Alberta and to recommend the allocation of water as between each province of streams flowing from one province into another province",
- AND WHEREAS** the Saskatchewan River Basin which is a tributary of the Nelson River System traverses the three provinces of Alberta, Saskatchewan and Manitoba,
- AND WHEREAS** the Board believes that there is and will be increasing competition for the use of the water resources in these rivers for domestic, municipal, industrial, irrigation, hydro power, and other purposes,
- AND WHEREAS** the Board feels that these water resources are inadequate to supply all projected requirements and that some projects must take precedence over others,
- AND WHEREAS** the Board now has insufficient data at its disposal to prepare a plan or plans for the best use of water in these watersheds,
- AND WHEREAS** a study to obtain these data would extend over a period of up to five years and require an expenditure of approximately one million dollars;

THE BOARD THEREFORE RECOMMENDS:

1. that the parties to the 1948 Agreement establishing the Prairie Provinces Water Board, undertake jointly to implement a study which will lead to the formulation of an integrated development plan for the water resources of the Nelson River Basin, and
2. that a separate engineering staff be established under the direction of the Prairie Provinces Water Board for the specific purposes of carrying out the study, and
3. that an agreement, including terms of reference, be entered into by the governments concerned in accordance with Article 6 of the Prairie Provinces Water Board Agreement (dated July 28th, 1948) to authorize the Board to undertake the study recommended herein.