1975-1976 ANNUAL REPORT

PRAIRIE FARM REHABILITATION ADMINISTRATION



7he Prairie Farm Rehabilitation Administration

Annual Report 1975-1976

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Introduction

The Prairie Farm Rehabilitation Act was passed by Parliament in 1935 to legislate assistance for the reclamation of agricultural lands seriously affected by drought and soil drifting in Manitoba, Saskatchewan and Alberta. Subsequent amendments to the act widened the scope of PFRA activities, and extended indefinitely the life of the original legislation. In addition, the boundaries for PFRA activities were extended to include all agricultural areas of the three prairie provinces.

Water conservation and development, and land use adjustment have long been major concerns of PFRA. During 1975-1976, its activities included the development of large-scale irrigation, land reclamation, and community pasture operations.

In addition to its long-standing programs, PFRA engaged in activities under the Agricultural Service Centres Agreements with Manitoba, Saskatchewan and Alberta for the improvement or extension of waste disposal and water supply facilities in 54 key designated regional centres. The cost of such projects is being shared, with Canada contributing half the cost and providing the balance in the form of loans to the provinces. PFRA is responsible for administration, implementation and supervision of construction.

Another item of significance in the year under review was the continuation of major construction of irrigation works in Alberta under the terms of the Alberta Irrigation Rehabilitation Agreement signed in 1973.

The following is a summary of the activities of the Prairie Farm Rehabilitation Administration for the year ending March 31, 1976. For an outline of PFRA expenditures from 1935 to 1976 see Appendix I.

Land Use Service

The Land Use Service was established in 1937 following an amendment to the Prairie Farm Rehabilitation Act. This act allowed for the removal of submarginal land from cereal crop production, and its conversion to pasture with provisions for regrassing and other development.

In 1975, PFRA operated 96 community pastures, including the Suffield Pasture on Defence Research property in Alberta. Libau Pasture near Selkirk, Manitoba, was under construction. For a summary of the development and operation of community pastures from 1938 to 1976, see Appendix II.

PASTURE OPERATIONS

Established pastures covered 2 405 392 acres (973 222 hectares). For the first time, the number of animals pastured topped the quarter-million mark at 250 532, an increase of 8 356 over the previous year. Grass and water supplies were generally sufficient.

The in-pasture breeding service required the use of 4 248 bulls, 3 506 owned by PFRA and 742 rented from pasture patrons. The number of cows serviced rose by 1 284 to 109 056.

Grazing and Breeding Fees

Grazing fees for cattle and calves and breeding fees for cows were increased. Fees for horses, colts and sheep remained the same. In lieu of taxes, local governments continued to receive one cent per day for each adult animal grazed. The following was the rate schedule for the 1975 pasture year:

Cattle — 9¢ per head per day (including 1¢ tax levy)
Horses — 10¢ per head per day (including 1¢ tax levy)
Sheep— 2¢ per head per day (including 0.3¢ tax levy)

Calves — \$5 per head (of current season)
Colts — \$6.50 per head (of current season)

Breeding Service — \$10 per cow

Minimum grazing fee

per head per season — cattle \$8, horses \$9

Fees for grazing in PFRA pastures on Indian Reserves are the same as for pastures outside the Reserves; however, one-third of the grazing revenue from Reserve pastures is turned over to the Indian bands involved. In 1975, 14 bands received \$66 177 as their share of the revenue.

PASTURE IMPROVEMENT AND DEVELOPMENT

Haying

Hay harvested on pastures and irrigation projects associated with the pasture program totalled 10 162 short tons (9 217 metric tons), an increase of approximately 1 800 short tons (1 632 metric tons) over the previous year. This hay is used for winter feeding of PFRA bulls.

Pasture Construction

Approximately 130 miles (209 kilometers) of fence was constructed and 135 miles (217 kilometers) rebuilt. The pastures are now enclosed and divided by 6 508 miles (10 471 kilometers) of fence. Nine new buildings were constructed and three repaired or renovated. Fourteen corrals received attention.

Pasture Improvement

Water development activity consisted of constructing 46 dugouts and cleaning or lining 13 others, developing 22 wells, relocating nine windmills and constructing two new windmills, constructing a dam, installing 195 water troughs, and placing five irrigation structures.

Land improvement activities included various land clearing processes on 11 700 acres (4 734 hectares), breaking 31 800 acres (12 866 hectares), forage seeding 41 800 acres (16 912 hectares), and spraying for weed and brush control on 31 150 acres (12 603 hectares).

Water Development Service

The Water Development Service consists of four divisions. They provide technical and financial assistance for the development of water and land resources for agricultural purposes; operate irrigation projects in southwest Saskatchewan and an irrigation demonstration facility at Outlook, Saskatchewan; produce and distribute tree seedlings and cuttings to farmers and government agencies for shelterbelts; and provide services including equipment repair and maintenance, project construction, and transport.

WATER DEVELOPMENT DIVISION

Runoff across the prairie region ranged from light in northern Alberta and central Saskatchewan to excessive in southeast Saskatchewan and parts of Manitoba. The Souris, Assiniboine and Qu'Appelle rivers caused some flooding in Manitoba.

Construction of farm projects decreased approximately 17 per cent. This was attributed primarily to wet conditions in some areas, and the lack of sufficient contractors available for this type of work. Despite the decrease, the program remained popular and 7 200 farm projects were assisted. This included 5 520 wells. About 45 per cent of the projects in 1975-76 were in Alberta, 35 per cent in Saskatchewan and 20 per cent in Manitoba.

Ten small community projects were authorized for construction. Nine were completed. Investigations were carried out on an additional 21 requests for community water development.

TECHNICAL SERVICES TO OTHER AGENCIES

Technical services were provided to other agencies in 793 instances. These included services to provincial water licensing agencies, the Saskatchewan Family Farm Improvement Branch, the Saskatchewan Conservation and Land Improvement Branch, the federal Department of Indian Affairs and Northern Development, and other federal, provincial and municipal agencies.

Appendix III to this report indicates the services provided by the Water Development Division during the year under review. Appendix IV shows projects and financial assistance.

IRRIGATION PROJECTS DEVELOPED, OPERATED AND MAINTAINED BY PFRA

Since 1938, PFRA has constructed 26 storage reservoirs to service irrigation projects in southwest Saskatchewan. Twenty-three of these reservoirs continue to be operated by PFRA to provide water for the irrigation of 34 500 acres (13 959 hectares), and to regulate flows of international streams to meet apportionment commitments under the Canada — U.S. Boundary Waters Treaty.

Of the total irrigable acres, 23 200 acres (9 387 hectares) are in six projects owned and managed by PFRA, 8 600 acres (3 480 hectares) are in seven provincially-operated projects, and 2 700 acres (1 092 hectares) are operated by individuals under private licences.

In 1975 all reservoirs had sufficient water to meet irrigation requirements and to meet commitments to the United States.

The projects managed by PFRA produced 46 226 short tons (41 928 metric tons) of hay, almost the same amount as the previous year. This forage was used to winter feed 55 000 cattle and 2 600 sheep on the projects. There was a poor second growth of alfalfa on all projects which was attributed to bud rot. This may necessitate breaking and reseeding of forage crops.

Land levelling was carried out on three projects, but involved only 380 acres (154 hectares), a considerable drop from last year. PFRA provides technical services for this operation.

CONSTRUCTION, EQUIPMENT AND SERVICES DIVISION

Construction and repair services are provided by this division to all sectors of PFRA. Through its personnel, equipment and repair depot, the division constructs and maintains buildings and engineering works, and repairs, fabricates and stores equipment and supplies required by PFRA.

During the year the field construction section completed 161 assignments with a total value of \$775 000. This involved a slight increase in the number of jobs, and an increase of \$207 000 in value over the previous year. Major work completed included raising the earth embankment and increasing the spillway capacity of the Craik Water Storage Project; renovating Davis Creek Diversion Canal; reconstructing portions of irrigation works on the Val Marie and Maple Creek projects; levelling 300 acres (121 hectares) of land on the Rush Lake Project; regrading 400 miles (644 kilometers) of community pasture access roads; installing a riparian outlet and painting 12 sets of pasture headquarters buildings. Other work included extensive improvements to the Albert Street Weir in Regina, maintenance work at the PFRA Tree Nursery and the Demonstration Farm, and harvesting 800 short tons (726 metric tons) of hay and 300 short tons (272 metric tons) of straw.

The service depot at Moose Jaw handled 2 853 work assignments with a value of \$1 039 000. This is an increase of 310 jobs and \$136 000 in expenditures over last year. Trucking assignments numbered 1 190 requiring the logging of 325 000 miles (522 925 kilometers). The service depot staff also constructed 10 range land seeders and a variety of livestock-handling equipment.

DEMONSTRATION FARM

The 155-acre demonstration farm at Outlook, Saskatchewan, continues to be a focal point within the South Saskatchewan River irrigation area for farmers, researchers, students, tourists and representatives of government and industry. The purpose of the farm is to demonstrate and evaluate various cropping and livestock practices and thus assist those involved in agriculture in the area to determine what crop choices and production methods to employ.

Considerable interest was shown in the Mexican utility wheat grown on the farm, particularly in its yield potential and ease of threshing.

Corn silage is gaining more importance as a livestock feed. Information on yields, varieties, and management and feeding techniques was frequently sought.

Stockmen were interested in the intensive grazing system for finishing cattle; the use of low-cost rations, such as cull potatoes, rolled grain and hay; and the drylot livestock enterprise.

Other activities which generated considerable response were the horticultural plots, structures, equipment, and the techniques used. The meteorological data gathered at the farm is important in scheduling water applications.

Tourism continued to be an important function of the farm. Visitors from many parts of the world showed great interest in the crops, facilities and programs.

TREE NURSERY

Since its establishment in 1902, the Tree Nursery service has supplied 390 million tree seedlings and cuttings, mainly for farm plantings throughout the prairie region. In the spring of 1975, 6 060 320 plants were distributed to 7 608 eligible applicants. As in recent years, the bulk of shipments were made to agricultural representative offices in Manitoba and Saskatchewan for pick-up by farmers. This type of delivery constituted 65 per cent of the total of 42 676 bales. In addition, bulk shipments were made to Alberta for distribution to individuals by the province. Farm, field and roadside plantings absorbed 77 per cent of the trees distributed with the remainder going for federal, provincial or municipal plantings.

Nursery plantings for future distribution totalled 88 acres (35.6 hectares) including 43.5 acres (17.6 hectares) of deciduous trees, 40 acres (16.2 hectares) of deciduous shrubs, and 4.5 acres (1.8 hectares) of coniferous trees.

Harvestable trees produced during the 1975-76 fiscal year totalled 6 548 000. Fall harvesting was carried out on 78.4 acres (31.7 hectares) involving 3 562 000 deciduous trees and 2 600 000 deciduous shrubs. An estimated 386 000 conifers are to be harvested in the spring of 1976, at which time all tree distribution will take place. In addition, 1 120 pounds (508 kilograms) of seed from 11 deciduous and four coniferous species were harvested.

Investigations carried out at the nursery are providing effective herbicidal weed control for nine of 23 tree species under production.

An extensive technical, public information and public relations program was carried out. This involved replying to 196 specific requests for information, presenting slide shows at 30 organized meetings, manning displays at 14 fairs, conducting 19 group tours, accommodating 5 100 carloads of visitors to the nursery, preparing 28 radio announcements, and providing site planning appraisals for 600 new farm shelterbelts.

Engineering Service

The PFRA Engineering Service investigates, plans, designs, constructs and maintains various works pertaining to water development, irrigation and community infrastructure programs in Manitoba, Saskatchewan and Alberta. It provides technical assistance to other PFRA offices including those responsible for the operation and maintenance of projects in which the federal government retains an interest, and to several outside agencies engaged in planning and implementing major works in large river basin developments of interprovincial or international scope. These agencies include the International Joint Commission and the Prairie Provinces Water Board.

Specialized engineering units provide extensive services in investigation, planning, hydrology, design, geology, air surveys, soil and materials evaluations and construction.

One special project office is located at Lethbridge to administer the Alberta Irrigation Rehabilitation Program, and another at Cutbank to maintain the South Saskatchewan River Project. There are regional offices at Winnipeg, Regina and Calgary, and a regional sub-office at Swift Current. The Geotechnical Division is located on the University of Saskatchewan campus at Saskatoon, while all other specialized divisions are headquartered in Regina.

MAJOR PROJECTS

Alberta Irrigation Rehabilitation Program

Under the Alberta Irrigation Rehabilitation Agreement, Canada is committed to spending up to \$26.3 million to rehabilitate four major structures associated with existing irrigation districts in southern Alberta. Under the agreement, PFRA is providing all engineering services required for the work.

Two of the projects have been completed — the Carseland Weir to divert water from the Bow River to the Bow River Irrigation Project, and the Western Irrigation District Headworks at Calgary to divert water from the Bow River to the Western Irrigation District. Most activity during the 1975-76 fiscal year was concerned with the initial work required to replace the Brooks Aqueduct. The initial work comprised one contract for an outlet canal, and another contract for a railway-syphon crossing. A fourth project, the Bassano Dam, is under investigation.

In addition to administering the construction associated with the Alberta Irrigation Rehabilitation Program, the PFRA Special Projects Office at Lethbridge is involved in survey and damsite evaluation work associated with the provincial Oldman River Basin Study. The affice has completed the work thus far assigned.

South Saskatchewan River Project

The two main structures on this project are the Gardiner and Qu'Appelle River dams. Gardiner Dam is the largest earthfill dam in Canada and is situated midway between Outlook and Elbow, Saskatchewan. The two dams create an eight million acre-foot (9 868 million cubic meter) capacity reservoir which provides water for irrigation, power production, recreation, and industrial and domestic use. The cost of construction was approximately \$120 million, of which Canada paid \$95 million and Saskatchewan \$25 million.

Under the 1958 federal-provincial agreement, Canada was responsible for planning, designing and constructing the works necessary to create the reservoir and continues to be responsible for maintenance of the structures. Making the most efficient use of the available water is a provincial responsibility.

During 1975-76, PFRA continued to assess the performance of the structures, and maintained the works and property. The spillway was in use for 14 days during a period of high inflow in June and July, otherwise regulatory releases were possible through the power generating station at Gardiner Dam, and the conduit at the Qu'Appelle River Dam.

Summary

PFRA's major irrigation, reclamation, water storage and municipal works projects are summarized in Appendix V.

REGIONAL OFFICES

The regional offices of the Engineering Service at Winnipeg, Regina and Calgary, carried out field surveys and investigations, office cost and design studies, construction supervision, and the writing of preliminary or construction reports. In addition, the offices provided planning services and supervision of repairs or renovations to existing structures. Engineering assistance was rendered to other PFRA divisions, departmental programs such as the Agricultural Service Centres Program, and various federal and provincial activities.

Manitoba

The Assiniboine River diking system was re-assessed to determine areas where bank stabilization is required. Field surveys were completed and a report was being prepared at the close of the fiscal year.

Preliminary engineering reports and environmental assessment studies on the Grandview, Gilbert Plains and Patterson dams were completed. Additional topographic data were obtained at the McEachern and Grandview dam locations.

Investigations and evaluations for the proposed Plum Coulee Dam were carried out including hydrologic studies, exploratory drilling, design, and cost estimating for various alternatives. Economic analysis and environmental assessment statements are being prepared. Feasibility studies for a dam near Swan River, Manitoba, were undertaken. Field surveys and photogrammetric mapping at three proposed sites were part of this activity.

Roseau River basin studies for the International Joint Commission continued, utilizing the engineering resources of the division. The same applied in the case of the Souris River basin study.

An infrastructure program which began on The Pas Indian Reserve in 1970 was completed this year. A preliminary engineering report dealing with the provision of drainage ditches and access roads on the Sandy Bay Indian Reserve was also finished.

Under the federal-provincial Agricultural Service Centres Program, engineering services were provided for the Altona, Beausejour, Dauphin, Selkirk, Steinbach, Swan River, and Winkler works. These services ranged from reviewing plans to supervising construction and preparing as-constructed reports.

Saskatchewan

Under the Agricultural Service Centres Program, administration and monitoring of numerous consulting and construction contracts were provided. Supervision of construction continued in 18 of the 26 communities in the program. Construction of a large water supply reservoir was started at Assiniboia, supply studies were continued at Melville, Melfort and Humboldt, and similar studies were initiated at Weyburn, Canora and Grenfell.

Various studies and/or reports related to water supplies at the communities of Kipling, Ceylon and Kerrobert are underway for the provincial government.

Land drainage problems in the Gordon Lake and Sink Lake areas near Unity and in the Wellington Pasture near Osage were investigated. Surveys were conducted on the Souris River, as were surveys and supervision of construction on the Albert Street Weir in Regina. Surveys and engineering studies were also carried out on the Frenchman River.

The Swift Current district office provided surveys, construction supervision and contract administration for the Swift Current, Maple Creek and Shaunavon works which were constructed under the Agricultural Service Centres Program. On Canada-owned irrigation projects in southwest Saskatchewan, land levelling was completed on 350 acres (142 hectares); 60 000 linear feet (18 288 meters) of drains and 135 000 linear feet (41 148 meters) of supply canal were surveyed; and 670 irrigation structures were built or repaired. Other rehabilitation work and stream flow monitoring were also continued.

Engineering assistance on several maintenance projects was provided to the PFRA Tree Nursery at Indian Head.

Alberta

The Western Irrigation District Headworks on the Bow River in Calgary was completed in October with construction and clean-up being supervised by the Alberta regional office.

Field investigations and construction of control works required to stabilize water levels in the Peace-Athabasca delta were directed by this office, as well as engineering studies and preparation of comprehensive reports on investigations related to the Oldman River basin study and the Elbow River flood study.

Services to the Water Development Division involved checking and/or revising 270 plans for small storage or irrigation projects, including 10 structures more than 20 feet in height. Design studies for three larger projects were partially completed.

The office continued to assist the federal-provincial Agricultural Service Centres Program by preparing plans and supervising construction. These activities were performed for the communities of Barrhead, Cardston, Coaldale, Fairview, Hanna, Leduc, Olds, Redcliff, St. Albert, St. Paul, Taber and Westlock.

Snow measurements on selected drainage basins, cathodic protection studies on buried metal structures, and development of a technical library of microfilm plans and project photos, were other projects carried out by the Alberta regional office during the year.

TECHNICAL DIVISIONS

Design Division

Under the Alberta Irrigation Rehabilitation program, final designs, contract drawings and specifications were prepared for a canal embankment crossing to replace the existing Brooks Aqueduct. In addition, preliminary design studies and cost estimates for various alternatives for the proposed repair of Bassano Dam were performed. Model testing and construction were completed on the Western Irrigation District Headworks.

In accordance with agreements between Canada and the provinces for development of Agricultural Service Centres in Alberta, Manitoba and Saskatchewan, final plans and specifications for 51 contracts were reviewed and tendered.

On the Peace-Athabasca Delta Project, testing was conducted on a partial model of a rock weir to be placed on the Revillon Coupe River and final designs, contract drawings and specifications were prepared. Additional tests on the model of the Rivière des Rochers control structure were carried out.

Extensive studies relative to future water storage requirements were undertaken on the Frenchman and Oldman rivers. Preliminary designs and cost estimates were close to completion, and a design appendix report was prepared for nine damsites as part of the

Frenchman River studies. As part of the Oldman River Basin Study report, a design appendix was prepared.

A wide variety of engineering activity ranging from preliminary investigations to detailed design was carried out for the Dead Horse Coulee, Grenfell town water supply, Coronach area water supply from Beaver Creek and the Middlefork Poplar River, Welwyn Dam, Weyburn water supply, Canora Dam, Ceylon Dam, Gilbert Plains Dam, Grandview Dam, Kerrobert water supply, Plum Coulee water supply, Craik Dam, Vermilion Dam, Gouveneur Dam, Laflèche Dam, Melville Dam, St. Mary spillway, Gardiner Dam, Wascana Creek flood control, and West Val Marie pumping.

Required drafting work for a variety of projects was provided by the drafting section. Work for other clients consisted of preparing a wide variety of extensively detailed charts, graphs and maps for the Souris River Basin Board, as well as preparing layouts and artwork for information and public relations purposes.

Geology and Air Surveys Division

Geological studies, photogrammetric mapping and air photo interpretation studies were completed during the fiscal year to support water resource investigations, Agricultural Service Centres programs and community pasture improvement programs.

In Manitoba, large-scale topographical plans of the Souris River Valley from the United States border downstream to Coulter, were prepared by photogrammetry to assist Environment Canada in assessing the extent of flooding that would result at various river stages. Large-scale plans of the Swan River valley through the town of Swan River were also prepared to assist in assessing topographical conditions at various dam and reservoir sites.

In Saskatchewan, geological studies, photogrammetric mapping and air photo interpretation studies were completed on nine potential locations for major storage reservoirs in the Frenchman River basin. Two of seven sites on the main stream entail the raising of existing embankments, while two other sites lie on Conglomerate Creek and Fairwell Creek. Air photography was obtained and large-scale photogrammetric mapping of floodplain areas was begun along the Souris River at Oxbow, Roche-Percée, Estevan and Weyburn, and along Long Creek at Radville to support flood hydrology studies and to define areas subject to flooding. To assist in evaluating opportunities for increased storage in the vicinity of the Brownhill Dam near Grenfell, photogrammetric mapping was completed on potential reservoir areas, and geological reconnaissances were carried out to evaluate local geotechnical conditions.

In Alberta, geological studies and photogrammetric mapping of sites and reservoir areas of seven prospects for major storage in the Oldman River basin upstream from Lethbridge were completed. Geological reconnaissances were carried out along the Revillon Coupe on the Peace-Athabasca Delta Project to determine sources of embankment materials.

Geological reconnaissances and terrain analyses of community pastures in Saskatchewan were continued in connection with preparation of the soils, geology and drainage series of community pasture maps.

During the year, large-scale air photo mosaics and enlargements were prepared for the Water Development Service to assist in the planning and investigation of small projects.

Geotechnical Division

In 1975 the name of this division was changed from the Soil Mechanics and Materials Division to the Geotechnical Division, and it was reorganized along functional rather than the previous regional lines.

During the fiscal year, the division worked on 120 engineering studies or activities related to the investigation, design, construction, performance and maintenance of engineering works for water development on 75 projects, 25 of which were in Alberta, 37 in Saskatchewan, and 13 in Manitoba. The project studies ranged in size from investigations for individual dugouts and development of water wells, to investigations for major projects such as the Brooks Aqueduct and Bassano Dam in the Eastern Irrigation District, and the continuing development and maintenance of major developments such as the South Saskatchewan River Project. The activities included investigation, design and construction control work for 36 agricultural service centres.

Work was done on the Oldman River Basin Study and the Frenchman River Basin Study for the provinces of Alberta and Saskatchewan respectively. These special studies involved the assessment of a number of potential water storage sites in the drainage basin with recommendations for design and construction for preliminary cost estimating purposes. Ninety-four of the engineering studies were completed and 26 are in progress or nearing completion. In addition to the project studies, work was performed on 61 research, testing and evaluation studies. The engineering and research studies required the drafting of 203 plans.

A total of 20 899 linear feet (6 370 meters) of test hole drilling was carried out at 38 sites, and 3 098 soil samples were recovered. In the main laboratory, 30 668 tests were performed on 4 664 samples of soil, bedrock, concrete, cement, aggregates and construction materials.

Technical assistance during construction was provided at 39 sites, and routine performance observations were continued at 22 sites.

Hydrology Division

The Hydrology Division continued to fulfill its basic responsibility of supplying hydrologic information for the planning, design, operation and maintenance of PFRA projects. It also provided hydrologic services to several other water resource agencies in the prairie region. The division was represented on several sub-committees and task forces.

Eight formal reports were completed during the year, and 60 study requests were answered. Work also started on several major studies. These included extensive water supply and flood damage studies for the Souris River Basin Study Board, a water supply study of the Frenchman River basin to examine the feasibility of constructing additional

reservoir storage both to supplement current water supplies and to further develop the basin's water supply potential, and a study to determine how additional water supplies can be made available to supplement the reservoir now being built near Coronach in the East Poplar River basin. A limited four-year study program was also started to measure ice thickness on dugouts.

The division also completed the Oldman River basin water supply studies and the Poplar River Task Force report, and reported on spring runoff measured by PFRA as part of a continuing program to evaluate runoff from small drainage basins.

A start was made on converting the division's computation files to the microfiche system. Half of the file materials were reduced to microfiche by the end of the year.

Legal Surveys Division

Except for four contracts on the Brooks Aqueduct Project, all surveys were performed by division personnel. Field surveys undertaken and completed consisted of rights-of-way, re-subdivisions, road diversions, retracements, topographic and horizontal control surveys in connection with a variety of projects, communities or watersheds. They are the Eastend and Maple Creek irrigation projects; Thomson Lake, Assiniboia, Gainsborough, Weyburn, Roughbark and McDougald water storage projects; cities of Regina and North Battleford, towns of Kamsack and Maple Creek; Frenchman and Souris river basin studies.

Office activities consisted of plotting, drafting, calculating and processing 15 plans for registration in the Provincial Land Registration system and preparing summaries of land control requirements and related procedures for eight surveys. Work continued on a comprehensive review of the descriptions, titles, areas and plans affecting all lands under sale agreement in the southwest Saskatchewan irrigation district approving and/or preparing 336 descriptions, related sketch plans and compilations for easements, sale agreements and submissions.

Administration and Program Service

The Administration and Program Service supports the program activities of PFRA through internal management and special program-related services. These services are administered through five divisions: Finance, Information, Land Administration, Accident Prevention and General Administration.

FINANCE DIVISION

The Finance Division is responsible for the control of all budgetary and non-budgetary expenditures and revenues, together with the preparation of program forecasts and main estimates for PFRA. It retains payment authority in accordance with account verification and payment requisition regulations, and is responsible for classification of accounts, commitment certificates, and financial reports and statements for all PFRA programs. It is also in charge of processing of pay for casual employees appointed for terms of less than six months.

A main activity in the past year has been financial management of the Agricultural Service Centres Program in relation to cost-sharing, loan amortizations, and the recovery of provincial contributions in accordance with subsidiary agreements entered into with each of the prairie provinces. The division has also been concerned with various costing systems related to new activities for work performed by PFRA for various departments and outside agencies.

INFORMATION DIVISION

The Information Division continued to provide a full range of information and technical support services. Numerous reports, brochures, news releases and related items were made available to the public during the year. Displays and exhibits were prepared for fairs and special events, with emphasis placed on the celebration of PFRA's 40th Anniversary. General support was given to the departmental information program in western Canada.

The Photographic Unit, in addition to providing picture coverage for information purposes, continued to give assistance to PFRA's technical program through exact-scale reproduction work, hydraulic model test photography, rescaling of mosaics and other specialized photographic techniques. At the end of the year a number of audio-visual presentations depicting branch programs and activities were being developed.

LAND ADMINISTRATION DIVISION

The acquisition of all lands required for PFRA projects, which involves appraisal and negotiation activities as well as the drafting of Treasury Board and Privy Council submissions, is the responsibility of the Land Administration Division. It is also responsible for the administrative management of lands under PFRA jurisdiction. This includes issuing permits, acquiring and completing easements, effecting land exchanges, disposing of surplus land, and maintaining a land and real property inventory.

Activities during the year under review were routine, with no major purchases, sales, acquisitions, or transfers. A summary of the PFRA land inventory to March 31, 1976 is shown in Appendix VI to this report.

ACCIDENT PREVENTION DIVISION

The Accident Prevention Division provides accident prevention training, develops safety programs and co-ordinates the activities of PFRA Area Accident Prevention Committees. A new, comprehensive accident prevention program, developed during 1975-76, calls for a more significant role for the area committees. A high priority will be given to training all committee members and supervisory staff in accident prevention and loss control concepts. A reduction of more than 10 per cent in both injury frequency and severity is the target of the new program.

GENERAL ADMINISTRATION DIVISION

The General Administration Division provides a wide variety of administrative services to the organization through four sections.

General Services Section

The General Services Section provides services such as general office, records management, transcription and stenography, office accommodation, communications and data conversion, and performs a general co-ordination function within the Administration and Program Service. Significant undertakings during the past year included improvements to the PFRA headquarters telephone system, duplication services, and records file numbering systems, as well as continued emphasis on the introduction of contemporary word processing techniques. Plans were developed for several major office renovation projects. The section continued to provide records management advisory services to other units of the department in the Western Region.

Materiel Management Section

The Materiel Management Section provides a central service for the direct purchase and requisitioning of materials and equipment through the Department of Supply and Services (DSS). It operates a construction materials supply depot, and provides related services such as the preparation of purchase specifications, cataloguing, vehicle and equipment inventory control and the disposal of movable property. The value of materials purchased during the year through DSS regional offices in Calgary, Edmonton, Regina and Winnipeg, or by means of standing offer agreements or direct local purchases, exceeded \$3 million.

During the year an average inventory of \$275 000 was maintained in the construction materials supply depot. Total stock issues were valued at \$350 000. On March 30, 1975 the section's equipment inventory records listed 10 455 items with a total book value of \$6 199 769, in addition to 387 motor vehicles with a book value of \$1 786 433.

During 1975-76, the section began converting all equipment distribution records to an improved electronic data processing control system. It also implemented improvements to the stocktaking and stock control procedures in the construction materials supply depot.

Management Services Section

The Management Services Section provides an advisory service to PFRA management. Its primary function is to study management and operational problems and to make recommendations for improvement. The main work areas are organization analysis, systems and procedures studies, feasibility studies for data processing applications, forms design and control, and the appraisal of office equipment. Studies conducted during the year included the evaluation of a proposed computer terminal installation for PFRA headquarters, a records microfilming proposal, and evaluation of the possible advantages of electronic data processing techniques in connection with PFRA Tree Nursery operations. Considerable attention was given to systems development and computer programming for a new equipment distribution control system, as well as program maintenance and updating of existing land inventory and personnel records computerized information systems.

Library Section

Complete library facilities and services are provided to all PFRA activities, other segments of the Department of Regional Economic Expansion, and to other federal departments under shared library service arrangements.

During 1975-76, the library catalogued 500 new publication titles, bringing the total number of titles under control to approximately 6 100. Progress was made in gaining access to computer-based retrieval systems, and the library is now capable of using such systems in Montreal, Ottawa, Regina and the United States. Improved methods of disseminating new information are being investigated to supplement the existing periodical routing system and to permit selective dissemination of new subject material to interested staff members as it becomes available.

APPENDIX I

PFRA EXPENDITURES BY ACTIVITIES

Incudes Operation, Maintenance and Capital Funds 1935 — MARCH 31, 1976

	1975-1976	1935-1976
ADMINISTRATION		
Regina Administration	\$ 1 350 465	\$ 14 42B 137
land use service		
Cultural Work — Soil Drifting, etc.		
(Exp. Farm Service)		4 966 394
Community Pastures — Construction, Operation		
and Maintenance	8 087 016	74 969 540
Movement of Settlers		227 84
WATER DEVELOPMENT SERVICE		
Supervision, Individual Dugouts, Wells,		
Community Large Water Storage and		
Irrigation Projects	4 742 550	85 472 610
Equipment — Purchase and Repairs, Service		
Depot	1 524 336	23 527 10
Tree Nursery Station	1 035 954	8 600 85
Bow River Irrigation Project	_	47 353 798
engineering service		
Surveys, Design, Soil Mechanics, Drainage		
Studies, Legal Surveys, Supervision of		
Construction	4 780 096	57 981 12
St. Mary Irrigation Project		33 928 86
South Saskatchewan River Project	203 227	138 227 34
Assiniboine River Diking	747	1 743 77
Shellmouth Dam and Portage Diversion	27 533	1475656
B.C. Reclamation and Development, including		
Lillooet Project	_	3 310 18
Land Protection and Reclamation, Manitoba and		
Eastern Canada		4 136 02
Alberta Irrigation Rehabilitation	611 997	18 417 61
Agricultural Service Centres	8 1 99 838	17 358 13
Miscellaneous Projects — Construction	208 297	5 472 77
	\$ 30 772 056	\$554 878 662
PFRA REVENUES BY ACTIVITIES, 1935-1976		
Community Pasture Operations	\$ 3712383	\$ 34 404 829
Irrigation Project Operation and General Revenue	1 134 482	22 813 52
	\$ 4846865	\$ 57 218 35

APPENDIX II
DEVELOPMENT AND OPERATION OF PFRA COMMUNITY PASTURES, 1938 - 1976

Fiscal Year	No. of Pasture Units in Operation	Area of Land in Pastures (acres)	Total Cost of Construction of Pastures \$	Livestock Units Carried on Pastures	Acres Per Unit of Livestock	Revenue \$	Operating* Costs \$	Net Operating Cost per Unit of Livestock \$	Average Charge Per Unit Livestock to Farmers \$	Municipal Tax Levy Collected
1938-1939	14	189 800	165 995	3 231	58.7	6 340	10 186	3.15	1.96	
1939-1940	26	612 300	663 471	11 522	53.1	21 633	20 946	1.82	1.82	
1940-1941	35	884 500	1 004 306	23 245	38.1	43 452	35 291	1.52	1.8 7	
1941-1942	38	936 548	1 187 361	33 230	28.2	65 435	50 607	1.52	1.97	
1942-1943	45	1 261 100	1 298 488	51 127	24.7	98 292	79 907	1.56	1.92	
1943-1944	46	1 268 140	1 558 055	54 472	23.3	111 114	107 535	1.97	2.04	
1944-1945	49	1 337 320	1 699 012	59 997	22.3	151 461	117 065	1.95	2.52	
1945-1946	50	1 361 440	1 857 020	67 778	20.1	167 045	136 567	2.01	2.46	
1945-1947	53	1 412 860	2 072 274	68 493	20.6	198 115	145 293	2.12	2.89	
1947-1948	53	1 417 320	2 208 919	66 347	21.4	203 888	161 471	2.43	3.07	
1948-1949	54	1 436 480	2 486 277	71 393	20.1	204 012	175 666	2.46	2.86	
1949-1950	54 54	1 436 460	2 809 196	70 308	20.5	211 624	172 255	2.45	3.01	
1950-1951	56	1 521 080	3 237 331	68 858	22.1	221 129	217 867	3.16	3.21	
	57	1 574 642	3 426 586	77 240	20.4	335 327	237 742	3.08	4.34	
1951-1952 1952-1953	59	1 652 020	3 754 098	94 137	17.5	438 514	373 737	3.97	4.66	
1952-1953	60	1 678 736	3 963 573	109 583	15.3	507 179	490 808	4.48	4.55	
1954-1955	60	1 696 900	4 273 917	106 322	16.0	496 806	466 154	4.38	4.66	
1955-1956	60	1 728 700	4 509 669	108 499	15.9	499 045	501 541	4.62	4.60	
1956-1957	61	1 759 570	4 832 863	117 441	15.0	548 601	508 003	4.33	4.67	
1957-1958	61	1 796 275	5 119 317	119 398	15.0	552 938	607 129	5.08	4.63	
1958-1959	62	1 815 265	5 509 958	117 032	15.5	542 607	686 449	5.87	4.64	
1959-1960	64	1 818 464	5 800 342	124 812	14.6	705 785	742 915	5.95	5.65	
1960-1961	65	1 896 173	6 254 224	122 813	15.4	656 709	716 467	5.83	5.35	
1961-1962	68	2 088 704	6 845 656	146 672	14.2	860 808	952 359	6.49	5.87	
1962-1963	71	2114412	7 283 658	139 643	15.1	871 955	847 753	6.07	6.24	
1963-1964	75	2 149 292	7 677 379	141 723	15.2	1 168 641	981 506	6.93	8.25	145 631
1964-1965	83	2 318 477	8 826 041	156 978	14.8	1 460 279	1 156 912	7.37	9.30	157 763
1965-1966	84	2 325 564	9 274 172	158 434	14.7	1 431 952	1 099 382	6.94	9.04	167 493
1966-1967	85	2 323 304	9 965 500	154 742	15.1	1 353 112	1 215 711	7.86	8.74	147 475
1967-1968	86	2 362 671	10 846 862	162 482	14.5	1 380 678	1 341 258	8.25	8.50	144 258
1968-1969	88	2 382 456	11 543 616	172 629	13.8	1 570 652	1 554 688	9.01	9.10	170 000
1969-1970	88	2 386 799	12 465 226	172 624	13.8	1 652 165	1 666 223	9.65	9.57	160 959
1970-1971	90	2 431 784	13 469 740	182 689	13.3	1 754 194	1 900 158	10.40	9.60	162 974
1971-1972	93	2 430 940	14 227 399	205 61 1	11.8	1 954 604	2 002 379	9.74	9.51	176 435
1972-1973	94	2 431 420	14 878 288	216 708	11.2	1 912 347	2 368 818	10.93	8.82	182 373
1973-1974	95	2 419 100	15 798 792	234 488	10.3	3 217 128	3 014 999	12.86	13.72	182 680
1974-1975	95	2 409 220	19 110 434	242 176	9.9	3 116 880	3 549 388	14.66	12.87	188 854
1975-1976	96	2 405 392	21 549 400	250 532	9.6	3 712 383	4 238 348	16.92	14.82	191 755
1,		00 0/1				34 404 829	34 651 483	••		

^{*}Includes direct operating costs only. Does not include supervision, capital and overhead.

APPENDIX III

SERVICES PROVIDED BY WATER DEVELOPMENT DIVISION 1975 - 1976

Agency	Du	Dugout		S.W.D.			Irrigation		Drainage		Community Projects				Wells		Other					
	Technical Investigation	Final Inspection	Technical Investigation	Survey	Plan	Final Inspection	Technical Investigation	Survey	Plan	Final Inspection	Technical Investigation	Survey	Plan	Technical Investigation	Survey	Plan	Report	Final Inspection	Technical Investigation	Final Inspection	Other Services	Total Services
PFRA Program	785	1 442	573	229	197	127	820	241	215	103	143	60	5	351	17	13	12	9	654	5 520	687	12 203
Federal request	1	-	1	•	2				1				2	3							23	33
Provincial Request	3		119	70	45	7	106	41	46	5	41	6	10	14	2	7			1		123	646
Municipal Rural-Urban			2	1			2		1		7	2		9	3	1	2		1	1	24	56
Other Groups or Individuals		_		1				1			13	11		1				:			31	58
TOTAL	789	1 442	695	301	244	134	928	283	263	108	204	79	17	378	22	21	14	9	656	5 521	888	12 996

In addition to the above services, field office personnel also attended 392 meetings.

Total Capital Expenditure an Individual Projects \$2 597 859.36 Total Capital Expenditure on Small Community Projects \$ 55 686.00

APPENDIX IV WATER DEVELOPMENT PROJECTS COMPLETED AND ASSISTANCE PAID

1935 - 1976

	DUGOUTS		STOCKWATERING DAMS		IRRIGATIO	N SCHEMES	WI	ELLS	TOTAL		
	Completed Number	Assistance \$									
Manitoba											
Individual	19 255	2 898 564	362	35 810	358	152 396	3 9 1 9	1 017 945	23 894	4 104 715	
Neighbour	77	21 852	18	6 445	24	15 408			119	43 705	
Small Community	44	135 585	25	134 401	2	30 583			<i>7</i> 1	300 569	
Total	19 376	3 056 001	405	176 656	384	198 386	3 919	1 017 945	24 084	4 448 989	
Saskatchewan											
Individual	56 340	9 232 039	6 193	751 223	3 636	1 083 646	5 200	1 754 888	71 369	12 821 796	
Neighbour	433	137 580	65	15 041	201	122 357			699	274 978	
Small Community	590	1 133 607	225	1 169 530	74	697 439			889	3 000 576	
Total	57 363	10 503 226	6 483	1 935 794	3 91 1	1 903 442	5 200	1 754 888	72 957	16 097 351	
Alberta	-										
Individual	20 240	3 950 799	4 352	643 636	1 748	549 438	6 825	2 086 098	33 165	7 229 971	
Neighbour	68	26 956	18	7 108	32	18 662			118	52 725	
Small Community	230	624 004	131	839 371	68	752 421			429	2 215 796	
Total	20 538	4 601 759	4 501	1 490 115	1 848	1 320 521	6 825	2 086 098	33 712	9 498 493	
GRAND TOTAL	97 277	18 160 986	11 389	3 602 565	6143	3 422 350	15 944	4 858 932	130 753	30 044 833	

All financial figures rounded off to nearest dollar, thus creating minor discrepancies in some totals.

APPENDIX V

MAJOR PROJECTS — IRRIGATION, RECLAMATION, WATER STORAGE AND MUNICIPAL WORKS¹

1935 TO MARCH 31, 1976

Name of Project	Location	Type of Project	Date Completed	Irrigated Acres	Storage Capacity Acre Feet	Costs \$
		AAANUTODA	* * * * * * * * * * * * * * * * * * * *			
		MANITOBA				
Assiniboine River Diking and Cut Offs	Brandon and Portage la Prairie to Baie St. Paul	Flood Control	Not Yet Complete		_	1 743 773
Northwest Escarpment Reclamation Project —						
Riding Mt. Area	Dauphin Area	Flood Control	1966	_	_	1 313 103
Fairford River Project	Lake Manitoba	Flood Control	1960	_		287 751
Saskatchewan River Reclamation —						
Pasquia Area	The Pas	Reclamation	1960	_	_	2 256 388
Shellmouth Dam and Portage Diversion	Shellmouth and Portage					
	la Prairie	River Control	1970		390 000	14756 560²
Agricultural Service Centres	16 Communities	Water and Sewer	Not Yet Complete			2 793 6473
The Pas Indian Reserve	The Pas	Water, Sewer and Roads	Not Yet Complete		_	1 099 744
		SASKATCHEWAN				
South Saskatchewan River Project	Outlook	Multi-Purpose	1969	350 000 (potential)	7 600 000	120 123 2354
Buffalo Pound Project	Qu'Appelle Valley	Water Supply	1960		42 000	2 293 145
Eyebrow Lake Diversion	Eyebrow	Water Supply	1960			98 376
Agricultural Service Centres	26 Communities	Water and Sewer	Not Yet Complete	_	_	4 209 2933

Name of Project	Location	Type of Project	Date Completed	Irrigated Acres	Storage Capacity Acre Feet	Costs \$
		ALBERTA				
Bow River	Vauxhall	Irrigation		235 000	408 862	
 (a) Purchase of Canada Land and Irrigation Company (b) Development and Construction 		·	1974			2 353 517 24 941 316
St. Mary	Lethbridge	Irrigation	17/4	300 000	460 000	25 160 993
Sawridge Creek	Slave Lake	Flood Control	1973	_		248 377
Alberta Irrigation Rehabilitation	3 Projects	Irrigation	Not Yet Complete		_	18 417 618 ⁵
Agricultural Service Centres	13 Communities	Water	Not Yet Complete	_	_	1 694 863³ 🖒
		BRITISH COLUME	IIA			
Cawston Benches	Keremeos	Irrigation	1 9 51	629	2 000	185 491
Chase & Johnston — Western		_				
Canada Ranching	Kamloops	Irrigation	1951	755	_	98 24 3
Lillooet Pemberton	Pemberton	River Control	1953			1 056 539
Westbank Project	Kelowna	Irrigation	1950	1 200	2 500	537 450
Penticton West Bench	Penticton	Irrigation	1953	800	_	66 362
B.C. Fruitlands	Kamloops	Irrigation	1966	2 000		200 000

¹Funds for certain of these projects were provided by special votes of Parliament.

²Canada's share only.

^{**}Grants only — does not include loans of equal amounts.

**Includes \$25 000 000 Province of Saskatchewan cantribution.

**Includes grants to Province of Alberta of \$3 500 000 for secondary works and \$6 200 000 associated with the turnover of Canada's interest on the Bow and St. Mary Rivers.

APPENDIX VI

SUMMARY OF LAND INVENTORY TO MARCH 31, 1976

	Title	Reservation Order-in-Counc Lease, Easemer (acres)	
I. WATER DEVELOPMENT SERVICE			
A. Water Conservation			
Manitoba	1.3		1.3
Saskatchewan	10 332.9	514.1	10 847.0
Alberta	107.6	563.6	671.2
B. Irrigation Projects			
Southwest Saskatchewan	49 710.0	358.2	50 068.2
C. Tree Nursery	160.0	480.0	640.0
D. Demonstration Farm	169.5	_	169.5
	60 481.3	1 915.9	62 397.2
II. LAND USE SERVICE			
A. Community Pastures			
Manitoba	4744.4	399 060.8	403 805.2
Saskatchewan	1 236 717.8	563 662.9	1 800 380.7
Alberta		154 297.0	154 297.0
	1 241 462.2	1 117 020.7	2 358 482.9
III. ENGINEERING SERVICE			
A. Assiniboine River Diking	1 078.2	34.5	1 112.7
	1 078.2	34.5	1 112.7
IV. MISCELLANEOUS			
A. Hydrometric Site	10.0	_	10.0
B. Service Depots	24.5	0.5	25.0
C. Bow River Exchange Lands	7 581.4		7 581.4
	7 615.9	0.5	7 616.4
SUMMAR	RY		
I. Water Development Service	60 481.3	1 915.9	62 397.2
II. Land Use Service	1 241 462.2	1 11 <i>7</i> 020 <i>.7</i>	2 358 482.9
III. Engineering Service	1 078.2	34.5	1 112.7
IV. Miscellaneous	7 615.9	0.5	7 616.4
TOTAL	1 310 637.6	1 118 971.6	2 429 609.2

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