CHAPTER 8

Long-Run Economic and Social Benefits

THE terms of reference of the present Commission ask the question "whether the economic and social returns to the Canadian people on the investment in the proposed South Saskatchewan River Project would be commensurate with the cost thereof". The total cost in current prices of the South Saskatchewan River Project has been estimated at $247,900,000. This estimate of cost will be referred to hereafter as the current *money* cost of the project and will be used in this chapter as the comparison base in a preliminary survey of the problems raised by the terms of reference quoted above. Later, in a following chapter, the question of cost will be re-examined in a more fundamental way to establish the real cost in terms of the immediate or short-run effects of the project upon the economy and the present and prospective status of the labour, materials, and other economic resources required in its construction. It is the purpose of the present chapter to attempt to assess the long-run economic and social benefits of the project. The emphasis here upon the long-run effects and, as a matter of convention, these are taken to represent the yield or return to the Canadian people of the S.S.R.P., as a multi-purpose, public investment project. The long-run economic benefits do not exhaust the whole field of possible economic benefits associated with the project, but it is more convenient to treat the economic benefits that may accrue in the short-run as reductions in the cost of the project rather than as additions to its yield.

The Problem of Identification of the Benefits of Public Investment.—As a public investment project, the S.S.R.P. must be considered within the general framework of public and private investment. In this context, investment means real investment or capital formation as conventionally defined; that is, the additions made during some period of time, usually a year, to structures of all kinds, machinery and equipment, inventories, and net claims against foreign assets. As a result of investment, the nation's productive capacity is maintained and augmented. Investment, by increasing productive capacity, makes it possible to increase the national product, or, what is the same thing, the national income.[1] It is this improvement in production and income and the greater well-being among members of the community that will normally accompany it, that justifies the investment

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[1] Of the various aggregates in the National Accounts, the national product at factor cost, corrected for changes in the price level, is the most appropriate measure of the real income of the community. The term 'national income' is used in the text to mean real national product or income, abstracting from changes that originate in changes in the value of money.

expenditures undertaken at any time. This aspect of the investment process is commonly referred to as the long-run production or income effect.

Investment is undertaken by private individuals, institutions, and business concerns with a view to recovering some part of this prospective yield. Generally, investment is made if the anticipated recoverable returns, appropriately discounted for risk, exceed the cost. In effect, the rational private investor will invest where the rate of return promises to exceed to the greatest degree the current interest rate for new capital. The rate of return in this context is the ratio of the anticipated increment in annual operating profits to the initial capital outlay.

The criteria governing public investment are much broader. The optimum capital structure from the public point of view is that which will make the largest possible contribution to the national well-being. Although private investment will normally increase national wealth and income, the optimum capital structure cannot be attained as the result of private investment alone because the increment in the national income accompanying many desirable investment projects cannot be recovered by private agencies to a sufficient extent to motivate private action. Canadian experience illustrates this fact, particularly in fields of transportation which, yielding little in the way of direct returns, were beyond the scope of private investment. On occasions in the past, public expenditures on roadbed and transportation equipment have made accessible great tracts of territory rich in agricultural, forest, and mineral resources, and thus have converted these into economic resources. These aspects of the physical environment in an undeveloped and underpopulated half-continent became economic resources only after public investment made them attractive to labour and capital from abroad and from less remunerative occupations within the country. Throughout Canada's economic history, the creation of permanent economic opportunities in this fashion has been an important element in the increase of productive capacity and of national income, both in the aggregate and on a per capita basis. On these occasions, it has usually been the magnitude of the "indirect" returns accompanying investment in resource development that motivated the initial public action.

There is another important difference between public and private accounting of the long-run benefits of investment. The national income is only an approximate index of the real income enjoyed by the members of the national community. For example, the values of recreation, of health and education, of strengthening the general fabric of national production, and the value of national security are amenable to economic measurement imperfectly if at all, and, hence, cannot be fully covered in a national accounting of income and wealth. Yet these components of welfare are evaluated within the general democratic process and their respective weights do motivate, to some extent, the investment decisions of public authorities. Under ideal conditions, the returns or benefits from public investment are conceived in terms of the general welfare and all the economic benefits, whether recoverable or not, and the non-economic benefits are taken into account. This broader point of view is evident in the terms of reference of the present Commission.

The range of benefits relevant to this point of view may be broken down into three major classes:

(1) *There are the primary or direct economic benefits such as the net land rents created by an irrigation project.*—These benefits can be easily identified, measured in the same sense as the rate of return on private investment, and, if it be desired, recovered by some public agency or agencies. The total direct annual benefit is the sum of the annual income flows created directly by the project. This income can be distinguished analytically and statistically as an increment in the net national income, or as an increment in the nation's productive capacity.[2] Current estimates of the prospective annual benefits depend upon forecasts of future events and are therefore subject to error. There is a parallel between this class of benefit from public investment and the rate of return or yield on private investment. It is the only one of the three types of benefit discussed here which affects private decisions to invest.

(2) *There may be secondary or indirect economic benefits attributable to a specific investment project.*—These "returns" cannot be recovered by private agencies. However, they can be distinguished analytically and, where they exist, they appear as a further increment in the net national income or product in addition to the increase arising directly from the project. This class of benefits is emphasized in most discussions of the benefits of public irrigation projects, but although they are tangible, a technique of measuring them has not been developed. The problem of identifying benefits of this type is dealt with below.

(3) *Finally, there are the broad social benefits of public investment projects.*—These benefits might be termed non-economic in character although it is difficult in practice to distinguish in a precise way the non-economic from the economic aspects of social organization. In general, benefits of this class are intangible, often difficult to identify, and impossible to measure even under ideal conditions.

Each of these classes of benefits will be examined in turn with specific reference to the S.S.R.P.

The Primary or Direct Economic Benefits of the S.S.R.P.

Irrigation.—The major purpose of the South Saskatchewan River Project is the irrigation of some 455,000 acres of land now producing under dry land farming practices. As a result of the project the effective productivity of this land would be increased and stabilized. Once created, the irrigation project would be expected to last indefinitely. The problem of estimating the direct economic benefit of the irrigation phase of the S.S.R.P. is the problem of isolating and measuring the increase in the annual net earning power or economic rent of the land. An increase in the economic rent of the land under irrigation would be an addition to the

[2] A direct benefit to specific projects might take the apparent form of a reduction in cost, but the effect, from the standpoint of the national economic welfare, is an increment in income from the project since a reduction in cost implies that economic resources are released from some present or potential use and available to produce other goods and services.

national income and as such it would provide one offset to the annual interest charge on the capital cost of the project.[3]

Estimates of this phase of the economic benefits of the S.S.R.P. have been prepared under the direction of Professor H. Van Vliet.[4] The procedure here will be to present a range of these estimates and one supplementary estimate in summary form and consider their implications as economic criteria of the feasibility of the project.

To apply a criterion of economic value in measuring the benefits of the S.S.R.P. is in effect to make an application of the principle of maximizing consumers' welfare within some assumed distribution of income. This procedure has its difficulties: the consumer needs under consideration lie far in the future, since irrigated production could only begin after a six to eight-year construction period and would scarcely approach full development within forty or fifty years.

The nature and degree of exploitation of the enhanced physical productivity of the Irrigation Area in the S.S.R.P. and the value of the resulting production will be determined by a wide range of dynamic factors bearing upon future market opportunities. Among these factors will be the tastes and consumption habits of consumers within the market scope of the Area, the population or numbers of consumers affected, the level and distribution of their incomes, and the prices of related commodities. With respect both to the demand for products and to the competition in supply facing the Area, the character of future trade relations with other countries and the nature and extent of foreign trade will be important factors. Future technological developments introduce another element of uncertainty which is common to all capital projects of slow fruition and long life. Obsolescence is always a danger.

Survey of Assumptions Employed in the Determination of Irrigation Returns.—An appraisal of the irrigation phase of the S.S.R.P. must make assumptions, explicit or implicit, with respect to all the factors cited above. The strategic assumptions in *An Economic Appraisal* are summarized in two separate projections which are not themselves independent: the types and quantities of agricultural commodities produced in the Area; and the prices entering into the calculation of the cash receipts and the costs of production in the Area. These two projections are related since the structure of relative prices for agricultural products will be among the determinants of the types of commodities produced; and, if supplies from the Area form any significant portion of

[3] This increment in rent would be a net gain if the rents earned by other land were unaffected by the development of the irrigation project. However, if as a result of the competition of the irrigation development, rent on adjacent dry lands—e.g., in the Saskatoon milkshed—were lower than they would have been in the absence of the S.S.R.P., then the virtual reduction in these land rents would have to be taken into account as an adverse indirect effect where the project is being viewed from the standpoint of the national interest.

[4] H. Van Vliet, G. Haase and R. A. Stutt, *An Economic Appraisal of the Irrigation Phase of the Proposed South Saskatchewan River Development* (University of Saskatchewan, 1951). This appraisal, hereafter called *An Economic Appraisal*, was prepared for the P.F.R.A., Department of Agriculture, Ottawa. The present discussion of the irrigation benefits is based upon it to a very large extent. *An Economic Appraisal* is a pioneering study in what is essentially a new field of research in Canada and the United States. It should be borne in mind that the study is a preliminary investigation. In the words of its authors: "Owing to incompleteness of the various phases of data, the dependence of the present study on the other phases of study, and the many uncertainties surrounding the estimates involved, the study is of an exploratory nature and its conclusions remain tentative". Cf. *An Economic Appraisal*, p. 1. The full text is available in mimeographed form in The Department of Agriculture, Ottawa.

total supplies in the markets to which they go, prices will be affected by the quantities of specific products sent to market. Similarly, costs may not be independent of the quantities of commodities sent to market if the demand from the Area forms a significant portion of the total demand for specialized services and materials.

Three specific types of farms were assumed to represent the potential types of farming in the Area:

(1) specialized intensive crop farms with sugar beets as the representative specialty crop;
(2) mixed grain-livestock farms with beef cattle as the chief livestock enterprise; and
(3) general grain farms with wheat as the chief crop.[5]

On the basis of any reasonable projection of demand and technology, these farm-types would certainly appear in the Development Area. The important question from the point of view of the value of the project is the proportion of the Area devoted to the more intensive types of farming and particularly to the so-called specialty crops.[6]

No effort was made to project the future production experience of the Irrigation Area on an annual basis. However, in view of the long lag between initiation and full development of an irrigation project and the concomitant accumulation of interest upon the original capital costs, it was deemed advisable to estimate the economic status achieved by the project at various stages in its development. The process of development may be broken down into three stages:

> "Evolution of fully-developed irrigation production apparently involves three more distinctive stages. In the initial or developmental stage, farms are still undergoing development for irrigated use and basic practices in application of irrigation water are barely established. In the second or transitional stage, introduction of the main forms of specialization relative to potentialities of irrigated production is in progress and a gradual improvement of irrigation practices is underway. In the third or mature stage, in turn, adjustments to use possibilities are largely complete and an effective basis of irrigation practices is generally established. The first stage is usually quite brief. The second, on the other hand, in terms of existing experience, is normally prolonged, often involving two generations of irrigation settlers and occupying periods of up to 30 and 50 years".[7]

For the present purpose a period of five years will be assigned to the initial stage and, assuming a highly progressive development, a period of thirty years to the second or transitional stage.

In the calculation of a weighted average return per irrigated acre in *An Economic Appraisal*, the proportions of the total irrigated acreage devoted to the three types of farming at each stage in the development were implicitly determined. In the initial period, the weights applied were 5, 10 and 85 per cent to acreage returns from specialty, grain-livestock, and grain farms, respectively; in the transitional period, the respective weights were 15, 25 and 60 per cent; and, in the mature period, 25, 40 and 35 per cent. These weights are described as "largely arbitrary . . . . involving rough

[5] The farm budget summaries for the three types of farm used in the estimation of irrigation returns in *An Economic Appraisal* are given in the appendix to this chapter.

[6] In connection with specialty crops, the selection of sugar beets as a representative, high-return crop is not meant to suggest that sugar beets would be the only specialty crop. The farm budget acreage involved might have been distributed among several specialty crops with little difference in the resulting estimates but a considerable complication in their calculation.

[7] *An Economic Appraisal*, p. 64.

assumptions as to type-distribution of farms."[8] Since the relative production of specialty crops that can reasonably be anticipated is among the crucial factors in determining the economic feasibility of the irrigation project, the implications of the weights assigned in the estimates of *An Economic Appraisal* deserve careful consideration.

On the basis of the assumed differentials in the size of the three basic types of farm, the weights used in the second or transitional stage allocate 42,000 of the 455,000 acres of irrigated land to specialty farms, with 12,600 of the 42,000 acres devoted to specialty crops and the remainder to other crops. In the mature stage the assigned weights allocate 79,000 of the 455,000 irrigated acres to specialty farms, with 23,700 of the 79,000 acres devoted to specialty crops. These are the estimates of the *effective* specialty crop acreage. However, it was further assumed in *An Economic Appraisal* that, in each stage of the development, there would be an equal or larger acreage of specialty crops spread among the other types of farms, but that this acreage would not have an income effect equivalent to the acreage in specialty farms. Consequently, no specific income allowance was made for it.

A more liberal weighting system can be justified by a consideration of the nature and results of a subsidiary study prepared by Dr. W. Darcovitch in conjunction with *An Economic Appraisal*.[9] This study appraised the market possibilities for specialty crops on the basis of a series of projections of the major determinants of market possibilities in the region. The market study assumed that the proposed Irrigation Area could share in the future increment in the beet sugar market in the prairie region and so capture about 20 per cent of the prairie market by 1971. It also assumed that the Area would supply potatoes to 55 per cent of the (census) urban population in Saskatchewan and fresh vegetables and a limited range of canning crops to the whole provincial population in 1971. The study made the further assumption that consumption per capita in 1971 would either remain at recent levels (e.g., sugar), or rise, as a result of higher Canadian incomes and nutritional standards in 1971, to the levels enjoyed in the United States from 1935 to 1939, (e.g., fresh vegetables, canning crops). The population estimates for 1971 were based upon the 1946 projections of the Dominion Bureau of Statistics.[10] The so-called Estimate D of this publication was adjusted for apparent discrepancies with the official estimates of population in 1949 to obtain population estimates for 1971 and later years. The prairie component of Estimate D was similarly adjusted to the 1949 population and a further refinement applied by deducting an assumed level of net emigration down to the year 1956. The market study concluded that in 1971 the potential market for specialty crops could absorb the output of 35,000 acres in the proposed Irrigation Area.

[8] *An Economic Appraisal*, p. 104.

[9] W. Darcovich, *An Appraisal of Market Possibilities for Specialty Crops in the Proposed Irrigation Area of Saskatchewan*, Farm Management Department, University of Saskatchewan. Cited in *An Economic Appraisal*, pp. 66-67.

[10] D.B.S. *The Future Population of Canada, Bulletin F. 4* (Ottawa, 1946). This is the most recent official publication on the subject. Revised projections of recent date have a restricted circulation within official circles. It should be emphasized that projections of this kind are not intended as predictions.

The population projections deserve further consideration because, from the fundamental point of view of consumers' welfare, a need for large-scale irrigation in Canada will not likely arise unless the growth of population is sufficient to bring a considerably greater pressure upon available agricultural land than now exists. The published projections of the Dominion Bureau of Statistics are hardly adequate for the analysis of future demands for food. Estimate D was based upon the fertility trend established in the period 1926 to 1940 with an allowance for an eight-year upsurge induced by war. The estimate also assumed that net migration would be zero. The soundness of the fertility trend itself may be questioned. In any event, it has been apparent for several years that the allowed upsurge was too short, and the adjustment made by Dr. Darcovitch was also inadequate on this point. From the point of view of predicting future population, there is the additional problem that the assumption with respect to migration abstracts altogether from the implications of the development of natural resources for capacity to absorb immigrants. As revised for the market study, Estimate D yielded a 1971 population for Canada 16 per cent above current levels. As a prediction, this estimate seems unduly pessimistic. A recent study of future demands for food in the United States anticipates a 28 per cent increase in the population of the United States from 1950 to 1975.[11] A comparison of past trends in net reproduction rates and of potential resource developments in the two countries would hardly justify a smaller relative increase in Canada.

Another aspect of the market appraisal prepared by Dr. Darcovitch, and one which bears more directly upon the S.S.R.P., is the projected population for Saskatchewan and the prairie region. The prairie components of Estimate D were adjusted to allow for net emigration from the three provinces up to 1956. These adjustments result in population estimates for 1956 of 2,477,000 for the Prairie Provinces, and 824,000 for Saskatchewan. Since the 1951 census reports populations of 2,537,000 and 831,000 for the respective regions, the projections do not appear to exaggerate the potential growth.

On the basis of the foregoing discussion of Dr. Darcovich's appraisal, it may be concluded that his estimate of potential utilization in 1971 of some 35,000 acres for specialty crops is probably not unduly optimistic. In turn, his estimate may be compared with the estimates accepted in the weighting system described above. Assuming for the purpose of illustration that irrigation would begin in 1965, the initial stage in irrigation development would end about 1970, and the second or transitional stage would extend from 1970 to 2000. The weights employed in *An Economic Appraisal* imply that roughly two-thirds of the potential market of 1971 will have been tapped by 1985 (12,600 acres in specialty farms and an equal amount in other farms), and that at maturity, in the year 2000, a market about one-third larger than the potential market of 1971 will have been exploited (23,700 acres in specialty crops in specialty farms

[11] *Resources for Freedom*, a Report to the President by the President's Materials Policy Commission (Washington, 1952), Vol. I, Ch. 9; Vol. V, Ch. 7. This increased population in the United States and the projected rise in income and per capita consumption are expected to increase the demand for food in that country by 41 per cent from 1950 to 1975.

and an equal amount in other farms). A more optimistic weighting will be introduced below in a supplementary projection of irrigation returns in the S.S.R.P.

The other major assumptions of *An Economic Appraisal* are those respecting price. Three sets of price-cost assumptions were employed in Professor Van Vliet's study to project a range of gross irrigation returns for each stage of the development.[12] In this context, "price" refers to the prices for farm products at the farm and "cost" refers to the prices entering into the cost of production, excluding capital costs of the irrigation project and irrigation operating costs. The price assumptions applied were:

(1) the average of the relevant prices from 1921 to 1940;
(2) the average of the relevant prices for livestock and specialty products from 1921 to 1948, and the average from 1921 to 1940 for grains; and
(3) the average of the relevant prices from 1921 to 1948.

These will be referred to as the 1921-40 level, the 1921-48 partial, and the 1921-48 full level, respectively. Costs were adjusted in each projection to conform with the assumed price level.

The assumed prices were applied to physical outputs derived from current experience of the yields of irrigated land. Progressive development was introduced by assuming that yields would be 20 per cent lower in the initial or first stage than in the second, and, on one variant, 20 per cent higher in the third or mature stage than in the second, and, on another variant, 30 per cent higher in the third than in the second stage.[13]

With respect to costs, the level of operator's wage was assumed to rise from $650 in the first stage to $850 in the next two stages.[14]

Two sizes of farm were employed. The basic farm sizes selected implied an average of 144 irrigated acres per farm at full maturity. A larger variant was introduced by increasing the crop land per farm by 30 per cent.[15]

A fourth price assumption, not included in *An Economic Appraisal,* is added in this Report. Current agricultural prices and construction costs are both inflated in about the same degree with respect to their pre-war base. Both will be subject to cyclical and trend movements in the future. From the point of view of the analysis of benefits of the S.S.R.P., the trend movement in agricultural prices and the cyclical movement in construction costs are the important considerations. In this connection, it would be useful to compare the direct returns of the S.S.R.P. with its capital cost when both are measured in current prices. The 1951 level of agricultural prices will therefore be added as the fourth price assumption.

Other reasons may be adduced for applying the 1951 level of agricultural prices. One reason is that the current relative position of farm product prices is more consistent with the assumption of a long-run need for investment in increased land utilization than are the other three price assumptions cited above. On this ground, the 1921-40 level could be ruled out altogether. More than half of the twenty years in that period were years of relatively depressed farm prices. If

[12] *Resources for Freedom*, p. 84.
[13] *Ibid.*, pp. 86-87.
[14] *Ibid.*, pp. 81-82.
[15] *Ibid.*, p. 85.

the average relative terms of trade of agriculture in the two decades from 1921 to 1940 were a fair reflection of the future trend, there would be little justification in extending agricultural resources. The interest would more likely be in reducing rather than increasing the stock of land employed in agriculture.

A second reason for projecting the current favourable relationship of prices bearing upon agriculture is that it is not unreasonable to assume that the future trend in this relationship may maintain or even improve upon the present relative position. An assumption of this nature is employed in a detailed study of future demands for food in the United States. The report to the President, *Resources for Freedom,* cited above, projects the 1950 average relationship between agriculture and other sectors of the economy to 1975, with allowance within the average for differential movements in individual prices to reflect differences in the projected condition of supply and demand for individual commodities.[16] Recently the Governor of the Bank of Canada expressed the opinion that the current favourable position of relative prices for raw materials in general, including foodstuffs, may be a continuing one.[17] It is possible that, as future prices unfold, the experience of the inter-war years will prove to be a deviation from the secular trend in relative price levels which was favourable to foodstuffs for over a century prior to 1920.[18]

The future position of farm product prices relative to other prices is only one aspect of the problem of the present appraisal. The position of future farm product prices relative to the level or levels of construction costs of the S.S.R.P. when these are incurred is also relevant. Farm products could greatly improve their relative price position in the future with widely different implications for the problem of capital cost reimbursement in the irrigation project depending upon whether the future general plateau of prices were higher or lower and in what degree. But this is an aspect of the question of the cost of the S.S.R.P. and is outside the scope of this chapter.

Estimates of Direct Returns to Irrigation in the S.S.R.P.—Table I presents projected gross returns per irrigable acre of the S.S.R.P. at each stage of its development on the basis of four combinations of the various assumptions discussed above.

TABLE I

Estimates of Gross Irrigation Returns per Acre for Respective Development Stages of the S.S.R.P.

—	Initial Stage	Transitional Stage	Mature Stage
Variant 1	$ 0.23	$ 1.39	$ 4.09
Variant 2	2.04	4.02	6.93
Variant 3	3.19	5.14	9.66
Variant 4	9.21	14.11	21.45

[16] *Op. cit.*, pp. 73-75.

[17] *Cf.* Graham Towers, *Some Aspects of International Trade.* An Address to Investment Dealers Association of Canada annual meeting, St. Andrews-by-the-Sea, N.B., June 13, 1952.

[18] *Cf.* T. W. Schultz, *Agriculture in an Unstable Economy* (New York, 1945), for the case supporting the contrary view which is based upon the following premises: the relatively low income elasticity of the demand for food; the high rate of technological advance in agriculture; and the assumption that markets for western agriculture will be virtually restricted to countries of incipient population decline.

Variant 1 is based upon the 1921-40 price level, the smaller farm size (144 irrigated acres), the 30 per cent rise in yields in the mature stage, and farm-type weights cited in the text.

Variant 2 is based upon the 1921-48 partial price level, the larger farm (188 irrigated acres), the 20 per cent rise in yields in the mature stage, and farm-type weights cited in the text.

Variant 3 is based upon the 1921-48 full price level, the larger farm, and the 30 per cent rise in yields.

Variant 4 is based upon the 1951 price level, the larger farm, the 20 per cent rise in yields in the mature stage, and with specialty farm weights in the transitional and mature stages double those cited in the text and the grain farm weight proportionately reduced. This implies that the effective specialty crop acreage would be about 35 per cent greater in the year 2000 than the Darcovich estimate for 1971. The operator's wage is assumed to rise from $1,200 to $1,500, in the transitional stage and to $1,800 in the mature stage, instead of from $600 to $850 as in the other variants.

Each variant in Table I is a projection of a possible level of gross irrigation returns per irrigated acre at three points in the development of the project. For convenience these points may be dated at Years 3, 20 and 35, where Year 0 is the year of completion of the main dam and appurtenant works and Year 1 the year in which water is first applied to the land. It is assumed that construction of the irrigation system, beginning before Year 0, would be completed by Year 20.

Annual irrigation operating costs, exclusive of any capital charges, must be deducted from the gross returns of Table I to determine the net return or rent available to offset capital costs. One of the higher levels of operating costs projected in *An Economic Appraisal* on the basis of the 1921-48 price level may be used for this purpose in the first three variants. The level selected is $1.50 an acre for gravity irrigation. This rate is raised to an average of $2.30 over the irrigable area of 455,000 acres with the addition of pumping costs based on a cost rate for power of 5 mills per K.W.H. Average operating costs may be assumed to rise from $1.50 an acre in the initial period of gravity operation to $2.30 an acre when the whole irrigable area is under water.[19] For the fourth variant, current levels of irrigation operating cost, as estimated for the Commission, were used. These are $2.00 per acre for gravity irrigation, rising to $4.07 per acre with the addition of pumping costs over the whole irrigable area.

TABLE II

Estimates of Net Irrigation Returns per Acre for Respective Development Stages of the S.S.R.P.

—	Initial Stage	Transitional Stage	Mature Stage
Variant 1	$(−)1.27	$(−)0.91	$ 1.79
Variant 2	0.54	1.72	4.63
Variant 3	1.69	2.84	7.36
Variant 4	7.21	10.04	17.38

The result of applying the projected operating costs to the gross returns of Table I is shown in Table II. Variant 1 yields a negative result in the first two stages, which implies that, on this variant, the net rent and hence the value of the land under irrigation would be negative until after Year 25. Variant 1 is therefore omitted in Table III. Part A of Table III shows the value per acre of irrigated land at each stage of the development for Variants 2, 3, and 4; Part B shows the total value of the whole irrigated area at Year 20 and Year 35 for the same variants.

[19] *Op. cit.* pp. 99-100.

TABLE III

Part A: Value of Irrigated Land in the S.S.R.P.
(dollars per acre)

—	Year 3	Year 20	Year 35
Variant 2	$ 15.40	$ 49.20	$132.41
Variant 3	48.33	81.22	210.50
Variant 4	206.31	287.14	497.07

Part B: Total Value of the Irrigated Land Area in the S.S.R.P.
(millions of dollars)

—	Year 3	Year 20	Year 35
Variant 2	.....	$ 22.4	$ 60.3
Variant 3	.....	37.0	95.8
Variant 4	.....	130.6	226.1

A rate of 3½ per cent, which approximates the current, long-term, Federal interest rate, was used to capitalize the projected net rents of irrigated land.[20] The total land values of Part B, Table II, may be usefully compared with the total cost of the S.S.R.P. including acquisition of land costs, which would be $247,900,000 on the basis of current prices. In this comparison the difference in the dates of the values should be borne in mind.

Direct Returns to Power in the S.S.R.P.

The value of the hydro-electric power that would be made available in the S.S.R.P. has been provided by the Province of Saskatchewan. The power estimate is attributed to the Prairie Provinces Water Board, *Water Study of S.S.R. Project,* Regina, 1952. It assumes 325 million K.W.H. of firm energy, 50 million K.W.H. for pumping, and an average of 100 million K.W.H. secondary.

The value of firm energy is taken at 5·5 mills per K.W.H. The current cost of power from Montana is 3·6 mills plus approximately 2 mills for transmission to Saskatchewan centres. It has been also stated by the Saskatchewan Power Commission that "large steam plants can produce power for 7·5 mills per K.W.H. and since they can be located close to local centres, 2·0 mills transmission costs must be subtracted to assess the value of hydro at Coteau." The value of secondary power is taken at 3·0 mills to allow "capital charges at 2·5 mills per K.W.H. on standby steam plant capacity."

It was assumed in the previous section that power for pumping would be charged against operating costs at a 5·0 mills rate. A value of 3·0 mills for pumping power implies a 2·0 mill cost for transmission of this power to the irrigation project.

Revenue from the sale of power in the S.S.R.P. would begin to accrue in Year 1 of the project. As the irrigation system developed, firm power would be shifted to pumping irrigation water with a 2·5 mill decline in revenue from the diverted power. A diversion of 50 million K.W.H. would be made by Year 20. The gross revenue from power may be calculated as follows:

375 million K.W.H. at 5·5 mills	$2,062,500
100 million K.W.H. at 3·0 mills	300,000
Gross Revenue in Year 1	$2,362,500
325 million K.W.H. at 5·5 mills	1,787,500
150 million K.W.H. at 3·0 mills	450,000
Gross Revenue in Year 20	$2,237,500

[20] It is to be emphasized that this capitalization rate ignores the uncertainty involved in the price and other projections. A risk premium would be added to the interest rate in a normal private calculation of future land values.

The Saskatchewan Power Commission assumes that the annual cost of operating this type of hydro plant is approximately nine per cent of capital cost, including capital charges at four per cent. If $24 million of the total cost of the S.S.R.P. is to be attributed to the power plant, as established in a previous chapter, annual operating costs, excluding capital charges, would be $1·2 million. If we deduct this cost from gross revenues, and capitalize the resultant net incomes at a rate of four per cent,[21] which approximates the current long-term interest rate for the Province, the capital values created by the power project would be of the following order:

Year 1	$29,062,500
Year 20	25,937,500

Direct Benefits to Municipal Water Supplies of the S.S.R.P.

The implications of an adequate water supply in Regina, Moose Jaw and other municipalities in the area are of obvious importance to these municipalities. The value attributable to the S.S.R.P. in this connection is the saving of the potential cost implied in the commitment of the Federal Government to insure an adequate supply of water by maintaining the level of Buffalo Pound Lake. This value would accrue in Year 1 of the project, and continue indefinitely. If the project were completed before 1980 there would be a write-off of the undepreciated portion of the capital cost of the temporary pumping system required to maintain the level of Buffalo Pound Lake. Offsetting this loss would be a saving in capital cost of $350,000 required in 1980 to establish the pumping system on a permanent basis.

The annual pumping charge that would be eliminated is $150,000. This represents an equivalent capital sum in Year 1, at the current Federal rate of interest, of $4,200,000.

A summary of the possible direct benefits of the S.S.R.P. indicates the strategic importance of the assumptions respecting future population and price levels. On the most pessimistic variant employed, the value of the three forms of direct returns would be $91 million at maturity (Year 35). This leaves a wide margin between the direct returns and the cost to be offset by the value of the indirect economic returns and the social benefits. On the third irrigation variant, using the average price level from 1921 to 1948, and the more conservative weighting of farm types, the total value of the direct returns at maturity would be $126 million. The margin between direct returns and cost is reduced by $35 million on this variant. If the fourth irrigation variant can be accepted as most probable, the total value of direct returns at maturity would be $256 million. The margin between returns and cost, on this accounting of the direct returns, becomes a surplus, and the indirect economic returns and social benefits are clear gains to be added to it. The following sections of this chapter consider some of the long-run indirect benefits that would accompany the project.

[21] The rate suggested by the Saskatchewan Power Corporation. In the previous section of this chapter, a rate of 3½ per cent was used, without risk premium, in calculating the value of irrigation benefits.

Secondary or Indirect Benefits of the S.S.R.P.

A definitive appraisal of the secondary, long-run effects of the project is impossible owing to the deficiencies of current analysis with respect to identification of the indirect long-run effects of investment and of techniques of measuring the magnitude of the effects. Probably the appropriate criterion of economic benefit in this sphere is the change in the productive capacity of the community that accompanies the investment. A portion of this change in productive capacity has been treated in the previous section under the name of direct benefits. Any remaining increment in productive capacity induced by the initial investment is treated as an indirect or secondary benefit.[22]

Many types of investment will have indirect effects upon productive capacity in this sense. A possibility that the magnitude of these indirect effects per dollar of investment is not always the same implies that they should be assessed as far as possible in establishing priorities between public and private investment alternatives, on the one hand, and among public investment projects, on the other.

The problem has been recognized explicitly in Canada by Professor Van Vliet in his study of the irrigation phase of the S.S.R.P.[23] More general treatments have been attempted in the United States.[24]

The conceptual scheme developed in the *Inter-Agency Report* is not applicable to the S.S.R.P. owing to its implied acceptance of what are essentially static assumptions with respect to the stock of resources available to the community. The relation of this point to the S.S.R.P. will be treated in this section. Professor Van Vliet cites the following as among the more important benefits:

(a) Income benefits to irrigation producers beyond allowed cost reimbursements;
(b) Income benefits extended to other individuals and to institutions and governments in alliance with the flow of irrigated production and income;
(c) Savings to governments of otherwise necessary public assistance;
(d) Benefits allied in the increase in volume and diversity of agricultural production;
(e) Beneficial aspects of land use and conservation with respect to the irrigated and associated dry land areas;
(f) Enhanced security and stability of production and settlement contributed to irrigated and dry land farms;
(g) Opportunities for new settlement and re-establishment of settlement;
(h) Possibilities of beneficial rehabilitation of existing settlement;
(i) Accretions of basic resources;
(j) Increase of rural and urban population in and around the irrigation area;
(k) Desirable extensions of available services and facilities to individuals and groups associated in the irrigation community;
(l) Enhancement of individual and group social amenities in the context of the irrigation community;
(m) Favourable fiscal and employment features of irrigation investment and production.[25]

[23] The criterion could be defined in terms of the correlative increment in the national income or product that is attributable to the investment. Productive capacity is a "stock"; income or product is a flow. The productive capacity is merely a quantification of the correlative income flow at a point in time.

[23] *Cf.* Chapter VI of *An Economic Appraisal* on "Associated Contributions of Irrigation Use".

[24] *Cf.*, for example, *Proposed Practices for Economic Analysis of River Basin Projects.* Report to the Federal Inter-Agency River Basin Committee (Washington, 1950). Referred to hereafter as *Inter-Agency Report.*

[25] *An Economic Appraisal,* p. 117.

These benefits may be grouped for the present purpose as follows:

(1) Income benefits within agriculture; these are reflected in items (d), (e), (f), (g). Item (a) has been covered to a large extent in the discussion of direct benefits. Items (k) and (l) are mainly social and will be treated in a separate section of this chapter.

(2) Income benefits outside of agriculture. This covers items (h) and (i).

(3) Benefits to governments. This covers items (c) and (m).

Item (m) bears largely upon short-run effects which are treated in the following chapter. The effect upon government revenues will be treated here.

Item (j), the increase in population, has both economic and social implications. In its economic aspect, it falls under (1) and (2) above, and in its social aspect under the final section of this chapter. The three groups of indirect benefits cited above may be treated in order.

Secondary or Indirect Benefits within Agriculture.—Two potential types of indirect income benefits may accrue within agriculture. There are, first of all, possible secondary income benefits enjoyed by producers within the Irrigation Area in addition to the income distinguished as a direct return to the investment in the project. Then, in addition, there may be additional net incomes accruing to associated dry land producers. These latter benefits have been identified by Professor Van Vliet in the following terms:

> Income benefits to dry land producers allied with various phases of integration, representing gains in terms of increased efficiencies of aggregate resource use resulting from extended complementarity of use, mainly involve the following:
>
> (a) Increased incomes from higher use of land and more efficient types of farming made possible by the availability of supplies, increased certainties and exchange afforded by the irrigation area;
>
> (b) Additional incomes from custom work, labour, rental of pasture and other services furnished to the irrigation area;
>
> (c) Higher incomes resulting from the superior markets for livestock and feed furnished by the irrigation area;
>
> (d) Savings of costs in the purchase of feed, livestock and farm produce, and other exchange with the irrigation area;
>
> (e) Reductions in the costs of farm and living supplies on the basis of the superior service facilities of the irrigation community.[26]

Professor Van Vliet's conclusion with respect to the nature and magnitude of these income benefits may be quoted:

> The more significant income contributions to dry-land farms in the case of the Saskatchewan Area in the nearer development period will probably be associated with narrower forms of integration such as the supply of pasture, labour and equipment services to irrigated farms and use of seasonal labour in irrigation processing and servicing establishments. These will be augmented by some further income gains or savings accruing to scattered dryland producers on the basis of various forms of exchange such as purchases of seed, feed and farm produce from the Irrigation Area and limited sales of livestock and perhaps some feed to the Irrigation Area. As suggested by experience elsewhere, some of the latter activities will be broadened and may achieve occasionally high income significance in years of more critical dry-land crop failure when opportunities for advantageous disposal of livestock, or ability to maintain breeding herds on the basis of feeds or wintering provided by the Irrigation Area, may allow significant gains to the dry-land farms directly affected. In terms of their usually narrow scope, however, they will probably afford comparatively small average income contributions over a longer period.
>
> On the basis of the seriously limited information so far available, concerted study of features of indirect integration in terms of more nearly related experience is needed to indicate its specific and more immediate significance to the Saskatchewan Area and its potential significance in terms of long-range development.[27]

There may also be secondary or indirect income benefits to producers in the Irrigation Area as well as to the associated dry land

[26] *An Economic Appraisal*, p. 127.

[27] Ibid., pp. 131-132.

producers. There are two ways in which incomes arising within the irrigated area may represent net additions to the national income over and above the direct return to irrigation. To some extent the labour employed in the irrigation area may be immigrant labour which would not be part of the national labour force in the absence of the S.S.R.P. If this happened, the wages of this labour would not represent costs in the alternative opportunity sense and consequently would represent an addition to the national income. In other words, public investment that increases the natural resources of the country, in this case, of agricultural land, may increase the country's absorptive capacity with respect to immigration. The *Inter-Agency Report,* cited above, does not include this form of possible indirect benefit, which may be called the "productive capacity leverage effect" of investment in resource development. The *Inter-Agency Report* assumes, in effect, that the nation's stock of resources is fixed and that all the factors employed in an irrigation area would be withdrawn from alternative opportunities within the country. The incomes earned by these factors are then taken as a measure of the foregone production and treated as costs in calculating the return to the initial investment in the irrigation program.

Even if the S.S.R.P. had no effect upon the size of the labour force, there might still be an increment in the national product as a result of a more effective utilization of the agricultural labour that would shift into irrigation farming. The relatively low annual wage returns to the average farm family is a reflection of the uneconomically high ratio of labour to land in agriculture. But there are many farm family workers who will prefer to remain in agriculture despite the compelling income differential that exists between agriculture and other sectors of the economy. A development like the S.S.R.P. would create superior alternative opportunities within agriculture for a considerable number of farm families.

By increasing the stock of agricultural land available to the agricultural labour force, the S.S.R.P. would have the effect of reducing the ratio of labour to land. Consequently, even if the numbers of agricultural workers were not affected by the project, the annual wages of some of them would be greater than they would be in the absence of the project. This improvement in annual returns, following the use of what is, in effect, unused capacity in the agricultural labour force, would constitute an increment in the national product or income of the community and therefore qualify as an indirect income benefit of the project.

Indirect Returns arising Outside of Agriculture.—The project would increase the effective stock of agricultural land resources within the country. Consequently, it would establish a land frontier, although on a relatively small scale, comparable to the agricultural frontiers of the past. In the past "the productive capacity leverage effects" associated with an agricultural frontier have had a larger impact in other fields of production than in agriculture itself. The development of the wheat economy from 1900 to 1930 had far greater implications for employment of labour and capital in the national economy outside of agriculture than for their direct employment on prairie farms. The marketing functions of assembling, storing, transporting and financing the sale of

the crop, and those involved in the supply of the consumer and producer goods absorbed on farms: all of these required agencies and implied opportunities for new capital and labour in towns and cities within the prairie region. This marketing structure was integrated with commercial, industrial, and financial plant in other parts of the country. Permanent opportunities for the employment of labour and capital were greatly increased as a result.

Gross expenditures originating in the 455,000 acres of the irrigated area of the S.S.R.P. would rise from the level of roughly $3,000,000, associated with dry land farming, to levels of $12,000,000 to $16,000,000.[28] The spending of this money would create new market opportunities to be exploited by other producers within the region and across the country. Much of the impact of these expenditures would be diffused over a large variety of enterprises throughout the country. In many instances the impact would add to national income through its implications for unused capacity. At the same time, new opportunities for the employment of resources would arise, particularly at the local level in the fields of service, supply and processing. This latter effect is evident in Lethbridge, Taber and other urban centres within the irrigated areas of Alberta. The effect would not be very different in kind from the effects of oil development in stimulating development in these fields.

There is another important indirect economic benefit that would arise from the S.S.R.P. Prior to 1930 national policies with respect to land, tariffs and transportation were designed to integrate the expanding prairie economy with the rest of the country, and particularly with the central provinces of Ontario and Quebec. Throughout the period of expansion, the salutary leverage effects of the growing wheat economy were channelled to other parts of the economy. After 1930 the economic distress of the wheat economy was also transmitted to other parts of the economy. The severity of economic depression in the prairie region during the decade of the 30's was in part the product of economic forces, but also, to a considerable extent, of drought, and, because of the economic integration developed before 1930, its impact was national as well as regional. The S.S.R.P. is one of a series of developments initiated by the P.F.R.A. and designed to reduce the instability, both regionally and nationally, that originates from drought.

In connection with the achievement of greater stability within the framework of the national economy there will be local benefits of a considerable magnitude. Saskatchewan has been a region of declining population in recent years. A project like the S.S.R.P. may have beneficial effects in such a region that could not be expected in a stable or expanding region. This characteristic of the locality is a factor because of the possibility of avoiding some of the losses that accompany economic obsolescence. That is, there are economic costs in regions of declining population as well as social costs and if these costs could be avoided, the gain would be an indirect benefit of the project. Irrigation farming will require much specialized plant and equipment, but a great deal of the capital equipment that was developed in dry land farming communities will be appropriate to the urban centres in the irrigation area.

[28] *An Economic Appraisal*, p. 136.

Indirect Benefits to Governments.—It is anticipated that a considerable benefit will be realized in the reduction of P.F.A.A. payments and of relief payments in the areas affected by the S.S.R.P. According to the P.F.R.A.:

> Within the proposed development area, over the past two decades, direct agricultural assistance in form of relief in the thirties and Prairie Farm Assistance beginning in 1939, have averaged yearly approximately $180 per farm . . . . A few townships have received Prairie Farm Assistance payments nine years out of the ten the Act has been operative. The assistance per annum for the ten years in the immediate area to be provided with irrigation facilities (where 1,245 dry land farms are located) may be estimated at 1,245 x 180= $224,100. . . . . It might be assumed that out of the 1,455 additional farmers who could be satisfactorily accommodated, 800 would have been operators of submarginal and marginal dry land units to the south and west . . . In their former location they would have been receiving an aggregate of at least 800 x 180= $144,000 per annum. Rehabilitated in the proposed irrigation areas of Central Saskatchewan, it would be expected that (1,245+800) 2,045 former dry land farmers would no longer require these forms of State assistance, and at past rates of payment would effect an annual savings in that item of roughly 224,100+144,000= $368,100. This sum should be considered as partially offsetting the costs of the irrigation development.
>
> The foregoing calculation of probable direct savings in relief assistance leaves out of consideration savings which may be effected by those of the other problem dry land areas, who will remain behind on the removal of the suggested 800 settlers, being given an opportunity to adjust their operations to a larger and more economic and self-supporting unit to meet the conditions under which it can be farmed, without continuing direct state assistance.[29]

Another field of benefits that would accrue to the project is the possible increase in government revenue from the enhanced production. The increase in national revenue has been estimated at $800,000 by the P.F.R.A.,[30] and at $1,100,000 by the Government of Saskatchewan.[31] These estimates are calculated as a percentage of the increased production that is expected to result from the project. Furthermore, a calculation of the increase in tax revenues should take into account any increase in government expenditures, other than capital expenditures, that might accompany the development of the project. Ideally, the gain in tax revenues should be calculated as some percentage of the total increment in the national income resulting from the investment.

An important qualification should be borne in mind with respect to the benefits to governments. There would be no net gain in government revenues if the investment in the project precluded an alternative investment which would yield an equal total increment in the national product; that is, direct plus indirect returns, and ignoring possible differences in the distribution of the increment in national income. There would be a net gain only if the S.S.R.P. involved either (a) a larger increment in income, or (b) the same increment in income but lower government expenditures, or (c) a smaller increment in income, but a more than offsetting saving in concomitant expenditures.

Finally, it should be observed that if a percentage of the increased production goes to the national revenue, it must be subtracted from private revenue. The transfer to government results in a net gain in welfare only when the use the government makes of the income contributes more to the national welfare than the contribution made if the income had remained in the hands of the potential taxpayer. This result is not assured under all conditions and with all governments.

[29] P.F.R.A., *South Saskatchewan River Project. Summary Report* (Ottawa, 1951), pp. 24-25.
[30] *Ibid.*, p. 34.
[31] Government of Saskatchewan, *Interim Statement* (Regina, 1952), p. 47.

Some Aspects of the Social Benefits of the S.S.R.P.—The major social benefits of the project would arise with the creation of an economic framework conducive to a growing population in an area where economic forces are compelling a decline in population. The trend to larger land units in the production of wheat has been evident since the beginning of the century. It reflects a continuous process of reorganization in the highly competitive agricultural production of the prairie region imposed by a dynamic technology.

This trend has been in evidence since 1914, although until 1930 it was more than offset by the extension of agricultural production into new territories, and during the thirties themselves the movement was held back by unemployment in other industries and, in particular, in the urban centres toward which the flow of labour normally directed itself. With the decline of urban unemployment at the end of the thirties, the movement of labour out of agriculture began on a large scale despite the relative prosperity of the wheat economy that accompanied the recovery in farm markets and the return of favourable climatic conditions. The farm population entered a stage of absolute decline with this acceleration in the process of substituting capital for labour in the prairie region.

As a result of this situation and as a result, furthermore, of the improvements in the automobile and in road construction, hundreds of small market centres that had developed in the period of expansion were faced with a large scale decline of demand, with a concomitant deterioration as communities which had consequences not only for the organization of their immediate community life but also for the rural areas tributary to them. In the rural areas themselves, the decline of the population in numbers, the decrease in the number of farmsteads, and the rising age levels of the farm families, meant the depopulation of schools and churches and other rural organizations, and increasing isolations for farm families remaining on the farm.

The continuous reorganization of agricultural production and its impact upon the dependent economic agencies are products of powerful economic forces. On economic criteria, the changes are desirable and necessary since they result in greater economic efficiency in the wheat economy. However, the changes imposed by economic circumstances are inevitably painful for many of the individuals involved. The economic aspects of farming in Western Canada are closely bound up with the home and family life. All members of the family contribute labour to the enterprise and draw their sustenance from the joint product. In this environment a reluctance to forsake the agricultural way of life very frequently develops. If only the younger people were compelled to leave agriculture, the social costs could perhaps be easily borne; but the low level of the average farm family income implies that many of the older generation should also leave and for them the social cost involved is particularly great. Similar social costs are borne by members of the market communities in the areas of declining population, but their movement does not so often imply a change in occupation as well as in residence.

In addition to providing opportunities in agriculture for some 1,500 families, the S.S.R.P., in common with other irrigation projects, would provide the basis for the

closer community life which is disappearing over much of the rural area affected. Within that area, the social problems, with respect to community services, utilities, and home surroundings that are characteristics of rural communities experiencing population decline, would be overcome. The enhancement of individual and group amenities would be enjoyed by the inhabitants of the market centres in the region as well as by the members of the farm families involved.

In the *Summary Report* of the P.F.R.A. the importance of the social benefits that would accompany a project like the S.S.R.P. is recognized in the following terms:

> At the end, but possibly the most important benefits to be derived from the irrigation development envisaged, are the home and living amenities associated with an irrigation farming community. With water on a dry land plain are given the opportunity and encouragement of working miracles in the landscaping and beautifying of the home surroundings. The garden can be counted upon to provide more and a greater variety to the family living. There are certain utilities and home conveniences, such as electricity, which are more readily obtainable in a more closely settled community associated with irrigation farming than with the more extensive dry land type, not to mention an assured supply of water at usually less cost. Then, there are other community services—business, education and social,—as well as roads made possible at lower cost for the number served by the more compact settlements with an intensive type of agriculture.[32]

Finally, there are the recreational benefits that would accompany the project. A summary statement of these benefits, based on the special study of the recreational aspects of the S.S.R.P. prepared by J. A. Boan, may be quoted:

> The South Saskatchewan River project is unique in the magnitude of the recreation benefits to be expected. It not only will provide a reservoir with a shore line of almost 500 miles in length, but as well will restore Last Mountain and Little Manitou Lakes and stabilize the lakes in the Qu'Appelle Valley. As a result, at least two-thirds of the people of the province will be within a two-hour auto journey of a large body of water created or improved by this project. For the first time, for many people, there will be an opportunity to enjoy outdoor recreation on a grand scale, and for everyone there will be new facilities for hunting, fishing, swimming, boating, picnicking and camping.
>
> The reservoir is expected to produce the fish normally inhabiting the Saskatchewan River, especially pike, pickerel and gold-eye; and the improved water level in the lakes beneficially affected should increase considerably fish populations there. Bird populations would grow, particularly migratory birds, because of the surface water available consequent upon irrigation practices. The irrigation areas would most probably encourage pheasant propagation. This, at least, has been the experience in the irrigation districts in Alberta and in the Dakotas.
>
> Because of the intangible nature of recreation benefits they are incapable of expression in monetary terms. Yet they are real and tremendously important. An estimate of the value of the water is therefore put forward, based on one United States experience. In this case a per-acre value is placed on the water surface; and the State pays the developing agency such a sum annually in recognition of the recreational resources created. Scaled down to suit a less densely populated area, the comparable annual payment amounting to $90,000 a year might be realized here. Such a "water rental" would find justification in the great recreation benefits, of an intangible nature, that are provided. Not only would the project increase the tourist trade, it would add qualitatively to living in an area almost devoid of natural trees, lakes and streams and good sites for parks. In providing basic facilities for outdoor recreation, the countless human benefits that are possible include better health, educational and aesthetic opportunities, and countless factors needed for better and fuller living.[33]

[32] *Op. Cit.*, p. 25.

[33] *Op. Cit.*, pp. 30-31.

Appendix

FARM BUDGET SUMMARIES FOR RESPECTIVE TYPES OF FARMS, NORMAL FARM SIZE AND DEVELOPED TYPES OF FARMING IN THE TRANSITIONAL PERIOD (YEAR 20) 1921-40 PRICE-COST ASSUMPTION

A: Specialty Farm

Kind	Acres	Land Use Summary				Sales		
		Acre yield	Total	Farm Used		Am't	Price	Value
				Seed	Feed			
							$ cts.	$
Irrigated area	100							
Wheat	18	27 bu.	486	27	47	412	0 86	354
Oats	15	41 bu.	615	30	585	.....	0 36	.....
Barley	7	35 bu.	245	13	225	7	0 45	3
Alfalfa hay	12	2 t.	24	.....	24	.....	9 45	.....
Sugar beets	30	12 t.	360	.....	.....	360	7 00	2,520
Pasture	9	.....	.....	.....	.....	.....	.....	.....
Summer-fallow	9	.....	.....	.....	.....	.....	.....	.....
Dryland Area	20							
Wheat	6	12 bu.	72	9	.....	63	0 86	54
Summer-fallow	4	.....	.....	.....	.....	.....	.....	.....
Waste pasture	10	.....	.....	.....	.....	.....	.....	.....
Total farm area	120	.....	.....	.....	.....	.....	.....	2,931

Kind	Livestock Summary					Investments(2)
	Ave. No.	Farm used	No.	Sales (1) Price	Value	
Horses	2					
Dairy cows	6	.....	1	4 00	cwt. 48	Buildings
Other cattle	10	1	3	6 25	cwt. 225	$4,700
Sows	2	.....	1	25 00	ea. 25	Machinery
Other hogs	20	1	18	8 00	cwt. 288	$4,490
Poultry	75	25	36	0 50	ea. 18	
Total	.....	.....	.....	.....	604	

Livestock Product Sales (3)

Butterfat	630 lbs. @	$0.26	$ 164
Eggs	440 doz. @	0.18	79
		Total	$ 243

(1) Adjusted to assumed weights and grades for selected type of enterprise.
(2) Assumed new cost for given cost level.
(3) Allowing home use as assumed for normal farm family.

OPERATING EXPENSES

Tractor operation	$ 296
Truck operation	90
Machinery repairs	139
Blacksmith, welding, etc.	20
Small hardware	14
Misc. gas, oil, grease	5
Seed and seed treatment	95
Fertilizer	65
Weed, insect sprays	45
Labour and board	860
Custom work	87
Taxes	44
Real estate upkeep	60
Fire insurance	10
Electricity	45
Telephone	15
Livestock purchases	16
Feeds and supplements	85
Veterinary, medicines	20
Car allowance	75
Total operating expenses	2,036

INCOME SUMMARY

	Total	Per acre
Gross farm receipts	$3,778	$37.78
Operating expenses	2,036	20.36
Net operating return	1,742	17.42
Depreciation	458	4.58
Net farm income	1,284	12.84
Capitalization		
Improvements, equipment	242	2.42
Non-irrigable land	8	0.08
Total	250	2.50
Operator and irrigation and land return	1,034	10.34
Family living A	600	6.00
Return to irrigation	434	4.34
Operator and irrigation return	1,034	10.34
Family living B	850	8.50
Return to irrigation	184	1.84

B: Grain-Livestock Farm

Kind	Acres	Land Use Summary				Sales		
		Acre yield	Total	Farm Seed	Used Feed	Am't	Price	Value
							$ cts.	$
Irrigated area	140							
Wheat	54	27 bu.	1,458	81	80	1,297	0 86	1,115
Oats	18	41 bu.	738	36	615	87	0 36	31
Barley	16	35 bu.	560	28	488	44	0 45	20
Alfalfa hay	20	2 t.	40	.....	40	.....	.....	.....
Pasture	10	.....	.....	.....	.....	.....	.....	.....
Summer-fallow	22	.....	.....	.....	.....	.....	.....	.....
Dryland area	260							
Wheat	25	12	300	33	.....	267	0 86	230
Summer-fallow	15	.....	.....	.....	.....	.....	.....	.....
Waste pasture	220	.....	.....	.....	.....	.....	.....	.....
Total farm area	400							1,396

Kind	Livestock Summary					Investments[2]
	Ave. No.	Farm used	No.	Sales [1] Price	Value	
Horses	2					
Beef cows	17	.....	2	4 00	cwt. 96	Buildings
Other cattle	31	1	12½	6 75	cwt. 1,055	$4,875
Sows	2	.....	1	25 00	ea. 25	Machinery
Other Hogs	14	1	12	8 00	cwt. 102	$4,303
Poultry	125	.....	80	0 50	ea. 40	
Total	.....	.....	.....	.....	1,408	

Livestock Product Sales [1]

Eggs.....900 doz. @ $0.18..... $ 162

(1) Adjusted to assumed weights and grades for selected type of enterprise.
(2) Assumed new cost for given cost level.
(3) Allowing home use as assumed for normal farm family.

OPERATING EXPENSES

Tractor operation	$ 244
Truck operation	105
Machinery repairs	142
Blacksmith, welding, etc	20
Small hardware	10
Misc. gas, oil, grease	5
Seed and seed treatment	14
Fertilizer	30
Weed, insect sprays	30
Labour and board	250
Taxes	83
Real estate upkeep	62
Fire insurance	10
Electricity	45
Telephone	15
Livestock purchases	26
Feeds and supplements	30
Veterinary, medicines	20
Car allowance	75
Total operating expenses	1,196

INCOME SUMMARY

	Total	Per acre
Gross farm receipts	$2,966	$21.19
Operating expenses	1,196	8.54
Net operating return	1,770	12.65
Depreciation	460	3.29
Net farm income	1,310	9.36
Capitalization		
Improvements, equipment	255	1.82
Non-irrigable land	48	0.34
Total	303	2.16
Operator and irrigation return	1,007	7.20
Family living A	600	4.29
Return to irrigation	407	2.91
Operator and irrigation return	1,007	7.20
Family living B	850	6.07
Return to irrigation	157	1.13

C: Grain Farm

Kind	Acres	Land Use Summary				Sales		
		Acre yield	Total	Farm Seed	Used Feed	Am't	Price	Value
							$ cts.	$
Irrigated area	180							
Wheat	94	27 bu.	2,538	141	63	2,334	0 86	2,007
Oats	20	41 bu.	820	40	480	300	0 36	108
Barley	11	35 bu.	385	19	330	36	0 45	16
Alfalfa hay	20	2 t.	40	.....	25	15	9 25	139
Pasture	5	.....	.....	.....	.....	.....	.....	.....
Summer-fallow	30	.....	.....	.....	.....	.....	.....	.....
Dryland area	100							
Wheat	34	12 bu.	408	43	.....	365	0 86	314
Summer-fallow	21	.....	.....	.....	.....	.....	.....	.....
Pasture	45	.....	.....	.....	.....	.....	.....	.....
Total farm area	280	.....	.....	.....	.....	.....	.....	2,584

Kind	Livestock Summary					Investments(2)
	Ave. No.	Farm used	No.	Sales (1) Price	Value	
Horses	2					
Beef cows	4	.....	5	4 00	cwt. 24	Buildings
Other cattle	7	1	2	6 50	cwt. 156	$4,650
Feeders	6	.....	6	6 50	cwt. 448	Machinery
Sows	2	.....	1	25 00	ea. 25	$6,070
Other hogs	14	1	12	8 00	cwt. 192	
Poultry	100	.....	56	0 50	ea. 28	
Total	.....	.....	.....	.....	873	

Livestock Product Sales (3)

Butterfat ..... 210 lb. @ $0.26	$ 55
Eggs ..... 667 doz. @ 0.18	120
Total	$ 175

(1) Adjusted to assumed weights and grades for selected type of enterprise.
(2) Assumed new cost for given cost level.
(3) Allowing home use as assumed for normal farm family.

OPERATING EXPENSES

Tractor operation	$ 255
Truck operation	120
Machinery repairs	196
Blacksmith, welding, etc.	20
Small hardware	10
Misc. gas, oil, grease	5
Seed and seed treatment	10
Fertilizer	65
Weed, insect sprays	40
Labour and board	310
Taxes	94
Real estate upkeep	56
Fire insurance	10
Electricity	45
Telephone	15
Livestock purchases	266
Feeds and supplements	25
Veterinary, medicines	15
Car allowance	100
Total operating expenses	1,657

INCOME SUMMARY

	Total	Per acre
Gross farm receipts	$3,632	$20.18
Operating expenses	1,657	9.21
Net operating return	1,975	10.97
Depreciation (1)	562	3.12
Net farm income	1,413	7.85
Capitalization		
Improvements, equipment (2)	274	1.52
Non-irrigable land (3)	40	0.22
Total	314	1.74
Operator and irrigation return	1,099	6.11
Family living A	600	3.33
Return to irrigation	499	2.78
Operator and irrigation return	1,099	6.11
Family living B	850	4.72
Return to irrigation	249	1.39

(1) Calculated on buildings, fences, wells and equipment, rates adjusted for types and comparative efficiencies.
(2) Based on one-half of assumed new cost of buildings, fences, wells and equipment at 5 per cent.
(3) Interest at 5 per cent on assessed value of land.

CHAPTER 9

Immediate Impact On the Economy

Short-Run Effects of South Saskatchewan River Project

THIS chapter considers the nature of the South Saskatchewan River Project to determine, as far as possible, the character and size of the immediate effects of its construction upon the economy. An appreciation of the *real* cost of the project can only be achieved through study of these effects. These effects depend on the nature of the project, but also upon the economic conditions prevailing throughout the period of construction. For this reason, the timing of construction and the extent of possible variations in the rate of construction during the construction period have a bearing on the cost and, since the end in view is to maximize the benefits from the project, must be taken into account.

General Considerations in the Cost of the South Saskatchewan River Project

As a public investment project, the S.S.R.P. must be considered within the general framework of current and prospective levels of public and private investment. The previous chapter emphasized the long-run effects of the S.S.R.P., identifying these effects as the yield or return from the project to the Canadian people. Variation within a short period of years in the timing of the construction of the project would have only a modest effect upon the magnitude of the yield or return from the project in view of the long lag between initiation and maturity and the nature of the time horizon in which the yield of the mature project would accrue. However, a variation in timing within the same limits could have a substantial effect upon the *real* cost of the project. Hitherto the cost of the S.S.R.P. has been expressed as the sum of money costs of construction measured in current prices. This expression of cost is inadequate. It is the purpose of the present chapter to examine at some length the broader concept of *real* cost and its implications for the project.

The economic resources of Canada have been fully employed in recent years. Gross investment has accounted for more than 20 per cent of the gross national expenditure on finished goods and services. This demand for investment goods implies a substantial diversion of labour and other economic resources into the production of investment goods. The remainder of the resources have been employed, either directly or indirectly, in production of goods and services for consumers and of goods, other than capital

This Chapter was prepared for this Report by Dr. K. A. H. Buckley, University of Saskatchewan.

goods, and services for governments. It is apparent that, in addition to the long-run production or income effects dealt with in the previous chapter, investment contributes in the short-run to current employment of a large proportion of the labour and other economic resources of the country. The employment of these resources in the production of investment goods is the real cost of investment to the community. The community, in effect, foregoes current consumption to the extent that labour and other resources, which might have produced consumer goods, are employed instead in the production of investment goods which will increase the flow of consumption goods in the future.[1]

In this context, the real cost of any specific project is the foregone alternative, the other thing or things that the resources absorbed in the project would have produced. If the resources involved have no alternative, there is no real cost. If, at the time of construction of the S.S.R.P., some part of the required labour were unemployed, if unused capacity existed in domestic plants producing needed equipment and materials, or if some portion of the raw materials absorbed had no other present or future use, the real cost would be accordingly reduced. The project would compete only with alternative public projects which required the same resources.

Moreover, under such circumstances, receipts of benefits need not be limited to the ones specifically to be attributed to the project itself. If there are unused labour, unused capacity in domestic plants, and unused raw materials available to the S.S.R.P., it would be most probable that there would be other slacks in the economy. The spending of incomes earned from the project would generate secondary income and employment in other industries and to some degree at least take up these slacks.

An inverse consideration in the cost of public projects (and one which is currently relevant to the S.S.R.P.) arises under conditions where the economy is already at the level of full employment and suffering from inflationary pressures. Inflation brings burdens to some and benefits to others which must be taken into account before a decision can be made, for or against, the initiation of a new project. Inflation tends to redistribute both the real income and the claims to the real wealth of the community in a manner which may have little or no relation either to justice or to the economic efficiencies of those who lose and those who gain. If, of course, the incidence of the effects can be reliably ascertained, and if they can be offset effectively by fiscal or other means, such possibilities may be elements to be considered when choices are being made among alter-

[1] It is in this peculiar sense that economists frequently define the term "saving". As indicated above, "saving" means that consumers are deprived of certain goods and services that they might otherwise have enjoyed, in order that the output of investment goods may be increased. Sums of money saved from current income are spent to buy materials and labour services for various types of construction, the production of machinery and equipment, and for the accumulation of inventories. These sums may be spent by private entrepreneurs who acquire them through the bond market or otherwise, or they may be spent by governments, which acquire them by borrowing from the savers. Government investment may also be financed through taxation. When the flows of funds for privately financed investment are exactly equal to the demands for them at current rates of interest, and when the costs of publicly financed investment are fully covered by current taxation and/or current borrowing from private savings, then the economy is in a state of balance, and it is free from the threat of both inflation and deflation. The result of carrying out plans for public and private investment on a larger scale than this, is inflation; on a smaller scale, it is deflation.

native lines of action. But the possibility of redressing, through taxation and transfer payments, the adverse effects of inflation may be quite beyond the rather rough instruments of fiscal policy. The facts respecting the effects to be counterbalanced may not be evident until some time after their occasions have passed by. Although it is very difficult indeed to evaluate in money terms the effects of a new project upon the national economic welfare, some allowance must be made for them in the reckoning of costs for a public project where it is likely to create, or to enlarge, inflationary pressures on the economy.

It is for such reasons that in recent years, and particularly since mid-1950, it has been the policy of the federal government to postpone public construction projects that can be deferred on the grounds that the current high level of investment demand is an important factor in the prevailing inflation and that public investment adds to the pressure upon the price level. If the specific economic resources required to meet any net increase in government expenditures are already employed in some other use, the increase in the expenditures will tend to raise prices. So again, on this account, it is necessary to consider the present and possible future status of the specific resources required in the construction of the S.S.R.P.

Methods of Financing the S.S.R.P.[2]

With respect to financing the project, the government of the day would presumably make annual appropriations to the project as its construction was carried out. These might be made under the ordinary budgetary expenditures of the department concerned. Alternatively, a special government corporation might be created, as in the case of the St. Lawrence Seaway project. Accounts under such a proceeding would be set up separately from the budget accounts and the annual advances made to the S.S.R.P. would be entered under non-budgetary disbursements of the government. Under the first procedure, the budgetary surplus of the government would be decreased (or the deficit increased) by the expenditure; under the second procedure, the budgetary surplus (or deficit) would not be affected. But this is a matter only of bookkeeping. The cash surplus, as distinct from the budgetary surplus, would be affected in exactly the same manner and to the same degree by an annual advance of a given size.

The alternatives conditioning the real cost of the project to the nation may be viewed in terms of the effects upon the national budget and the national disbursements, or non-budgeting items. If economic conditions are so inflationary, or so nearly inflationary, that the government of the day feels its expenditures cannot be increased, the nature of the projects curtailed or sacrificed in order to include the S.S.R.P. would be a measure of the real cost of the project. The cash surplus would not be affected.

If, on the other hand, budgetary or non-budgetary expenditures of the government are increased by the full size of annual disbursements to the S.S.R.P. under the same economic conditions, then either the cash surplus of the government is decreased or an actual deficit incurred. We may disregard

[2] This note on finance was prepared for the Commission by Dr. M. F. Timlin, University of Saskatchewan.

here the possible uses of the cash surplus impounded in the chartered banks or Bank of Canada as a counter-inflationary weapon and concentrate instead on the two alternatives of repayment of part of the public debt, or the necessity to resort to deficit financing.

If the amounts required for the annual appropriations for the project were to be used instead to redeem part of the public debt, before we could know its real cost, we should need to know the uses to which the recipients of funds would put the money received. If these had greater economic importance than the S.S.R.P., the real costs of the project would be too high to warrant its execution under such conditions. On the other hand, the possibility also enters that taxes might be cut to an equivalent amount and the real costs would then be determined by the sacrifices of taxpayers.

If the issue is that the government must borrow, then the effects or real cost would depend upon the places where the government goes to get its funds. If the government goes to the banking system under the economic conditions postulated above, then the effects will be to add to inflationary pressures, unless some other offsetting element is operating. If it goes to the Bank of Canada, the inflationary effects may be exaggerated through effects on the reserve ratios of the chartered banks. But even if the government goes to the bond market and sells bonds there, there is no certainty that the effects would not be inflationary. If the public to some degree regards the bonds purchased as an adequate substitute for savings balances in the banks, the funds loaned to the government and expended for the S.S.R.P. may be transferred from the inactive to the active accounts *via* this spending without offsetting transfers sufficient to rebuild the idle balances. The active circulation will be thereby enlarged.

Even taxing, to keep government revenues equal to expenditures, may have the same effect. It may result in some reduction of saving rather than in an exactly offsetting reduction of consumption spending. Consumption may be maintained in the first instance by a rate of flow of goods from retail and wholesale establishments which depletes inventories; this is disinvestment. After that, increased competition for consumption goods, in relation to supplies coming forward, will tend to increase their prices.

The crux of the matter is that there must be consistency between *planned investment* (private and public) and *planned saving* (voluntary and involuntary). A project of the nature of the S.S.R.P. can be *added* and stability can still be attained in the price structure, if the government is able to *induce* the extra saving either by the terms it offers lenders (voluntary saving) or by taxing in such a way that it actually reduces consumption (involuntary saving) by as much as investment is increased (growth and certain other factors in the economy being ignored here).

In the National Accounts, saving is always equal to investment. But these National Accounts make their reckoning after the *process* by which this equality is achieved is a matter of history. *Plans* for investment are made ahead of this process, and they may be quite inconsistent with plans for consumption and saving. If planned investment is in excess of planned saving, competition

for consumers' goods will enhance business profits, and enlarge business saving. In the first instance, consumers may, by an unexpected enlargement of their demands on retailers, diminish inventories and thus *disinvest* a portion of the accumulated stocks of the community. The ordinary reaction of retailers to this enhancement of demand is to raise prices. By this process their revenues are enlarged. If they attempt to rebuild the inventories by enlarging their own demands on their sources of supply, they may find themselves compelled to pass back a portion of the increase in revenue to meet increased prices for inventory replacements. But aggregate business profits throughout will be increased by the unexpected increases in revenues from sales.

If business firms themselves are attempting to make speculative increases in inventories over the same period, these effects may be exaggerated. If, for example, retailers and wholesalers are attempting to *increase* inventories in the face of unexpectedly large sales, they may increase demands on their own sources to an even greater extent through the use of funds derived from inactive working capital or from an expansion of bank borrowing. Competition will tend to raise the prices of the goods they purchase and to enlarge business profits of the firms from which they buy. Business savings will tend to be increased over and above the increase in consumers' expenditures, to parallel the increased inventory investments of other business units.

In the end, saving and investment will be equal to each other in the National Accounts. But the equality will have been brought about through rising prices and through transfers of claims to real income and wealth which may have very little to do with economic efficiency or real cost. They may in fact be determined as much by the relative degrees of monopoly characterizing supply sources as by genuine incapacity in these to adjust supplies to the increasing demands with the required speed. In a period of full employment, the equality between saving and investment is brought about through the price system, and the inequities of inflation are no less real because it can be demonstrated that saving equals investment in the National Accounts.

The year 1950 provides examples of this process. Consumers in this year, impelled probably by fears of shortages connected with the outbreak of the Korean war, spent a larger proportion of their disposable personal income than had been the case in the immediately preceding years. The result was a rise in consumers' prices, Similar expectations at the retailers' and wholesalers' levels impelled business firms to attempt to *increase* their inventories in spite of the increased sales. The total effect (taken with increased defence spending) was an increased pressure on sources of supply and rising prices at anterior stages in the production process, supported by an increase in currency and active bank deposits. The equality between saving and investment was brought about through the price system. That year in Canada, the National Accounts show nearly 60 per cent of gross capital investment to have been based on gross business saving. But the process of inflation lowered the real values of incomes and assets fixed in terms of money, and increased equity

rights, without reference to economic deserts. An increase in defence spending was one of the important elements in this situation. But similar effects can be connected with any increase in public or private investment above the level of planned savings when it is imposed on an economy where all the agents of production are already fully employed.

It would be possible to follow the same process, with the necessary changes, through a situation in which planned investment was assumed to be deficient, or alternatively, where planned savings were assumed to be excessive. The real cost could be shown to be *less* than the accounting costs of the project. If the alternative to the use of labour, equipment, and materials on the S.S.R.P. would be that they would otherwise remain to some degree *unused*, even though the project involved the government in deficit financing, the real costs of the project would be less than the accounting costs.

The essential point of the preceding paragraphs is that it is necessary to examine public projects like the S.S.R.P. with respect to the otherwise existing situation to ascertain probable economic effects. Timing of the project is a matter of the utmost importance The project may be timed so as to support the level of national income and employment. But it may also be timed in such a way that it induces or exaggerates inflation. There are moral as well as economic aspects connected with the use of the tax system and public investment to take real income and assets from one group of persons to give them to other groups.

Prospective Annual Outlays on the S.S.R.P.

The total cost of the S.S.R.P. in current prices has been estimated at $247,500,000. From the point of view of its immediate effects, the relevant consideration is not the total cost, but the annual outlay relative to total investment of the same character within the economy and, particularly, within the prairie region itself. The construction period cannot be forecasted precisely. However, for the purpose of illustration it will be assumed that the construction plan set forth in the P.F.R.A. Engineering Report would be followed.

The three major components of the project, their respective costs, and the assumed construction periods for each are shown in the following table:

—	Cost	Construction Period
	$	
Dam and Reservoir...	139,800,000	8 years beginning Year 1
Power Plant.....	24,000,000	2 years beginning Year 7
Irrigation System (not including pumping stations)	45,000,000	20 years beginning Years 5 and 6

On the basis of this plan, average annual expenditure would run at about $17,500,000 a year, from Year 1 to Year 5, rise to about $20,000,000 in Year 6 when the irrigation structures were begun, and to about $32,000,000 in Years 7 and 8 with the installation of power plant and equipment. In Year 9 the annual outlay would then drop to about $3,000,000 and vary thereafter between $400,000 and $2,800,000.

While it is desirable to begin using water for irrigation as soon as possible, it is also desirable not to flood the market with irrigated land. This implies beginning the irrigation structures in Year 6 and developing the system over a period sufficiently long, perhaps 15 to 20 years, to bring the new land into the market at a reasonable rate. However, the whole construction process could be accelerated if prevailing conditions warranted.

The large outlays of Years 7 and 8 could be reduced by prolonging the final stages in the construction of the dam and reservoir and reducing the rate of construction of the power plant and the initial irrigation structures. Outlays in the other years could be similarly reduced.

One critical stage in construction, the closure of the river, when a rigid minimum of work would have to be done, establishes the minimum peak expenditure. The year of river closure is not fixed. The closure operations could begin on August 1, in either of the 4th, 5th or 6th Years and, once the commitment had been made, continue to June 1st of the following Year. Assuming that other operations continued at their normal pace, outlays of about $17,500,000 would be made in the two years affected by closure. Suspension of other operations would allow a large reduction in total outlays at this juncture. On a rough estimate, the cost of the more expensive method of closure proposed would not exceed $7,500,000.

Annual Outlays Compared with Investment in Canada and in the Prairie Region. —On the basis of the foregoing discussion, it may be concluded that so long as market conditions did not imply variation in the rate of construction, the annual outlay in the S.S.R.P. would rise from about $17,500,000 in the 1st Year, to $32,000,000 in the 7th and 8th Years and then fall below $3,000,000.

Investment outlays of this order appear small in comparison with recent levels of investment in Canada. In 1951, new investment in durable physical assets, that is, construction plus machinery and equipment, was $4,581 million. Government departments accounted for $584 million of this total. New investment in the prairie region was almost a billion dollars in 1951 and Government departments spent $124 million of the total of $956 million. The following table indicates the level of this type of investment in recent years.

TABLE I

Direct Government and other New Investment in Durable Physical Assets, Canada and Prairie Provinces, 1948-1951

(Millions of Dollars)

Year	Canada			Prairie Provinces		
	Direct Gov't	Other	Total	Direct Gov't	Other	Total
1948	394	2,781	3,175	90	546	636
1949	407	3,094	3,501	97	666	763
1950	446	3,369	3,815	99	753	852
1951	584	3,997	4,581	124	832	956

Source: Economics Division, Department of Trade and Commerce, Ottawa.

The S.S.R.P. is a public engineering project and may appropriately be compared

with new construction as a whole and engineering construction in particular, in Canada and the Prairie Provinces. In view of the high degree of regional and occupational immobility characteristic of the labour force in the short run, a comparison of annual expenditures on the S.S.R.P. with total engineering construction in the prairie regions is probably of most significance.

In 1951 the investment in new structures of all kinds was $2,688 million; Government departments alone spent $517 million on new construction, of which $370 million was for engineering construction. Total engineering construction, public and private, was $860 million.

New construction in the Prairie Provinces was valued at $499 million in 1951. Of this total, $196 million was spent on engineering construction of all types. Direct government expenditures on engineering construction in the prairie region were $83 million.

Over the past four years just under 20 per cent of total construction in Canada was undertaken in the prairie provinces. Roughly the same regional distribution held with respect to engineering construction prior to 1950. Beginning in 1950 there has been both an absolute and a relative increase in engineering construction in the Prairie region. In 1950, twenty-five per cent, and in 1951, 23 per cent of the national total of engineering construction was undertaken in the Prairie Provinces.

The following table shows the pattern of engineering and other construction in the country as a whole, and in the Prairie Provinces from 1948 to 1951.

TABLE II

1. New Construction in Canada and the Prairie Region 1948-1951

(Millions of Dollars)

Year	Canada			Prairies		
	Direct Gov't	Other	Total	Direct Gov't	Other	Total
1948	314	1,563	1,877	75	272	347
1949	338	1,786	2,124	80	341	421
1950	398	1,968	2,366	87	382	469
1951	517	2,171	2,688	107	392	499

2. New Engineering Construction in Canada and the Prairie Region, 1948-1951

(Millions of Dollars)

Year	Canada			Prairies		
	Direct Gov't	Other	Total	Direct Gov't	Other	Total
1948	252	325	577	58	51	109
1949	262	379	641	60	76	136
1950	318	446	764	71	122	193
1951	370	490	860	83	113	196

Source: Economics Division, Department of Trade and Commerce, Ottawa.

The Economic Resources Required by the S.S.R.P.

Money outlays of the order of $17 to $32 million a year do not appear large in comparison with construction activity in the country as a whole. A better perspective on the effects of the S.S.R.P. may be obtained by considering the physical resources required. The resource demands of the project may be broken down into materials, on-site labour, and machinery and equipment.

Each of these will be examined with respect to: (1) type; (2) numbers or amounts required; (3) sources of supply, and (4) the implications of the project's demands.

Materials.—The major material requirements of the S.S.R.P. are the various types of fill. A total of approximately 57,500,000 cubic yards of fill will be required: 41 million cubic yards in the main dam, conduits and spillway; and the balance in the Elbow railway crossing and the two minor dams. The fill materials are available at or near the site. Since these materials have no apparent alternative use, their use in the S.S.R.P. will involve little or no cost.

Requirements for riprap are 702,000 cubic yards. This rock may have to be brought from the Frank Slide in Alberta. There is no problem in its supply.

The project will also require about 1,000,000 cubic yards of concrete. The concrete aggregates are located at or near the site and their use involves no apparent cost. A large portion of the concrete (placed with either light or heavy reinforcement) will require about six bags of cement per cubic yard. The remaining concrete will require four bags of cement per cubic yard. The total cement demand will be approximately 6,000,000 bags.[3]

The cement demand is heavy in the 2nd and 3rd Years, rising from about a quarter of a million bags in Year 1 to about 2·5 million bags in Year 2, 1·6 million in Year 3 and ·8 million in Year 4. Demand is small in Years 5 and 6 and about the same in Years 7 and 8 as in Year 1.

The cement would come from Exshaw, Alberta, and from Winnipeg. Present capacity at Exshaw is 6,400,000 bags a year. This will be increased by 4,800,000 bags by the spring of 1953. The capacity at Winnipeg is 6,400,000 bags a year. There has been a considerable pressure on plant capacity in the West in recent years. The expansion at Exshaw is expected to ease the situation. If the demand of the S.S.R.P. were imposed on a total demand of the current level there should be no price effect, and, according to officials in the industry, if there were advance notice on the orders, there would be no difficulty in securing delivery of the quantities required.

There are three types of steel required; 30,580 tons of reinforcing steel, and 22,600 tons of steel plate and structural steel. Most of the latter is steel plate, of which 16,500 tons are specified for the penstocks alone. The structural steel required is of standard sizes. The bulk of the demand for reinforcing steel would fall in the first four years reflecting the concrete placement pattern. Unlike cement, the order for the reinforcing steel could be spread evenly over the first four years. This implies an annual demand of just under 8,000 tons in each of these years. Most of the structural steel would be required in Year 5 and the bulk of the plate steel in Years 7 and 8.

In terms of domestic capacity at the end of 1952, a demand for reinforcing steel of this size could be handled easily even if the present high level of demand continued. The structural steel required is a smaller item and would afford even less difficulty.

[3] On the basis of present plans, about four of this six million bags of cement will be Kalicrete Cement. Contemplated studies of the potential intensity of sulphate attack upon the large mass section of the conduits may lead to a reduction in the proportion of Kalicrete Cement required.

With respect to fabrication of both reinforcing and structural steel, plant capacity is available in the urban centres of Alberta, Saskatchewan and Manitoba.

The relation of the steel plate demand to present conditions of supply is not so favourable; steel plate is in short supply. Two mills in Hamilton produce the domestic supply of approximately 225,000 tons a year. In fabrication for penstocks, the plate must be stress relieved. The nearest domestic fabricator equipped to handle an order of this kind is in Montreal. However, since the plate is not required until the 7th and 8th Years of the construction period, the amount involved does not appear to be a major item.

There are no other material requirements of significant size. It may be concluded that the material demands of the S.S.R.P. could be met with comparative ease, even under prevailing conditions, with the possible exceptions of cement and steel plate. Most of the domestic plant affected by the material demands is in Western Canada.

Labour.—The total on-site labour requirement of the S.S.R.P. is estimated at 26,000,000 man-hours. Of these 18,000,000 are required in the construction of the main dam and reservoir and the remaining 8,000,000 in the construction of the power plant and irrigation system. While the flexibility of the project should be borne in mind, it may be assumed for the present purpose that the construction of dam and reservoir would proceed at an even pace. On the basis of 125 working days a year and 10-hour shifts, the average annual labour force required in the construction of the dam and reservoir would be 1,800 men.[4] The average requirement would rise with the initiation of construction of the irrigation system and power plant. Most of the 8,000,000 man-hours estimated for these latter structures would be spread over the 15 to 20 years allowed for the irrigation development.

A very large proportion of the labour, at least 75 per cent and perhaps 85 per cent, would require previous experience in the types of machine operation involved. The remaining labour would be unskilled, performing operations that do not require training.

It is difficult to set a distinct geographical limit on the labour market relevant to the S.S.R.P. In general, labour would be drawn from the prairie region as a whole, including the head of the lakes, particularly during the spring movement from that territory.

The male labour force in the Prairie Provinces at August 1951, was 787,000, of whom 390,000 were engaged in agriculture, 391,000 in non-agricultural occupations, and about 6,000 were without jobs and seeking work. 361,000 of this total force were paid workers. Table III shows the industrial distribution of male paid workers at August 1951.

TABLE III

Male Paid Workers by Industry in Prairie Provinces

(Thousands of persons 14 years and over)

Agriculture and other Primary Industries	41·3
Manufacturing	74·1
Construction	36·3
Transportation and Public Utilities	67·3
Trade, Finance, Service, Etc.	142·1
Total	361·1

Source: Dominion Bureau of Statistics, Labour Force Survey, Ottawa.

[4] The maximum length of the construction season is 154 working days. Average of working days is estimated at 125 for impervious fill, and 150 days for pervious fill and excavation of waste materials.

There were 16,500, 6,000 and 13,700 paid construction workers in Alberta, Saskatchewan and Manitoba, respectively, or a total of 36,300 in the region as a whole. A demand for 1,800 construction workers would constitute a significant proportion of this total. However, for that part of the 1,800 that could be unskilled, there are alternative sources. There were approximately 42,000 paid workers, and 73,000 unpaid family workers on prairie farms at August, 1951. In addition, there were 249,000 own-account workers, and about 27,000 employers in agricultural occupations. Farm operators, whether own-account or employer, are not a usual source of construction labour. However, each year there are local droughts in the region, and engineering construction projects can and do tap these localities for some part of their labour supply. Labour from this source, once acquired, has a much lower turn-over than the average turn-over among workers on engineering projects.

Any movement of workers out of agriculture may also be a potential source of unskilled construction labour. On the basis of the D.B.S. Labour Force Surveys, the total farm labour force in the Prairie Provinces declined from 536,000 in 1946 to 437,000 in 1951. However, the decline was more marked among females than among males. The number of males at the period of peak activity in agriculture declined from 427,000 to 404,000 over the same period. Statistical evidence is not available at the present time to determine in which occupational groups these declines took place. It seems probable that the drop was predominately among own-account and unpaid family workers, rather than among paid workers. There probably would be a certain amount of farm labour available for other work during the months of June and July, in between the spring and fall peaks of farm labour demand. The number probably would not be large at the present time. There continues to be a marked competition for labour between the construction industry and farming in the summer months, and the peak of the farm labour demand coincides with that of the construction industry.

Another potential source of unskilled labour is through immigration. The Federal government has brought in large numbers of workers in recent years for specific construction and farming jobs in addition to the regular flow of immigrants. In total, about 25,000 immigrants in 1951 gave their destination as the Prairie Provinces. It is estimated that at least 60 per cent of these would enter the labour force.

In general, it may be concluded that there is a potential supply of unskilled labour of sufficient size to meet the demands of the S.S.R.P. In view of the nature of supply, it is most unlikely that wage rates higher than those prevailing in construction would be necessary to attract this labour. However, if there is no slack in the labour market within the region, the attraction of this labour implies a real cost in terms of alternative production. If the alternative production for the unskilled labour required by the S.S.R.P. is in agriculture, which appears to be a reasonable assumption under present circumstances, the wages of paid workers in agriculture provide an approximate index of the real cost. On the other hand, the higher wage rate paid for unskilled labour on a project like the S.S.R.P. cannot be taken as a

measure of the benefit of the labour so employed unless it can be shown that the net productivity of labour used in the river project would be correspondingly greater than the productivity of agricultural workers. The conclusions of the previous chapter are relevant here.

The same general reasoning applies to the skilled and semi-skilled workers who make up the greater part of the labour force required. With full employment these would be drawn from other construction projects and in their case the actual wage rate paid would be an approximate index of the real cost.

There is a high level of demand for labour in the prairie region at the present time. Since the summer of 1951, when the decline in consumer demand began to affect employment levels in most other regions, the employment situation in the prairie region has been relatively more favourable than that in any other section of the country. Some of the contributing factors are:

1. The high level of industrial development, particularly in the Province of Alberta, has increased the demand for labour.
2. The volume of defence construction contracts is relatively large.
3. Many surplus workers have moved to British Columbia and the Lakehead area.
4. The high level of farm income has reduced the number of farmers seeking off-season employment.
5. The increase in population in the Prairies has been less marked than in other regions.

These demand and supply factors are reflected in the number of people seeking work through the National Employment Service. Table IV compares the employment situation in the prairie region with the four other major regions and Canada as a whole, on the basis of the National Employment Service statistics. These local labour market ratings are based on the ratio of the number of job applications to the estimated total of wage and salary workers in each local labour market area. It is apparent in Table IV that, relatively speaking, the pressure on the labour supply at the present time is much greater in the prairie region than elsewhere in the country.

TABLE IV

Local Labour Market Area Groupings, May 1, 1952.

Ratio Job Applications to all Wage and Salary Workers	Number of Areas					
	Canada	Atlantic	Quebec	Ontario	Prairies	Pacific
15% and over.....	32	9	18	3	.....	2
10—14·9%.....	26	3	17	3	1	2
5— 9·9%.....	78	15	8	35	8	12
0— 4·9%.....	42	.....	.....	20	20	2

Source: Economics and Research Branch, Department of Labour, Ottawa.

Table V indicates the trend of employment in 1951 and 1952 in the prairie region on the basis of the ratio of job applications to wage and salary workers. There is a total of 29 office areas (National Employment Service) in the region, which includes the Lakehead. It will be noted that the number of areas in which the ratio of job applications to number of wage and salary workers was under five per cent, was consistently larger in the first eight months of 1952 than in the corresponding months of 1951. In the

month of May 1951, for example, eleven local labour market areas were in the under-five-per cent class, while in May 1952, 20 market areas were in this class. The data of Table V demonstrate that the pressure on the labour supply, which was considerable during 1951, and particularly through the construction season, increased during 1952.

TABLE V

Local Labour Market Area Groupings, Prairie Region

Date	Distributions of Areas on Basis of Ratio of Job Applications to Number of Wage and Salary Workers				
	Over 15%	10—14·9%	5—9·9%	0—4·9%	0—4·9(a)
1951					
January 1	.....	.....	17	12	.....
February 1	1	3	17	8	.....
March 1	1	3	18	7	.....
April 1	.....	3	19	7	.....
May 1	.....	1	17	11	.....
June 1	.....	.....	2	22	5
July 1	.....	.....	.....	23	6
August 1	.....	.....	.....	22	7
September 1	.....	.....	.....	21	8
October 1	.....	.....	.....	23	6
November 1	.....	.....	1	23	5
December 1	.....	.....	3	25	1
1952					
January 1	.....	.....	13	16	.....
February 1	.....	1	18	10	.....
March 1	.....	2	19	8	.....
April 1	.....	3	20	6	.....
May 1	.....	1	8	20	.....
June 1	.....	.....	2	26	.....
July 1	.....	.....	.....	29(b)	.....

(a) With marked shortage in specific occupations.
(b) Including areas with marked shortages in specific occupations.

Source: Economics and Research Branch, Department of Labour, Ottawa.

Table VI shows the recent market ratings on the basis of applications for employment to total wage and salary workers in the five urban centres nearest the site of the S.S.R.P. None of these centres has experienced a surplus of labour; even during the winter season the ratio of application has not exceeded 10 per cent and, throughout the construction season, the ratio has been less than five per cent, with marked shortages in specific occupations prevailing for several months in Edmonton, Calgary and Moose Jaw, during 1951. It may be noted that, beginning in May 1952, the ratios were lower in 1952 than in 1951 in four of the five cities, reflecting the tighter labour situation of 1952.

TABLE VI

Labour Market Ratings of Selected Areas in the Prairie Region

	Edmonton	Calgary	Saskatoon	Moose Jaw	Regina
1951					
January	3	3	3	3	3
February	3	3	3	3	3
March	3	3	3	2	3
April	3	3	3	3	3
May	3	3	3	3	3
June	4	4	4	4	5
July	5	5	4	5	4
August	5	5	4	5	4
September	5	5	4	5	4
October	5	5	4	5	4
November	5	3	3	4	4
December	4	3	4	4	4
1952					
January	3	3	3	3	3
February	3	3	3	3	3
March	3	3	3	3	3
April	3	3	3	3	3
May	3	4	4	4	4
June	4	4	4	4	5
July	4	4	4	4	4

Rating: Ratio of Applicants for Employment on file with National Employment Service to all Wage and Salary Workers.

1—15 per cent and over
2—10-14·9 per cent
3— 5- 9·9 per cent
4— 0- 4·9 per cent
5— 0- 4·9 per cent—with marked shortages in specific occupations.

Source: Economics and Research Branch, Department of Labour, Ottawa.

It was pointed out above that under full employment conditions, the S.S.R.P. could probably draw some labour from the supply currently available to agriculture because of the differential in wage rates in construction and agriculture. While this is favourable from the point of view of the construction industry and implies a lower level of real cost for the project than if the labour were drawn from other construction projects, it would tend to aggravate the problem of the persistent shortage of farm labour characteristic of the region in recent years. Table VII shows the number of vacancies for farm hands registered with the National Employment Service at the end of each month since January, 1950. These data may understate the demand because not all employers register this need with the Employment Service.

TABLE VII

Vacancies for Farm and Harvest Hands, Male Prairie Region, 1950-1952
(as at end of each month)

	1950	1951	1952
January	83	78	153
February	140	156	267
March	378	428	711
April	697	1,047	1,851
May	478	765	719
June	327	319	539
July	531	482	673
August	766	659	–
September	1,030	1,136	–
October	418	525	–
November	137	325	–
December	61	117	–

Source: Economics and Research Branch, Department of Labour, Ottawa.

Table VIII shows the number of areas with shortages of farm labour in the prairie region in 1951 and 1952. It will be noted that no area has reported a surplus of farm labour in any month during this period. There is no indication in either Table that the farm labour picture is improving (as might be expected with the continuing large scale capital outlays on prairie farms). In fact, the data support the opposite view.

TABLE VIII

Number of Areas with Farm Labour Shortages and/or Surpluses in Prairie Region, 1951 and 1952

Date		Farm Hands Surplus	Farm Hands Shortage
1951	March		
	April	-	1
	May	-	6
	June	-	10
	July	-	3
	August	-	6
	September	-	8
	October	-	10
	November	-	3
	December	-	1
1952	January	-	-
	February	-	-
	March	-	-
	April	-	6
	May	-	12
	June	-	6
	July	-	4

Source: Economics and Research Branch, Department of Labour, Ottawa.

On the basis of this survey of the labour market in the prairie region, it may be concluded that labour is in short supply at the present time and particularly during the construction season. If the S.S.R.P. were initiated under conditions like those prevailing in 1952, the demand for labour of the types and in the amounts required would add to the pressure on the labour markets affected.

A considerable part of the labour required would have an alternative employment opportunity on farms at lower wage rates than are paid in construction. While there would be a tendency for farm wages to rise

with an increased shortage of farm labour, the wage effect would probably be negligible in view of the relatively small number of workers involved. With no appreciable wage effect, the real cost of the labour drawn from construction and agriculture would be indicated by the respective wage rates prevailing there. In the absence of unemployment, any labour drawn from local drought regions would also involve a real cost in this sense.

If the foregoing analysis is correct, a major part of the real cost of the initiation of the S.S.R.P. in a period of labour shortage is reflected in the total wage bill adjusted for the proportion of labour drawn from agriculture and the difference in the wage rates. Immediately any easing of the labour supply occurs and to the extent that the employed labour has no alternative employment opportunity, the real cost will be reduced accordingly. The important point in this conclusion is that the real cost of the S.S.R.P. is variable. If it were constructed under conditions like those described above, the real cost would approach its maximum. But, if conditions in the labour market began to ease, then, immediately and to the extent that surpluses of the relevant labour appeared, the real cost would be reduced.

Machinery and Equipment.—Construction firms engaged in earth moving projects are among the most mechanized enterprises in the construction field. The firm, or firms, with whom contracts on the dam and reservoir are made, will require a considerable quantity of large-scale, modern machinery and equipment. The timing and quantity of these equipment demands will be considered in this section.

If the construction program set forth above were followed, annual expenditure on the dam and reservoir would run at about $17·5 million a year. According to estimates from the files of the Section on Public Projects, Department of Reconstruction and Supply, equipment rentals on the South Saskatchewan Project would be approximately 43 per cent of the total cost of the project exclusive of overhead and profit. Allowing eight to ten per cent for overhead and profit, 40 per cent of the total cost may be taken as an approximate estimate of rentals.

This estimate of rentals excludes labour employed on the site in equipment operation. The items of fixed cost (the basic rental) covered in the conventional engineering formula, are depreciation, interest on capital invested in equipment, maintenance and repairs, insurance, and license and tax payments. The sum of these is called the basic rental charge. The operating costs, which are added to the basic charge, cover fuel, oil and grease, transportation costs, and supervision. In addition, on any one job there is a profit allowance commensurate with the risk involved to the owner of the machine. All of these items of cost are implicitly included in the price tenders of the contracting firms. When the firm receives a contract, it must already own or be in a position to assemble the equipment for the job.

For the present purpose the interest is in the demand for new machinery and equipment that would accompany the initiation of the S.S.R.P. On the basis of an examination of the breakdown of the basic rentals of heavy construction equipment and assuming that a full line of equipment was assembled

in the first year of the project, written off, and wholly replaced at the end of the fourth year, the total value of the machinery and equipment required would be about $12 million. Depreciation may be charged at 25 per cent on a straight line basis as this estimate assumes, but the equipment would hardly be scrapped and completely replaced at the end of four years of service.[5] Therefore, $12 million is an outside figure. Probably $9 to $10 millions of equipment at current prices would be sufficient.

The heaviest demand for machinery and equipment would occur at the beginning of the project. In view of the character of the project, a very large part of the equipment would have to be purchased in the United States. Initial expenditures would probably run from $3·5 million to $5 million and continue at a rate of about $1 million a year until the closure year. This full line of equipment, assembled by the 4th or 5th year, would then serve with minor additions through the remaining years of the construction period.

Annual expenditures on new machinery and equipment by the Canadian construction industry have averaged more than $50 million from 1947 to 1951. The expenditure was estimated at $62 million in 1951. The prospect for 1952 is an expenditure somewhat higher than in 1951. About 50 per cent of this type of machinery and equipment has been imported from the United States.[6] Since a specific description of the machinery and equipment required is not available, it is not possible to determine whether or not difficulties might be encountered in securing particular units from the manufacturers in the United States. It should be noted that if Canadian subsidiaries of large concerns in the United States received contracts on the project, the machinery and equipment would possibly be supplied by the parent firm or firms.

In conclusion, barring specific bottlenecks, the demand for machinery and equipment that would accompany the initiation of the S.S.R.P. does not appear to be large enough to have a significant effect upon the economy. It is of interest, from the point of view of the impact of the project, that the only direct leakage to imports of any size from the initial outlays on construction is the expenditure on machinery and equipment. The concomitant demand for foreign exchange is a relatively slight one.

Conclusion.—The present chapter has examined the S.S.R.P. to obtain perspective with respect to its size as a construction project, and to indicate the variable nature of its real cost. Assuming an eight-year construction period for the main dam and reservoir, and measuring its cost in current prices, the annual expenditures accompanying the construction of the project would run at about $17·5 million a year. The annual expenditures would rise to $20 million in Year 6, and to $32 million in Years 7 and 8, when construction began on the irrigation structures and the power plant. The relative

[5] The basic hourly rental, excluding operating rental of a Motorized Tournapull, list price about $40,000, is $12.00. The annual (basic) rental for a construction season of 150 days would be $18,000. The depreciation, plus five per cent interest, would be $12,000. The remaining $6,000 would cover maintenance and repair, insurance, licence and taxes.

[6] Data on investment by the construction industry were obtained from Economics Division, Department of Trade and Commerce, Ottawa.

size of the project as an engineering construction project is evident when these values are compared with the current levels of engineering construction in the prairie region and the country as a whole. Engineering construction was estimated in 1951 at $196 million in the Prairie Provinces, and at $860 million in Canada as a whole. It was forecast that, for the country as a whole, the value of engineering construction in 1952 would be $1071 billion. Some of the increase in 1952 was an increase in real construction, but much of it was the result of the rise in the level of construction costs.

A more fundamental view of, and a better perspective on, the relative impact upon the economy of the construction of the S.S.R.P. was obtained through a consideration of the types and quantities of on-site labour, materials, and machinery and equipment required by the project. On this view, the labour demand emerged as the strategic factor. The initiation of the project would create a demand for an annual average labour force of about 1800 construction workers. Some of these might come from other regions in the country, but most of the workers would be drawn from the regional markets. The construction labour force in 1951 in the prairie region was approximately 36,000. The demand for labour accompanying the initiation of the S.S.R.P., with a liberal allowance for unskilled workers, would constitute a significant proportion of this total. Other projects would be restricted to some extent if the present condition of construction labour shortage prevailed.

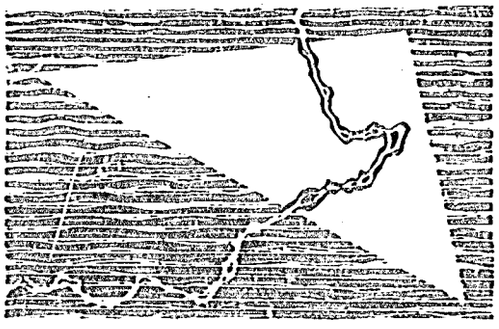
The demands for materials and machinery and equipment associated with the S.S.R.P. could be absorbed with greater ease. The bulk of the materials used have no apparent alternative use. The demands for other materials, with the possible exception of cement and steel plate, could be appropriately timed to impinge upon unused capacity in the plants involved.

Construction costs are highly inflated at the present time relative to any comparison base in the past thirty years. How they stand relative to future price levels is an open question. If the "creeping inflation" of recent years continues, it is possible that the present level of construction costs may compare favourably with construction costs that will prevail after the next recession in construction activity. This point is relevant to the financial aspects of the S.S.R.P. For example, the direction and the degree of future changes in the value of money will be of utmost concern to the individuals who farm the irrigation project, if they are required to liquidate a significant portion of the debt that will accompany the construction of the project. However, this and similar financial considerations are independent of the thesis of this chapter. The essential point developed above is that the real cost of the project depends, to a considerable extent, upon the economic conditions that prevail during its construction; and, subject to the minor qualifications cited in the text, the real cost varies in a roughly inverse fashion with the prevailing level of construction activity For this reason, if a maximum return from the South Saskatchewan Project is to be obtained, the question of the timing of its construction is important.

The S.S.R.P. is a public project of very slow fruition and one which will have an

indefinitely long life following its development. Variation within a period of a few years in the date of its completion will not greatly affect the value of its yield. Consequently, timing its construction to minimize its real cost would maximize the net benefit or return to the Canadian people.

Assuming that the S.S.R.P. is an optimum project in all other respects, it should be initiated as soon as there is sufficient slack in engineering construction in the western provinces. The strategic resource involved in its construction is labour. The season of initiation and the scale of operation could be determined within the statistical framework which has been designed by the Federal Government to measure current and prospective conditions in the relevant labour markets. Supplementary data are available in the regional surveys and forecasts of investment activity.



PART III

Appendix

Submissions and statements filed with the Commission

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A Brief Presented to the Royal Commission on the South Saskatchewan River Development.

Lethbridge, Alberta.
May 2, 1952.

Mr. Chairman:

I appreciate the invitation to appear before this commission in a capacity of a practical irrigationist. I am somewhat at a loss as to the nature of the report that is expected from me. Most of my life has been devoted to the study and benefits derived from irrigation and it is my desire to bring to your attention my opinions on irrigation development.

In the first place, I believe that irrigation schemes are the responsibility of the Federal and Provincial Governments and that they should shoulder the major costs of construction and administration.

As a point for discussion, I believe that it could easily be proven that irrigation has been of inestimable value to all the people who reside within the boundaries of an irrigation district.

The proof of this assertion is for you to drive from Medicine Hat to Taber and to note what takes place as you approach the section of the country that has been developed by irrigation.

I once had the pleasure of flying over the St. Mary's Irrigation project covering the developed and the undeveloped sections. What a contrast was evident. The abundant crops that were being produced on the irrigated sections compared with the undeveloped sections was so striking one would actually have to see to believe.

As further proof I would like to compare the area from Magrath to Taber with any other section in Western Canada for the natural wealth produced under irrigation. Here are just a few of the agricultural benefits derived: canning crops, livestock feeding, sugar beets, irrigated pastures for grazing livestock, and increased production of grain crops.

Another important point I would like to make—that by the storing of our waters it gives us flood control in addition to irrigation benefits. Water controlled in storage and applied to the land during the critical growing months of July and August has a tendency to seep back into the rivers.

The water stored and applied to the land of the St. Mary's project fortunately parallels the South Saskatchewan River project. This in itself is ample proof that instead of lowering the supply of water in the South Saskatchewan, it will at the time needed have a tendency to increase the normal flow.

The question now is whether the costs will be justified when compared with the benefits received from the irrigation and power that will be developed on the South Saskatchewan. This could be worked out by the engineers.

In my humble opinion, no matter what the cost it will eventually pay off.

Respectfully submitted,
PHIL BAKER, Chairman.
South Alberta Water Conservation Council.

Irrigation on the Canadian Prairies

BY W. L. JACOBSON, M.A.I.C.

(Reprinted from *Canadian Institute of Surveying*)

Irrigation on the Canadian prairies dates back to the early ranching days when water was diverted from the smaller streams, by the more provident stockmen, to flood native hay meadows for winter feed. According to official record there were at the close of the year 1894 some seventy ditches constructed and in operation in Southern Alberta and Western Assiniboia. By the end of 1895 this number had increased to one hundred and twelve and the acreage under constructed ditches susceptible of irrigation from these works amounted to the surprising figure of 79,271 acres, according to the report on irrigation and Canadian irrigation surveys issued in 1896.

The prolonged drought of the "Nineties" served, apparently, to greatly intensify the demand for irrigation. The North West Irrigation Act, which was passed by the Parliament of Canada in 1894, provided for the survey of irrigation projects and administration of water rights. Construction was pushed forward and many millions of private capital were expended on irrigation works during the two decades preceding World War I. The first large-scale irrigation project was completed and put into operation at Lethbridge in 1901 and other large projects were constructed early in the century at Strathmore, Brooks and Vauxhall.

The Lethbridge Northern irrigation project, the United Glenwoodville and the Mountain View projects were all constructed after World War I and a number of community projects have been completed since 1935 under the P.F.R.A. The principal projects in this group are located at Val Marie, Eastend, Maple Creek and Swift Current in Saskatchewan, and at Leavitt and Cessford in Alberta, while a number of existing projects have been extended. In addition, more than one thousand individual irrigation projects have been constructed under P.F.R.A. during the past decade.

Today there are more than 1,558 individual irrigation projects authorized under provincial statute in Alberta and Saskatchewan with a total irrigable area of 129,500 acres, while large scale irrigation works serve 574,200 acres, making an over-all total of some 703,700 acres served by irrigation in Alberta and Saskatchewan.

The situation now, in the main, is similar to conditions that prevailed after the war of 1914-18. The basic need or demand for irrigation has been intensified by the prolonged drought of the "Thirties" as irrigation development in the early days had been by the drought of the "Nineties." Agricultural prices are moving upward, while the demand for good farm land has increased steadily with the growing demand for living space and food. As a result the further expansion of irrigation is a live question in post war prairie agriculture and the purpose in preparing this paper is to discuss the main factors which determine the need and benefit of irrigation and to indicate the extent to which this type of agriculture may be successfully extended under Canadian prairie conditions.

More than half a century of experience on the Canadian prairies shows that the need and benefits of irrigation are determined largely by climate, topography, soil, cultural practice and the market value of the crops produced.

The need for irrigation is determined almost entirely by climatic factors, including low precipitation, unfavourable distribution and high evaporation losses.

The need for irrigation may be affected to some extent by soil type, particularly in areas of marginal rainfall where soils of high moisture retentive capacity may be dry farmed quite successfully while very light soils, under the same climatic conditions, would be subject to frequent crop failure. However, soil is secondary since climate is the primary factor in determining the need of irrigation.

Climate also plays a major role in determining the benefits that may be obtained from irrigation. High growing temperatures, long days of sunshine and long growing seasons free from killing frosts are main factors in creating environmental conditions favourable for growing a wide assortment of specialized crops, where irrigation is available to supply any moisture deficiency.

Favourable topography is important because rough land cannot be satisfactorily irrigated. Rough land has been the cause of many irrigation failures in the past and while modern earth moving equipment has greatly extended the areas of land that may be successfully developed for irrigation, it is a fact nevertheless that favourable topography, with uniform slopes between ditches, must still be considered a major factor in classifying any land for irrigation.

A wide range of soil types may be successfully irrigated, provided drainage is adequate and the root zone is free from excess salts. The medium to lighter textured soils are generally best suited for irrigation.

Soil type needs to be considered in relation to topography, particularly in respect to excess salts. For example, alkali is less likely to become a problem where topography is uniform, whereas any attempt to irrigate rough land, especially where the soil is light texture, is almost certain to develop alkali spots where seepage comes to the soil surface.

Intensive cultural methods and the proper use of soil improvement crops, green manures and fertilizers are essential in irrigation farming to ensure the highest possible level of production consistent with costs. Low yields result in increased cost of production and lead to failure, whereas high yields per acre afford a most effective means of reducing unit cost of production and increasing net returns from irrigation. The maintenance of an adequate supply of active organic matter in the soil and the use of fertilizers require special attention where water is applied to the land artificially and the natural balance between precipitation and plant growth is altered.

Finally, the crops produced must be marketable, either direct or through livestock, at prices high enough to pay the extra cost of irrigation. A large number of irrigation farms are operating quite successfully on a mixed farming basis. However, specialized cash crops are needed for maximum returns and especially to meet the competition of the dry land farmer.

The factors of climate, topography, soil, cultural methods and markets determine very largely the extent to which irrigation may be intensified and is a main consideration in the case of irrigation farming. Where irrigation is sufficiently intensified and the returns per acre are sufficiently high, the annual cost of maintenance and operation is not likely to be a problem. However, where yields are low or where the crops produced have a low market value, the annual water charges can very quickly become a burden to the water user.

In the case of most of the irrigation development on the prairies, the financing of irrigation works was based on the idea that the water users or owners of the lands directly served should and could pay the total cost of construction, including interest on all unpaid principal, in addition to maintenance and operation costs.

These projects, it should be pointed out, were constructed during a period of great industrial develop-

ment, agricultural expansion and increasing prices. However, the financial structures of these projects failed to withstand for the most part the economic stresses that developed following the first world war, and much assistance was needed to keep all of these projects operating. According to reliable estimate more than $50,000,000 had been spent by 1930 by various agencies in developing large irrigation projects on the Canadian prairies, including cost of construction, maintenance, replacements and betterments of works.

Over development accounted for a large portion of this huge expenditure as indicated by the fact that works had been designed and built to serve over one million acres of land whereas little more than half of this area is now irrigable from these works.

Nevertheless the benefits of irrigation under the right conditions have been fully demonstrated, and a number of these projects comprise some of the richest agricultural areas of the west. A study made by the Economics Division of the Dominion Department of Agriculture showed that while irrigation was practised on less than three per cent of the improved acreage of the province of Alberta and was of major importance on not more than five per cent of the farms, yet the annual production on these irrigated farms accounted for almost ten per cent of the total production for the province during a number of dry years in the "Thirties." During recent years, when rainfall has been more plentiful, the ratio in favour of irrigation farming has no doubt been reduced, but the value of irrigation in the low rainfall area of the prairies has been fully established.

While the total benefits of irrigation were early recognized, the net returns accruing to the individual water users, particularly during the early years of development, proved inadequate in most cases to meet total construction costs in addition to maintenance and operation.

The principle now generally recognized is that since the benefits of irrigation extend to the community and to the nation, so the cost of establishing irrigation should be distributed and not be carried entirely by the water users.

A definite basis has not yet been worked out for the division of capital cost. However, it is generally agreed that the land served with irrigation should carry the total maintenance and operation costs. Moreover the strict adherence to this principle would seem imperative in order to establish any future irrigation projects on a sound economic basis.

The foregoing is a brief outline of the main factors that need to be considered in determining the agricultural feasibility and value of any proposed new irrigation development on the prairies. The points presented can be most easily tested perhaps by examining existing irrigation projects since the results obtained from these projects, which date back in some cases to the beginning of the century, should provide the best measure by which the probable benefits of any new proposal may be appraised.

In considering the need and value of irrigation it is necessary to distinguish between irrigation farming as practised on the larger irrigation projects and small irrigation projects usually operated in conjunction with dry land farming or ranching. On the one hand, farming is wholly dependent on irrigation and on the other, irrigation is supplementary to dry land farming or ranching.

Irrigation farming is necessarily limited to large projects, while supplementary irrigation or the individual irrigation project has a much wider application. These two types of irrigation apply to different conditions and must be appraised differently.

In view of the importance of climate in determining the need and value of irrigation and the fact that climate varies so widely over the prairies, the location of a project becomes a major factor in determining its chances of success insofar as large projects are concerned. This is indicated on the accompanying map which shows the following information relating to irrigation:

(a) Existing large irrigation projects.
(b) Proposed large irrigation projects.
(c) Boundary between the aspen grove belt and the grass land formation.
(d) Average maximum daily temperature lines for the month of July.
(e) Precipitation lines for yearly averages of 11, 13, 15 and 21 inches.
(f) Main rivers, streams and lakes.
(g) The "Dry Bowl" or chronic crop failure area of the prairies.

The most significant fact revealed by this map is that all large projects where irrigation farming has been established with any degree of success are located within the "dry bowl" area. This includes the various projects in the Lethbridge area served by the works of the Alberta Railway and Irrigation Company, the main portion of the Lethbridge Northern Irrigation District, the Canada Land and Irrigation Company project at Vauxhall and the Eastern Irrigation District at Brooks.

Irrigation provided by the larger projects outside of the "dry bowl" area, has been with few exceptions, only supplementary to dry land farming and for the most part the returns have not been enough to pay maintenance and operation costs.

The results obtained on the Western Irrigation District are of particular interest in this connection since the project is a large one and has been in operation since 1911. The climate here is affected by the Chinook winds, although the effects of higher altitude are reflected in lower summer temperatures than prevail in the "dry bowl" area of the East. The total annual precipitation, for the crop district in which the project is located, averages about 16 inches and wheat yields average 18 bushels an acre. As a result irrigation has been used to only a limited extent and mainly in the eastern portion where the project borders on or extends into the "dry bowl" area. Land owners asked to have their water contracts waived and the Company finally yielded where there was a one hundred per cent sign off in an area and the water could be completely shut off. As a result, much of the western part of the project has been abandoned.

A few years ago the Company turned the entire project over to the contract holders who had organized under the provincial Irrigation Districts Act. The annual water rental was increased from 50 cents to $1.00 an acre but the users were allowed to reduce the acreage covered by water contracts to as low as 25 or 30 acres so that, in most cases, the annual water assessments per farm are lower. The water is being used mainly for domestic purposes, stock watering, garden irrigation and, to a lesser extent, for feed production. The project, therefore, is serving largely the same function as individual water developments are in other parts. The project has a good chance of succeeding under the present set-up since the cost of operation is relatively low and the capital cost of the works was completely absorbed by the company. Moreover a portion of the project at least extends into the drier area where it is possible, with proper cultural methods, to establish irrigation farming. It is a fact nevertheless that even after thirty-five years the use of water on this project, originally designed and constructed to irrigate 217,000 acres of land, is still largely supplementary to dry land farming or ranching.

The Mountain View Irrigation district in the foothill country of southwestern Alberta may be cited as a successful small community project where irrigation is supplementary to dry land farming. A feature of this project is the low cost of operation and maintenance which amounts to 20 to 30 cents an acre annually.

The fifteen hundred or more individual irrigation projects scattered over the prairies, and a number of small community projects constructed under P.F.R.A., provide irrigation that is supplementary to dry land farming or ranching. These projects, along with some 26,000 dugouts and small stockwatering dams constructed during the past decade under P.F.R.A., constitute a factor of the utmost importance in the agricultural life of the Canadian prairies. Shortage of water is generally a limiting factor in the case of individual irrigation projects where the supply must come from local runoff, but nevertheless these small projects possess some very important advantages. Where needed, small water projects may be developed on most farms across the prairies, while the costs of construction and upkeep are generally low. Wide distribution and low cost are two important advantages. As a result these small projects possess a high rehabilitation value and provide one means of fortifying prairie agriculture against drought.

The results, therefore, do not show that there should be no irrigation outside of the "dry bowl" area. However, the results indicate that irrigation outside of this climatic zone has a lower agricultural value and, therefore, to be established on a sound economic basis, the cost must be low, keeping in mind the fundamental principle that irrigation should pay operating and maintenance charges in addition to a fair share of capital costs.

With regard to new developments it may be pointed out that three of the larger proposed projects are located within the "dry bowl" area. These include the St. Mary and Milk Rivers extension, providing for 345,000 acres of new irrigable land, the extension of the Canada Land and Irrigation Company project at Vauxhall, estimated at 100,000 acres, and the Red Deer river diversion project, where some 270,000 acres may be irrigated.

More studies and investigations are required, particularly in the case of the Vauxhall and Red Deer River projects. However, the St. Mary-Milk River project, the Vauxhall and Red Deer projects, involving more than 715,000 acres of potentially irrigable land, afford the maximum opportunity for irrigation farming and the successful operation of large scale irrigation on the Canadian prairies.

It should be pointed out that climatic conditions are not uniform throughout the "dry bowl" area. There are, in fact, some marked differences between the southern and northern portions. In the area lying generally between Taber, Medicine Hat and Vauxhall, precipitation is lower and temperatures are higher than in other regions of the prairie provinces. The growing season varies from 120 to 140 days in the southern area, as compared to 120 to 130 days at Brooks and about 110 to 120 days at Hanna.

Another interesting comparison is that ranchers in the northern portion of the "dry bowl" area usually have to feed their cattle three months or more during

the winter while ranchers in the south usually do not have to feed more than three weeks due mainly to the influence of the Chinook winds. The region is of course subject to wide variations in climate and some extremely severe winters have been experienced when large amounts of feed were needed to prevent heavy and often disastrous losses. Irrigation therefore is very important to the ranching industry in this region.

With the higher temperatures and longer growing season that prevail throughout the southern portion of the "dry bowl" area a wider assortment of specialized crops are grown where irrigation is available. As a result, a highly intensive agriculture has been developed along with a number of secondary industries, including beet sugar refineries and vegetable canneries.

At Brooks, located near the center of the dry area, irrigation is based mainly on mixed farming with grain, alfalfa and livestock as main products. High quality seeds of various kinds are grown in considerable quantities, including peas, beans, alfalfa, clovers and a number of vegetable garden seeds. Potatoes of the very highest quality are grown and are gaining in importance as a commercial crop. Sugar beet growing has not yet been established here, although in tests conducted a number of years ago high yields were obtained with high average sugar content.

The proposed development in the northern portion of the "dry bowl" area north of the Red Deer river, where growing temperatures are somewhat lower, would likely depend mainly on mixed farming, with alfalfa and possibly coarse grains as main crops. These would work in well with the livestock industry of the region and the utilization of adjacent grazing lands.

The extension of large irrigation projects beyond the "dry bowl" area is limited by the four basic factors of climate, topography, soil and economics. Moisture is the major limiting factor in crop production throughout the prairies and heavy losses have been suffered through low yields and crop failures. However, there are no indications that any further attempt to establish irrigation farming outside of the "dry bowl" area would be any more successful, for example, than in the case of the Western Irrigation District where attempts to establish irrigation farming failed even though the annual cost of water was only 50 cents an acre.

There are in fact no extensive areas of land, outside of the "dry bowl" area, that are topographically suited for irrigation farming. The areas of land that might be benefited by irrigation are generally too rough, whereas the areas of land with suitable topography usually consist of the clay soil types with high enough moisture holding capacity to be dry land farmed quite successfully.

As a result, any possible irrigable areas, outside of the drier region of the prairies, are limited in size and widely scattered. This, combined with the fact that the rivers east of the third prairie steppe run in very deep valleys, would make any such large irrigation development very costly to construct and also to operate and maintain.

With regard to extending irrigation on the Canadian prairies, it would seem insofar as larger projects, involving irrigation farming, are concerned, that such expansion should be made within the "dry bowl" area where the need is greatest and where, because of climate, topography and soil, the water available can be used to best advantage. The success achieved with irrigation by existing projects in this area provides the strongest possible argument for further development within this climatic zone.

There is need for irrigation outside of the "dry bowl" area but its use, because of climate, topography, soil and cost, must be largely supplementary to dry land farming or ranching. Such developments, having a low cost of construction and maintenance, offer unlimited possibilities for improving living conditions throughout the low rainfall area and provide a principal means of stabilizing agriculture in this area, particularly during periods of drought.

Supplementary irrigation is supplied mainly by small individually owned and operated projects. The works of these developments vary widely depending mainly on available water supply and topography. Individual irrigation projects could be increased in number to five or six thousand and, on the basis of the present average of 30 acres or more per scheme, this would add very substantially to the irrigable area of land over the prairies.

Supplementary irrigation may also be provided through small community projects under favourable conditions. One main essential of such projects being low cost, keeping in mind that such works should carry maintenance and operation charges. A number of projects of this nature have been constructed under P.F.R.A. and others have been studied and recommended for construction.

This programme includes plans for developments on the Souris river, in the Qu'Appelle Valley, small pumping projects in the valleys of the South Saskatchewan and Red Deer rivers and several projects in the Cypress Hills and foothill areas. These projects, if developed, might ultimately serve 100,000 or more acres of irrigable lands.

A number of other projects have been proposed. One proposal was to irrigate an area of some 800,000 acres of land between Elrose and Saskatoon by

diverting water from the South Saskatchewan river. An agricultural study showed, however, that this area is unsuited for large scale irrigation due to climatic, soil and economic factors.

A proposal now being investigated would involve the construction of a dam on the South Saskatchewan near Elbow. The purposes of this project would be to (1) develop electric power, (2) provide water for municipal purposes, (3) divert water into the Qu'Appelle river for the purpose of irrigation and restoring and maintaining lake levels in the valley. The feasibility of this project will depend on various engineering features, particularly foundation conditions and various economic factors, such as cost, the value of the power produced, the part of cost that may be charged to municipal water supply and the probable value of the project for various other purposes, including any irrigation that may be developed.

The expansion of irrigation on the Canadian prairies, on the basis of past performances of existing projects and present knowledge, should—

(1) provide for the fullest possible use of water within the climatic zone of the "dry bowl" area;

(2) include a greatly expanded programme of individual water developments; and

(3) provide for the construction of community projects in accordance with local needs and conditions.

Such a programme of water development, combined with sound farming practices to conserve moisture and control erosion, should help greatly to improve living conditions and make for a permanent agriculture throughout the low precipitation areas of the Canadian prairies.

A Brief presented to the Royal Commission at the hearing held in The Town of Outlook, Tuesday, September 9th, 1952 in connection with the South Saskatchewan River Dam near mouth of Coteau Creek.

MR. J. DAVIDSON

Gentlemen of the Royal Commission:

GREETINGS

It is with pleasure that we welcome you on behalf of the Citizens of the Town of Outlook and wish that your stay with us will be a pleasure to you and also profitable to us.

We are more especially pleased with your visit with us as we are about to present information and discuss with you the possibilities that irrigation could have for the town and district by providing a constant supply of moisture to the growing crops when it is most urgently required, and in order to produce a crop sufficient to support the district.

Outlook is considered the trading centre for a considerable portion of the contemplated area which the dam at the proposed Coteau site would service yet, in this town, we have not a facility to handle the agricultural produce of the district. Grain handling organizations and the concerns who usually handle agricultural products are, apparently, unwilling to risk their capital to provide these facilities owing to the uncertainty of the amount of rainfall during the growing season being received to produce crops in this area. It is one of the very few towns in our province that has not a grain elevator.

This season the Outlook district has a fair average crop of grain, which, to the seeded acre, could average possibly 20 bushels. On the P.F.R.A. pre-development farm which is supplied with irrigation, the wheat averaged 48 bushels per seeded acre, the barley 47 and oats 45. We believe that with irrigation, the district could average these figures each and every year.

The district at one time supported a creamery which was located at Outlook. With the scarcity of feed and water following the extreme drought farmers were forced to dispose of their cattle herds and the creamery was compelled to cease operations.

The town's supply of milk is now shipped daily from Moose Jaw, a distance by rail of 121 miles. As can be seen, these conditions have created a difficult situation insofar as supply sufficient quantity of milk to properly sustain our children. These conditions were created by our dairymen being forced out of business as they could not secure feed for their cows, yet on the predevelopment farm at the south edge of this town, 35 tons of alfalfa hay was produced from 12 acres of land, a good part of which, prior to 1950 was used by the town as a nuisance ground. Better land on this same farm has produced over four tons of alfalfa hay per acre.

As a further indication of the effects of drought conditions on this community, prior to 1930 the assessment value of this town was over $1,000,000. Today it is near $436,000. During the dry 30's the population of Outlook shrunk to 500. Over one third of these citizens were on direct relief for all the requisites essential to a bare subsistence.

Past history has taught us that we will again have droughts, however, with irrigation we are confident that this community and its people will not again be subjected to such desolation and heartbreak as experienced during the 30's.

Gentlemen of the Royal Commission, we sincerely trust and pray that your decision will be favourable and that the Federal Government of this fair Dominion of ours immediately will take the action necessary to the implementing of the South Saskatchewan River development project.

A Brief Presented to the Royal Commission Regarding Farming Experience in the Outlook Area

By J. C. Carter

Gentlemen of the Commission and fellow members of the S.R.D.A., I have been requested by the Outlook Chamber of Commerce to present a brief to the honourable members of the Commission now sitting. I am not familiar with the form of brief that is usually presented on such occasions, and I have no figures or statistics, so that recollections of personal experience and observation during nearly fifty years of residence in this district will be perhaps acceptable. First recollections go back to the fall of 1903, when homestead-seeking with the Dominion Government Land Guide, Marcotte, from Saskatoon. A fact that did not seem significant then, but has been recalled a number of times since, was that the prairie was burnt and parched and that the sloughs were all dry. Scrub vegetation was poor and the grass was thin, with little growth. I understand that frequent prairie fires due to dry weather were partly responsible for this. In the next few years we gained considerable experience in fighting prairie fires, which nevertheless did considerable damage. During the winter of 1903 and 1904 snowfall was quite heavy, and also during the early spring there were some heavy rains and this combination filled some sloughs and partly filled others. The promise of the rains in spring did not continue, and the summer of 1904 was hot and dry, with burning winds from the south. We had put in a little barley on spring breaking, but it burnt out, from the heat. From observation since I have concluded that the summer of 1904 marked the end of a dry period, for the next five or six years were first very good, then good to fairly good. Indeed on ten acres of breaking and back-setting in 1905, the yield was 52 bushels an acre of wheat. Oats on breaking yielded as high as 100 bushels per acre. I believe, personally, that perhaps the strength of the new soil played a good part in the heavy production. In 1913 conditions began to change and dryer weather set in. It began to become more difficult to bring crops to maturity in the proper season. I had no personal experience with the years between the latter part of 1915 to the middle of July 1919, as I was overseas with the Canadian Expeditionary Force, but I have been informed that 1917 was one of the most disastrous seasons experienced on the prairies. On my return to Canada and this district it became evident that unfavourable weather was again setting in and, in fact, had already begun. We entered into the 1920 period during which the years were very uneven. Some years were fair as to production. There was perhaps one crop which could be called good and hail did a great deal of damage that year. I mean that the crop was good for this district, but unfavourable conditions were more of a feature than favourable ones. It was in the early nineteen twenties that a new peril appeared. I refer to the plagues of grasshoppers which clouded the sky and covered the land, devouring all crop, and in several years being so extensive that after finishing the crop they devoured clothes on the line and elsewhere. It was quite evident that these were dry weather plagues, because in years with heavier rainfall they were not so much in evidence, and the damage was quite negligible—newer methods of fighting also helped. In my opinion what is now vulgarly referred to as the "dirty thirties" was really born in the 1920's. With lack of moisture, winds seemed to grow stronger and soil drifting to an alarming extent, began. I could take you to areas in this district in which there are rural roads, previously lined with fences and scrub growth, which have been built up as high as five feet above the surrounding fields from which the top soil had been blown. Heavy land will blow as badly as light land when dry. You know, gophers do not dig in sandy or other loose soil but require a clay substance to hold their burrows together. I have seen in this district soil erosion to such an extent that the gopher burrows stood up like pillars above the surrounding level. We have a snapshot of our old dog, a big black part-Newfoundland, actually reaching up to sniff at a gopher hole. The "dirty thirties" are still too recent to require much recall. The droughts with total failures, near failures and partial failures, grasshopper plagues and other insects, hot burning winds and drifting soil all conspired to cause a great deal of distress and to make life miserable.

I have read that a considerable portion of the Sahara Desert was once a fertile and pleasant land with crops, vegetation and trees growing freely, with apparently plenty of water to nourish them and with large, well-built cities and rural areas. Drifting winds occasionally uncover from the sand evidence of this, only to cover it again. What caused the change we do not know, but it can only have been failure of the water supply. It does not require a great stretch of imagination to those here in the thirties to induce the

thought that under the conditions then existing, which may return, this area and a large part of Saskatchewan could easily become desert land. There is a part of this district where the sand is moving all the time, extending and covering all in its path. In dry years the movement is more rapid and extensive.

There were years, however, in which a reasonably good crop was produced. It is a fact that wheat will mature with less moisture than many other crops (except the Russian thistle). The year of 1932 will no doubt be remembered by many. Quite a good crop, and yet it occasioned as much distress as the years of crop failure. Some of you will remember that in the fall of 1932 and part of 1933 wheat sold as low as 20 cents per bushel. You do not need to be told that no farmer can raise 20-cent wheat and begin to pay his way. It were better to have no crop at all than the load of debt which the expenses of a crop at such a price will bring. The ability to diversify and to raise other crops with a market value, with the aid of water, would have eased this distress considerably.

I had the pleasure of speaking in an impromptu address before a meeting of the members of the S.R.D.A. in the Outlook Park last June. I referred then to the surroundings in which the meeting was being held and mentioned the fact that in Outlook Park was the only grove of natural elm trees in this province, or at least the only one with trees of their age. I mentioned that from the rings shown in the stumps of several that had been felled years ago their age had been estimated at over 800 years. Incidentally, through the Star-Phoenix, I have heard one or two doubts expressed as to the age quoted, and to those who doubt I would like them to examine a number of elm saplings which were planted by the Council for replacement purposes during the years I was Mayor, over a decade ago. Then compare the growth with the old trees still standing. However, that is by the way.

What I did not say then was that, besides determining the growth and years of life of these old monarchs, the rings of growth also show the kind of seasons that have passed during the centuries of growth. The narrow rings show the dry seasons. The wider rings show the years of more adequate moisture —I almost said showed the wet years—but, during my residence here, I have never known a really wet year as compared to other parts.

It is interesting to note that the rings showing the dry years very considerably outnumber those showing the moister periods. This recalls to my mind another circumstance. Some years after I came to this district I saw an old soil survey map. Had I seen it before coming here it is doubtful whether I would be here today. My recollection of the map is that it was made by Government surveyors before much of the western prairies were settled, or indeed laid out in township and section. The map showed the nature of the soil from the heavy black land of the Red River Valley, the lighter black loam further west, the sandy land, what is known as the Weyburn clay, to this soil we know so well and which extends on both sides of the South Saskatchewan River, "the chocolate loam". And this chocolate loam was referred to on the map as a "semi-arid soil" and indicated that it occurred in a "semi-arid region". Some of us who have lived here for years can well understand this classification. However, semi-arid or not, this soil will produce crops with a minimum of moisture, but, for a well-balanced economy and the ability to grow other money crops besides wheat, water is needed in the proper quantity at the right time.

In my judgment there are signs that the fairly favourable crop conditions of the past few years are due for a change. We have had no considerable rains for the past two months and we are now at the season when fall rains can be expected, with as yet no sign of them. Those fall rains are necessary for spring moisture; snow runs off too quickly. Without the rain the spring seed-bed is a dry one and a sure indication of a dry season. I have noticed in digging in garden that the top soil is dry for a considerable depth.

Without water we must be content with a spasmodic and unstable wheat economy. With it this soil will grow anything that a temperate climate such as this can grow. It is unnecessary to point out that the economic stability of a large part of Saskatchewan would be vastly improved, if such were the case, and that the benefits would be felt throughout the whole of Canada.

Give us the water, and we will feed not only Canada but the hungry and starving in other lands.

Brief of the Saskatchewan Rivers Development Association

DR. W. B. TUFTS

TO: The Royal Commission on the South Saskatchewan River Project.

Mr. Chairman and Gentlemen of the Commission:

First I wish to express to you the appreciation of the S.R.D.A. for the interest and energy you have shown in your investigation of the South Saskatchewan River development project. I do not need to tell you

how much the people of this province are awaiting your decision, which they trust will be favourable, as you consider this scheme which we deem so vital to the economic life of our province. To us it is no longer a question of dollar returns, but through the sad experiences of the past, born out of stretches of bad years, it has become a problem of maintenance of proper standards of health, of education, a wish for security, and freedom from want and fear. It has become a wish, not for wealth, but for economic welfare and a restoration of our proper place in the whole Canadian economy.

You might ask why this association—the Saskatchewan Rivers Development Association has assumed the right of appearing before you today on behalf, not only of the farmers and business men in the development area, but throughout the province.

Briefly: this association was formed some years ago on the insistence of those groups of people within our province who were interested in irrigation and believed that through irrigation could come that security to combat economic and social problems created by our years of drought.

Today, it not only speaks for such urban centres as Saskatoon, Moose Jaw and Regina, but also, through their municipal membership in the S.R.D.A., for many thousands of farmers within this province. Besides which, as you will learn during the course of your hearings, it receives the support and endorsation of such influential farm groups as the Saskatchewan Wheat Pool, the Saskatchewan Farmer's Union, and the Saskatchewan Association of Rural Municipalities. When then we are asked: "Do you think the farmers will use the water: are they in favour of irrigation? . . . then we consider this support . . . we contemplate the farm rally one year ago when 1,000 farmers from 29 rural municipalities attended . . . we refer to the resolutions that the rural municipalities and Agricultural Councils of this area have forwarded to the government, and I have no hesitation in saying to the gentlemen of the Commission or to our government: *Do not fear--the water will be used.*

In the presentation of this brief, gentlemen, we do not intend to burden you with figures . . . figures you will be hearing over and over again . . . figures and statistics you will know better than we do . . . and they will be used only in a small way to illustrate the larger picture we wish to present.

Also I am not a farmer . . . you will hear from farmers qualified to speak of arid acres, but I am a physician and I do know people and their homes. And twenty years of work in this district has carried me into many homes, scarred forever by the privations of lean years. Most marked, assuredly during the "black blizzards" of the thirties . . . years that will come again just as surely as we are sitting here today.

We wish in our brief to first outline to you certain broad concepts of irrigation upon which our thinking rests and their application to our problem in Saskatchewan:

The greatest asset Canada has is its people. Their security and welfare are Canada's greatest responsibilities.

We concur with the Hon. C. D. Howe when he says: "When we think of irrigation it is not so much a question of watered acres but rather the happiness, security and welfare for the people living on those acres".

And with our Prime Minister when he says "No government can tolerate a situation where Canadians have to move from place to place because they cannot make a living where they are".

We believe that in the future development of Canada the development of her water resources will be one of her important, perhaps most important features; so important indeed, that regardless of what we may do here today, Canada, one day, must see that all these Central Plains of Saskatchewan and Alberta lying within the South Saskatchewan River Basin are farmed under a system of controlled water.

We further believe that, as the history of "this valley" has shown, time well may be running out on us now and soon again there will be upon us those dry, lean years which have threatened so many times before and were so severe in the "thirties". The P.F.R.A. Act was passed in the hope that through it would come the anchors to hold us against such another era in the west.

In so thinking we conceive the South Saskatchewan River project as such a scheme. One which should be commenced as soon as possible *because* no similar project considered by anyone anywhere in the west can so quickly and thoroughly stabilize and secure the agricultural economy for Canada.

Inasmuch as:

1. It will stabilize the economy of an entire province rather than any one region.
2. It has been declared technically feasible and all plans are available . . . in other words it is ready to go . . . and speed may be most essential as in a world of international tensions we step out, as a world power, to compete in the foreign markets.

3. While only one unit in the ultimate South Saskatchewan River Basin Development, it is the largest: it is the most singly important: and its construction will assist the later developments above it.
4. Hesitation at this time for further investigations, further considerations, will consume so much more money and so much more time that any savings that might be suggested would be lost many times over in lost income and probable relief payments to this area while these investigations were being carried on.

You have driven through this area. We are glad you had this opportunity of seeing how fertile these valley acres are when given a little rain at the right time. We are also sure that you must have been impressed by the potential tragedy that stalks through these lands, even in "good years", where we are dependent on a one crop economy . . . Wheat. Wheat lying piled in the fields for lack of storage . . . wheat that in a time of curtailment of world markets could well become but mouldy bread in our pantry which no one would buy.

And we are reminded that, of all the 4 western provinces, we *alone* in Saskatchewan lack that diversity of economy which makes for stability.

We are the weak link of Confederation . . . here strengthening is needed most . . . here Canadian dollars could be best spent to yield the most in returns.

As you drive through the country this fall you see the end of another year of risk and struggle . . . this time successful. Another will soon begin and perhaps not be so successful because this is an arid country . . . a country of drought cycles . . . of blistering winds and searing heat. And these adverse factors are predominant, so that, on the average, the people living in this area live precariously.

For Example: The rural municipality of Rudy lying adjacent to this town of Outlook is typical of the whole southern half of the proposed area.

1931-1950—average wheat yield was 6·9 bu. per acre.

1931-1941—a 10 year period . . . less than 5 bu. per acre.

1941-1950—4 paying crops . . . 1939-42-43-44.

1931-1951—relief of "dried out bonus" . . . 17 yrs. out of 20.

The average net income has been $600 per year or $50 per month. A state of existence so insecure that in 20 years $57,000,000 (½ the total cost of the Dam) in direct relief has been paid by Canada into this area.

This is what the rest of Canada has paid in, but how do we estimate the effect on municipal finance . . . the small town merchants who "went to the wall", bankrupt . . . the numerous pages of ledger accounts finally destroyed.

What greater evidence do we need that this area has at times become, not an asset, but a drag on our Canadian economy.

Where else could Canadian dollars better go to restore an adverse economic balance.

But even a greater disaster than drought's effect on the dollar economy has been its effect on the people and on the social structure. Losses that can never be measured in terms of dollars and cents.

How do you estimate the personal tragedies of these plains? . . . how do you gauge the effect of dozens of closed schools? . . . closed churches? . . . abandoned homes? What is the effect on the minds of these people who have had to live a nomadic existence moving from place to place hoping somewhere to find a living?

Population: One of the worst results has been the general depopulation of the province at large and this area in particular.

in 1925: farm pop. in area 31,000, in 1951, 16,300

In the province this loss in 10 years, 1941-1951, has been 66,817 but if you add the number of births (137,308) it becomes a loss of 204,125. Enough to wipe out every city in the province.

and ⅓ of this has been in the project area. and this at a time when Manitoba has shown an increase of 5·8 per cent and Alberta 17·6 per cent.

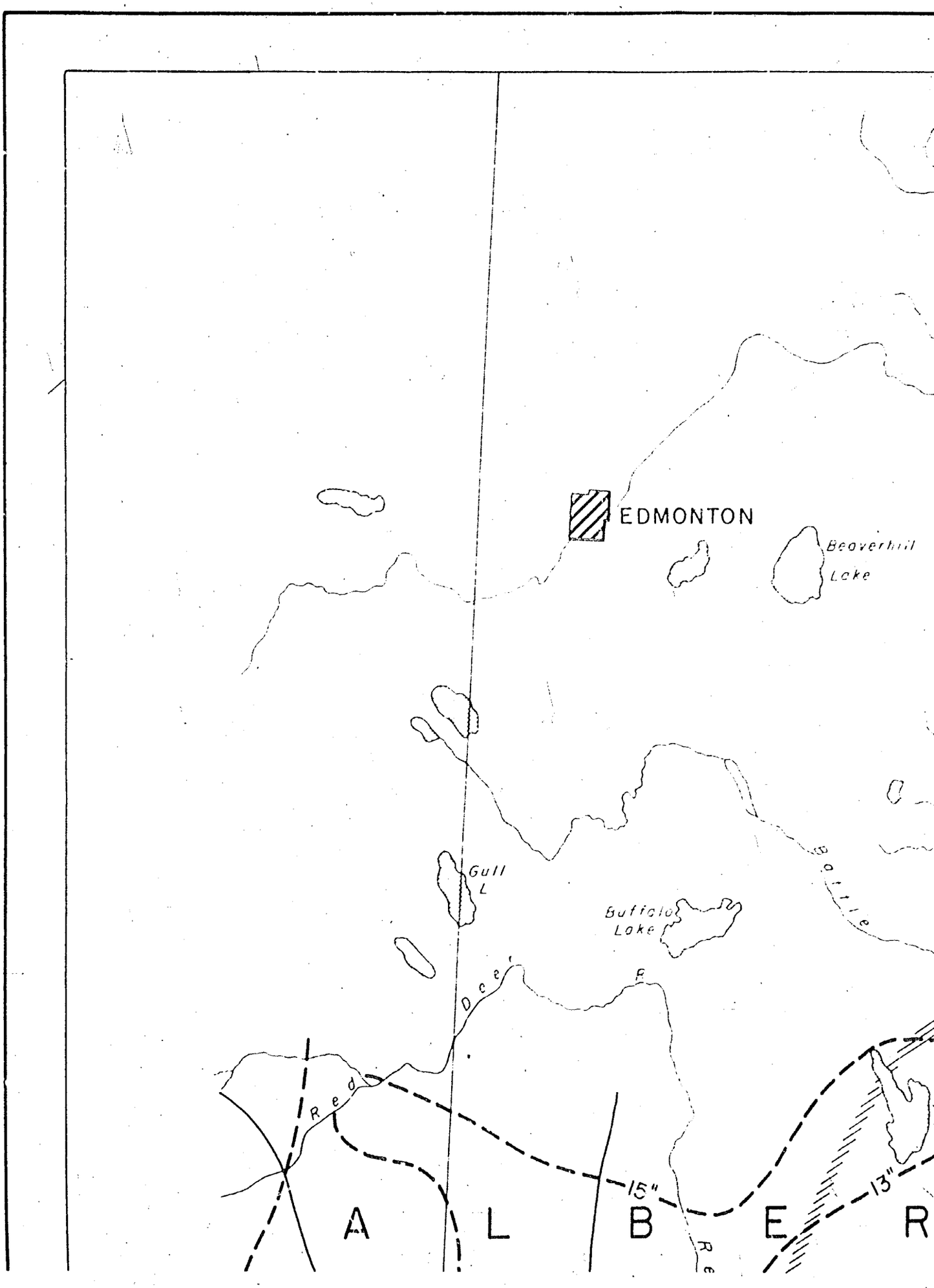
If people are a country's greatest asset then Saskatchewan is suffering the Prairie's greatest catastrophe.

Education: . . . because the exodus is one largely of youth, who go to seek opportunity when none exists here, the picture is well seen in our school situation.

In Outlook School Unit:	1931	4,114 students
	1951	1,600 students
	1931	110 schools
	1951	67 schools

and I quote from the Department of Education:

"Unless school authorities can be assured of a more reliable and dependable income then an adequate program of education cannot be expected in that area"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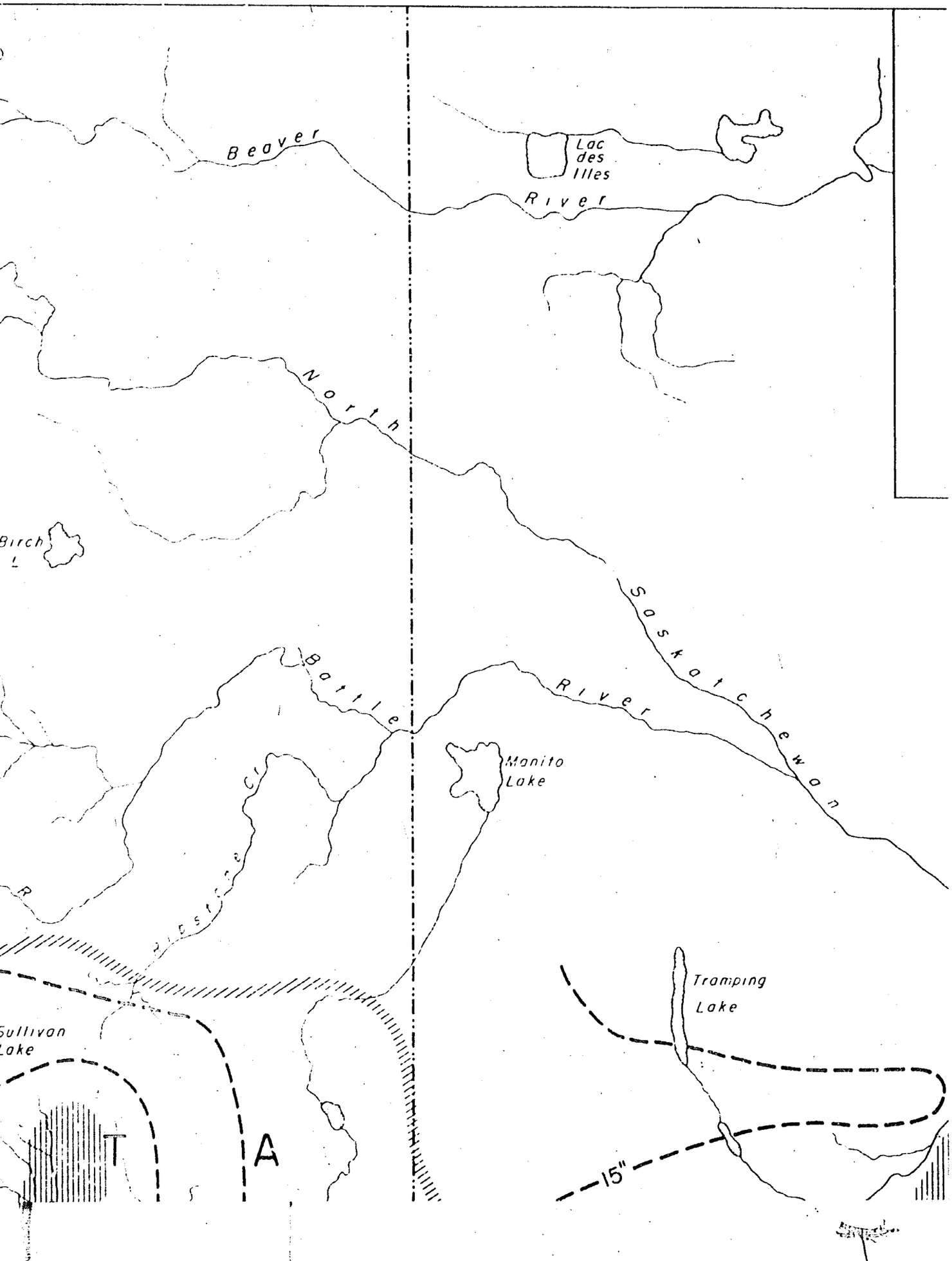
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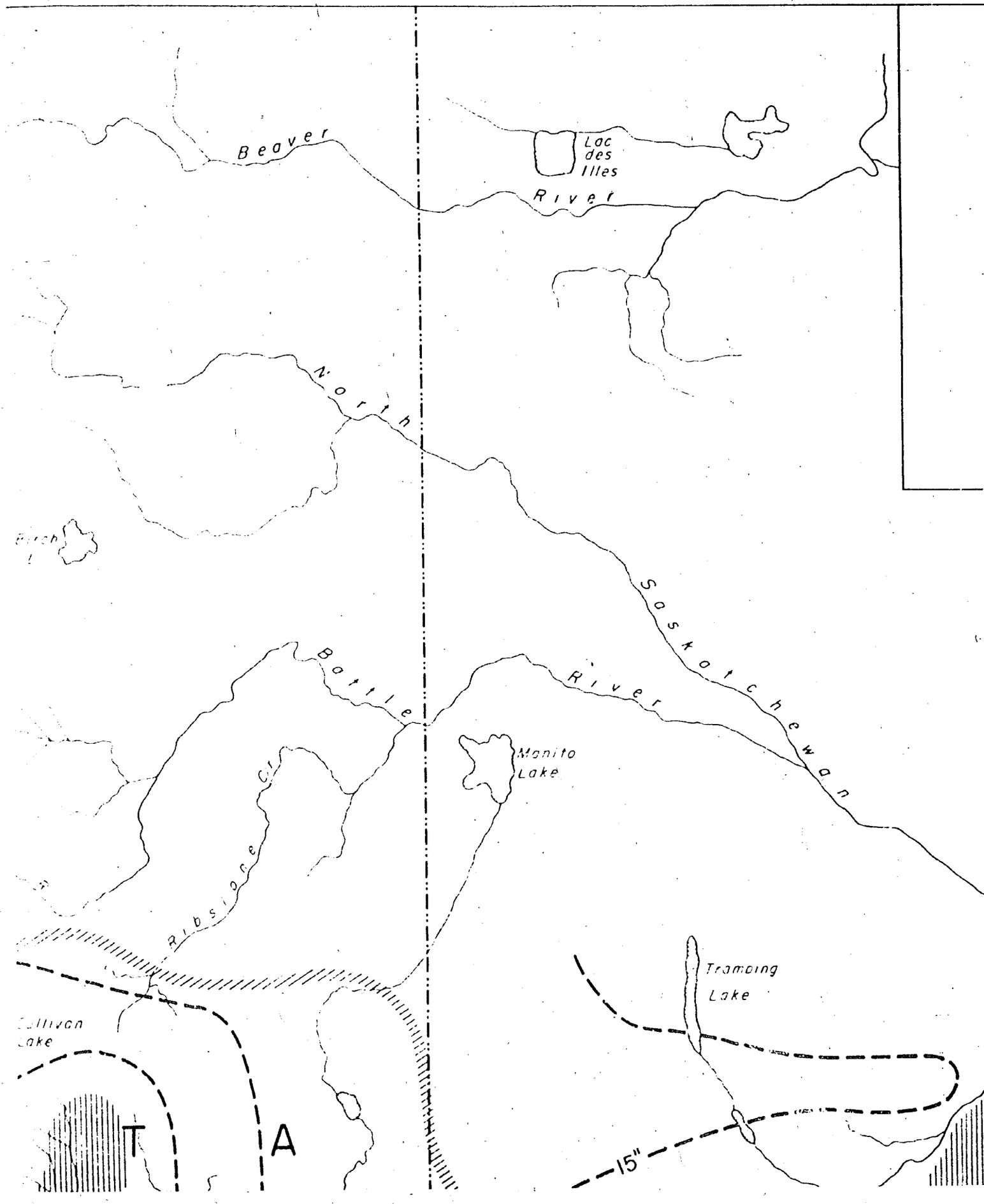
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MAP

SHOWING AREA OF CANADIAN PRAIRIES SUITED FOR LARGE SCALE IRRIGATION

Designated as the

"DRY BOWL"

"DRY BOWL" ////////

AVERAGE ANNUAL PRECIPITATION – – –

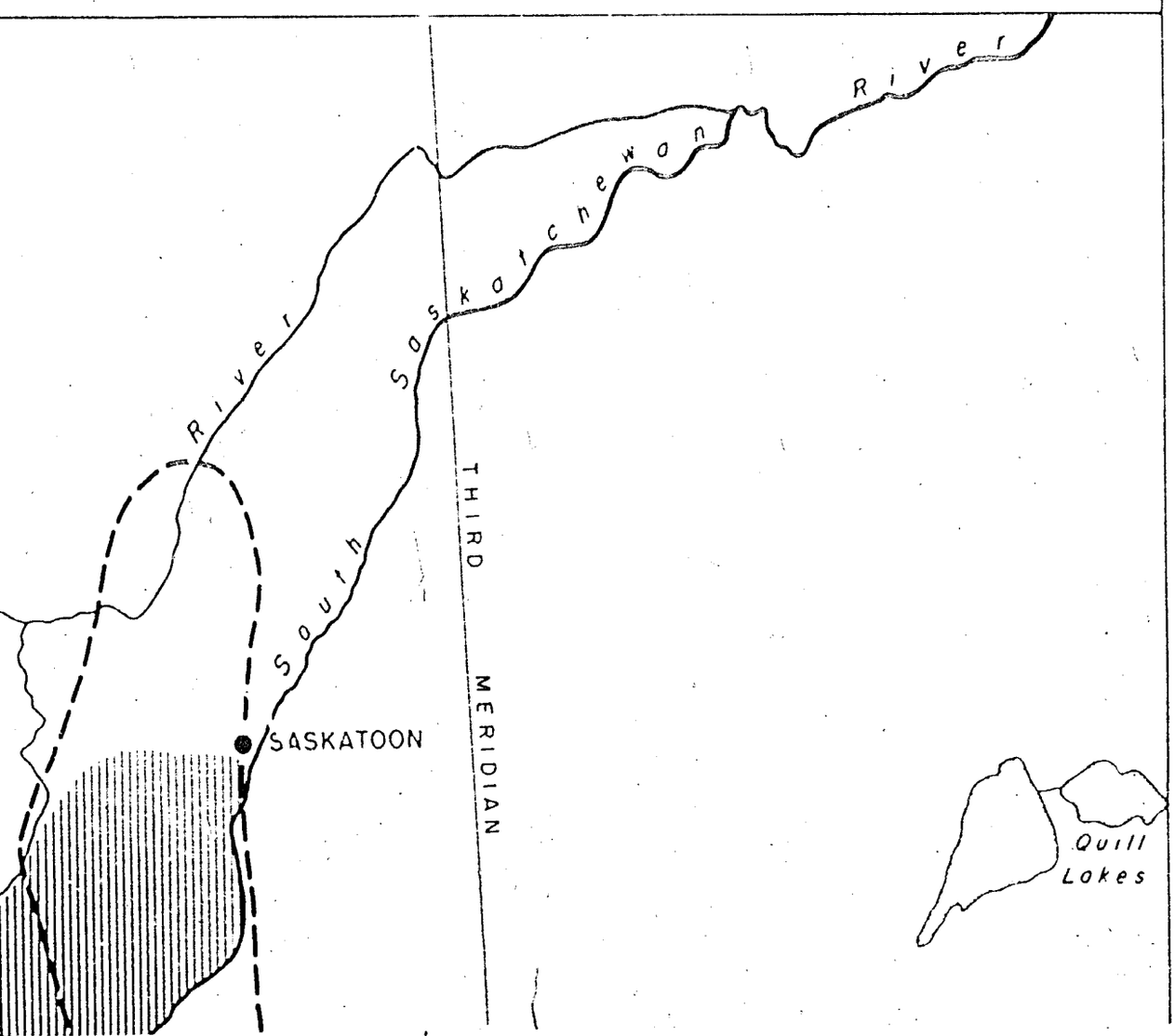
AVERAGE MAXIMUM JULY TEMPERATURE .....

EXISTING IRRIGATION AREAS

PROPOSED IRRIGATION AREAS

Scale in miles

18 9 0 18 36 54 72



Social Conditions

Here in this area where the population is so sparse that only three people per sq. mile live on its lands, those who remain are courageous souls living in a constant state of dread.

Fear of what? I mention only a few told to us every day:

1. Fear for the young children . . . school beginners . . . having to be sent miles to school in winter weather . . . travelling by truck or bombadier.
2. Fear of accidents: of childbirth: of illness miles from medical or hospital care on snow blocked roads.
3. Fear of being alone in a countryside where friends and neighbors no longer live.

This then, is the picture of the proposed development area over the past 20 years. If irrigation will promote a security of economic conditions which will correct these conditions then there is the need for irrigation.

AND WE BELIEVE THAT IRRIGATION IS THE ANSWER

Economic Considerations

However, I assure you, gentlemen, that if the S.R.D.A. did not consider that the effects of this improved economy would spread throughout the whole of Canada, and that the economic credits would far outweigh the debits to the whole Canadian people, then we would not be here today urging the expenditure of these public funds.

Economic Debit

We presume that the debit is the cost to Canada of the project less the provincial share of costs. We do not presume what this cost may be. We do know what the original estimate stated as costs but are quite prepared to accept that this figure may be raised due to increasing costs everywhere.

Nor do we consider this too important since:

1. We believe that irrigation projects should not be required to show financial feasibility i.e. self liquidation.
2. That financial feasibility is not an adequate consideration of the cost-benefit situation.
3. That economic feasibility is the important factor including the broader concept of the many benefits which result from its development. And these are so great that they will easily repay the dollar cost to Canada.

Economic credits

A: *to proposed area:* regional benefits

1. Stability of production of cereal grain crops . . . with an expected increase from a wheat average of 6 bu. acre to average of 40-60 bu. per acre.
2. Diversification of field or specialty crops.
3. Creation of a livestock industy . . . where none exists today.
4. Improvement in municipal finance . . .
   (a) construction of all-weather roads.
   (b) improvement of schools.
   (c) increased social services.
5. Re-population of Area:
   Through creation of some 1,500 new farm units.
   Population increase from 3 people per sq. mile to 30 might be expected with retention of our own youth and influx of new settlers. The tendency would be to the more economic small farm unit instead of the uneconomic and unsocial tendency of today toward larger farms and fewer people.
6. A greatly increased home market for farm and manufactured goods.
7. Power development at damsite would form a basic power grid for a greatly increased power development, bringing:
   (a) cheap domestic power.
   (b) industrial power.
8. Power and varied crops might well see a creation of local industry within the area for processing and handling local products.

B. *to the Provinces:* sectional benefits

1. It should be borne in mind that while the project area involves a present 500,000 acres of irrigable land that stability will be carried to 20 times this number of acres or 10,000,000 which represents:
   approx. ½ the total sown acreage of the province. ¼ the total cultivated acreage.
2. It will bring about the diversification of field crops and make the province less dependent on its one crop . . . wheat.
3. It will create a livestock empire where none exists today.
   Sad indeed is the history of attempts to create a cattle industry here. Trial after trial has ended in failure due to:
   (a) Short fodder crops necessitating forced marketing.
   (b) And in the worst years, cattle death and destruction due to crop failure, with the result today there is just no incentive to

building up herds. Compare this uncertainty of trying to feed 1 beast on 40 acres as to raising 1½ beasts per acre on irrigated pastures. Not only would a cattle industry be possible within the area but with the creation of irrigated community pastures and feeding lots this area could well absorb stock from the whole province in times of temporary glut on the world market.

4. It will reverse the depopulation trend within our province and with more people we will find:
   (a) a greater domestic market.
   (b) our youth will stay here as an expanding diversified economy both farm and industry provides greater working opportunities.
   (c) it will give us a greater voice in Canadian affairs . . . as each census sees us with fewer and fewer members in our Parliament.
3. A great provincial hydro-electric power potential for the development of industry where practically none exists today.

These benefits just outlined are not inconsiderable but if, gentlemen, we could advance to you nothing other than advantages and benefits of a regional or sectional interest we could not appear before you today without an apology.

If we did not feel that the South Saskatchewan project is of inestimable value to the whole Canadian economy and one in which Canadians might well place their public funds with full assurance of its overall benefits then the S.R.D.A. would hesitate to present this brief to a Royal Commission.

But we do feel that the gain will be to Canada and it is of this I would now speak.

Benefits to Canada

With the initial thought that these benefits to Saskatchewan concern a large group of Canadian citizens, I also feel sure that, quite apart from dollar returns, no Canadian government need feel reluctant to spend tax dollars to improve the lot or secure the welfare of Canadians anywhere.

However, in considering the more direct benefits to be obtained throughout the whole country from moneys expended we believe that certain factors should be borne in mind.

1. That a multi-purpose concept is the central theme of any plan for the best use of water resources:

   To this the South Saskatchewan project fully subscribes in that it embodies the features of:

   Irrigation, Power, Flood Control, Municipal Water Supply, Recreation.

   We feel that consideration of this multi-purpose plan assures a better overall support by a greater number of citizens.
2. That resource development must today embrace the broader concept of economics. It is not merely a question of bringing water to dry acres: it is not merely a question of more production and more dollars . . . it is a matter of the fulfilment of human needs.

Such is the South Saskatchewan project . . . Water to Saskatchewan means more than "Gold" . . . it means "Life".

3. In an estimation of a cost-benefit ratio, indirect, as well as direct benefits must be considered:

   As to Direct Benefits

   How are we going to measure these?
   Over what period of time?

We are prone to base direct returns on probable production differences between dry and wet farming periods. But total production values are the important figures:

e.g. it has been estimated that production under irrigation in this area will be tripled.

On this basis of wheat production over a 20-year period of average crops and average prices, how would Canada's dollar cost be repayed.

If we subtract the $57,000,000 direct relief paid out in this time, and the $33,000,000 provincial share of costs, we then find that tripling production values would pay back the people of Canada $310,000,000 in 20 years . . . for some $70,000,000 expended.

But that is presuming the difference in wheat production is between the 6 bu. dry average and a tripled 18 bu. But it is known that on irrigated lands the production may be nearer 40 bu. per acre.

But then again we know that wheat will not be the whole economy . . . so how do we estimate total production of cattle or of specialty field crops where none exist today?

Indirect Benefits

These are many and varied and are just as important but even more difficult to assess.

When we consider the great increase in the domestic market for all Canadian goods produced by a greatly increased population within the area, and when we consider the purchasing power of the area tripled, or as I have tried to show, reaching levels of height that cannot even be estimated now and of every one of these dollars earned, 85 cents will go into the whole

Canadian economy . . . then some idea may be obtained of the vast and incalculable benefits Canada will receive for its expenditure.

Does it not, gentlemen, become a question of only economic feasibility. It will always be financially feasible.

There remains but one big *question to answer:*

Where should development begin? . . . and this reverts in turn to your term of reference regarding the best uses of the waters of the South Saskatchewan.

This we believe to be the South Saskatchewan River project which you now have under consideration.

We do not wish to appear to support a plan just to make a "Desert Bloom". As Canadians we prefer to see the design for our development for the "long run". We also wish to avoid a narrow regional or sectional point of view.

But we do believe that the South Saskatchewan River project best fulfills those requisites of a sound national program for the conservation and development of our prairie waters . . . and at the same time best subscribes to those fundamental concepts of irrigation economics.

Because in this Project

1. It is not a question of bringing water to dry acres so much as bringing happiness and security to those people who now over a broad area, well-developed with highways, railroads, schools, and other services, exist on a low average standard of living due to drought.
2. It is a multi-purpose project affording greater public interest within and without the Province.
3. It will serve to stabilize the population in the only Western Province showing continuous population shrinkage.
4. It will diversify and put on a sounder basis the only Prairie Province which is essentially dependent on one economy—Wheat.
5. It will bring industry to a province with a low industrial output and create a sounder industrial-farm ratio.
6. It will create a livestock industry . . . where none exists . . . and which may well in the future, prove to be Western Canada's soundest farm economy.
7. No province in "lean years" is so dependent on public assistance which would thus be saved and counted as contributing to the capital cost of the dam.
8. Nowhere in all the prairies is there such a low rainfall area where so much dry land can be irrigated from a close available water supply.

In short, this project will secure for Canada its greatest single area of insecurity . . . *Saskatchewan.*

These, gentlemen, are the benefits . . . some of which can not be measured in dollars and cents . . . some that never appear in statistics . . . but taken together, as a result of this project, Canada can bring about the economic stability of a great province and put it into its rightful place in the Canadian economy.

. . . where it can be forever, not only independent, but pulling its fair share of the load as Canada moves into the greatness of the future.

. . . not a liability, needing relief 17 years out of 20, but a great province peopled by a great people . . . not only in numbers but great in social conditions where fear and want are forever gone, and we find instead, comfort and security.

Our forefathers, 100 years ago, envisioned on these plains, a great Empire of green acres with its millions of people. In our hearts and hands today lie the means to bring this to reality.

On this, gentlemen, we rest the brief of the S.R.D.A.

Respectfully submitted this 9th day of September, 1952.

SASKATCHEWAN RIVERS DEVELOPMENT ASSOCIATION

WM. B. PUGH, M.D. *President*
G. O'SHAUGHNESSY, *Secretary.*

Submission by the Saskatchewan Farmers Union to the Royal Commissioner Investigating the Proposed South Saskatchewan River Project

MR. W. W. COATES

Introduction

It is not the intention of the Saskatchewan Farmers Union to examine in close detail, the various statistics concerning the development of the proposed South Saskatchewan River project. It is our understanding that previous examinations by qualified construction engineers and specialists in irrigation have covered the many problems that inevitably arise when consideration is being given to the outlay of capital expenditure necessary for such a project.

We would respectfully urge the Commission to consider the desirability of refraining from any judgment of the project on the basis of monetary value or cash expenditure alone. It is our considered opinion that the contribution of such a project will be, in the years to come, of such social and economic value to

the prairie region and Canada as a whole, that it would be irrelevant to attempt to assess this value solely in terms of an operating balance sheet.

Many great national projects, which might have been considered uneconomical in the first instance from a balance sheet standpoint, have made tremendous and lasting contributions to the national welfare. Thus we submit that the South Saskatchewan River project should be considered in the light of its long-term value to the nation. Nor should Canada be denied, we submit, the value of such a project due to what some may consider a relatively heavy expenditure at this time.

It has been inferred, in some quarters, that now is not the time to embark on this project—because of the diversion of materials to armament and defense. This, we submit, may be a specious argument. Those who would use it would—if there were no large defence program—turn around and say, "We cannot now afford to proceed with the project because there is not sufficient money available".

We have examined reports previously issued on the subject and have paid particular attention to the report which was prepared jointly by the Economics Division, Marketing Service and the Prairie Farm Rehabilitation Branch of the Federal Department of Agriculture.

We would draw attention to the fact that this report was "final" in its tone and a perusal of the information leaves little doubt that the project is feasible. Furthermore, the report clearly enumerates the many advantages to be gained and a reading of it in our opinion, appears to justify the expenditure that will have to be made to complete the work.

In view of the fact that the project would be undertaken by the Federal Government primarily as a means of water conservation, irrigation and a source for urban water supply, there seems to be little doubt as to its need and feasibility. We cannot help but deplore the continued delay and we further deplore what appears to be the use of this proposal, to some degree, for political strategy or expediency. Saskatchewan needs the South Saskatchewan River dam for irrigation purposes. We need it now and any discussions regarding associated or related matters must be considered as supplementary to the main issue.

EXAMINATION

Irrigation Benefits

Notwithstanding the various arguments that have clouded the discussions of the project's feasibility, we reiterate that the main purpose of the project is to supply water for irrigation and land reclamation purposes. While we propose to examine the other fields of development later in this submission, we urge the Commission to bear in mind that irrigation should remain the prime reason for the construction of the dam on the South Saskatchewan River.

Why is this so? To the Saskatchewan farmer and the citizen generally, agricultural stability and security are of prime importance. It is not necessary here to recount the development of this province, the original errors in settlement and the subsequent adjustment to natural and economic conditions. The Commission need only tour the proposed development area to see the evidence. Abandoned farms and schools, run-down buildings, one-room schools, eroded soils, all point to a hazardous and insecure economy. The economic and social records are also easily available from farmers, municipal officials and a whole host of publications which analyse the problems of the area.

While adjustments have taken place either by pressure from economic forces and natural factors or by conscious rehabilitation programs of federal and provincial governments, much remains to be done. There are still thousands of sub-marginal farmers in the province and many hundreds in the proposed development area itself who need more agricultural stability if they are to raise their living standards. It is submitted here that a direct result of the water conservation and irrigation project as outlined in the report prepared by the Federal Department of Agriculture, a large and significant resettlement program could be undertaken and thus greatly assist in solving the problem of insecurity and instability of the many farmers in this area, as well as any new farm units which could be established.

The people of Canada generally are affected by agricultural instability since the nation is by no means immune to the violent fluctuations of the prairie economy. The nation is also vitally concerned with its future food supplies. Traditionally we tend to think of Canada as a food-exporting nation. While this may be true of grains it is submitted that before long we may be forced to import increasing amounts of other food commodities. (This was substantiated in the submission of the Saskatchewan Government to this Commission.) Recent reports by the Dominion Bureau of Statistics indicate a Canadian population of 15 million by 1953, while a comparable increase is expected in the U.S.A. Scarcity of food is a major problem in the world today and with continuing increases in population expected it is doubtful whether the problem will be greatly alleviated in the future.

The only real solution is, therefore, an intensification of the production on our own soil. This means that every feasible irrigation and water conservation project must be fully exploited. It will also be necessary to rely increasingly on fertilizers, better farming methods, better variety of seeds, and more comprehensive weed and insect control.

It is for these two basic reasons, economic stability for agriculture and higher food production, that we need the South Saskatchewan River project now.

STABILIZATION OF AGRICULTURE

Resettlement

The planned irrigation development would provide for the irrigation of some 431,000 acres. Since 1,215 farms are now in the area-dry land, farms with a very low production per acre, it would seem that by increasing potential production it would be feasible to increase the number of farms considerably by resettling farm families now producing under sub-marginal conditions in problem areas. The sub-marginal land thus released could either be sown to grass or incorporated into remaining farms so as to provide a sufficiently large unit for better soil conservation methods and efficient farm management. Thus a far greater number of farmers would be affected by the proposed irrigation project than those actually in the area. The importance of this stabilization in terms of a stable rural society, resource conservation and increased production should not be under-estimated. Direct savings in community relief services alone could total hundreds of thousands of dollars over a period of years, judging by the record of performance of this area over the years.

Feed Supplies

Another aspect of stabilization of agriculture in Saskatchewan is the provision of assured feed supplies for our livestock industry. The citizens of this province have witnessed disastrous decimation of our herds because we simply could not produce sufficient feed in drought periods. Provision of assured fodder supplies through irrigation will not only prevent such disasters but will have a permanent effect on livestock production. Pasture capacity can be increased on the basis of these feed supplies and a complete integration of range and irrigated areas can be developed.

The Saskatchewan Farmers Union submits that a great contribution can be made by the South Saskatchewan River project to the stabilizing of farm conditions in the development area and also, to a great extent, in a large part of the central Saskatchewan area. We feel that without any doubt, the benefits thus derived would make themselves felt throughout a large part of our western economy. Irrigation in the area could encourage an increase in diversified farming methods with greater regularity in livestock numbers. Increased stocks of feed and fodder would also provide a near-at-home steady supply for livestock herds in other parts of southern and western Saskatchewan.

In addition to the foregoing arguments in support of the project we would like to draw the attention of the Commission to the value to be found in certain supplementary benefits to be found in farming under irrigation conditions. It would appear that home and living amenities associated with irrigated farming are more conducive to keeping people interested in maintaining the family farm and providing greater comforts to improve their own living conditions. We feel that farmers will be encouraged to landscape their home surroundings as well as providing home water and sewerage facilities.

Food Supply

While we cannot predict with certainty what foods the project will eventually produce, it is on the other hand generally accepted that livestock and vegetable products will predominate. It is necessary to ask whether a demand will exist for these products. This question has been examined by the provincial government economists. They find that for a population of 20 millions, which we may expect by 1970 if not earlier, a minimum of an additional 12 million acres will have to come into production of present production, consumption and import levels are maintained. The seriousness of this problem should not escape notice. Canada has no large untapped frontiers of agricultural lands. Scattered parcels of uncertain quality and quantity are available in northern areas but these will not be sufficient for our future food needs. Large-scale import possibilities are equally remote in a hungry world. It is thus becoming obvious that we will be obliged to look to intensified utilization of present land resources for future food supplies. In short, if Canada expects to support a growing industrialized and agricultural population within the next few decades, she must see to it that all feasible irrigation schemes are developed without delay. While irrigation is only a part of a program to increase productivity, it holds forth most promise for increased agricultural production.

Urban and Recreational Water Supply

Although the Saskatchewan Farmers Union is herein mainly concerned with water problems of agri-

culture, it is by no means unaware of the vital needs of cities and recreational areas dependent on plentiful and good water supplies.

In urban centres living amenities, industrial development and city growth are all retarded due to uncertain and insufficient supplies of water. These handicaps obtain in both Regina and Moose Jaw. It has been established that for these cities the only reliable source of water is the South Saskatchewan River and a water supply project is being constructed now to transport South Saskatchewan water. Completion of a dam at Coteau Creek will reduce the capital and operating costs of this project significantly.

The very few lakes on the open plains of the southern part of the province mean lack of recreational areas for our citizens. The South Saskatchewan Project will not only create an immense reservoir but will also permit the maintenance of levels of Last Mountain, Watrous and the Qu'Appelle Valley Lakes.

Hydro-Electric Power

While we reiterate that the main justification for construction of a dam at Coteau Creek lies with irrigation and water conservation benefits, the incidental power possibilities are of considerable significance. However, they are only significant in so far as they are a better alternative to other types of power generation. We submit that no similar choice is available with the agricultural phases.

It has been estimated by P.F.R.A. and the Provincial Government that hydro-power generation on the project offers considerable savings over alternative forms of generation. This in itself is strong justification for support of the project but in addition it should be pointed out that hydro-power utilizes a relatively permanent resource for generation purposes. Other materials such as coal and natural gas may be depleted and have in addition other valuable uses. Finally no other more beneficial use can be made of the vast bulk of South Saskatchewan water than that of power and irrigation.

The provision of large quantities of relatively cheap power can contribute greatly to stability in Saskatchewan agriculture. The province is in the early stages of rural electrification and the promise of cheap power would provide impetus to the program. This means that care should be taken not to load too much of the costs of the project onto power.

CONCLUSION

The Commission has been asked to answer two questions:

1. Whether the economic and social returns to the Canadian people on the investment in the proposed South Saskatchewan River Project (Central Saskatchewan Development) would be commensurate with the cost thereof;
2. Whether the said Project represents the most profitable and desirable use which can be made of the physical resources involved.

The Saskatchewan Farmers Union submits that both of these questions can and should be answered in the affirmative.

While we have deliberately refrained from attempting to measure exact benefits arising from the project there should be little question that the investment would be profitable viewing it in the light of a great national project. What is the cost of the project? Measured in dollars and cents on an annual basis it is an almost minute ·2% of current capital investment in Canada.

On the positive side it has been convincingly demonstrated, in both the P.F.R.A. and Provincial Government brief that dollars and cents benefits measured either in terms of farm budgets or national income are more than enough to repay the investment. These estimates do not, however, measure the value of stable communities, and human satisfaction. These are intangibles in the monetary sense but are after all the tangible objective of all our efforts.

Then too, are there real and better alternatives to the use of the physical resources involved? In the first place it is quite obvious that irrigation farming is a superior type of land use to dry land farming.

It is further submitted that there is no alternative use of the water involved. A certain amount possibly could be used in Alberta irrigation or Manitoba power production but the vast bulk of the flow has no other use. Furthermore, reports of the Prairie Provinces Water Board and the P.F.R.A. indicate conclusively that maximum use of basin water will be made by constructing the South Saskatchewan River Project.

There are two important resources involved, soil and water and there is little doubt that this project would utilize both resources at an optimum level.

The Saskatchewan Farmers Union urges the Commission to recommend the construction of this project at an early date. Its completion will represent a significant advance in Saskatchewan and Canada.

All of which is respectfully submitted by the Saskatchewan Farmers Union.

Brief for Presentation to the Royal Commission on the South Saskatchewan River Project

WM. F. MCLEOD, DILKE.

Gentlemen:

It is not my intention today to burden you with a large body of data that you already have in your possession. A great deal of work and investigation has gone into this project, and all the resulting information is available to you. My interest in appearing before you is to emphasize what I feel are the general considerations which should be borne in mind in assessing the proposed South Saskatchewan Project.

I am myself a farmer, located near Dilke, Saskatchewan. I am not, therefore, located in the irrigable area, but my land is sufficiently close to that area to be vitally affected by the changing production pattern, and social conditions, which will follow from the development of this project. In addition, I occupy the position of Director of the Saskatchewan Wheat Pool, representing District 10, which includes much of the development area. The Saskatchewan Wheat Pool, I should add, is a co-operative grain and livestock marketing organization which includes in its membership most of the farmers of Saskatchewan. I have, therefore, both an interest and a responsibility in expressing what I believe to be the views of a great majority of the farm people in this part of the province.

To the people of Canada, the advantage in a project of this kind lies in the expansion of the nation's agricultural productivity at a time when expanding population is beginning to overtake the land resources of the continent. While large export surpluses of grain are still produced in North America, this is hardly true of the capacity for the production of meat, milk and vegetables. Moreover, the world's real and growing need for this surplus grain is an economic and social fact that must be taken into account.

With population rising in both Canada and the United States at a rate far exceeding recent expectations of statisticians, there is, it seems to me, every reason to take the attitude that intensive efforts to expand food producing capacity must be made and maintained in the years to come.

Taking Saskatchewan alone, there are well-founded prospects of increasing population—population needed to operate and serve the oil and mining industries that are now being developed, and the subsidiary industries that should grow up alongside.

Any project of this kind must be judged in relation to its cost. Making such a judgment is the task of the Commission, and it would be both needless and presumptuous of me to try and suggest to you what your conclusions will be in this regard.

What I can do, however, is to assure you gentlemen that here in central Saskatchewan we take this project very seriously indeed, and in fact base our hopes for our future prosperity and welfare upon it to a great extent.

The South Saskatchewan Project is a long-term one. Ten years will complete only the initial construction (at an optimistic estimate). Ten more years would probably be too little for the program of re-settlement, land improvement, experimentation and adjustments to economic conditions that must follow. Current economic conditions, and past experience, can offer only a partial indication of what may be expected twenty or thirty or fifty years hence.

Some concrete facts can, however, be taken into account. The most important of these facts are:

1. The irrigable area in the proposed development contains a high percentage of soil types eminently suitable for irrigation.

2. These same soils, on the other hand, cannot be expected, by and large, to yield more than very moderate living standards to the people who farm it, even under favourable conditions of dry-land agriculture. Much of this land is, in fact, not really suitable for the permanent growing of cereal grains under dry-land conditions. Periods of low moisture, or of less than ideal economic trends, are disastrous to the living standards of a great many of the people who farm in this area. Actually, less than 10% of the land in the development area is classed as being excellent or good for wheat production.

3. Population in the area is decreasing, causing increasing difficulties in providing educational and municipal services.

4. Livestock numbers are low, with 80% of farms in the area classified as predominantly grain farms. Mixed farming and specialty livestock production play a relatively minor role in the area. This excessive dependence upon grain (wheat alone accounts for 70% of the seeded acreage), makes large fluctuations in income inevitable. On the large areas of submarginal and marginal land it makes severe soil deterioration a real threat.

5. In Saskatchewan there are still large numbers of uneconomic farm units—uneconomic both because of inadequate size and unsuitable land. This subject has been dealt with at some length in the Saskatchewan government's preliminary brief to the Commission. The proposed project would provide settlement opportunities for a substantial number of farmers from this and other parts of the province. An increase of 1,500 farmers would be possible in the development area itself, and these 1,500 new farmers would in turn release land which would be available for the expansion to an economic size of many existing farms in other parts of the province.

As I see it, and as I think most interested authorities see it, the main value of the project will be to serve as the basis for a stable and expanded livestock industry. This at least has been the pattern in the Val Marie area of Saskatchewan and in Alberta. As noted previously, livestock numbers in our part of the province are low, resulting in very heavy dependence upon risky cereal cash crops, principally wheat. Under dry land conditions the accumulation of a substantial livestock population in the project area is not feasible. On many farms there is not enough water for livestock. Lack of rainfall makes the growing of grasses and legumes for feed a particularly hazardous undertaking. The livestock grower is in an extremely vulnerable position. If a man does develop a good herd, he is constantly in danger of being forced by severe drought to sell it, or to import feed at prohibitive cost.

Along with thousands of others, I personally was forced in 1937 to sell out my livestock holdings at 1½ cents per pound, because of the lack of feed in that year. Statistics show a sharp drop in livestock numbers during 1937, several hundred thousand in all, and this drop represents a great volume of forced selling caused by drought. For instance, prior to the establishment of the Val Marie irrigation development in southern Saskatchewan, on the 6,000 acres involved, livestock numbers were reduced to a mere 200 head of cattle in 1937. Today, in this same area, there are 4,000. What is more, there is no danger in that area, today, that an investment in livestock which it has taken years to accumulate will be wiped out through lack of feed reserves and a total failure of the crop through drought.

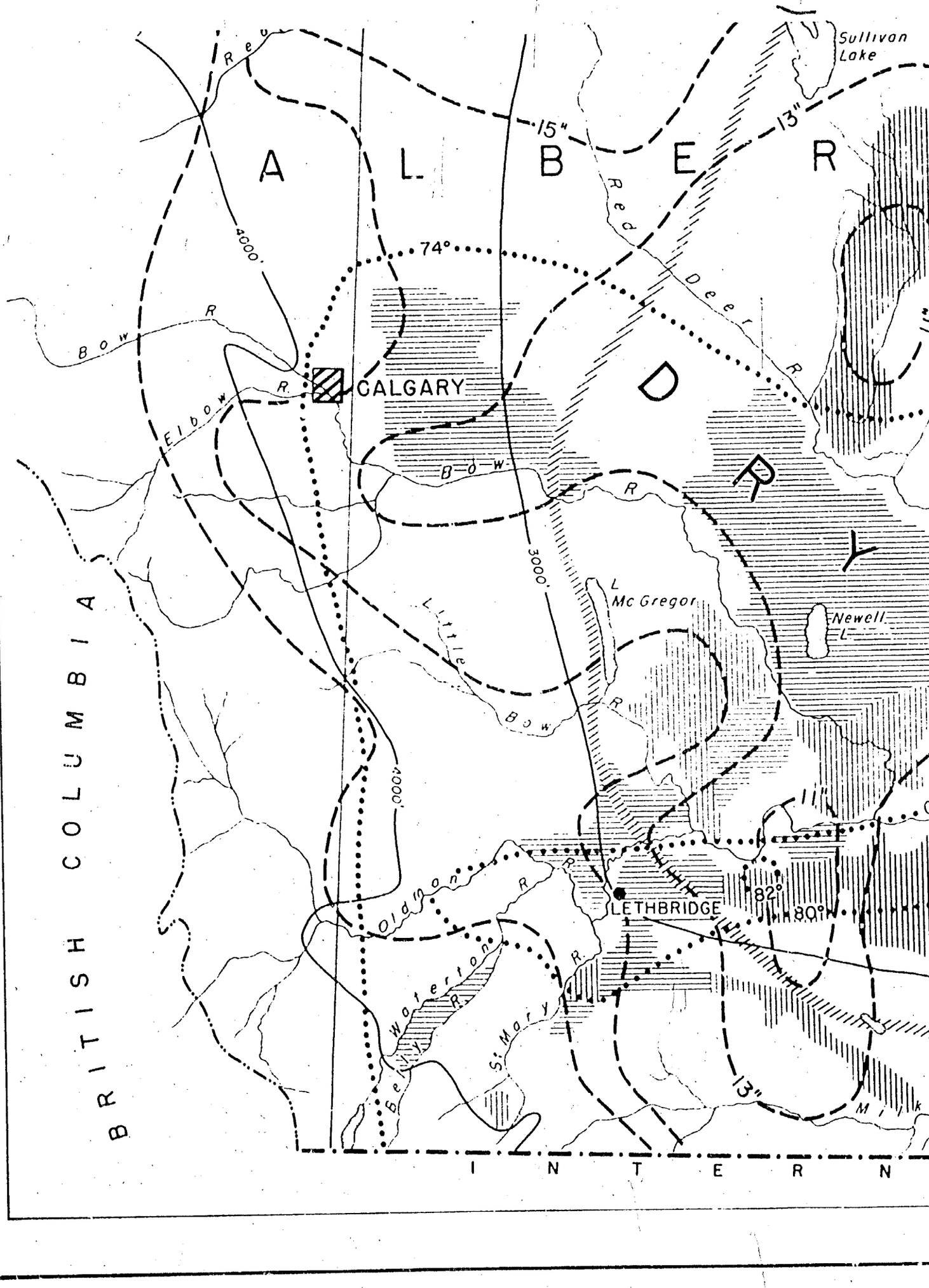
The South Saskatchewan Project would be of sufficient size to add a real element of protection and stability to the livestock industry throughout a very large part of Saskatchewan. I am told that the 6,000 irrigated acres at Val Marie form an integrated production set-up of over an area of 250,000 acres. 430,000 irrigated acres would undoubtedly bring a measure of stability to livestock production over a very large area.

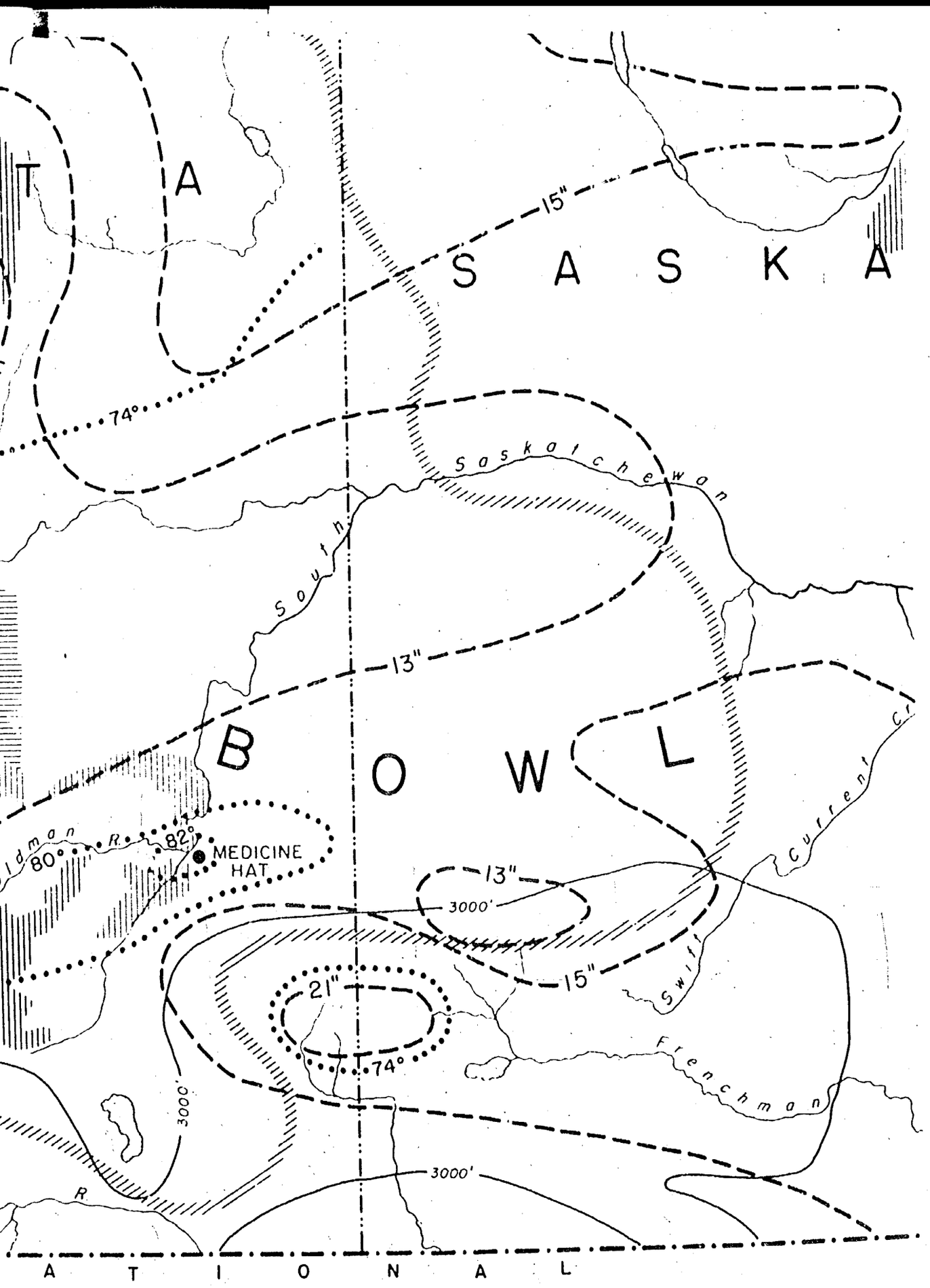
With 430,000 acres of irrigated land, feed could be produced with regularity, and reserves maintained as an important protection against drought. A great many farmers outside of the area would share in the benefits of this protection. Being partly in the nature of insurance, this dependable source of emergency feed reserves would have an effect far greater than might be indicated by the actual productive capacity of the irrigated land.

Another important advantage of the project would be its ability to provide the forage necessary to finish cattle raised in and around the irrigated areas. At the present time only some 5% of the cattle sold through Winnipeg are finished animals. On the other hand, the Vancouver market handles the highest percentage of finished cattle of any city in the Dominion, and Vancouver residents enjoy better meat than the residents of any other Canadian city. This is a direct result of Alberta's irrigation development. The cattle sold through Vancouver are drawn to a great extent from southern Alberta, where the development of irrigation on a large scale has made the production of properly finished cattle possible. The production of increased numbers of finished cattle in Saskatchewan would not only benefit farm people, but would mean better meat for Canadian consumers.

The question arises, of course, as to whether it is economically sound to plan for a major increase in livestock production in western Canada. On this point I would like to quote briefly from the June-July, 1950 issue of the Livestock Letter which is published by the Industrial and Development Council of Canadian Meat Packers. This letter discusses the long-term market prospects for meat, and it makes this statement:

> "The process of time, the growth of human populations, and industrial and economic developments are rapidly creating a community of interests between the United States and Canada which did not formerly exist. Conditions in the United States are already almost dominating the marketing of meat animals. It is, therefore, advisable to consider the problems with which we will have to deal as part of the joint U.S. and Canadian picture.... when Canada's relatively small human and animal populations are merged with the United States the combined figures indicate an almost static position (human to animal population ratio, 1936-40 and 1949) for the two countries....while the human population of Canada and the United


A L B E R
D R Y
BRITISH COLUMBIA
CALGARY
LETHBRIDGE
Sullivan Lake
15"
13"
11"
4000'
3000'
74°
82°
80°
Red Deer R.
Bow R.
Elbow R.
Little Bow R.
Oldman R.
Waterton R.
St. Mary R.
Belly R.
L. McGregor
Newell L.
INTERN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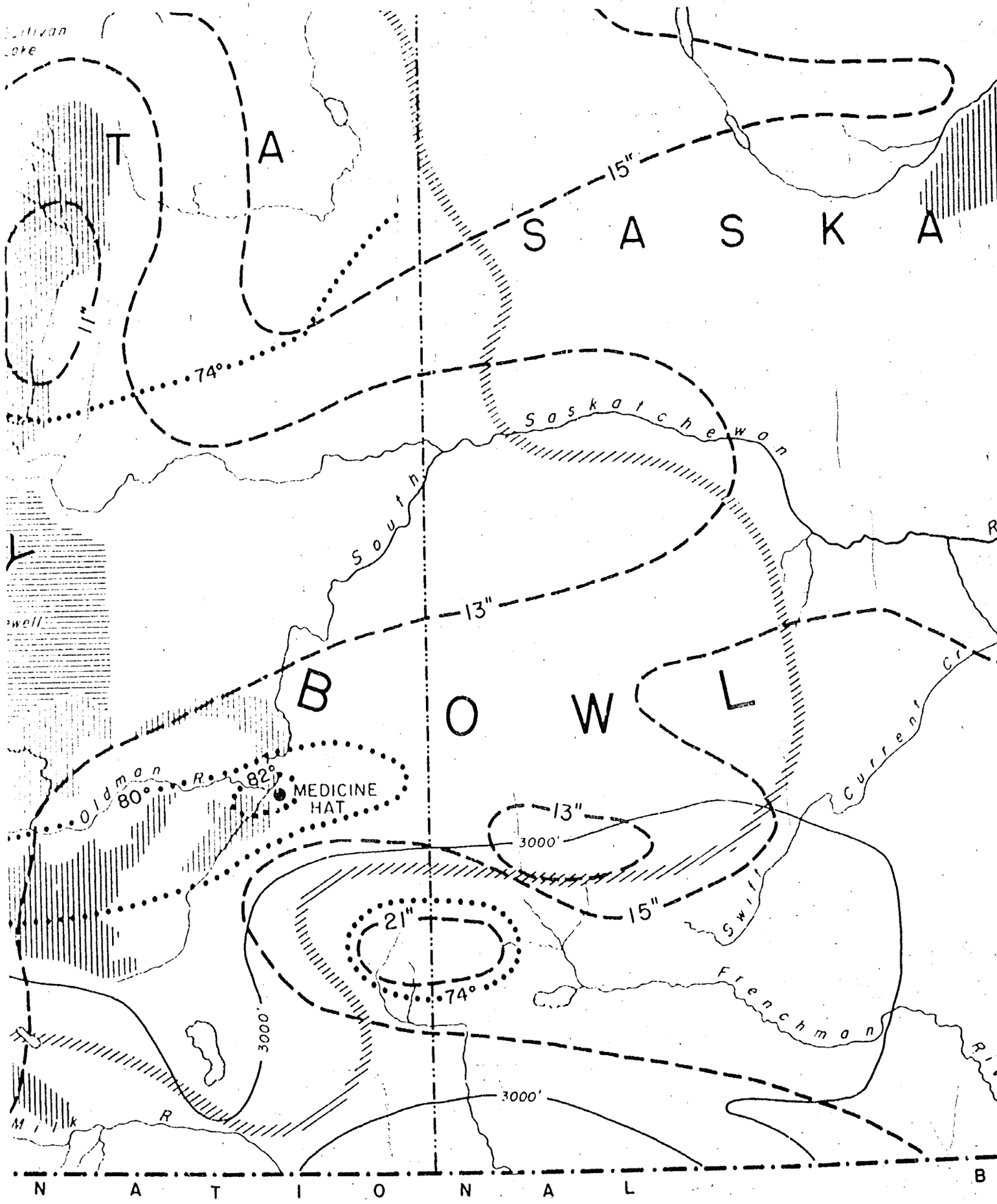
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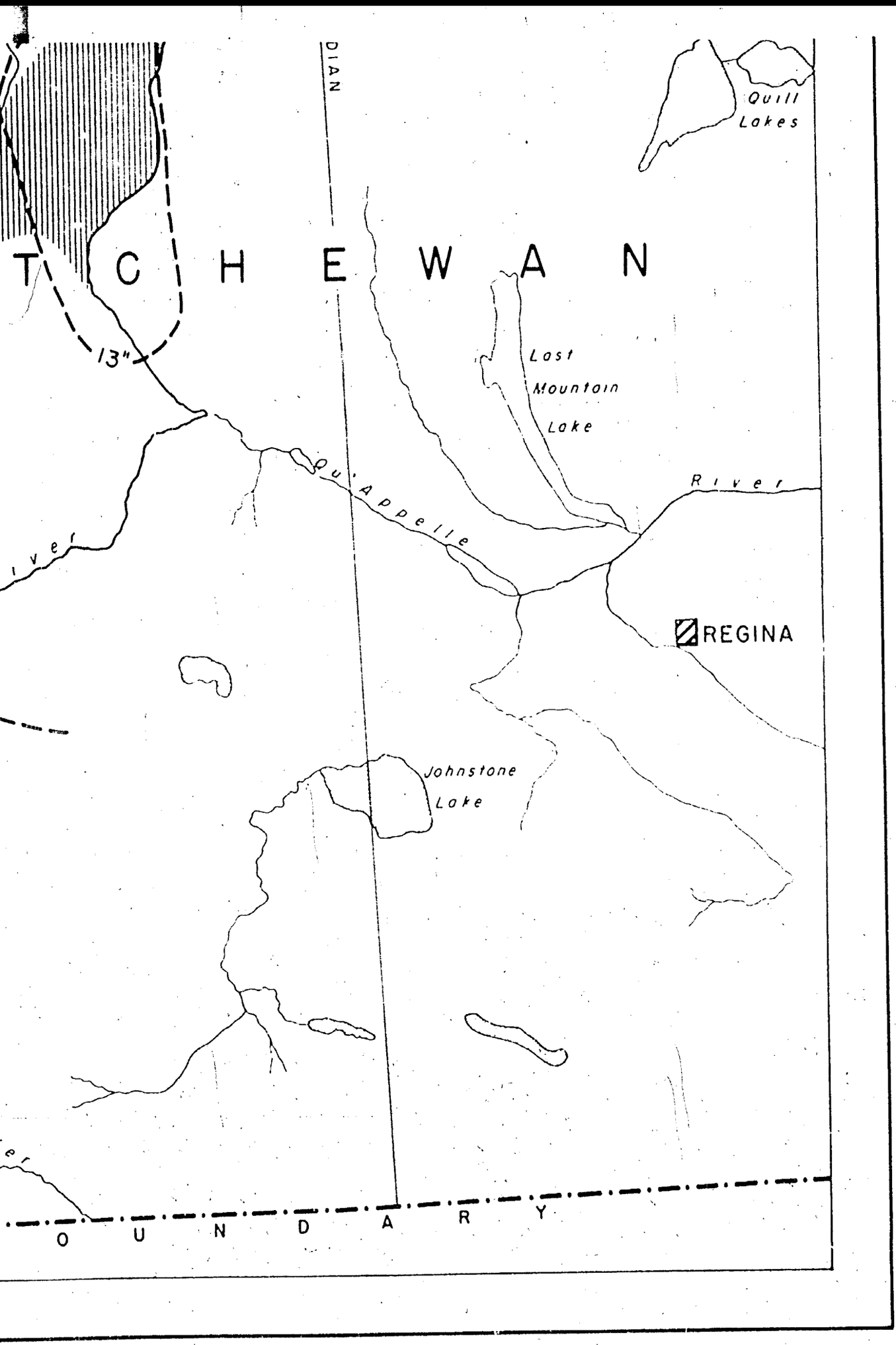
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States has increased between 1936-40 and 1949 by over 21 million persons the relationship of potential supplies of meat to consuming population has not materially changed."

The Letter then goes on to point out that per capita consumption of meat is a variable factor closely related to consumer income. With improved income the level of per capita meat consumption rose from 116·7 lbs, in 1935 to 143·8 lbs. in 1949. A peak of 155 lbs. was reached in 1947. Keeping in mind the importance of adequate consumer income to a high level of meat consumption, the Letter then states that "from the viewpoint of the future, growth of human population in North America will greatly increase demand for animal production."

The Letter ends this particular article with an extract from a publication of the American Meat Institute, which paints a picture something like this:

> The American population is increasing now at the rate of over 2,000,000 each year. By midsummer of this year (1950) the U.S. population will have doubled in 50 years—from 76,000,000 in 1900 to 152,000,000. It is estimated that every morning approximately 5,500 more people sit down to the breakfast tables of America than there were the previous day—that's 10,000,000 more people by 1955. *"We may, the Institute states, be coming in sight of the time when rising living standards combined with population growth will put pressure on our ability to expand and maintain the needed production of milk and meat."* Today the question is, "Will the American farmer produce enough meat, milk and eggs to meet the needs of the people?"
>
> One bushel of corn or equivalent in other feed grains produces about 6 pounds of meat. On the basis of the present level of meat eaten per person, about 25 bushels of corn or equivalent in other feed grains are needed to produce the meat for every man, woman and child in the U.S. during the year. This is in addition to the feed required to produce the milk, eggs and other livestock products. At this rate about 500,000,000 bushels of corn or feed equivalent will be needed in another ten years to produce the meat for the increased number of people, if the U.S. population is to eat as well as they do at present.
>
> On the present basis of diet the average civilian in the United States consumes 380 eggs, 25 to 30 lbs. of poultry, about 150 lbs. of beef, pork, veal and lamb and 750 lbs. of milk each year. If Americans continue to eat at this level and there is a 10 million increase in population by 1955, at present levels of production there will be a need for 25,000,000 more hens, 23,000,000 more broilers, 2,700,000 turkeys, 5,000,000 more hogs, 6,250,000 more beef cattle and 1,500,000 more dairy cattle just to feed the increase in population. The Institute comments, "Add to this the number of animals and poultry needed to feed the present population and it's easy to see the potential need for more livestock and poultry production."

It should be added to this that Canadian and American population increases are both proving to be ahead of most statistical forecasts. It seems to me that this single consideration—of increasing pressure on the livestock producing resources of the continent, provides ample justification for proceeding with the South Saskatchewan Project, provided that the cost is within reason. To double or triple the productivity of 430,000 to 500,000 acres of land, and at the same time add an element of stability of feed supplies which can substantially boost the whole provincial livestock potential seems to me a very worthy object.

I would like to close by emphasizing again my own belief that there is every reason to take the general attitude that the expansion of this nation's agricultural resources is not only desirable but may very possibly become a pressing need in the not too distant future. The South Saskatchewan Project would, when completed, result in a substantial increase in food-producing potential, and its desirability must be viewed from a long-term point of view.

Moreover, by undertaking this development, an insecure economy that from time to time requires financial assistance, as P.F.A.A. payments or in other forms, would be given security and stability, with a measurable financial gain to the nation as a whole, as well as great but unmeasurable benefits in the form of healthy rural communities, increased food production, rural electrification and vastly improved recreational facilities for an area badly in need of them. Some of these important aspects of the Project I am merely mentioning. They will doubtless be brought forcibly to the attention of the Commission by many interested persons.

May I close by thanking you for your attention. I trust that you will give the considerations which I have emphasized here your most serious attention.

Brief of the 18 Rural Municipalities in the Development Area to the Royal Commission on the South Saskatchewan River Development

MR. C. O. COOPER

Mr. Chairman and Gentlemen:

The announcement by the Federal Government that it would be necessary for a Royal Commission to further investigate the feasibility of the South Saskatchewan River project before the work could proceed was a matter of keen disappointment to the 18 Rural Municipalities located in the development area. It is our opinion that sufficient evidence and technical data has been accumulated to fully justify the Government proceeding with construction.

While this disappointment has been manifest on all sides we recognize that the Royal Commission is now an accomplished fact and it is our desire to co-operate and assist the Commission in every way so it may successfully complete its work at the earliest possible date. We would urge the Government to seriously consider inaugurating the initial work on the project without further delay.

Population Statistics

The development-area Rural Municipalities have viewed with alarm the continued and serious decline of population throughout Saskatchewan, which we feel could be arrested to a considerable degree by the economic and social adjustment that would naturally result from cheap electricity for industrial and rural use.

We have been especially alarmed at the particular decline in population as it has affected our 18 municipalities located within the proposed development area. We would respectfully point out to the Commission that in 1926 these 18 municipalities had a rural population of 31,672. In 1951 the population had declined to 18,297.

In 1926 the population averaged 5·28 persons per square mile. In 1951 this figure had decreased to 3·5 persons per square mile. In calculating these data we used the approximate figure of 6,000 square miles as the area of the 18 municipalities, assuming a total of 165 townships with 36 square miles per township.)

Table No. 1 gives detailed information on rural and urban populations for the census years 1926 to 1951 inclusive.

Cost of Project

It is the considered opinion of our 18 rural municipalities that statements regarding the expenditure necessary to build the project are often misleading and unrelated to actual facts.

It is our contention that this project can readily pay for itself by

(a) increasing production through irrigation.
(b) increasing settlement in the development area.
(c) developing cheaper abundant electricity for a large portion of the Province.
(d) lessening the need for P.F.A.A. assistance.

With regard to the latter point we feel that the savings to the P.F.A.A. alone would, in the course of a few years, almost pay for the building of the dam. It would be well if we were to examine P.F.A.A. figures from 1939 to 1950 to give us an idea of what the expenditure has been in the 18 municipalities coming within the development area. Table No. 2 gives this information in detail.

Irrigation in Practice

Our municipalities feel that a comparison of the proposed development area can be made with the Lethbridge area of Alberta. By climate, and nature of soil conditions, there is a marked similarity. It is further worthy of note that the irrigated area around Lethbridge constitutes roughly the same general acreage as that in the irrigable portion of the South Saskatchewan River Development Area.

We would further point out that the Lethbridge area is now maintaining an average of about 29 people per square mile while the proposed development area in Saskatchewan has only 3·5 persons per square mile.

Figures with regard to the South Alberta census, taken from the Lethbridge *Herald* of October, 1951, show that while the towns and villages all showed some considerable growth the population of the dry land wheat areas fell off slightly. On the other hand, irrigated districts showed a considerable increase in population due to the creation of new farms under the ditch and the growth of industries based upon irrigated farm products. Census District No. 2, surrounding Lethbridge, grew by 12,780 to 71,343 adding very considerably to the trade in the territory. Lethbridge's wholesale trade territory now stands at well over 125,000 persons.

Local Projects

In the Rural Municipality of Rosedale No. 283, we have several small projects in operation. We would like to draw your attention to two of these as an example of what can be expected from the development of irrigation.

One farmer, who farms 1½ sections of land had 500 acres of wheat from which he harvested about 1,200 bushels in the fall of 1950, while on his water

project of 40 acres he harvested 1,800 bushels of oats and stacked 9 loads of oat sheaves for fodder. This farmer is situated in the centre of a two township area which invariably receives the dried out bonus, and 1950 was no exception.

Another irrigation project in operation for the past two years showed a large increase in production. The farmer threshed over 3,000 bushels of barley on 65 acres. The barley was cut with a binder and threshed to assure the farmer of grain and rough feed for his herd of pure-bred Shorthorn cattle. His wheat on this project averaged 15 bushels to the acre higher than that on his dry land.

It is our opinion that this Commission should view this information in the light of general conditions that have prevailed in the Rosedale Municipality during the past year: Some figures in this connection are given below.

AGRICULTURAL AID GIVEN

1932	$ 6,466.32
1933	29,054.32
193.	26,711.97
1935	32,456.43
1936	16,337.42
1937	20,429.61
1938	104,152.69
1938 (twine and rep.)	5,487.57
1939	2,692.13
1940	272.97
1941	192.28
1942	214.84
1943	133.34
1946	120.00
1950	3,904.25
	$ 248,626.14

Approximately 320 farmers received aid in 1937-38. The average yield of wheat in the R.M. of Rosedale No. 283 for the years 1931 to 1950 inclusive was 6 bushels to the acre. P.F.A.A. assistance was paid throughout 8 years of the 10 year period of operation. During the worst drought period of the 1930's approximately 99% of the Rosedale population was on relief.

The topography of Rosedale is more suited to mixed farming than grain. However, this is hampered greatly by a continual shortage of water and pasture.

In the past 20 years the number of farmers in the 10 townships in Rosedale municipality decreased by approximately 100 separate units and a much greater number in population.

Conclusion

Eighteen Rural Municipalities in the development area feel that justification for the construction of the South Saskatchewan river project has been fully established by previous investigation, and will, we trust, be borne out by this Commission. In view of the benefits that will be derived by the general public we submit that the Government of Canada should take steps to guarantee that work begin at once, as we feel that in central Saskatchewan irrigation is our only salvation.

All of which is respectfully submitted this 17th day of July, 1952.

Signed for and on behalf of those municipalities listed below who have endorsed this brief:

C. O. COOPER.

ENDORSEMENTS

The Rural Municipality of Montrose No. 315 endorses this brief, of which this endorsement becomes a part thereof.

Signed on behalf of the council of the R.M. of Montrose No. 315.

D. T. SHANNON,
[*Seal*] *Reeve.*

The Rural Municipality of Vanscoy, No. 345, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Vanscoy, No. 345.

(Signed) G. C. LENSEN,
[*Seal*] *Reeve.*

Dated this 8th day of July, 1952.

The Rural Municipality of Cory No. 344, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Cory No. 344.

(Signed) H. H. SOMMERFELD,
[*Seal*] *Reeve.*

Dated this 23rd day of June, 1952.

The Rural Municipality of Willner, No. 253, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Willner, No. 253.

(Signed) C. H. Lick,

[*Seal*] *Reeve.*

Alfred T. Spratt
J. Alex Constable
Peter Doell
P. F. Commer
I. Ames
Frank Bender
} Councillors

G. Bygrave,
Secretary-Treasurer.

Dated this 10th day of May, 1952.

The Rural Municipality of Canaan, No. 225, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Canaan, No. 225.

(Signed) H. S. Buness,

[*Seal*] *Reeve.*

Dated this 3rd day of May, 1952.

The Rural Municipality of Rosedale, No. 283, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Rosedale, No. 283,

(Signed) C. O. Cooper,

[*Seal*] *Reeve.*

Dated this 6th day of May, 1952.

The Rural Municipality of Coteau, No. 255, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Coteau, No. 255.

(Signed) R. J. Foxcroft,

[*Seal*] *Reeve.*

Dated this 5th day of May, 1952.

The Rural Municipality of Dundurn, No. 314, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Dundurn, No. 314.

(Signed) E. R. Schwanbeck,

[*Seal*] *Reeve.*

Dated this 5th day of May, 1952.

The Rural Municipality of Lost River, No. 313, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Lost River, No. 313,

(Signed) O. J. Frost,

[*Seal*] *Reeve.*

Dated this 29th day of April, 1952.

The Rural Municipality of Maple Bush, No. 224, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Maple Bush, No. 224.

(Signed) C. E. Caldwell,

[*Seal*] *Reeve.*

Dated this 3rd day of May, 1952.

The Rural Municipality of Loreburn, No. 254, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Loreburn, No. 254.

(Signed) W. A. Norrish,

[*Seal*] *Reeve.*

Dated this 19th day of April, 1952.

The Rural Municipality of Fertile Valley, No. 285, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Fertile Valley, No. 285.

(Signed) J. S. Weldon,

[*Seal*] *Reeve.*

Dated this 21st day of April, 1952.

The Rural Municipality of Eagle Creek, No. 376, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Eagle Creek, No. 376,

(Signed) P. J. NESTRANSKY,

[*Seal*] *Reeve.*

Dated this 3rd day of May, 1952.

The Rural Municipality of Rudy, No. 284, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Rudy, No. 284.

(Signed) J. HARRINGTON,

[*Seal*] *Reeve.*

Dated this 29th day of May, 1952.

The Rural Municipality of Huron, No. 223, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Huron, No. 223.

(Signed) C. W. WILSON,

[*Seal*] *Reeve,*

Dated this 10th day of June, 1952

The Rural Municipality of Blucher, No. 343, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Blucher, No. 343.

(Signed) E. G. BALDWIN,

[*Seal*] *Reeve,*

Dated this 2nd day of June, 1952

The Rural Municipality of Perdue, No. 346, endorse this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Perdue, No. 346.

(Signed) J. D. MILLER,

[*Seal*] *Reeve,*

Dated this 7th day of July, 1952

The Rural Municipality of Park, No. 375, endorses this brief, of which this endorsement hereby becomes a part.

For, and on behalf of the Council of the Rural Municipality of Park, No. 375.

(Signed) J. J. WURTZ,

[*Seal*] *Reeve,*

Dated this 14th day of July, 1952

TABLE 1

Population Statistics

R.M.	—		1926	1931	1936	1941	1946	1951
223	Huron	R.	1,307	1,201	832	843	750	612
		U.	303	234	206	236	243	186
		T.	1,610	1,435	1,038	1,079	993	798
224	Maple Bush	R.	1,499	1,562	1,161	938	817	664
		U.	378	412	323	369	323	292
		T.	1,877	1,974	1,484	1,307	1,140	956
225	Canaan	R.	958	1,100	853	727	617	458
		U.	196	291	280	268	309	344
		T.	1,154	1,391	1,133	995	926	802
253	Wilner	R.	1,284	1,284	996	973	741	745
		U.	.....	.....	.....	.....	.....	.....
		T.	1,284	1,284	996	973	741	745
254	Loreburn	R.	2,399	2,323	1,579	1,446	1,265	1,078
		U.	858	838	581	630	748	730
		T.	3,257	3,161	2,160	2,076	2,013	1,808
255	Coteau	R.	1,628	1,739	1,444	1,218	944	879
		U.	272	318	229	234	275	265
		T.	1,900	2,057	1,673	1,452	1,219	1,144
283	Rosedale	R.	1,789	1,683	1,385	1,205	1,040	881
		U.	368	362	287	380	359	358
		T.	2,157	2,045	1,672	1,585	1,399	1,239
284	Rudy	R.	1,918	1,940	1,548	1,415	1,129	870
		U.	881	975	833	728	834	896
		T.	2,799	2,915	2,381	2,143	1,963	1,766
285	Fertile Valley	R.	2,383	2,270	2,034	1,678	1,327	1,156
		U.	698	687	508	525	518	549
		T.	3,081	2,957	2,542	2,203	1,845	1,705

TABLE 1 (cont.)

R.M.	—	1926	1931	1936	1941	1946	1951
313	Lost River. R.	1,241	1,271	1,159	1,032	910	725
	U.	.....	.....	.....	.....	.....	.....
	T.	1,241	1,271	1,159	1,032	910	725
314	Dundurn... R.	1,244	1,343	1,498	1,050	844	767
	U.	231	280	257	344	343	298
	T.	1,475	1,623	1,755	1,400	1,187	1,065
315	Montrose... R.	1,450	1,434	1,162	1,022	839	767
	U.	50	62	46	42	34	45
	T.	1,500	1,496	1,208	1,064	873	812
343	Blucher.... R.	1,965	1,953	1,853	1,672	1,386	1,178
	U.	633	600	573	616	623	550
	T.	2,598	2,553	2,426	2,288	2,009	1,728
344	Cory..... R.	2,502	2,923	2,464	2,307	2,053	2,751
	U.	32,244	44,439	42,676	43,915	47,074	54,597
	T.	34,746	47,362	45,140	46,222	49,127	57,348

TABLE 1 (cont.)

R.M.	—	1926	1931	1936	1941	1946	1951
345	Vanscoy.... R.	2,133	2,089	1,890	1,684	1,410	1,057
	U.	753	752	663	664	699	775
	T.	2,886	2,841	2,553	2,348	2,109	1,832
346	Perdue..... R.	1,833	1,718	1,625	1,348	1,041	906
	U.	629	528	452	463	497	553
	T.	2,462	2,246	2,077	1,811	1,538	1,459
375	Park..... R.	2,155	2,212	2,170	1,850	1,676	1,261
	U.	416	412	390	318	311	305
	T.	2,571	2,624	2,560	2,168	1,987	1,566
376	Eagle Creek.... R.	1,984	2,284	2,334	2,109	1,725	1,542
	U.	.....	.....	.....	.....	108	.....
	T.	1,984	2,284	2,334	2,109	1,833	1,542
	Total—Rural...	31,672	32,329	27,987	24,523	20,514	18,297
	Urban..	38,910	51,190	48,304	49,732	53,294	60,743
	Area....	70,582	83,519	76,291	74,255	74,808	79,040

TABLE 2
Prairie Farm Assistance Act

R.M.	P.F.A.A. Farmers	1939 Payments	P.F.A.A. Farmers	1940 Payments	P.F.A.A. Farmers	1941 Payments	P.F.A.A. Farmers	1943 Payments
		$ cts.		$ cts.		$ cts.		$ cts.
223.....	93	11,957 80	179	22,706 30	229	68,449 78	28	5,103 00
224.....	77	11,495 00	268	48,142 95	314	116,961 12	.....	.....
225.....	26	3,837 50	176	30,783 38	201	77,289 41	114	24,811 50
253.....	30	3,911 50	189	36,954 86	275	107,542 19	.....	.....
254.....	.....	.....	369	81,861 37	410	137,,96 70	.....	.....
255.....	.....	.....	247	35,958 07	301	84,278 01	.....	.....
283.....	20	2,278 00	97	18,567 17	345	136,414 88	58	14,116 50
284.....	13	1,529 50	331	67,352 51	461	158,862 22	18	3,354 00
285.....	.....	.....	39	3,719 25	376	137,655 45	.....	.....
313.....	42	5,910 50	114	12,583 80	234	63,535 46	.....	.....
314.....	70	11,917 35	87	7,454 70	210	47,030 14	52	8,513 25
315.....	25	1,290 50	11	468 45	233	55,843 95	85	12,822 59
343.....	47	6,363 50	112	14,222 70	365	114,340 13	.....	.....
344.....	77	8,806 90	86	10,159 20	376	85,259 23	80	13,173 75
345.....	.....	.....	.....	.....	407	80,693 07	143	33,160 31
346.....	.....	.....	.....	.....	339	54,606 60	189	47,093 41
375.....	85	6,636 00	83	5,655 60	432	53,664 00	376	62,289 56
376.....	.....	.....	41	3,605 25	360	35,753 68	351	79,838 [illegible]
Totals.....	605	75,934 05	2,429	400,255 46	5,877	1,615,876 05	1,494	304,276 77

TABLE 2 (cont.)

R.M.	P.F.A.A. Farmers	1944 Payments	P.F.A.A. Farmers	1945 Payments	P.F.A.A. Farmers	1946 Payments	P.F.A.A. Farmers	1947 Payments
		$ cts.		$ cts.		$ cts.		$ cts.
223			130	32,548 46	161	34,513 00	209	48,488 25
224			282	76,859 67	138	25,997 25	281	74,217 50
225			183	75,375 29			192	47,448 00
253			125	27,741 75	279	77,787 60	214	52,395 00
254			41	10,560 00	122	27,438 23	424	134,036 50
255			204	48,976 74			210	45,039 00
283			193	47,811 75	308	82,284 24	345	152,015 00
284			327	74,850 52	359	90,251 65	448	122,028 75
285			343	84,848 97	116	26,622 00	329	74,560 50
313			80	18,046 50	51	9,900 00	236	83,891 55
314			85	20,934 65	88	22,251 01	202	49,979 75
315			228	63,332 68	230	54,638 88	243	59,615 00
343			296	69,695 25	289	65,296 09	359	132,557 00
344			313	61,066 93	143	26,032 00	352	71,226 00
345			378	112,101 89	358	77,676 42	403	103,791 00
346			350	108,488 90	292	68,831 96	355	131,081 25
375			377	70,033 07	355	61,317 25	422	126,832 95
376			422	126,479 68	372	84,774 58	436	162,179 65
Totals			4,366	1,129,755 70	3,661	835,618 19	5,569	1,675,282 65

TABLE 2 (cont.)

R.M.	P.F.A.A. Farmers	1948 Payments	P.F.A.A. Farmers	1949 Payments	P.F.A.A. Farmers	1950 Payments
		$ cts.		$ cts.		$ cts.
223	246	91,068 75	240	99,943 75	237	64,054 50
224	315	125,106 75	315	127,979 25	318	116,668 25
225	198	70,603 75	149	65,112 50	142	63,432 00
253	306	86,305 50	306	127,028 75	294	77,164 50
254	452	169,672 55	458	189,688 50	454	112,353 75
255	272	102,111 75	279	109,133 75	237	61,013 00
283	328	137,941 75	356	157,085 00	331	101,873 50
284	448	151,177 50	370	104,628 25	318	74,547 75
285	352	103,272 95	235	57,292 25	66	75,411 75
313	212	64,346 75	245	79,511 75	244	57,136 50
314	203	55,577 00	255	79,786 35	12	2,304 75
315	239	92,621 00	173	39,164 40		
343	371	109,806 75	324	73,089 75	117	25,497 75
344	348	78,504 25	282	58,717 50		
345	399	124,712 75	350	78,040 50		
346	291	67,600 50	131	29,407 50		
375	426	99,559 25	257	52,036 25		
376	309	58,884 00	60	12,720 00		
Totals	5,715	1,793,873 50	4,785	1,540,375 00	2,770	831,458 00

TOTAL OF PAYMENTS IN THE DEVELOPMENT AREA..... $ 10,202,705 37

NUMBER OF PAYMENTS..... 37,371 00

A Submission of the City of Regina to the Royal Commission Investigating the South Saskatchewan River Development

Ald. L. H. Hammond

Gentlemen:

The Mayor and Council of the City of Regina, wish to place on record on behalf of the citizens they represent, their interest in and support of the proposed South Saskatchewan River development project.

The general economic stability which such a project will assist in giving to Saskatchewan will no doubt be developed by organizations interested in the overall aspects of the works. The City of Regina will confine its remarks to specific benefits to this community. In fact, in the interests of brevity and non-repetition, only two matters will be discussed. These two items, however, are ones that vitally concern this community.

This city, in common with southern Saskatchewan, at present as in the past, is dependent for its growth and economic welfare to a very large extent on the fortunes of the wheat farmer. It is common knowledge that as the farmer goes, so go the cities in this section of the province. This fact was demonstrated in the decade of the 1930's. The succession of crop failures caused by the severe and continuing drought which left the farmer with little or no income, was reflected almost immediately in the affairs of the city. With the restricted sources of revenue available to a municipality, it is difficult enough to carry out the normal functions of that level of government. However, with those sources gradually shrinking as incomes become lower or completely disappear, coupled with the tremendous burden of responsibility for the very livelihood of thousands of the residents, the result can only be crippling and disastrous. This applies not only to the current year, but for many to follow. It is recognized that all municipalities suffered a setback in the depression years, but it is doubtful if any were subjected to such a strain on its financial structure as experienced by this city.

For five out of the nine years, it can be seen that one-fifth of the population of this city was not self-supporting. Added to that, of course, was the fact that many more barely provided for day-to-day living and were unable to fulfil their municipal tax obligations. For instance, in 1935, the peak year so far as numbers receiving aid is concerned, less than 60 per cent of the tax levy was collected, and the total revenues to the city were only $3,351,460. Obviously, therefore, it was necessary to supplement current revenues, which was done by issue of debentures. This in turn has burdened the city's finances for many years after the debt was created.

The following table sets out the figures for providing relief in the City of Regina from 1931 to 1939 inclusive:

Year	Population	Number of persons receiving social aid assistance	Cost of that social aid to the city
			$
1931	53,209	5,003	373,149
1932	.....	8,786	530,371
1933	.....	9,615	803,569
1934	.....	10,318	1,190,043
1935	.....	10,003	1,219,459
1936	53,354	10,872	1,319,791
1937	.....	10,595	1,378,036
1938	.....	10,267	1,388,283
1939	.....	8,575	1,138,926

Add $777,000.00 for medical relief for the nine year period.

The table also points up the fact, that Regina continued to suffer for some years after the world economic situation had returned to a degree of normalcy. This was due to the continuation of the drought and abnormal crop production. In other areas where a more diversified economy prevailed, the return to more buoyant incomes for the individuals was very much swifter. If one may take the Financial Post Business Year Book as a reasonable authority, it will be noted the City of Lethbridge which enjoyed the benefits derived from irrigated soil, did not suffer as did Regina, and furthermore, rebounded very rapidly. For instance, in Lethbridge in 1931 the total production from manufactured products was valued at $2,335,000, in 1935 it was approximately the same, by 1937 it had increased by 20 per cent, and held that gain through 1939; whereas in Regina, the value placed on such products in 1931 was $18,061,000, but in 1935 it had decreased to $8,867,000, in 1937 it was still 33 per cent below 1931 and even by 1939 was a million dollars below the 1931 figure. If automobiles can be used as any kind of index, in Lethbridge registrations in 1939 were 12 per cent higher than in 1931. In Regina, the 1939 figure indicates registrations were 10 per cent lower than in 1931. One must conclude then, that irrigation is a real factor in rendering more stable the community income.

It is realized, of course, that one cannot draw an exact parallel between the two cities, but surely it is a reasonable assumption that irrigation, as it would be made possible by the South Saskatchewan River development, will to a very great degree, diversify and stabilize the present hazardous one-crop gamble. One must also assume that other industries will be attracted to such a district, and that the aggregate of all this must be a brighter outlook for those urban municipalities within and bordering the area, should nature once more become perverse.

Due to the tremendous burden carried by the municipality in the '30's, our citizens are still suffering from the lack of amenities which one normally associates with urban dwelling, and any possibility of such a load again being placed on our financial structure would be viewed with alarm. From this aspect, therefore, the citizens of this City would welcome an early decision of the Government of Canada to proceed with the project.

A matter of paramount importance in the life of this community is the supply of water. From the commencement of our waterworks scheme, this necessity has been obtained from underground wells. The hazards of such a supply have been recognized for years and surveys by our own staff and other experts have always pointed to only one practical source of surface supply—the South Saskatchewan River either directly or by the Qu'Appelle Valley. In this valley is found Buffalo Pound Lake, a natural storage basin which is so located that both the cities of Moose Jaw and Regina may take advantage of its water. Studies showed, however, that this basin in its natural state, could not impound sufficient water, nor were its normal sources of supply adequate, if it was to be used as the sole source of supply for the two cities. In fact, it was insufficient for Regina's use alone if the present wells had to be abandoned. In 1950 a decision was made to proceed with the Buffalo Pound Lake project as the source of Regina's water supply and the Government of Canada was requested to grant what assistance it could. On May 29th of that year, the Minister of Resources and Development communicated to the Premier of Saskatchewan that he had been authorized to inform the Premier that if the City of Regina, or any other city, and the Government of Saskatchewan could work out a satisfactory arrangement for making use of the water in this lake and would take steps to that end, the Federal Government would undertake a project designed to maintain an adequate supply of water in Buffalo Pound Lake. With this assurance, a satisfactory arrangement has been worked out between the Government of Saskatchewan, and the cities of Regina and Moose Jaw. The net result is that the City of Regina has now embarked on a scheme at an estimated cost to it of $5,500,000 to purify and pump water from Buffalo Pound Lake to this city.

One of the large factors involved in the ultimate success of the scheme is the assured supply of water in Buffalo Pound Lake. The supplementary source of water to maintain this level is the South Saskatchewan River where it is planned to pump water over a height of land into the natural canal of the Qu'Appelle River. If the South Saskatchewan River development project is completed as now planned, this pumping will be unnecessary as the water level will be raised to such an extent that the water of the river can be diverted into the Qu'Appelle Valley and Buffalo Pound Lake by natural gravity flow.

The Prairie Farm Rehabilitation Act office has been charged with the responsibility of fulfilling the Federal Government's commitment and thus with this pumping problem. Their present estimate of the capital cost of carrying out the work is $1,170,000. It has been suggested that if the City of Regina keeps its present sources of water supply in operation to supplement the natural inflow to Buffalo Pound Lake until water can be diverted from the South Saskatchewan River by gravity, and thereby be prepared to tolerate the possibility of a shortage, the savings to Canada would be the total of the capital cost of the pumping project. No one, of course, is prepared to make such a decision at this time. The fact remains, consideration cannot be given to such a question until the South Saskatchewan River development project is commenced.

One thing is known. The estimated yearly cost of operating the pumping project by the Government of Canada is $60,000 per year until 1970, $75,000 per year from 1970 to 1980, and $90,000 per year thereafter. These yearly savings will very definitely be made when the project is completed.

There are other benefits which will be derived from the project so far as Buffalo Pound Lake is concerned. A pumping plant to raise water from the South Saskatchewan River into the Qu'Appelle Valley will be subject to all the vagaries of mechanical interruptions, including electrical failures. The canal at the head of the Qu'Appelle Valley between the river and Buffalo Pound Lake, is known to be a difficult one for the flow of a small stream owing to its sandy and porous nature. It is anticipated difficulty might be experienced in obtaining water at the lake from the river without a very great loss in volume. Large quantities of water available by natural gravity flow, such as anticipated as the result of the South Saskatchewan River develop-

ment, would overcome all these possibilities and provide the real solution for an assured supply of water for the cities of Regina and Moose Jaw and other municipalities who might participate in the Buffalo Pound Lake project.

Another benefit accruing to the City of Regina from the large potential supply to be stored in the proposed dam, is the quality of water which would be diverted to Buffalo Pound Lake. With a large head available at the dam, Buffalo Pound Lake could be flushed out periodically thereby eliminating its present stagnancy, and with a consequent drop in algae content. This would have the immediate effect of reducing the cost of treatment. The present estimaed cost of chemicals for treatment of Buffalo Pound Lake water is $52 per million galions. The exact saving cannot be computed with any degree of accuracy, but it is known that in Saskatoon where Saskatchewan River water is used, the cost of chemicals for treatment is approximately $7 per million gallons. It is expected that a very considerable amount of the difference between these two figures would be saved by the City of Regina.

The quality of water would also have a very material effect on the amount which could be treated with present equipment. It is esimated if six million gallons per day is the maximum which can be treated when the plant commences operation using Buffalo Pound Lake water, at least two million gallons per day more could be treated of the purer water diverted by natural gravity means from the South Saskatchewan River. This additional output would be very welcome when it became necessary to use Buffalo Pound Lake as the sole source of supply for this city, and could postpone for some time further capital outlays to expand the treatment plant.

It can be seen, therefore, that every citizen in this city is keenly interested in the South Saskatchewan River development from the standpoint alone of his own water supply.

The two arguments developed in this submission may be minor in comparison to the very substantial benefits which can be expected for many people if the project is completed. It is our belief, however, that they are sufficient to indicate to the Government of Canada that the more than seventy thousand citizens of this city are wholeheartedly in favour of the commencement of the South Saskatchewan River development project at the earliest date possible, and its subsequent completion without undue delay.

Submission of the Regina Chamber of Commerce to the Royal Commission Investigating the Proposed South Saskatchewan River Development

MR. ALEX AITKEN

Gentlemen:—

The Regina Chamber of Commerce, representing the commercial, industrial, and professional community of Regina, is vitally interested in the proposal to dam the South Saskatchewan River for irrigation, power, and domestic water supplies.

We realize that Regina is a considerable distance from the area which will be developed. None of the water conserved is to be applied to the Regina plains. Nevertheless we recognize that Regina is in the Palliser Triangle, and that farming—even in these fertile plains, is subject to great variations. The long range average wheat production for the Regina district is only 13·8 bushels per acre.

Agriculture is our basic industry, and we are constantly conscious of its insecurity because of drougth and other factors. We believe that an area of assured productivity in any part of this province would be in the interest of all.

Regina is fundamentally a distributing centre. Retail and wholesale volume is in the neighborhood of 250 million dollars annually. In doing this amount of business, Regina serves a wide area.

For some lines, such as the mail order and general store business, it is the entire province. For other lines, such as drugs and machinery, the area of distribution is the south half of the more heavily populated area of the province. Regina is undoubtedly one of the biggest centres for the distribution of farm machinery in the world, but in the final analysis all Regina business is directly dependent on farm purchasing power.

We do not believe it is possible to make a breakdown of the economic value of a dam on the South Saskatchewan River to Regina's trading area. We do not have figures on the volume of business coming from that area now, nor are we equipped with staff or facilities to analyze the changes irrigation would make such as: The increased number of people that would live in the area; the increase in the volume of production, the increase in the value of that production; the increased purchasing power that would be created; and other factors.

However, we can draw some conclusions regarding those changes by the observations of those with experience. The booklet "More Green Acres" published by

the Lethbridge Chamber of Commerce describes the development of new irrigated areas in that area in the following words:

> "All will be self-supporting, and as they establish themselves they will spend large sums to buy all the things they need. Thus the demand for building supplies, home equipment, and farm machinery, clothing, and hundreds of other items will be sharply increased. *This obviously means greater prosperity for business and industry far or near, until the whole national economy will feel the benefit.*" (Italics by the Chamber of Commerce.)

The ramifications of the business arising from irrigation are apparently too extensive and too complex to be easily traced or analyzed. We do not for a moment conclude that benefits in the Saskatchewan River Development area would all accrue or mainly accrue to Regina. Regina is competition for other urban centres. However, the Regina Chamber of Commerce believes that benefits from development to any rural or urban area in the province accrues to all other competing areas. The Regina Chamber of Commerce is convinced that Regina as a trading centre would benefit materially and substantially by the proposed irrigation scheme.

Though basically a distributing centre, Regina has an industrial volume of approximately $50,000,000 annually with about 3,000 of its citizens finding employment and a livelihood in industrial activities. To some extent these industries are processing agricultural products at present. These are mainly confined to bakeries, creameries, and meat packing establishments.

The Regina Chamber believes that a greater degree of secondary industries would add balance to the city's economy. The combination of drought and depression decreased Saskatchewan's income by 74 per cent. This is partly the result of $\frac{9}{10}$ of Saskatchewan's population being dependent upon one crop.

The Regina Chamber of Commerce has long advocated a greater degree of diversification and decentralization of industry in Canada. Saskatchewan has but 1·8 per cent of the industrial production of Canada, and the people of the province represented by the Chamber of Commerce movement are of the opinion that Saskatchewan has not received a fair share of defence contracts.

There are no doubt fundamental reasons for this situation. We have lacked the basic industries in which to build new products to meet new situations. A diversification of at least a part of our economy, we believe, would help to correct that situation.

This correction can be made in a substantial part by the Saskatchewan River Development project. Added population will provide new markets. New products will bring new industries. Lack of adequate supplies of water and cheap power which has hampered industrial growth will be removed to a substantial degree for part of the province at least.

Regina has capacity in meat packing and creameries for an increasing supply of livestock and dairy products. There is not enough raw milk production in its immediate area to supply the population of the city. We hope that the development of the South Saskatchewan will bring an intensification and diversification of agriculture in the Qu'Appelle Valley that will correct this situation.

Again we find it difficult, if not impossible, to put a dollars and cents value on the contribution that the development of the South Saskatchewan would make to the industrialization of that area, and directly or indirectly to Regina. We do not have the data on the products that could be grown suitable for processing. We do know, however, that we are very dependent on distant outside sources for some of our common supplies.

For instance, 80 per cent of our groceries is imported, 95 per cent of our fruit and vegetables is imported, 85 per cent of our clothing is imported, 100 per cent of our fine footwear is imported. Obviously, Regina will have to continue to import many commodities. We believe that some of the above lines can be produced and processed within the province and eliminate some of the costs of transportation involved in bringing these products from great distances.

With the exploration for oil and gas in the province and the promise which this has already brought, we consider the time is propitious for the South Saskatchewan Development because it brings a combination of water, power, and gas for industry. Here we could again quote from the Lethbridge area, which points out that the digging of ditches and the building of dams is not the whole story, for that story includes the growth of industry and the increasing prosperity of the whole community.

In summary and conclusion may we quote from the Economic Review for Saskatchewan for June, 1952, as follows:

> "For economic security in the long run, two things are essential: A more stable base for agriculture, and a greater diversification of industry."

We recognize that the South Saskatchewan River Development project cannot make for complete security for a whole province. We do believe, however, that that development will make a major contribution to that security.

We believe that the summary report by the P.F.R.A. on the South Saskatchewan Development on this point is a very conservative one wherein it reads on page 2:

> "It may be assumed that in full development there would be more than twice the number of farms in the areas than exist today, producing as much as two-and-one-half times the volume of produce, and supporting nearly three times the present population; but possibly of more importance would be the creation of more diversity of interests and stability of enterprise than have hitherto existed, the incidence of which will go beyond the development area."

These estimates seem very conservative when compared with the figures quoted in "More Green Acres" in describing the Southern Alberta experience. Though the area to be irrigated is not ranching, it is sparsely settled and similar in some respects to ranching country. The quotation is as follows:

> "Referring specifically to the new development in Southern Alberta, sparsely settled areas now used for grazing cattle will be divided into comparatively small holdings devoted to row crops, cereals, dairying, and livestock feeding. As a result, the density of population will increase from two or three persons per square mile to more than thirty."

The Chamber of Commerce has not attempted to supply figures on the direct benefits of the South Saskatchewan River project. We believe that such figures will come from more competent authorities than we.

We have emphasized the importance of indirect benefits to our city and to the province, the interests of both being entirely intermingled. These indirect benefits are considered by some to be greater than the direct benefits.

The Honourable C. D. Howe suggested this relatively greater importance in a speech at Lethbridge in 1946 when he said:

> "Any analysis of the benefits of irrigation must make it apparent that its benefits accrue to the state, and to the community serving the irrigated area, *perhaps to a greater degree than to the individual farmer.* Greater density of farming populations benefits the municipality that serves the area, and greater volume and greater value of crop production benefits both the province and the Dominion." (Italics by Chamber of Commerce.)

Some go far beyond the Honourable Minister in appraising the relative importance of direct and indirect benefits. Frankly, the Regina Chamber of Commerce does not know if an accurate check can ever be made of the indirect, regional, and national benefits of this project or of such projects as the St. Lawrence Waterway, and Trans Canada Highways.

The Chamber accepts the conclusion, again of the Honourable C. D. Howe, quoting from the same address when he says:

> "It is because of the value of irrigation to the state that governments are prepared to contribute largely to the cost of irrigation development."

The Regina Chamber of Commerce believes that the South Saskatchewan River Development project has such value that it does merit the support of all Canadians, and that it should be proceeded with now.

Respectfully submitted by The Regina
Chamber of Commerce
September 10th, 1952

G. F. CONNELL,
President.

A. AITKEN,
Secretary.

Brief of the Council of the City of Moose Jaw for Presentation to the Commission Appointed in Respect of the Proposed Construction of a Dam on the South Saskatchewan River

MAYOR L. H. LEWRY

Moose Jaw's Support of Plan has been consistent

From the moment when the project was first proposed, every Citizen of Moose Jaw has given support and approval to the plan for the construction of a dam on the South Saskatchewan River, in the vicinity of Outlook.

City's Economic Life dependent upon thriving Agricultural Community.

The reason for such support is readily understandable; Moose Jaw is primarily an agricultural centre; our economic welfare is linked directly with that of the surrounding farming community, embracing, as a major part, the lands between the city and Outlook which could be brought under irrigation if the project is carried out.

Moose Jaw's Situation compared with Lethbridge

Moose Jaw's economic life may be compared with that of Lethbridge. Both cities depend almost wholly upon agricultural production within their respective

trading areas. Irrigation in the Lethbridge area has assured a balanced production with reasonably steady employment and income. At Moose Jaw we have learned that one crop failure in our vicinity can and does have an immediate adverse effect upon the prosperity of our citizens; a series of successive crop failures brings unemployment, and business failures; tax defaults occur, and the whole civic plant deteriorates through lack of funds for maintenance.

Drought Years Reviewed

The drought years, 1930-40, brought disaster to the city. We sold our electric light and power plant in 1930 for $2,875,500 and used the money mainly to provide relief for our needy citizens and to pay the instalments of principal and interest maturing on our debenture debt.

In 1937, we were forced, through lack of funds, to default on our debenture debt, and were unable to resume payments until 1946.

The attached schedule gives particulars of the cost of direct relief, and the numbers of our citizens who were obliged to seek aid during the drought years.

This schedule indicates only part of the financial cost; tax arrears accumulated, on which substantial discounts ultimately had to be granted, and costs on deferred maintenance were greatly increased by reason of the delay in carrying out such works.

The schedule also indicates that, while relief was not a material problem prior to 1930, many of those citizens who were out of employment for 10 years or more, have not since been able to re-establish themselves, and still require aid; thus we and they are still paying the toll of the succession of crop failures in our community.

We also provided aid to many rural families

Our relief problem was aggravated also by the large numbers of rural people who failed on their farms, and moved to the city. A check made during the peak relief years showed that one-third of those for whom we were providing, came to the city from rural areas subsequently to 1928.

The dread toll of drought can be partially averted

The point we wish to stress here is that the misfortunes which befell the city and its citizens during the drought years would have been considerably lessened had the large area to our north, between the city and Outlook been under irrigation. In recalling the effects of the drought on Moose Jaw and its citizens, we should not forget the appalling suffering of the families trying to eke out an existence on the farms. Our aim now should be to avert, as far as humanly possible, a repetition of that disaster.

The Dam will assure an adequate supply of water for Municipal Purposes

One other reason we in Moose Jaw support this project, is that it will assure this city of an adequate and constant water supply.

Our main water supply is at present derived from a natural reservoir at Caron, which has to be replenished by water pumped from the river near Riverhurst and transmitted by gravity flow down a 70 mile long earthen canal to the reservoir. At low periods the sands shift in the river, frequently completely blocking the intake. A dam would relieve any worry over the availability of river water. Furthermore, Moose Jaw intends (subject to being able to arrange necessary financing), to join Regina in the operation of the water production system that city is now developing on Buffalo Lake.

The Dominion Government has committed itself to maintain an adequate supply of water in Buffalo Lake to meet the requirements of the two cities, and of any other municipality which might desire to obtain its supplies from that source.

In periods of low run-off, the Dominion will find it necessary to bring water from the South Saskatchewan River to Buffalo Lake. A dam would seem to be an essential to the carrying out of the Dominion's undertaking, not only from the point of view of insuring that there will be adequate water available, but the cost of pumping from the river at its normal levels would be prohibitive. With a dam, little, if any pumping, would be necessary. Water levels in the river behind the dam would be raised sufficiently to permit the release of sufficient quantities by gravity flow to Buffalo Pound Lake.

Hydroelectric Power development an indirect asset to the City

The construction of the dam will make possible the production of an immense quantity of cheap hydroelectric power. This will improve the economic well-being of the entire province, and even those centres such as Moose Jaw, which already has a relatively cheap supply of power, will indirectly benefit therefrom.

We appreciate that the Commission will have many briefs presented to it in reference to this project, and have therefore limited our presentation to a short

statement of the main reasons why every citizen in Moose Jaw hopes to see this project undertaken in the very near future.

Respectfully submitted in behalf of the Moose Jaw City Council.

By

LOUIS H. LEWRY
Mayor and Commissioner
J. S. MARQUIS
City Commissioner.

September 10, 1952.

EXPENDITURES MADE BY CITY OF MOOSE JAW FOR UNEMPLOYMENT RELIEF—1927-1947.

Year	Direct Relief City's share	Number on Relief	Total Population Census	Percentage of Population on Relief
	$ cts.			
1927.....	2,959 86	No Record	19,039	No Record
1928.....	4,139 93	No Record	19,039	No Record
1929.....	3,172 77	No Record	19,039	No Record
1930.....	9,176 08	No Record	19,039	No Record
1931.....	37,691 33	2,400	21,299	11·26%
1932.....	78,135 79	3,352	21,299	15·73
1933.....	166,460 19	4,428	21,299	20·79
1934.....	202,099 83	4,644	21,299	21·8
1935.....	193,015 45	4,512	21,299	21·18
1936.....	135,568 76	4,000	19,872	20·12
1937.....	144,124 42	4,296	19,872	21·62
1938.....	166,941 51	4,497	19,872	22·63
1939.....	161,774 04	4,253	19,872	21·40
1940.....	137,825 86	3,460	20,496	16·88
1941.....	103,076 42	1,977	20,496	9·64
1942.....	61,125 82	689	20,496	3·36
1943.....	50,103 66	339	20,496	1·65
1944.....	44,395 84	256	20 496	1·24
1945.....	35,531 44	238	20,496	1·16
1946.....	37,390 55	280	23,039	1·21
1947.....	41,689 32	300	23,039	1·30
Total....	1,816,398 87			

NOTE: The above figures are the actual outlays made by the City from its own resources, and do not include contributions made by Senior Governments.

Note further: Prior to 1930. Unemployment relief presented no financial problem—Municipal costs rarely exceeded $3,000.00 annually.

Average cost for the 10 peak years (1932 to 1941 incl.) was $148,902.22; average number on relief for the same period was 3,942.

Brief of the Moose Jaw Chamber of Commerce to the Royal Commission on the South Saskatchewan River Project

MR. R. G. MCCARTNEY

Mr. Chairman and Gentlemen:

Ever since the first settlers came to Moose Jaw, the lack of water has been our foremost problem.

From the proceedings of the initial meeting, held October 1st, 1888, as recorded in the original minute book of the Moose Jaw Board of Trade, as it was then known, we note that the very first problems to be dealt with by this new organization concerned water.

The first motion on the books indicates that the meeting deemed it advisable and necessary to find water within 15 miles of Moose Jaw. The second motion instructed that a Committee be set up to have a reservoir built to impound water and to secure funds from the territorial grant or elsewhere for the building of this reservoir.

We mention this early history to show that water is not a new problem to us. Ever since that first meeting in 1888 and down through the years, the minutes of the Moose Jaw Chamber of Commerce are interspersed with motions concerning water in relation to domestic supplies and agriculture.

In 1917, the farm lands in our area were so parched, that the were burning up. The Moose Jaw Chamber of Commerce was possibly the first group on the western prairies to endeavour to bring relief to the parched soil by creating rain. We did this by means of seeding clouds with dry ice. While some rain did fall, within a limited area, it was, at best only a feeble and partial solution to a massive problem. All through the history of the Chamber we see committees working on problems dealing with water and irrigation. These committees, throughout the years have all worked towards a permanent solution to the problem. As a result of their work, the Saskatchewan Rivers Development Association was organized in 1946 in co-operation with other groups. We have been and remain supporters of this Association and its objectives, the most important of which is the South Saskatchewan River Project. We know from bitter experience the need for irrigation so that our farming economy may be stabilized, which in turn will stabilize the economics of the urban centres.

Agriculture is still Canada's most important industry, on the base of which our whole national economy rests. We see this base now being endangered by an unsocial trend in farming i.e. the trend to the larger farm unit which results in decreasing population. The larger farm unit has worked hardships on the young

people of today, as it is practically impossible for a young couple starting out in life to take up dry-land farming. The economic unit is now so large, a section of land or more, that the investment in land alone puts grain farming out of the reach of the average young Canadian. In addition to this great amount of land, a further overwhelming burden of investment in machinery is required. The young generation of today does not have, in most instances the resources needed to start dry-land farming. As a result of this we see our young people seeking opportunities in other lines of endeavour and in other fields. They are leaving the land and moving to the cities. We firmly believe that irrigation with its smaller farms would definitely reverse this trend to a great extent.

Cities, such as Moose Jaw, are dependent upon prosperous farm communities. These communities, made up of individual farms, in turn are dependent upon the vagaries of rainfall. If this rain does not come in sufficient quantities, and at the right time of the year, then farming cannot be successful. The stores and offices, the industries and professions of a city, in the main, exist for the purpose of serving the farming community, and to process the products of the farmers' fields. If there are no crops then not only do the farmers suffer, but all in the urban centres as well. This was only too disastrously shown in those drought years of the 'thirties'.

Moose Jaw is an industrial city, surrounded by a farming area. When we examine the industries located in our city we find that a great many of them depend upon the farmers for their raw materials. We have packing plants, dairies and creameries, flour mills, et cetera, all drawing from the farms. Currently we see our packing plants laying off employees and curtailing operations. We feel that one of the reasons for this can be found in the larger farm unit. The farmer is not raising the cattle and hogs as he did in yesteryear, put is devoting his operations solely to grain production. Our stockyards, which are the most important west of Winnipeg, are showing a decline each successive year. Cattle are not being raised on the farms. Our dairies find it more and more difficult to secure raw milk. Mixed farming is becoming a thing of the past. Part of the reason for the decline in dairy herds is attributable to the feed situation. Feed has not always been available when needed, and many a farmer has found it necessary to import fodder at an uneconomic cost. We believe that if a farmer had an assured feed supply such as would be available from irrigation, instead of curtailing his dairy operations he could expand and increase his herds. With greater numbers of milch cows he could then modernize his dairy farm, put in mechanical milking equipment, and thus, through modern facilities make dairy farming more attractive. Much of the milk consumed in Moose Jaw, and we daresay in the other large urban centres in Saskatchewan, during a large part of the year, is made from powder brought in from as far away as New Zealand.

We admit that the points we have introduced today are purely local problems, problems that affect a city in an agricultural area. We have confined our remarks purposely to this viewpoint because we feel, gentlemen, that you will have read and heard a great deal of data pertaining to the Provincial and Dominion points of view.

We hope our contribution to this hearing will help the Commission in rendering its report to the Government of Canada. We sincerely and earnestly believe that the report should be in favour of the project because of the unlimited benefits that will accrue to all sections of Canada and its people.

Respectfully submitted this 10th day of September, 1952.

MOOSE JAW CHAMBER OF COMMERCE

R. G. McCARTNEY,
President.

G. O'SHAUGHNESSY,
Secretary.

Submission of the Saskatchewan Board of Trade to the Royal Commission Appointed to Conduct an Enquiry into the Following Matter, Namely:

WHETHER the economic and social returns to the Canadian people on the investment in the proposed South Saskatchewan River project, (Central Saskatchewan development), would be commensurate with the cost thereof.

WHETHER the said project represents the most profitable and desirable use which can be made of the physical resources involved.

Dr. T. H. Hogg—Chairman.
Dr. John A. Widtsoe.
Mr. Geoffrey A. Gaherty.
Mr. B. T. Richardson—Secretary.

Mr. Chairman, gentlemen:—

The Saskatchewan Board of Trade, which is composed of some seventy Boards of Trade and Chambers of Commerce (of which the majority is in the smaller urban centres in the province), and having as one of its

chief objectives the promotion of the agricultural, civic, commercial and industrial welfare of the province, desires to place before you its endorsation of the South Saskatchewan River development project, and to present its reasons for believing that the project should be completed without further delay.

The members of the Boards and Chambers comprised in the Saskatchewan Board of Trade are engaged in business and commerce, industry, the professions and agriculture. They are vitally concerned with the development of a program that will give permanent stability to the economy of Saskatchewan. The Saskatchewan Board of Trade is convinced that the completion and operation of the South Saskatchewan River development project, in all its aspects, would be a tremendous factor in stabilizing that economy.

Under the present system of dry-land agriculture this economy is highly vulnerable to a number of factors. Where as much as nine-tenths of the population is dependent on one crop—wheat—the extreme variations in average yield from 2·5 to 25·1 bushels to the acre, the incidence of loss due to frost, wet harvest seasons, disease and insect pests, have created a condition of great instability. During the drought and depression years the income of Saskatchewan decreased 73 per cent and this could happen again. The dependence of a one-crop economy on outside markets and world prices, is well known and the recent suggestion that the bumper crop of 1952 may cause a lowering of both ceiling and floor prices under the International Wheat Agreement, when the Wheat Council meets next January, is the most recent manifestation of this factor.

The liv stock industry too, is vulnerable when rainfall is not adequate to produce feed and pasture for the stock, of which there are close to 3,000,000 head in the province. The need for a dependable supply of feed and fodder in good and bad years is self-evident, and the development of the South Saskatchewan River Development project offers a means of meeting that need.

One of the results of this instability, which has been of great concern to the people of Saskatchewan, is the continuing loss of population. From 1931-41 the prairie provinces lost approximately 250,000 people, and a similar loss was experienced from 1941-1946. Since 1946 the population of Saskatchewan has continued to decline, while the populations of Manitoba and Alberta have increased. The loss of population has been particularly from the rural areas, as indicated by the fact that many of our towns have increased in size. The loss of rural population has created not only an economic problem, but a social problem as well. The maintenance of roads, telephone services, schools and the social aspects of community life is becoming more and more difficult.

In the area which will be directly affected by the South Saskatchewan River development project, the rural population is about three persons per square mile. Under irrigation, the population, on the other hand, could be comparable to that of southern Alberta, which is 29·7 persons per square mile in the northern irrigation district, and 60 persons per square mile in the Taber irrigation district. It has been predicted that the development of the project would more than double the number of farms in the immediate area and would increase the value of the crops produced from four million dollars to ten million dollars. We are convinced that this development will not only stabilize the immediate district concerned, but will have a stabilizing effect on the whole economy of the province, and indeed, strengthen the economy of the whole Dominion of Canada.

Saskatchewan needs, not only to maintain and increase her population, and to stabilize her agriculture, but also to develop secondary industry for which irrigation can provide the raw products. Meat packing establishments, sugar factories, canning plants and other food processing enterprises, creameries etc., would be made possible by the diversification of agriculture under irrigation.

While we have regarded the restoration and stabilization of the farm economy as the first consideration, the generation of hydro-electric power may have equal or even greater significance in the development of the province. The creation of a large bloc of electric power at a central point in this province would be a substantial factor in encouraging industrial development and in improving both urban and rural living conditions. Absence of some of the amenities of life no doubt have contributed to the exodus from the farm. Availability of electricity would do much to check this movement, especially when combined with other factors provided by irrigated farming. The forecast by the Saskatchewan Power Corporation that the power demands in the area which can be served from this plant will be able to absorb the output as soon as it is available, is indicative of the importance of this phase of the project.

Although we realize that it would be very difficult to accurately assess all the factors determining the economic value of the project, we respectfully suggest that the Commission take into consideration the possible cost of failure to develop irrigation to provide for the stability of Saskatchewan. We are aware that you have detailed records of the cost of the Prairie Farm

Assistance program in the province and in the immediate area of the project. Since 1939 the Prairie Farm Assistance has paid out more than 140 million dollars to farmers in the three prairie provinces. This drain on the finances of our Government will continue until the hazards of low rainfall and drought are overcome. We wish too, to remind the Commission of the tremendous cost to the government in transporting feed and fodder into Saskatchewan to sustain the livestock industry during the drought years. We feel that it is imperative to prevent a recurrence of the conditions of 1937 when relief expenditures were fully twice as great as all Municipal and Provincial revenues, exclusive of Federal subsidies.

An economic survey of the irrigation districts in Alberta, which was recently concluded by the Agricultural Economics Division of the Federal Government, points out that the investment required for the development of irrigation requires a capital expenditure which cannot be an immediate charge on the irrigated area. It showed that investment by a private company, without other interests to develop, was a losing venture, but that the Canadian Pacific Railway and the Federal and Provincial Governments had financed irrigation and would be reimbursed through increased revenues directly attributable to greater production under irrigation over a period of years.

The prediction for the South Saskatchewan River development project is that when fully developed, the irrigation system could be expected to meet the cost of operation and maintenance and contribute to the capital cost of the distributing system. Indirect benefits of the project and subsidiary developments should justify the capital expenditure.

The Saskatchewan Board of Trade is not qualified to state that the project represents the most profitable and desirable use which can be made of the physical resources involved, or to offer an expert opinion on that question. However, it is aware that investigations have shown that the land and climatic conditions are as favourable for irrigation as those found in the irrigation districts of Southern Alberta. It has been stated also that the location of the proposed dam provides the most feasible and economic means of bringing water to the dry areas situated on both sides of the river; that a dam at the proposed site affords the most central location for the distribution of hydro-electric energy in the Province; that the storage provided by a high dam at the Coteau Creek site will afford a greater measure of flood control than would a similar project situated elsewhere; that the site of the proposed dam and reservoir provides the best location from which to secure an adequate water supply for the cities of Moose Jaw, Regina and intermediate points; that the site of the proposed dam provides the best location for augmenting the low water flow in the Qu'Appelle and Assiniboine Rivers and for maintaining the water levels in the chain of lakes situated in the Qu'Appelle Valley and Long Lake; that from the available water supply a greater number of people, presently situated in the drought area, can be served by this project than would be the case if the project were situated elsewhere; that there is no similar low rainfall area, in all the prairie region, where so much good land can be irrigated from an available water supply in such close proximity thereto; and that because of its favourable location, and for other reasons, the project lends itself particularly to the development and stabilization of the livestock industry.

The Saskatchewan Board of Trade, in view of the experience in Albetra, is of the opinion that the development of the South Saskatchewan River Development project should be undertaken as a Government project without further delay.

Respectfully submitted, September 10, 1952.

THE SASKATCHEWAN BOARD OF TRADE

HARRY BOYCE,
President.

HERBERT A. PURDY,
Executive Secretary.

Submission by Dr. F. Hedley Auld

Regina, Saskatchewan.
September 10, 1952.

Dr. T. H. Hogg,
Chairman,
Royal Commission on the South Saskatchewan River Project,
406 Elgin Building,
OTTAWA, Ontario.

Dear Sir:

I have the honour to present some facts and opinions concerning the Saskatchewan River Development Project. I wish to say something about the agricultural economy of Saskatchewan, the severe drought in the "thirties", the serious problems which then arose, and to indicate what the Saskatchewan River Development

Project would mean in stabilizing the Agriculture of Saskatchewan and in helping to solve relief problems when another drought period occurs as it undoubtedly will.

Yours faithfully,
F. Hedley Auld.

South Saskatchewan River Development in Relation to Some of Saskatchewan's Agriculture Problems

It is characteristic of Saskatchewan's unstable economy and variable climate that this special study in which you are engaged concerning the Saskatchewan River Development for irrigation and power should be made at a time when agricultural production and farm income are at an alltime high level. Current conditions, however, contrast sharply with those in the "30's" which caused the establishment of Prairie Farm Rehabilitation Administration and demonstrated the need to develop the South Saskatchewan River as a source of water for irrigation farming to counteract the deficiencies of our sub-humid climate.

Table 1.—Saskatchewan Farm Income by Calender Years (Thousand Dollars)

Year	Principal Field Crops	Total Livestock Products	Miscellaneous, including Federal Supplementary Payments	Total
	$		$	$
1926.....	257,530	29,871	3,741	291,142
1927.....	238,156	29,786	3,533	271,475
1928.....	285,722	31,738	4,046	321,506
1929.....	207,075	34,494	3,564	245,133
1930.....	94,096	25,870	2,432	122,398
1931.....	48,752	19,847	2,009	70,608
1932.....	62,415	13,684	1,535	77,634
1933.....	59,131	14,565	2,915	76,611
1934.....	70,089	20,653	2,630	93,372
1935.....	79,095	25,920	3,128	108,143
1936.....	92,302	30,493	3,015	125,840
1937.....	40,053	41,231	2,878	84,162
1938.....	67,557	22,610	2,974	93,141
1939.....	127,342	27,242	5,377	159,961
1940.....	108,782	38,226	10,922	157,930
1941.....	100,526	56,846	22,810	180,182
1942.....	110,268	79,867	38,688	228,823
1943.....	208,551	111,523	24,865	344,939
1944.....	388,491	144,978	21,820	555,289
1945.....	272,452	127,836	12,231	412,519
1946.....	267,674	111,270	21,106	400,050
1947.....	315,831	102,268	20,229	438,328
1948.....	372,555	146,477	31,660	550,692
1949.....	422,157	128,986	29,129	580,272
1950.....	267,142	130,086	19,287	416,515
1951.....	461,687	151,214	19,272	632,173

To show the great variation in annual agricultural income in Saskatchewan I submit the following Table, beginning with 1926. These figures compiled from the records of the Dominion Bureau of Statistics are arranged to show the revenues from the principal sources of agricultural income, "field crops", "livestock", and "livestock products" and "miscellaneous" including supplementary payments, such as Prairie Farm Assistance, provided by the Canadian Government beginning with the year 1939.

Table 1 shows clearly the well known importance of cereal grains as a source of farm income in Saskatchewan and needs no emphasis. It also reveals the great variation in volume of income from year to year and period to period; instability of income is implicit and obvious in the foregoing statement.

Only once in the years reviewed in Table 1 has income from livestock in Saskatchewan exceeded that from field crops. That occurred in 1937 when feed for farm animals was so scarce that a forced liquidation of cattle became inevitable. Those years, for many farmers, marked the end of their efforts to raise cattle until greater assurance could be had that fodder and grain could be grown to avoid a similar debacle. I shall later in this paper deal with this in more detail.

Table 2.—Percentage Distribution of Farm Cash Income

—	1926-29	1935-39	1943-45	1948	1951
	%	%	%	%	%
Manitoba—					
Grains and other field crops.....	65·65	56·22	50·88	58·46	61·53
Livestock and livestock products...	31·91	39·77	46·21	38·75	35·86
Other.....	2·44	4·01	2·91	2·79	2·61
	100	100	100	100	100
Saskatchewan—					
Grain etc.....	87·68	72·15	68·32	69·95	74·02
Livestock.....	11·15	25·91	30·00	28·08	24·13
Other.....	1·17	1·94	1·68	1·97	1·85
	100	100	100	100	100
Alberta—					
Grain etc.....	73·78	61·25	46·09	53·06	51·86
Livestock.....	24·69	36·53	51·54	44·59	45·86
Other.....	1·53	2·22	2·37	2·35	2·28
	100	100	100	100	100

At this point I wish to present another table to show the percentage variation in the principal sources of farm income in Saskatchewan by periods with comparable data for Manitoba and Alberta where the products of animal industry have apparently been regularly contributing a larger proportion of farm income than in this province.

Table 2 emphasizes even more clearly than Table 1 the tendency of Saskatchewan farmers to rely on grain as their principal source of income. It shows also that in all three provinces the income from livestock was highest in proportion to field crops in the war years 1943-45. At that time the numbers of cattle, sheep and hogs on Saskatchewan farms were at the highest level in our history. However, after that date, although livestock prices moved to still higher levels, there was heavier selling by stock men who wanted to cash in at unheard of values in anticipation of a deflation similar to that which followed the first World War. Other reasons for liquidating livestock at the close of the war were higher grain prices, a higher level of income and the newly experienced incidence of income taxes.

Community Pastures

Community pasture development under the Prairie Farm Rehabilitation Administration, which has a parallel in the pastures operated on a similar pattern by the Saskatchewan Government, is already an important factor in the Saskatchewan River development area. I show you a map on which are outlined the seven community pastures situated within the eighteen municipalities which have come to be considered the Saskatchewan River development area. The number of cattle and horses admitted to these pastures annually for grazing are shown in Table 3. The 1942 figures relate to animals in pastures in September while the 1952 figures cover pasture patronage to the end of August.

Some of the land included in these community pastures had been previously homesteaded and abandoned. Other portions which had been withheld from settlement, had been formed into Forest Reserves which were open for grazing of livestock owned by members of organized Forest Grazing Associations. Being now well fenced and provided with adequate watering places, they serve a useful purpose in supporting livestock production on neighboring grain farms. They should become even more useful in association with the proposed irrigation development.

TABLE 3. *Aggregate numbers of Cattle and Horses accepted in seven Community Pastures in R.M.'s. 223/4, 255, 257, 284, 314, 315, and 375 during the years 1942 to 1952 inclusive: (Figures furnished by P.F.R.A.)*

Year	*Cattle*	*Horses*
1942	4,526	1,345
1943	5,012	1,760
1944	5,827	1,117
1945	6,731	1,110
1946	6,681	587
1947	6,395	478
1948	7,487	392
1949	7,444	522
1950	7,482	417
1951	8,197	350
1952	8,536	262

Prairie Farm Assistance

The map which I now present to you has been prepared to show the frequency of crop failure payments to farmers under the Prairie Farm Assistance Act in Saskatchewan during the years 1939 to 1950 inclusive. While the map shows the number of times payments have been made in Saskatchewan townships, it is not to be inferred that all farmers in such townships were eligible to receive an award under the Act in each year in which payments were made. It is possible for only a part of a township to be eligible. To show the entire picture it would be necessary to give the number of eligible farmers, the number who received awards and the amount of the awards. Nevertheless, the number of years in which awards are paid in a township is in itself an index of climate and productivity in so far as wheat is concerned, and a useful measure of crop production. No awards were made under the Act in the area in the years 1942, 1944 and 1951; and it is expected that none will be necessary in 1952. The figures in the several townships, therefore, indicate the number of times in thirteen years payments have been made under the Prairie Farm Assistance Act in these townships.

Payments to provide food, fuel and clothing for farmers, fodder for their animals and seed and other supplies to enable them to continue farming operations were necessary at various times prior to 1939 when P.F.A. Act was passed by the Parliament of Canada. The brief submitted to you by the Government of Saskatchewan states more clearly the extent to which these various forms of assistance were provided, and the matter is reviewed in detail in the booklet, "Rural Relief in Western Canada", by Dr. E. W. Stapleford.

Prairie Farm Assistance and Relief Payments in Saskatchewan River Development Area

To focus attention on the problem of farm subsidies and possible alternatives it is necessary to leave the larger area of drought incidence and review the situation in those municipalities considered to be within the Saskatchewan River Development Area. Ten of these have lands capable of being irrigated through the completion of the Project. Eight others are so near the Development Area and so likely to derive substantial benefits from it that it has been thought proper to set forth also their record with respect to P.F.A. payments and their earlier participation in relief measures. These data are shown in Table 4.

TABLE 4. —*Summary of Relief Assistance and Prairie Farm Assistance Payments in certain Rural Municipalities.*

(a) Municipalities with irrigable lands.

R.M. Nos.	Relief	P.F.A.A.	Total
253	$ 545,282.40	$ 595,125.90	$ 1,140,408.39
254	900,800.46	864,724.55	1,765,525.01
283	645,915.75	845,062.04	1,490,977.79
284	768,207.50	853,180.93	1,621,388.43
285	835,051.56	515,146.17	1,350,197.73
315	408,635.63	387,244.30	795,879.93
343	483,525.54	615,232.73	1,098,758.27
344	438,149.39	415,379.76	853,529.15
345	549,000.02	613,430.44	1,162,430.46
346	482,200.86	510,175.37	992,376.23
	$6,056,769.20	$ 6,214,702.19	$12,271,471.39

(b) Contiguous Municipalities without Irrigable Land.

223	$ 569,783.88	$ 478,267.34	$ 1,048,051.22
224	745,093.31	724,067.24	1,469,160.55
225	521,613.11	494,427.48	1,016,040.59
255	607,673.62	487,597.10	1,095,270.72
313	336,295.31	392,041.71	728,337.12
314	280,041.88	291,081.38	571,123.26
375	295,989.96	538,836.62	834,826.58
376	341,344.44	564,394.30	905,738.74
	$3,697,835.51	$ 3,970,713.27	$ 7,668,548.78
Grand Total	$9,754,604.71	$10,185,415.46	$19,940,020.17

While these figures related to a few municipalities are very impressive, they are dwarfed by comparison with the huge aggregate of relief expenditures made in all of Saskatchewan prior to 1939, given in the Saskatchewan Government's Brief as $186,500,000 and a total of payments made by P.F.A. Administration since 1939 amounting to $102,007,324.

Problems of Fodder Supply

During the "thirties" the scarcity of fodder occasioned greater difficulties in meeting the deficiency than the supplying of grain for feed and seed, although they were somewhat related problems. It was necessary to locate the fodder, frequently at great distances from the place of need. It was often necessary to bale and ship straw from stacks covered with snow—operations which were slow and difficult in sub-zero weather. The difficulties inherent in operations of this nature were anything but encouraging to owners of livestock. In the winter of 1937-38 shipments of fodder to the drought area in Saskatchewan amounted to 413,276 tons, the over-all delivered cost of which was $10,692,103.00. The cost of fodder provided in Saskatchewan during the six previous years was $19,794,702.00 exclusive of transportation which at a reduced rate, generously given by the railways, amounted to $4,498,173.00. Thus there was a total outlay of $35,124,834.00 for fodder and transportation during a seven year period. This, of course, is a part of the total relief assistance mentioned earlier in this paper. All available fodder between Montreal and Vancouver was bought and additional supplies were imported from Minnesota and North Dakota. In the light of that experience, would the use of the Saskatchewan River for irrigation be of material assistance in meeting the problems of fodder supply should another period of extreme drought occur? To this there would appear to be only one possible answer.

CATTLE PRODUCTION IN SASKATCHEWAN

Since farmers in most countries have found the raising of some kind of livestock to be indispensable to permanent agriculture, it may be useful to examine the situation in Saskatchewan more closely and consider whether the development of the Saskatchewan River Project contains a hope of improvement in this regard. Among the influences retarding the production of meat animals in central Saskatchewan, some are of particular importance. They are the scarcity of permanent water supplies on many farms, limited grazing and the uncertainty of fodder supplies. That will, I think, be confirmed by the following comparison of cattle production in the vicinity of the Saskatchewan River Development with another group of Saskatchewan municipalities about two hundred miles farther East. These facts are set out in Table 5: the areas are indicated on the P.F.A.A. map.

TABLE 5: *Cattle Numbers in Census Years in Two Groups of Municipalities.*

(a) South Saskatchewan River Project Area.

R.M. No.	1931	1936	1941	1946	1951
253	2,108	2,393	2,212	2,247	2,348
254	3,307	3,441	2,855	2,997	2,545
283	3,867	3,377	2,702	3,201	2,613
284	3,034	3,264	2,940	3,010	2,278
285	3,232	3,684	2,671	2,669	2,259
314	3,227	3,928	2,676	3,351	3,237
315	4,240	4,667	3,402	4,150	3,512
316	3,010	3,694	2,828	3,347	2,702
343	3,734	4,388	3,480	3,535	2,843
344	5,244	5,838	4,747	4,522	4,237
345	5,576	6,240	4,788	5,251	4,045
346	3,901	4,303	3,249	2,768	2,407
	45,380	49,226	38,550	41,048	35,026

(b) East Central Saskatchewan Area.

152	5,796	6,531	5,869	7,515	6,534
181	6,616	7,288	6,612	7,578	6,428
183	7,199	8,980	8,529	10,179	8,090
211	9,689	10,855	9,381	11,250	9,418
213	6,196	8,057	6,313	7,089	6,009
241	5,298	7,575	6,966	8,015	6,259
243	6,468	8,110	6,553	8,507	6,105
271	5,788	6,875	5,683	5,668	4,773
273	5,857	7,051	6,738	7,280	5,538
301	3,800	4,964	4,236	4,472	3,705
303	4,606	5,779	4,924	4,875	3,513
	67,403	82,065	71,804	82,428	66,372

The foregoing figures show two cyclical peaks in cattle numbers in the Census years 1936 and 1946; actually these occurred in 1934-35 and in 1945. These figures also show the optimism of farmers, when farm income was falling in the "thirties", in increasing their holdings of cattle despite the uncertainty of feeding them. I wish, however, to direct your attention to the trends in these two districts and try to find reasons for the difference. A greater degree of stability in cattle production is shown in the Eastern district with numbers in 1951 almost equal to those recorded for 1931. Cattle numbers in 1931 and 1951 show there was a difference of only 1,031 or 1·5 per cent, in the Eastern group as compared with the Saskatchewan River group where there were 10,354 head less than in 1931 a percentage drop of 22·8. In Canada numbers of cattle declined after the war; but declines were greatest where cattle raising seem l least attractive. The Eastern Saskatchewan distric under consideration, which continued cattle production at a high level, is also an area of crop stability as shown by the record of the Prairie Farm Assistance Administration. It is, in fact, park belt country where water supplies are more adequate and fodder production is less precarious than in the area of the proposed Saskatchewan River Development. This comparison of production trends may be amplified and confirmed by a study of the census figures of cattle in Census Districts 5 and 9 in Eastern Saskatchewan in comparison with similar figures for District 11 in Central Saskatchewan. District 5 had more than twice as many cattle in 1951 as there were in District 11 and District 9 had 72 per cent more than District 11. District 5 had 12 per cent more cattle in 1951 than in 1931. In 1951, District 9 had 3 per cent less than in 1931 and District 11 had 16 per cent less than in 1931.

An examination of the situation in the central area of Saskatchewan leads me to the conclusion that the severe shrinkage in numbers which there occurred was due to the greater difficulties of keeping cattle and that what is most needed to enlarge cattle production there and elsewhere in Saskatchewan is to overcome the two principal handicaps of cattle raisers—water and fodder scarcity—and the greatest assistance would be the development of the Saskatchewan River irrigation possibilities.

Possible Local, Provincial and National Benefits

I do not apologize for this lengthy review of difficulties inherent in Saskatchewan agriculture. They are Saskatchewan's major problem. But for it, the inquiry which you are now conducting would not have been necessary. The Saskatchewan River Development came to life through the efforts of the Prairie Farm Rehabilitation Administration to utilize every available resource of water in its major objective of stabilizing prairie agriculture against the ravages of recurring drought. And now we are trying to determine whether the agricultural economy of Saskatchewan would be significantly benefited by the Saskatchewan River Development; whether that development would enable a substantially greater number of our farm-reared young people to remain in Saskatchewan and whether the project would be important to Canada as a whole.

As to the first of these, it seems reasonable to assume that the farmers in the ten municipalities in which irrigation is feasible should be completely freed from fears of dependence upon the State in periods of drought; and the sums now being paid to them under P.F.A.A. should thereby be largely saved. An important point, certainly, when water can be applied to irrigable acres, they should not be eligible to participate in compensation provided for crop failure through drought. Nor should it be necessary for dryland farmers, close to feed supplies, to reduce livestock numbers when their own crops fall below the average yield. In a similar manner, the benefits of irrigation

production should spread to other areas not contiguous to the River Development. The finishing of livestock for market, so important elsewhere, is a definite possibility which need not be confined to the irrigated area, as roughage from irrigated farms could find a market miles distant from the place of production. Dairymen also would find this source of feed a great convenience as compared with present sources of fodder supply. And the distribution of potatoes and other vegetable crops for human consumption from irrigated farms in central Saskatchewan could be much more easily accomplished than in past years when importation on a large scale was necessary. In 1937-38, no less than 771 carloads of potatoes were supplied to the drought area as a relief measure. Under normal conditions the surplus potatoes grown in the irrigated district should be saleable in nearby urban centres in competition with supplies from more distant points. The smaller water development projects of the P.F.R.A., such as dugouts, dammed ravines to catch the run-off from winter precipitation and the irrigation schemes in the Cypress Hills and Wood Mountain drainage areas are useful and important to a degree; but they need to be supplemented by the Saskatchewan River Development in order to enable the Prairie Farm Rehabilitation to reach its fullest degree of success.

In regard to the second point, I am sure we are agreed that everything possible should be done to increase the opportunities for farm-raised young men to establish themselves in agriculture in their native province. That seems to be impossible without the development of irrigation on a substantial scale such as the Saskatchewan River would permit. In 1939 there were in other Canadian Provinces, 59,909 persons who were born in Saskatchewan. Ten years later, the number of Saskatchewan born in other parts of Canada was 135,927. It is not known how many others found locations elsewhere or how many immigrants to Saskatchewan moved out of the Province. It is not suggested that there would have been no losses of young people if more farms had been available. Nor is it expected that emigration from this Province would cease with the completion of the Saskatchewan River Project. But a loss of nearly 200,000 people a quarter of a century after a huge influx of settlement into a new region constitutes a population movement of great significance. On the basis of Alberta's experience, it has been estimated in the Saskatchewan Government Brief that the River Development would permit the establishment of 4,000 additional farm families. That would be important in itself; but it would not solve the problem of population surplus to present opportunities in Saskatchewan; it is, nevertheless, to be welcomed.

The importance of irrigation in the stabilizing of agricultural communities is shown in the following statement taken from "The Economy of Montana", prepared by the Bureau of Business and Economic Research, School of Business Administration of the Montana State University and published in December, 1951. "The one-fifth of Montana's cropland which is irrigated, accounted in 1949 for 35·7 per cent of the total value of crop production. Over 50 per cent of all irrigated land is devoted to the production of hay —although irrigation projects have met with varying degrees of success in Montana, proper utilization of irrigated lands can help achieve a more stabilized agriculture. Irrigation can provide opportunities for farmers and ranchers on marginal dryland units and can help stabilize farm income by eliminating some of the hazards of non-irrigated farming and make possible a diversification of crops. Irrigation programs also offer opportunities for larger numbers of people within an area and aid in promoting community stability. In the thirties, most irrigated counties in Montana gained in population while many non-irrigated agricultural counties suffered sharp declines".

In relation to the Canadian economy, the development of the Saskatchewan River Project at an early date seems to be highly desirable in the national interest. At this time, Sir Wilfrid Laurier's prediction that this is Canada's century seems likely to be verified. With an established and expanding industrial development in Canada we are almost daily discovering new fields of gas and oil; and our new-found wealth in iron ore and other important mineral resources indicates a further enlargement of our economy and the possibility of maintaining a larger population. We have, therefore, an encouraging prospect of an expanding "home market" capable of absorbing more, if not all, of our production of meat and other animal products before many decades have passed into history. It is believed by some American economists who are concerned with long-range production policies that by 1975 Canada will no longer have meat surpluses to export to the United States. Current demand for beef is such that cattle prices are far higher in relation to hogs than has been customary in past years and they show small indication of returning to that former relationship which was that one hundred weight of "good" quality steer was equal in value to 75 pounds of hog on the hoof at Toronto. The large increase in population on Pacific states of the U. S. and the growth of industry and population in British

Columbia combine to make cattle rearing and animal production in the Great Plains area less dependent on Eastern and export markets.

In connection with beef production and as a further commentary on the importance of water development, I wish to submit the following information concerning the carrying capacity of an irrigated pasture of 15 acres in the Montana Agricultural Experiment Station at Bozeman, Montana. This information was given to Mr. E. E. Brockelbank, M. Sc., Director, Animal Industry Branch of the Saskatchewan Department of Agriculture, by Professor Fred. S. Willson, Professor and Head of Animal Industry and Range Management:

1. Size of pasture—15 acres.
2. The mixture was a modified Huntly mixture, which is highly recommended. It consists of brome grass, orchard grass and blue grass with alsike clover, dutch white clover and one other clover.
3. Record of production for summer 1950.
   (a) 40 steers for 136 days—steers were being grain fed on self-feeder as well.
   (b) 200 lambs for one week to eat surplus growth.
   (c) cut ¾ ton hay per acre.
   (d) 38 cows pastured for one week after October 1 to clean it off.

This pasture had no fertilizer except farm manure at the rate of about 15 tons per acre. It was watered each three weeks after July 1. After substracting grain feed costs on the steers, it netted $162.00 per acre with other feed for lambs and cows as well as the hay, free.

These figures suggest income possibilities from irrigation farming greater than have been estimated previously. But conditions of today are different, and the experiences of irrigation in Alberta some decades ago are unreliable as an indication of expected revenues from irrigation farming.

From the standpoint of Canada as a whole, there should be general agreement that the Saskatchewan River Development has merit. Greater population in Canada would be good for industry, transportation services and national defence and the Federal Treasury. For farmers, the home market is the best market; and more people in Canada would enlarge the possibilities for agriculture as well as industry. But more especially should we think of the benefits to the residents of the Saskatchewan River valley whose confidence will be increased as they see provision made to use the great volume of water, hitherto wasted, to water hundreds of thousands of acres of land and ensure that the labour of the farmer will not be unrewarded.

I understand that an important part of your task is to determine the economic soundness of the proposed Saskatchewan River Development. Frankly, I cannot believe that the problem is one of economics alone. And I think the best opinion as to the benefits of the scheme may prove to be an under-estimation. Palliser guessed that this prairie region was quite unsuited to agriculture. Although partly right, time has proved how wrong he was. Some one guessed that the Canadian Pacific Railway would not earn enough to buy grease to lubricate the axles of its rolling stock. Another bad guess! When a French king ceded Canada to England, he spoke slightingly of it as "a few arpents of snow". With greater knowledge of our country I hope our faith in this great central part of Canada is such that will not sell our country "short" by missing or even delaying needlessly this development opportunity to correct as far as possible the chief deficiency in Saskatchewan agriculture. This is the football season. Players are taking risks; but all of them are trying to avoid a fumble which might cost a touchdown. The people of Saskatchewan will await your report and recommendations with keen interest and high expectations.

Regina, Sask. F. HEDLEY AULD.

September 10, 1952.

Submission by Dr. George Spence

3150 Rae Street,
Regina, Saskatchewan,
August 28, 1952.

Mr. B. T. Richardson, Secretary,
Royal Commission on the South Saskatchewan River Development, Ottawa, Canada.

Dear Mr. Richardson:

I attach herewith statement to the Royal Commission on the proposed South Saskatchewan River development.

It is submitted to amplify my previous memorandum of March 20, 1952, addressed to the three Commissioners and yourself.

I desire to say that my interest in the proposed project is solely of a public nature. I represent no one in particular.

Any claim that I might have to be heard is based on twenty years in the public life of Saskatchewan, together with my experience, first as liaison officer and later as director of the Prairie Farm Rehabilitation Administration during the period when much of that organization's water development and land utilization work was being initiated. I may say, too, that the views expressed in the statement are also based on forty years' practical farming experience in the drought area.

My only purpose in submitting these statements is a desire to make such a contribution as I can to the rehabilitation of agriculture in the prairie region.

I am in hope that I can present this statement in person to the Commission, either at its Regina or Saskatoon hearings. In case circumstances beyond my control prevent me from doing so, I am asking Mr. Harold Pope, Q.C., counsel for the Saskatchewan Government, to present the statement on my behalf and also to file, with the Commission, the pertinent documents.

Yours faithfully,

GEORGE SPENCE.

GS/MR

Interpretation of Reference

It is noted that the terms of reference to the Royal Commission on the proposed South Saskatchewan River development are broad and comprehensive in their scope and call for a complete analysis and study of the physical, economic and social factors involved.

The Commission is particularly directed to examine whether the economic and social returns to the Canadian people in the investment would justify the costs of the project and also as to whether or not the proposed project represents the most profitable and desirable use which can be made of the physical resources involved.

It will be noted that the words "social returns" are used in conjunction with the word economic. This implies that a broad construction should be placed on the reference.

It is respectfully submitted that this was what was intended when the reference was drawn. An interpretation confined solely to dollar and cent returns would conflict sharply with established Government policy on water conservation and development now applied under the terms of the Prairie Farm Rehabilitation Act, in the low rainfall area of the Prairie Provinces.

It is pertinent to point out here, too, that the development of a nation's natural resources, of which land and water are the greatest of all, create new values—values which are constant and enduring—values which bring social returns in terms of human comfort and well-being. These are some of the intangibles that cannot be appraised on a mere dollar and cent basis. It is affirmed here that any appraisal that fails to take the human aspects into account is entirely unrealistic and unsound.

It is taken for granted that enough is known about the benefits of irrigation and the need for irrigation in the drought area to place irrigation in the forefront as the most profitable and desirable use which can be made of the physical resources involved, namely, the land and the water.

It is submitted further, that the drought area—the so-called *"Palliser Triangle"*—of the open plains, is a weak link in the agricultural economy of the nation.

This is evidenced from time to time, over the period of settlement, by relief grants, seed grain advances, Prairie Farm Assistance payments and other forms of Government aid, Provincial and Federal.

It is evidenced, too, by abandoned farms and a general thinning of the population resulting from periods of severe and protracted droughts.

This being the case, obviously, the expenditure of funds from the National Treasury designed to ameliorate these conditions, is good business and sound public policy. Particularly when we reflect that the alternative to that policy is to go on paying out large sums of public money for the relief of distress without getting anything in return.

Moreover, in addition to the physical resources there are the human resources involved. No nation can afford to overlook the human factor.

Too well we remember the great drought of the thirties, which for severity and duration, was unprecedented in the records of active prairie settlement. Scores of millions of dollars of public money had to be spent for the relief of distress and for the different forms of agricultural aid in the afflicted area.

The deterioration in living standards and public morale, which the disaster of that period imposed, are all of record and need not be further elaborated upon here. (See Report on Rural Relief due to Drought Conditions and Crop Failures in Western Canada, 1930-1937, by E. W. Stapleford.)* Suffice to say, the drought, with its accompanying *"black blizzards"*, created a human problem of major proportions.

The irrigation districts in the Province of Alberta were as an oasis in a desert during all those terrible and tragic years. It was fully realized, at the time, that the expenditures on relief were only a temporary measure at best. Consequently, a more permanent solution to the problem was sought. To this end, the Prairie Farm Rehabilitation Act was passed by Parliament in 1935.

In the mid-thirties the writer became a member of the Relief Committee of the Provincial Government. We had to go, year after agonizing year, hat-in-hand to Ottawa begging for money for the relief of distress and even for money to pay the day-to-day expenses of Government.

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*Copies filed with this report.

During one of these visits to Ottawa, after we had concluded our grievous business, at a meeting with the Government, the writer was standing chatting with the late Prime Minister Right Honourable W. L. Mackenzie King. As if thinking out loud, he enquired as to how long I thought the desperate situation would last. Is there nothing we can do, he asked, of a more permanent nature to relieve the terrible situation? I replied that there was, but that such measures, to be reasonably effective, would take both time and money. "Undoubtedly", he replied. Then he made the further significant statement that he thought it was time we were getting started with some large-scale projects designed to meet the situation in a more effective and permanent way. Those were, in substance, Mr. King's words on that occasion as near as memory serves to remember.

It was in that favourable climate that the Prairie Farm Administration began growing up.

The present Federal Minister of Agriculture, Right Honourable J. G. Gardiner has, over the years since, increased the powers and greatly enlarged the scope of the P.F.R.A. in an effort to meet the drought conditions that prevail in the prairie region.

One of the most important and far-reaching measures, in this regard, was the introduction of the policy whereby the Federal Government assumed the costs, on a non-recoverable basis, of large dams, main canals and other capital works, thereby insuring that the lands benefited would not be saddled with costs that these lands could not bear.

The principle is generally accepted now that the development of the land and water resources of a country confer general benefits, consequently all should bear some share of the costs of such development. It is respectfully submitted, therefore, that if consistent policy is to be followed, this principle should also apply to the proposed development, and the questions submitted in the reference should be considered in their broadest long-range aspects. The point that should be stressed is that the proposed project should not be considered as a separate or isolated case, but rather as part and parcel—which it is—of a comprehensive basin-wide development designed to meet the hazards of recurring droughts and for the rehabilitation of the people resident in the area in so far as that objective can be achieved by the conservation and utilization of available water resources.

When the programme now envisaged is carried out in its entirety, there will be a green belt of approximately 2,000,000 acres right through the heart of the so-called triangle, stretching all the way from Cardston, Alberta, to Saskatoon in Saskatchewan—a distance of 350 air miles.

Wasting a Great Resource

Herbert Hoover is the authority for the statement that *"every drop of water that runs to the sea without rendering a commercial return is a public waste"*. As this question of waste in the matter of a natural resource has an important bearing on the matters raised in the reference, it is pertinent to point out that the potential possibilities of the proposed South Saskatchewan River Development is tremendous.

It is affirmed here, that every day, indeed with every passing hour, that the construction of the project is delayed the Nation is sustaining economic loss. It has been said that water is "liquid gold" on the dry prairies. The question is, then, how much of this precious life-giving asset can we afford to waste.

It is affirmed here, too, that our agriculture is not fully developed as long as great stretches of fertile lands lie parched and largely unproductive, while a great river flows waste through the very heart of these lands to the ungrateful sea.

An Unbalanced Agriculture

In giving consideration to the economic and social aspects to which the reference directs special attention, due account should be taken of the fact that the agricultural economy of the Province of Saskatchewan is unbalanced to the degree that it is dependent on wheat —or a one-crop system of farming.

The area of scant or low rainfall embraces approximately 100,000,000 acres, or more than three times the size of the Maritime Provinces. Over sixty per cent of this scant rainfall area lies in the Province of Saskatchewan.

Such an immense area, by reason of its agricultural instability, has presented a problem of the first magnitude to the Nation. In order to maintain a balanced agriculture, adequate supplies of feed and fodder for the maintenance of livestock is an essential requirement.

Broadly speaking, the conditions common to the low rainfall area are more favourable to cereal crop production than they are to a more diversified agriculture. The lack of native grass-land pasture in another handicap in this regard.

While it is correct to say that our great grass-land areas support a livestock economy, and we rightfully boast about the quality of our "grass-fed steer", it is nevertheless a fact that the great bulk of our range-bred cattle and lambs are dumped on the markets every

fall in an unfinished condition. This represents not only a loss to the producer but also a great loss to the economy as a whole.

Obviously, the economy would be strengthened to the degree that this annual loss could be reduced or eliminated altogether, by a policy of feeding and fattening on the ranches, farms and in the feed lots. In the Lethbridge area the feeding and fattening of livestock has reached the proportions of a major industry. Over 75,000 head of cattle and 60,000 lambs were fattened in the irrigation districts during the feeding season of 1950 and 1951.

The feeding and finishing of livestock is a natural industry which automatically grows up and prospers with irrigation farming. The reason being that irrigation districts are a dependable source for abundant supplies of high-grade feed-alfalfa and the like.

Ranching and irrigation farming are complementary enterprises, each contributing to the prosperity of the other. The combination insures maximum returns to the rancher from his grass-land acres in pounds of meat —and therefore dollars—while at the same time affording a ready cash market to the farmer for his hay and grain crops.

There is no livestock fattening enterprise in Saskatchewan on a scale comparable with that in effect in Southern Alberta. This undesirable condition will continue until we have large-scale irrigation systems operating in the Province. It cannot be otherwise, although we have the livestock and grass lands in abundance. We have also an organization in the form of community pastures providing an ideal set-up for such an enterprise. What we lack is an abundance of good feed, which only irrigation can insure.

The greatest disability of all to the livestock industry in the low rainfall area, and it applies to the small stockman and farmer as much—if not more than—it does to the large stockman and rancher, is that the industry is insecure by reason of the fact that when drought strikes, crops fail and the farmer is forced to dispose of his livestock often at sacrifice prices.

This happened on a large scale during the great drought of the thirties. During that distressful period even the foundation herds had to be sacrificed. There can be no stability in the industry where these conditions exist, because there is only time to build up one good herd of cattle in a lifetime.

True, only a small percentage of the dry plains can be irrigated from the available water supplies. The fortunate circumstance is that the stabilizing effect of irrigation extends far beyond the area under the ditch. The belief is widely held, and shared in by leading Agriculturists, that under the climatic and soil conditions common to the Western Prairie Region every acre irrigated will stabilize 20 acres of adjoining dry lands.

Public statements in support of this view have been made by E. L. Gray, Superintendent of Water Development, P.F.R.A., and formerly General Manager of the Eastern Irrigation District, Alberta, and by E. E. Eisenhauer, C. E. & I.E., B.Sc., Deputy Minister of Public Works, Saskatchewan, formerly Irrigation Specialist, Lethbridge Northern Irrigation district, Alberta.

If conditions can be said to be comparable as between one area and another, then the conditions in the Brooks District are very similar to those of the proposed development area in Saskatchewan.

Mr. Gray is on record as stating that in the Brooks area, with 100,000 acres under the ditch, the Eastern Irrigation District has established a good range and dry land economy on 2,000,000 acres of adjoining lands.

Fortunately we do not need to go far afield to get an example of the stimulus which irrigation provides for the livestock industry. We have a good example in our own Province. At Val Marie, in south western Saskatchewan, where 4,000 acres have been under irrigation for upwards of 12 years, the cattle population has increased within the development area from 250 head in 1939 to over 4,000 head in 1941.

Instead of depending upon the problematical "big crop next year" philosophy, the farmers of the district enjoy a steady yearly income from their farming operations. Perhaps one of the most striking example of what has been accomplished in the Val Marie district is that in 1937 a train load of feed was shipped all the way from Eastern Canada to Val Marie as an agricultural relief measure. In 1943, a train load of lambs was shipped out of the same district—lambs that had been fed and fattened on the crops grown on the irrigated lands.

While the quality of the native prairie grass is highly nutritious, the production in pounds of beef on a dry land acre is very low compared with an acre of pasture under irrigation.

Research by the Lethbridge and Swift Current Experimental Stations has determined that one acre of dry land pasture will only produce 8½ pounds of beef. The same acre of pasture land under irrigation will produce from 400 to 600 pounds of beef. In other words, irrigated pasture lands will produce fifty times the return in pounds of beef per acre than will the same acreage of dry lands.

It is hard to visualize the impact which the production from half a million acres of land under irrigation would have on the economy and social structure, not only of the Province, but on the country as a whole. Certainly it would be tremendous!

The case for the proposed South Saskatchewan River Development can be put in a single sentence. Experience over the years has shown conclusively that the construction of *large-scale* irrigation projects in the Province of Saskatchewan, such as that proposed, is long over due both from the standpoint of social welfare and the agricultural economy as a whole.

Allied Industries

The production of "specialty crops" under irrigation creates conditions favourable to the establishment of secondary or allied industries.

There has been a marked trend in this direction in southern Alberta where three sugar factories, three canning plants and other food processing enterprises have been established—all based on the raw products of the farm.

This development, together with the live stock fattening enterprise already mentioned, serves to show the complementary relationship between factory and farm which irrigation provides in such large measure.

A statement showing this relationship was compiled by Mr. Harold G. Long, General Manager of the Lethbridge Herald Company Limited, February 1951, under the title *"South Alberta Irrigation Production Facts"*. A copy of this statement is attached as Annex I to this submission. There is no occasion, then, for guess work or idle speculation in these matters—the results speak for themselves.

In the proposed development area in Saskatchewan the soil and climatic conditions are similar to those of the irrigation districts in southern Alberta, where these secondary industries have sprung up and are now contributing millions of dollars annually to the economy of the province.

It all adds up to growth and progress creating new wealth, new opportunities in the trades and professions, and a higher standard of living for all the people.

Beyond all doubt, therefore, there is economic justification for proceeding in an orderly and expeditious manner with the construction of projects designed to put to full economic use all available water resources, not yet utilized, for the dry but fertile lands of Saskatchewan.

The Population Factor

For a decade or more the Province of Saskatchewan has been losing population. This is particularly true of the rural areas.

Dry land farming, as now practised, is to some extent at least accountable for this undesirable condition. Irrigation farming, on the other hand, has the opposite effect in that it favours close settlement and attracts people to the land and rural communities.

In the irrigation districts of southern Alberta this trend is very marked. In the Taber district, according to a statement made by Mr. Ted Sundal, secretary of the Taber Irrigation District, to the St. Mary and Milk Rivers Water Development Committee*, there is a population density of approximately one person to each 10 acres. This population density works out at nearly twenty times that of the dry land areas. These are astounding figures. It is only right to say, in this connection, that the figures represent one of the most highly developed irrigation districts in southern Alberta. This circumstance, however, in no way detracts from its value as an example of what can be accomplished under irrigation.

The density of the population in the Taber area is due entirely to the increased production and greater prosperity that has been brought about by irrigation. The natural conditions in the Taber area are not more favourable to the development of irrigation, from a soil and climatic standpoint, than are the conditions in the proposed development area of Saskatchewan.

In the light of the remarkable achievements of irrigation in the Taber and Lethbridge areas, it is right to say that, to make a proper evaluation of the future possibilities of irrigation in one area with another similarly situated, limits should not be set short of those imposed by the climatic and soil conditions. Allowing for the time factor, what can be done in one area can be done in another.

Costs

The key structure in the proposed development is a high dam across the South Saskatchewan River at the Coteau site. The question has been raised that the project may not be economically feasible because of the high cost of the main structure. This is not necessarily the case. Compared with other projects of the kind, good reasons can be advanced to show that it is not the case.

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*Four copies of the Report of this Committee are filed with this statement.

In an earth-fill dam, of the type proposed, one of the principal cost factors is the availability of suitable material—impervious material (clay) and pervious materials (sand and gravel and rock for rip-rap). All these materials are readily accessible at the Coteau site. This circumstance was one of the determining factors for the selection of the site in the first place. Modern earth-handling equipment makes the placing of this *on-site* material a comparatively low cost operation.

Suitable topography for a spillway, together with conditions reasonably good for the construction of outlet works and a flooded area that can be acquired at a negligible figure, are all factors that should contribute to keep construction costs down.

In determining a site for a structure of the magnitude of the proposed Coteau dam, a great deal of investigation and study was necessary and many factors had to be taken into account, including those already mentioned. All of which combine to make the Coteau site almost ideal for what was intended.

It is right to assume, therefore, that those natural advantages will be reflected in lower costs. Certainly, there is no good reason for the view that the costs will be inordinately high. True, construction costs have gone up all along the line. Put in the language of the street, "who cares about that". Values are, after all, only relative.

The great need is for more production. More of everything—particularly food. The world is crying for its daily bread.

One way of achieving more production is by investment in productive works—which is exactly what the proposed development is—an investment in the future.

There is another important aspect that needs to be stressed. A nation's soils and waters are by far it's greatest natural resources. It follows, therefore, that money spent in the development of these resources have a much broader basis for justification than that which governs private enterprise. These are inescapable reasons why this should be so.

The spending of public funds for the development of a natural resource rests on the broad base of extended public benefits—not the least of which is human welfare and happiness. These are human values, none the less real because they are intangible; none the less enduring because they cannot be appraised in mere dollars and cents in the profit and loss columns of a ledger. It is affirmed that a niggardly economy should not prevail over the forces of progress.

Considered on this basis the question that overrides, in importance, that of immediate or first costs is: does the proposed development prejudice future developments in the overall plan? A question to which a categorial answer can be given—that it does not.

The Safety Factor

Something has been said about the safety factor. The words *"disturbing features and obvious risks"* have been used in connection with the project.

In harnessing the illimitable forces of nature, risks have to be taken. It is respectfully submitted, however, that the risks involved in the case of the proposed dam on the South Saskatchewan River are no greater than have been, or are being, taken every day with similar projects in many places all over the globe.

The question that has to be determined is: can the risks be eliminated or reduced to insignificant proportions. In the particular case under consideration, it is believed that the risks have been assessed and provided for. There are engineering skills and experience to support this belief. The principles of soil mechanics are basic to almost all branches of civil engineering and particularly to the design and construction of earth dams.

Earthen dams, properly designed and constructed, provide a margin of safety comparable to that of similar structures built of concrete or other materials.

The writer can speak from first-hand knowledge as to the experience of P.F.R.A. engineers with the design and construction of earth dams. The P.F.R.A. operates the most up-to-date and best equipped laboratory in all of Canada. This laboratory is staffed with highly qualified and competent engineers and technicians. It is right to say, too, that P.F.R.A. engineers are specialists in the construction of earth dams. That is their day to day business. No other group of engineers in the country have had so much experience. The St. Mary dam, the largest rolled earth-fill dam in Canada has just been completed. This dam was designed and constructed solely by P.F.R.A. engineers. But this is not all. Outstanding consultants have been employed. Dr. J. A. Allan, M.Sc., Ph.D., F.R.S.C., has been with the project as consulting geologist, since its inception in 1943.

Dr. Allan is a recognized authority on the geology and physiography of the Canadian Rocky Mountains and the Western Canadian Prairies. He has made detailed studies of the Saskatchewan River Valley from Red Deer to Saskatoon.

Harley B. Ferguson (retired) Corps of United States Engineers, senior consultant, was employed as early as 1946. Major General Ferguson has filled many

important positions in connection with engineering in his own country and abroad. He has been a member of numerous engineering boards, including the St. Lawrence Waterway. General Ferguson was president of the Mississippi River Commission for seven years, 1932-1939. He has had a great deal of experience with alluvial rivers, the Ohio River, Tennessee River, Lower Mississippi River and the like.

Dr. A. Casagrande, another consultant, is recognized as an international authority in soil mechanics and foundation conditions. Dr. Casagrande acts as consultant to the United States Corps of Engineers. He has been consultant to the Government on some of the most important construction works in the United States.

In Canada he serves as consultant to the Shawinigan Engineering Company and the Steel Company of Canada.

Last but not least, L. F. Harza, president of the Harza Engineering Company, Chicago, and present day Dean of American Hydraulic Engineers, has been called in as another consultant.

Mr. Harza is chairman of the consulting board of the Damodar Valley Corporation, India. He spends one month out of every four in that country. In addition to acting as a consultant to Governments and corporations, Mr. Harza has been engineering large projects for forty years. His dams and power-houses are found in every part of the U.S.A. and also in many places abroad.

(See further qualifications and experience of these engineers in Annex II).

All these eminent engineers have pronounced themselves *in writing that an earth-fill dam at the proposed Coteau site is a feasible undertaking.*

Dr. Casagrande fortifies his statement as to feasibility with the observation that *"this is proven by the construction of similar works in similar material in the United States".*

It will be seen, therefore, that all these outstanding consultants have endorsed the findings of P.F.R.A. engineers.

On the Missouri River, where conditions are comparable with that of the South Saskatchewan River, there are four big dams, three of which are much larger than the proposed Saskatchewan River dam. These dams are all of the same type as that proposed by the P.F.R.A.

Fort Peck, one of the largest earth dams in the world, is 242 feet high; further down on the main stem of the Missouri River is the Garrison Dam, a rolled earth-fill dam 12,000 feet long. This dam is now nearing completion. It is approximately the same height as the proposed Coteau dam in Saskatchewan. Foundation conditions are almost identical. Still further down the Missouri River is the Oahe and the Fort Randall Dams —in that order, all earth-fill dams and from Fort Peck down, each contributing to the hazard of the other—if there is a hazard.

No one, so far as the writer has been able to ascertain, is worrying about the risk in spite of the fact that great cities like Omaha, Kansas City and other large urban communities, situated in the Missouri Valley, lie below the great reservoirs created by these gigantic structures. Instead of worrying about the risks, they are pleading with their Congress for more of these huge projects as *further* protection from the flood hazards of the great Missouri River.

All in all, then, it is reasonable to conclude that like their United States counterparts P.F.R.A. engineers have taken all the necessary precautions to insure engineering feasibility with a maximum of safety in the construction of the proposed Coteau dam.

No Alternatives

It is noted that in the second indented paragraph of section one of the reference the question is raised as to whether the project "represents the most profitable and desirable use . . . . .". The answer is that it does—for the following reasons.

The proposed development is a *multi-purpose* project embracing irrigation, power, flood control, maintenance of lake levels in the Qu'Appelle Valley and Long Lake, domestic water supply for the cities of Moose Jaw, Regina and intermediate points, recreation, tourist attractions and other uses.

Large sums of money have been spent, over the years, on explorations and investigations in an effort to determine a site for a large project that would contribute most to the stabilization of agriculture in the area and at the same time meet the other objectives.

It is perhaps not generally realized how fully the prairie area has been, and is being, covered by P.F.R.A. engineers and agricultural field men. Never before has there been such a thorough examination of the conditions from an agricultural and economic standpoint. These agricultural field men and engineers, Provincial and Federal, have literally lived with the contemplated development for years.

It is, therefore, extremely unlikely that an alternative to that which is now proposed can be found at this late date.

Summary

The following summary is advanced in support of the proposed project:

1. The physical aspects of the proposed South Saskatchewan development are confined exclusively to the Province of Saskatchewan. The operation of the works does not depend on outside co-operation.
2. As the development is all contained within the boundaries of one province, the practical difficulty of two separate administrations is thereby avoided.
3. The point of diversion is in close proximity to the irrigable areas, hence water losses and wastage in transportation are reduced to a minimum. Maintenance of the sytem is also correspondingly reduced.
4. The location of the proposed dam near the mouth of Coteau Creek provides the most feasible and economic means of bringing water to the dry areas situated on both sides of the River.
5. A high dam at the proposed site affords the most central location for the generation and distribution of hydro-electric energy in the Province.
6. The site provides the greatest and the most economical storage on the South Saskatchewan River.
7. Existing storage, for power purposes, above Calgary operate to insure greater winter flow in the river and hence to increase the power potential at the proposed site.
8. A high dam at the Coteau Creek site on the main stem will collect all the water from all the tributaries of the South Saskatchewan River.
9. The flow of the South Saskatchewan River, together with the available storage at the proposed dam site, will insure the generation of more firm power than can be obtained at any other site on the South or North Saskatchewan Rivers systems.
10. Live storage of 4,000,000 acre-feet in the proposed reservoir makes other potential power sites further down the river economically feasible.
11. The 4,000,000 acre-feet of storage which can be provided by the construction of the proposed project, affords the best regulation obtainable on the river.
12. The storage provided by a high dam at the Coteau Creek site will afford a greater measure of flood control than would a similar project situated elsewhere.
13. The site of the proposed dam and reservoir provides the best location from which to secure an adequate water supply for the cities of Moose Jaw, Regina and intermediate points.
14. The site of the proposed dam and reservoir provides the best location for augmenting the low water flow in the Qu'Appelle and Assiniboine Rivers and for maintaining water levels in the chain of lakes situated in the Qu'Appelle Valley and Long Lake.
15. A high dam at the proposed location will serve the greatest amount of dry land in the Province of Saskatchewan with the least losses of water in transportation.
16. The site provides the only feasible means of providing an adequate water supply for irrigation and other purposes in the Qu'Appelle Valley.
17. The Outlook area, which would be served by this project, receives less precipitation than *any* area now served by irrigation on the prairies. (See B. W. Currie Report—October, 1949).
18. One of the human aspects of the proposed development is that from the available water supply a greater number of people, presently situated in the drought area, can be served by this project than would be the case if the project was located elsewhere.
19. The project will serve an area that has been built up with railroads, highways, schools, churches, hospitals, and the like, but the area has been steadily losing population because of recurring droughts.
20. Saskatchewan's prosperity, more than any other province, is dependent on dry-land agriculture. Many crop failures by drought place Saskatchewan's agriculture on an unstable basis. The central Saskatchewan area presents an especially serious and baffling problem in this regard. The proposed project will go a long way towards stabilizing agriculture over a large part of the province.
21. The proposed development will provide opportunities for resettlement and rehabilitation of settlers presently situated on submarginal land. In this an additional purpose will be served in that the sub-marginal lands can then be put to their best economic use—namely, community pastures.
22. There is no similar low-rainfall area, in all the prairie region, where so much good land can be irrigated from an available water supply in such close proximity thereof.

23. Because of its favourable location, and for other reasons, the project lends itself particularly to the development and stabilization of the livestock industry.
24. Large-scale irrigation in the area will stabilize farming and ranching in the country surrounding the irrigation districts to an extent many times greater than the area actually under the ditch.
25. The introduction of irrigation into the proposed development area would mean a substantial increase in the population. (See Summary Report "South Saskatchewan River Project—1951"; also "St. Mary and Milk Rivers Water Report—1942"; also "More Farmers for Western Canada", 1941, by Andrew Stewart, Pres. University of Alberta.)
26. When the *Basin* Development (overall-plan) now envisaged is completed a new day will have dawned for the people resident in the drought area —a new era born for Western Agriculture.

Conclusion

Droughts have been coming to the great plains for centuries on end. We have been fortunate in that we have had a succession of good years, twelve or more in a row—time may be running out.

The writer ventures to say that no one who lived through the great drought of the thirties can ever forget the hardships and the tragedy of that period, or remain indifferent to measures designed to better the situation.

It is believed by the writer that this Commission has a proper appreciation of the situation. It is believed, too, that the Commission has the courage and the vision to approve these measures.

In short, it is felt that the Commission would not want to be remembered in history as having stood for even *one day* in the path of progress.

ANNEX I

SOUTH ALBERTA IRRIGATION PRODUCTION FACTS

by Harold G. Long

Compiled February 1951

Canadian Sugar Factories Ltd.

3 factories, at Raymond, Picture Butte and Taber.
Have capacity to process over 525,000 tons beets annually, or enough to yield 150,000,000 pounds of sugar.

1950 Operations of Sugar Factories Only

Full-time employees—225.
Part-time employees—900.
Payroll—$1,327,000.
Sugar Production—123,802,300 pounds.

Value of Sugar at Factories, approx.	$13,000,000
Molasses	300,000
Wet Pulp	75,000
Dry Pulp	400,000
	$13,775,000

Crop grown last year by 1,550 farmers on 37,099 acres.
Crop harvested from 36,172 acres.
Tonnage of Beets—445,164 tons.
Expected Minimum price—$15 per ton.

Gross Value of Beets	$6,677,460
Value of Tops	500,000
	$7,177,460

About 7,500 persons given seasonal employment growing beets, this including children of farmers and parents with beet labour contracts.

Livestock Feeding this season

Over 75,000 head of cattle (up from 40,000-50,000 pre-war).
60,000 lambs (down from 150,000 pre-war).
It is generally accepted that about 30,000,000 pounds live weight of beef and lamb are produced each winter feeding season in feedlots in irrigation areas—worth (at present fantastic prices about $9,000,000).

Vegetable Canneries

Plants at Lethbridge—Broder Canning Co.
Taber—Cornwall Canning Co.
Magrath—Alberta Canning Co.
Also Canada's largest vegetable quick-freeze plant operated in Lethbridge by Broder Canning Co.
Plants process corn, peas, beans, carrots, soup mix, pumpkin, red table beets.
Employed by all plants:
about 100 men and women full-time,
about 1,100 part-time.
Payroll about $300,000 per year.
Gross market value of processed vegetables ranges from $3,000,000 to $5,000,000 yearly.

Growing of Pickling Cucumbers around Taber, for Dyson's

300 acres
Average crop—1,000 tons
Farmers paid—$45 av. per ton
Gross value to farmers—$45,000

Special Crops

Growing of soft white Spring Wheat on irrigated land. (Wheat milled into pastry flour at Lethbridge, Medicine Hat and other cities).
Average acreage—30,000 acres.
Average production—1,000,000 bushels.
Price to Growers for 1950 crop—$1.55 to $1.60 per bu.
Expected to be at least the same this year, or total to growers about $1,600,000.
To mill this crop in one plant would require mill employing 50 people for one year and annual payroll of over $100,000.
Fresh vegetables grown in irrigated areas around Lethbridge have annual value to farmers of $500,000.
Corn on the cob, peas, carrots, turnips, cabbages, cucumbers, celery.

Forage Crops

Hay: None for shipment—all now fed in projects.
Alfalfa: At one time made up 20-25 per cent of all irrigated acreage and much shipped out. Acreage now smaller due to alfalfa wilt disease and all grown is used by livestock feedlots.
Timothy: Little grown since horses went out of fashion.
Sweet Clover: Mostly grown as green manure crop preparing land for beets and canning crops.

Potatoes

Potatoes for commercial purposes in 1950:
Grown on 7,000 acres irrigated land.
Production suitable for marketing purposes—28,000 tons.
Because of over-supply average value of crop $25 per ton.
Average of 1949 crop was over $40 per ton.

Seed crops

Seed Peas

(Acreage and price fluctuate with world requirements).
Average 5,000 acres
Average Yield 800 lbs. per acre—total 4,000,000 lbs
Market Value—over $500,000
Value to farmers—$260,000
Farmers paid now 5½ cents to 7½ cents per lb.
Several companies issue contracts, including: O'Loane Keily and Co. Ltd., Broder Canning Co., and Ellison Milling & Elevator Co., all of Lethbridge.

Commercial Mustard Seed

Will become big thing on irrigated farms this year as result of experiment last year when 215 acres averaged 1,000 lbs. per acre compared with 3[illegible] on dry land.
O'Loane Keily & Co. and Ellison's will contract as much as possible on irrigated land this year, possibly (if can persuade farmers) 7,000 to 10,000 acres.
Farmers paid 7 cents per lb. for yellow variety, 5 cents per lb. for brown variety.

Tomato Possibilities

Depending on ability of plant scientists to "tailor" commercial canning tomato and if growers to grow it successfully, could *double* present total acreage in canning crops. Will need tomato acclimated to short South Alberta season and "know how" on part of growers to succeed. May require "smudge pots" to fight first mid-September frosts. Irrigation men hopeful new area of light soil land east between Taber and Medicine Hat will grow both tomatoes and field corn successfully.

Other Industries

Various industries directly established because of irrigation.
Manufacturing land levellers, sugar beet harvesting machines, packers, together with several service industries serving the irrigation farmers especially. All just starting up.
Major Aluminum Co. has opened warehouse and assembly plant in Lethbridge for sprinkler systems.
Numerous industries and businesses in and about Lethbridge developed because irrigation increased productivity, enabled the same areas to support larger populations.

Land Values

	Value of Irrigated land per acre	Value of Dry land per acre
Taber	$250 to $350	$ 5 to $50
Coaldale	$100 to $200	$25 to $80
Lethbridge Northern	$100 to $250	$30 to $80

ANNEX II

ALLAN, John Andrew—M.Sc., Ph.D., F.R.S.C.

University professor (emeritus); consulting geologist;

Born Aubrey, P.Q., July 31, 1884;

Educated McGill University, B.A. 1907; M.Sc. 1908; Mass. Instit. of Tech., Ph.D. 1912;

Professor of Geol. and Mineral. and Head of the Department, University of Alberta; field geologist, Canadian Geological Survey 1906-18; Since 1918 Provincial Geologist, Province of Alberta;

Dr. Allan has done extensive studies and written numerous authoritative reports on structural geology and physiography of the Canadian Rocky Mountains and Western Canadian Prairies. These studies include a detailed study of the Saskatchewan River Valley from Red Deer to Saskatoon. He has been consultant on engineering geology for power plans and other projects in Alberta.

Member Canadian Institute of Mining and Metallurgy (Pres. 1932-33); Member Engineer Institute of Canada; Member Assoc. of Professional Engineers of Alberta (Pres. 1930);

Address: 11138-90th Avenue, Edmonton, Alberta.

FERGUSON, Harley Bascom

Army officer; born Waynesville, N.C. August 14, 1875; son of William Burder and Laura Adelaide Ferguson; graduate U.S. Military Academy 1897, Staff College, Fort Leavenworth, Kansas, 1904, Army College 1921, married Mary Virginia McCormack January 3, 1907; children—Adele, Virginia. Commissioned 2nd Lieutenant Corps of Engineers, U.S. Army, June 11, 1897, and advanced through grades to Brigadier General 1932. With engineer troops in Cuba 1898, Philippines 1399, Chief Engineer China Relief Expendition 1900; Brigadier General Chief Engineer 2nd Army Corps, France, World War. Dist. Engineer Montgomery Ala., 1907-09; executive officer in charge of raising Battleship Maine, 1910-11; Dist. Engineer Milwaukee, Wis., 1913-16, Pittsburgh, Pa., 1920. In charge organization industrial mobilization office, Assistant Secretary War; Director Army Industrial College, 1921-26; division engineer Gulf Division, New Orleans, 1928, Ohio River Div., Cincinnati, including Tennessee River 1928-30, South Atlantic Div., 1930-32, Lower Mississippi River Div., and President Mississippi River Commission, 1932-39; member special engineer boards, Rivers and Harbours, 1930-32; St. Lawrensee Waterway 1931-32, Muscle Shoals, Delaware River, Lexington Dam, Harvey lock, Mouth Columbia River, Mouth Mississippi River. Retired from active service with rank Major General, 1939.

From: "Who's Who in America".

CASAGRANDE, Arthur

Born—August 28, 1902, in Hardenschaft, (Old Austria) Italy.

Educated in Austria, culminating in degree of Doctor Tech. from Technical University, Vienna, Austria, 1933. Honorary degree, A.M., conferred by Harvard University, 1942.

Experience—Draftsman, D.P.W. Leeuwarden, Holland, summer 1922.

Jr. Eng., Tunnel construction in Austria Alps, summer 1923-25.

Asst. in Hydraulics & Sanitary Eng'g, Techische Hoschschule, Vienne, Austria, 1924-26.

Draftsman, Carnegie Steel Co., Newark, N.J., 1926.

Pvt. Asst. Prof. Terzaghi, 1926-30.

Research Asst. U.S. Bureau of Public Roads, 1926-32.

Lecturer on Soil Mechanics, Graduate School of Engineering, Harvard, 1932-34.

Asst. Prof. Civil Eng'g, 1940-46.

Prof. of Soil Mech. & Foundation Eng'g, 1946.

Consulting Engineer, War Dept. and numerous State, Municipal & Pvt. Engineering Organizations.

Private Consultant, 1932.

Consulting Engineer, War Department 1936.

Panama Canal, 1940.

Courses for Engineer Officers, Harvard, 1942-44.

Clemons Herschel prize and Fitzgerald medal. Boston Society of Civil Engineers.

Dr. Casagrande served as principal assistant to Dr. Terzaghi in the development of many of the principles of soil mechanics. In conducting research, teaching, and applying his knowledge to practical problems in the field of soil mechanics

and foundation engineering as a consultant. Dr. Casagrande has become a leading authority in the field. This is indicated by the fact that Harvard University, where he is professor of Soil Mechanics and Foundation Engineering is recognized as the leading school in soil mechanics on the American continent, and that Dr. Casagrande is retained by the U.S. Corps of Engineers as consultant on soil mechanics and foundations on all their major projects. Specifically, he is on the Board of Consultants for the following dam projects:
Garrison, Fort Randall, Oahe, Chief Joseph and Mud Mountain. He also served on the board that investigated the slide at Fort Peck, and has served as consultant on the slides on the Panama Canal and the investigation on the proposed Sea Level Canal. He made notable contributions to the solution of problems in the construction of airports during the war; particularly in connection with Logan Airport, a project which involved the placing of forty million cubic yards of fill by hydraulic methods. This was a bold and original approach which was successful.

In addition, Dr. Casagrande's private consulting practice has put him in association with many of the most important construction projects in the United States. In Canada he serves as consultant for Shawinigan Engineering Company and the Steel Company of Canada.

HARZA, L. F.

L. F. Harza, president of the Harza Engineering Company of Chicago, has been taming rivers and putting them to work for more than 40 years. Present day dean of American Hydraulic engineers, his dams and power houses can be found in every part of this country—and in several places abroad. To make this fact plain, one need only recall the Dix River Dam in Kentucky, the Loup River power project in Nebraska, the Santee-Cooper power project in South Carolina, the power installation at Fort Peck, Norfolk and Bluestone dams and the Rio Negro development in Uruguay.
Today, although nearing 70, Mr. Harza is operating on a schedule of one month out of every four in India as chairman of the consulting board of the Damodar Valley Corp., that nation's version of our own TVA. With eight or nine dams to build and a legacy of hand labour operation to start with, Mr. Harza is setting out to mechanize the job and give India an example of American construction know-how at work.

Recent and current work includes jobs in the Philippines, El Salvador, Canada and Tacoma, Wash. And when and if the St. Lawrence power scheme gets under way, it may well be Mr. Harza's design that is used for the great Barnhart Island powerhouse—36 units of 55,000 kw each. He prepared contract plans and specifications for the Corps of Engineers in 1942.
Both a mechanical engineer (South Dakota State College) and a civil engineer (University of Wisconsin) Mr. Harza began his career in the busy office of Daniel W. Mead, but by 1912 he had established his own consulting firm. Under such able associates as Calvin Davis, Edward Fucik and Harza's son, Dick, the organization continues the hydraulic design pioneering that Mr. Harza set as its objective over four decades ago.

From: *Engineering News-Record, April 26, 1951.*

Submission of the Saskatoon Board of Trade made on behalf of its Members including all Classes of Business and Professions and on behalf of the Mayor and Council of the City of Saskatoon respecting the proposed Dam and Irrigation Project on the South Saskatchewan River near Outlook to the Chairman and Members of the Royal Commission

MR. CHARLES HAZEN

1. This submission is made on behalf of the merchants, manufacturers, professional men, farmers and all citizens of every walk of life in the City of Saskatoon and community. Although the proposed Dam and Irrigation Project near Outlook may be considered to be of primary concern to the farmers in the irrigable area and contiguous to it, yet we consider it to be of vital interest and importance also to the citizens of Saskatoon, and indeed to all of the Province of Saskatchewan.

2. We believe that the investigations made and opinions expressed by the officials of P.F.R.A., who surveyed and planned this project, and which were endorsed by eminent independent authorities in the fields of engineering, irrigation farming, soils, climatic conditions, agricultural economies and hydro-electric power are sound and conclusive and prove that the joint investment by the governments of the Dominion of Canada and Province of Saskatchewan in this development will be economically sound and bring lasting benefits not only to all those immediately concerned but also to this province and indeed to the whole Dominion.

3. The privation and distress which resulted from the periodic droughts which assailed the farm lands in the area known as the Palliser Triangle, and particularly that disastrous period in the thirties, brought forcibly to the attention of all thinking people the errors in settlement actively encouraged by the Government of the Dominion of Canada in the early years of this century. This alarming condition has hit the Outlook-Saskatoon area as severely an anywhere on the prairies. It is shown by an abnormally low average crop yield, by below subsistence level average incomes, by high direct relief costs and by reduction in population density that is much greater than the average for the province as a whole.

4. Practically all tillable land in this territory was once closely settled. All necessary services such as railroads, municipal roads and highways, elevators, towns and villages, churches, schools, doctors, dentists and hospitals were developed and built up. Reduction in population, and particularly in gross income, over all this territory is resulting in abandonment of churches and schools, loss of population in villages and towns, loss of revenue to railroads, banks, elevator companies, etc., insufficient tax money to properly maintain roads, hospitals and support medical services.

5. Benefits and improvements which have resulted from the development of irrigated areas in Alberta and on a small scale in South Western Saskatchewan have shown conclusively how sound planning and public financing can alter and elevate the economic, social and cultural life of an area. Reports have been submitted which prove that the climatic conditions, soil types and topography are as favourable in this Outlook-Saskatoon area as those being successfully irrigation farmed in Alberta.

6. We ask that the Government of the Dominion of Canada proceed with the construction of the dam at the earliest possible moment and that this scheme be developed to its fullest extent as rapidly as possible so that—

(a) Hundreds of farmers now living in this area in difficult economic circumstances, often requiring public assistance, depressed and hopeless, may be restored to independence and to conditions where they may earn a good and satisfactory livelihood, where they and their families may enjoy some part of that living standard which we Canadians like to boast is at least the second highest in the world, when they may hold their heads high and be truly proud of themselves and the country in which they live.

(b) Young Canadian men and women and new immigrants from the Old World, whose hope and desire lie in an agricultural life, may get a start at a good income earning farm on a scale they can meet instead of the hopelessly large investment necessary to go into dry land farming today.

(c) Resettlement and close settlement of hundreds of thousands of acres may permit the economic development of a rural electrification program fed by hydro-electricity at rates lower than foreseeable costs of steam or gas turbine generated electricity.

(d) Towns, villages, railroads, elevators, livestock distributors and processors, and banks may benefit and grow in size and strength by serving this increased population.

(e) A fuller and richer community may provide the tax base for proper development of roads, telephones, schools and health services.

7. A closely settled and prosperous farm area will enable all the above mentioned benefits to develop and to make rural life attractive and enjoyable. Isolation will vanish and social life centering around restored and well supported churches will develop to benefit all. The possible power development, which is only auxiliary to the main purpose of the dam, being so strategically situated in relation to the large steam generating plants in the three main cities, will enable the building of a distribution grid system covering a large part of the habitable part of the province.

8. The provision of flood control is also an important benefit as in recent years annual floods have taken a large toll of property and livestock and delayed farming operations on quite considerable tracts of land.

9. The establishment of the large lake and the restoration of other large and small lakes to levels of better years will provide recreational opportunities and aesthetic benefits within easy driving distance for more than 50 per cent of the people of Saskatchewan. Water in the lakes, in the ditches and on the land will surely result in the development of trees and shrubs, and although no monetary value may be attached to this factor, it will make all of this area a better country to live in.

10. Saskatoon, with its population of 55,000 persons, exists primarily to serve the farmers of north central Saskatchewan and its welfare is directly dependent on their prosperity. The proposed irrigation area lies mainly within our normal service area. Its further deterioration will have serious consequences to us but its improvement in population density and prosperity through irrigation will be of immense benefit.

Mr. Chairman and Commissioners, we earnestly and hopefully submit that you will shortly report to and urge upon the Prime Minister and Government of Canada the immediate acceptance of the South Saskatchewan River development scheme and that it will be authorized and construction proceeded with forthwith.

SASKATOON BOARD OF TRADE

W. M. NOBLE
President

S. N. MACEACHERN
Commissioner

CITY OF SASKATOON

F. C. CRONKITE
Deputy Mayor

E. JOHNSON
Acting City Clerk

City of Saskatoon Submission by the Mayor and Aldermen of the City of Saskatoon to the Chairman and Members of the Royal Commission Respecting the Proposed Dam and Irrigation Project on the South Saskatchewan River Near Outlook

The Mayor and Aldermen of the City of Saskatoon have already endorsed a joint brief submitted by the Saskatoon Board of Trade urging the early construction of the proposed Dam and Irrigation Scheme on the South Saskatchewan River near Outlook.

It is not necessary to repeat in detail the arguments set forth in that brief. We would like to add, however, that the necessity of the immediate construction of the project should not be disregarded nor minimized because we happen to be in the midst of a series of bountiful crop years—this year's probably being the largest we have ever had in Saskatchewan.

The records of the past prove beyond doubt that we cannot hope to have these good crop conditions continue indefinitely. We are almost certain to have poor crop conditions in the years ahead and quite possibly we may have a repetition of those disastrous years in the 30's when not only the farmers but all the residents of the West in Villages, Towns and Cities suffered very severely. In fact, every citizen in Canada indirectly felt the blow.

The costs of relief in various forms would largely pay for this proposed undertaking. It is our understanding that this project may take ten years to complete in which case the cost should not be unduly heavy in any one year.

In our opinion, no time should be lost in carrying out this project as it is altogether likely that by the time it is completed and established, we shall already have had lean crop years and may be experiencing another major drought cycle.

The economy of the Prairie Provinces is mainly dependent on the growing of grain crops by dry farming methods, supplemented by the raising of livestock. In times of drought or near drought, both these sources of revenue are greatly reduced, resulting in hardship and suffering to both rural and urban residents.

With irrigation, not only will crops be more diversified, but they will be assured. The farmers of this five hundred thousand acre district, even in dry years, will not only have a good crop but they will also be in a position to supply feed for livestock in the surrounding dried-out areas.

Saskatoon is vitally interested in the carrying out of this project. The Outlook district is served by the wholesalers, manufacturers and other businesses in this City.

Our location, so close to the area, has given us the opportunity to observe and know the difficulties the people on the farms and in villages and towns have experienced because of lack of sufficient moisture for their crops. The prosperity of the surrounding territory means, of course, prosperity for the City of Saskatoon.

Mr. Chairman and Commissioners, on behalf of all the residents of the district involved as well as the citizens of Saskatoon, we hope that you will feel convinced of the necessity of the construction of this Dam and will recommend to the Government of Canada that this project on the South Saskatchewan River be carried out without delay.

Respectfully submitted on behalf of

THE CITY OF SASKATOON
(J. S. MILLS) *Mayor*
(J. ANDERSON) *City Clerk*

City Hall, Saskatoon, Saskatchewan,
12 September, 1952.

Submission to the Royal Commission Investigating the South Saskatchewan River Development by the Saskatchewan Association of Rural Municipalities

MR. S. DUFF NOBLE

Mr. Chairman and Members of the Commission:

This brief is prepared by and on behalf of the Saskatchewan Association of Rural Municipalities. This body has been in existence since 1907, when it was created to deal with matters of concern to the rural ratepayers of the Province of Saskatchewan. It has a membership of all the 299 Rural Municipal Councils of the Province and as such is eminently fitted to speak with that degree of confidence required at this time.

With such a widespread organization, coupled with the fact that it touches upon the interest and life of each and every rural ratepayer, it is important that we take the opportunity offered of presenting to you our considered opinions upon this so vital matter, that of the proposed South Saskatchewan River Development Project.

In presenting this brief advocating the early construction of the South Saskatchewan River Dam, our Membership is fully conscious of the now well established fact, that the economy of Saskatchewan, presently based chiefly upon the returns from one crop, that is, wheat, is one lacking the balance and security essential to the needs of the people. Recurring droughts, by the destruction of feed crops and pastures have in the past frequently threatened the livestock industry, which should be the stabilizing factor of our farm economy, and in consequence, the industry has not progressed as it should. During the 1930's, seed, feed grains and fodder, had to be imported from other Provinces and even the United States, and in one year, cattle were sacrificed at one cent per pound. The proposed South Saskatchewan River Dam would provide a sure crop area for feed and fodder, sufficient to provide a necessary stabilizing effect on the livestock industry of the whole province, besides providing an area, in which ample feed and water would enable farmers of the area to feed and finish livestock, which at present are sold to other Provinces and the United States for fattening and finishing. The losses at present incurred by our livestock industry in having to market unfinished cattle is a serious loss to the industry. The reports of the progress of the irrigation areas of the Province of Alberta, the large canning and sugar industries which have been developed, is sufficient evidence of the prosperity which would follow the completion of this project.

Apart from general endorsation of the project, our Association has a particular interest in the future of the rural residents of the eighteen (18) Rural Municipalities included in the development area. In this region, approximately 3¼ million acres are occupied by a population of about 28,000, and of the acreage about 2¼ million are under cultivation. It is estimated that from a half to three quarters of a million acres could be irrigated. It has been stated that 100,000 acres of irrigated land in the Brooks, Alberta project, supports a total dry farming area of 2 million acres. If this ratio is correct, the benefits to be derived from the construction of this dam could have incalculable value to the economy of central Saskatchewan.

The usual facilities for such an extensive area, that is, railways, highways, market roads, telephones, schools etc., together with other sources of service and supply are already established, but their continued existence upon a satisfatcory basis is dependent upon either rainfall or impounded water. Failing these, then assistance from either Provincial or Federal Government in times of need is the only alternative in view. During the past 20 years the cost of maintaining this area through recurring drought periods is partially made up as follows:—

Direct Relief	$ 3,240,543.
Winter Maintenance of Livestock	1,373,984.
Seed Grain & Feed	3,287,211.
Tax Cancellations D.A.D.A.	1,594,884.
P.F.A.A. Benefits (1939-1950)	10,214,159.
Total	$19,710,781.

When to the above we add the cancellation of debt under Farmer's Creditor's Arrangement Act, the Provincial Mediation Board and mutual adjustments, for which figures are not readily available; and consider the losses sustained by the farmers themselves, we get a fair estimate of the need for the construction of the project at the earliest possible date. If also, as pointed out above, we can expect the benefits to extend to an area probably five times the size of the 18 rural municipalities immediately affected, we can also increase the above loss figures by the same ratio. As an indication of the unfavourable prospects of the area, we would point out that the townships comprising the 18 rural municipalities in the development area, have received Prairie Farm Assistance Act benefits on an average of 7 years out of 12 years (1939-1950). The maximum being 10 years and the minimum 4 years out of 12. On the basis of all these costs, it appears to this Association that the project would be justified. Only by a per-

manent policy of use of the tremendous water supplies which are available in the Saskatchewan River System, can the farm economy of Central Saskatchewan ever hope to become self-supporting.

Power and Water

The Province of Saskatchewan is at present reaching a stage where cheap power will be essential to the future development of its secondary industries, to keep pace with the growth and requirements of the cities, and to provide for the development of a major mining industry in the north. The benefits to be derived from this aspect of the Saskatchewan River Development Project will have a lasting effect on the economy of the Province. It is also stated that the project will provide an increase in the power available at other sites on the river.

The provision of water supplies to the Qu'Appelle Valley system and the cities of Regina and Moose Jaw are also matters of major importance to the Province which we are sure the Commission will evaluate.

Conclusion

The Saskatchewan River Development Dam will be of major benefit to the development area, after the initial difficulties which might be expected, have been overcome, and the full development of the benefits to be derived have been fully realized. The Province as a whole can expect to obtain considerable assistance in the increase in population, production, and the easing of the burden of assistance in times of need. These same benefits will apply to the Dominion as a whole and it *is* estimated that the financial returns will approximate $5,000,000 annually, or sufficient to cover the annual capital and investment costs based on the original estimates. Even with considerable increase in present day construction costs, it is desirable and necessary that the project be proceeded with at the earliest possible date, to avoid future heavy losses such as have occurred in the past.

Finally may we sum up the points we have tried to bring to your attention:—

1. The present economy of Saskatchewan, based on one crop, wheat, is dangerous and unsatisfactory.
2. Recurring droughts have retarded growth of the livestock Industry.
3. A sure crop area and ample water would create a finishing industry in livestock and obviate present losses in marketing unfinished stock.
4. New industries, such as sugar and canning would likely develop, increasing population and production.
5. The development area with approximately three quarters of a million acres under irrigation, would improve the situation in an area of 14,000,000 acres of dry farming.
6. Continued existence of the whole of Central Saskatchewan as a dry farming industry will require Dominion, Provincial and Municipal assistance, and will also likely result in further losses by credit institutions.
7. P.F.A.A. record shows that only a permanent policy of use of available water supplies, will place Central Saskatchewan Farm Industry on a satisfactory basis.
8. Power and water supplies which can be developed by this project are necessary to Saskatchewan economy, as a whole, to assure development of other industries and to place the cities of Moose Jaw and Regina in the position of having ample water supplies which are necessary to their health and welfare.

Submitted by and on behalf of

The Saskatchewan Association of Rural Municipalities.

S. Duff Noble,
President.

S. Ferguson,
Secretary.

August 29th, 1952.

A Statement Presented to the Royal Commission on the South Saskatchewan River Project on Behalf of the Saskatchewan Teachers' Federation

Mr. Hector G. Trout

Members of the Royal Commission:

The Saskatchewan Teachers' Federation is happy and proud to have this opportunity of supporting the very fine presentations which have been made so far today in favour of the South Saskatchewan Dam Project. The Saskatchewan Teachers' Federation is a professional organization comprised of all teachers employed in schools organized under the School Act, the Secondary School Act and the Vocational School Act, and has a membership of approximately seventy-two hundred teachers in all parts of the Province of Saskatchewan. As a professional group, we must be

very cognizant of and interested in any movement which affects the economic and general welfare of the people.

With the development of power farming, our farm units are becoming much larger and there is a growing tendency towards urban living. This has created a very serious problem for school administrators and has given rise to a large number of schools with very small enrolment, which we consider to be neither economically nor educationally sound. However, we are concerned not only with the economic and educational problem which this migration to urban living creates, but with the effect of this trend upon the boys and girls to-day growing to manhood and womanhood.

This lack of direct contact with the farm seems to us to detract from farming as a family project. We fear we are developing to-day a group of people who merely look upon farm life as a new industry, a highly commercialized enterprise, rather than a way of life. If the agricultural element of our citizens should lose the love of the soil and the intimate concern with farm life, it would have serious consequences for our whole society. That stabilizing influence which a sound agrarian group has given in the past to society would be lacking. This would have a very serious effect upon the moral courage of our people. We are, therefore, keenly interested in a scheme such as the South Saskatchewan River project that will create smaller farming units and keep our people more closely associated with the art of farming. A stabilizing group of citizenry is badly needed in this very unstable world.

As an educational group we must be concerned with the opportunities for the graduates of our schools. Our study of irrigation areas indicates a diversification of not only agricultural occupations, but other industries. While we have watched with interest and appreciation the slight industrialization of our province, and the present prospects of oil development, yet the main industry of this province is, and we hope will remain that of agriculture.

We are perturbed at the lack of opportunities for younger folk in both industry and the field of farming. With the establishment of larger farm units, it has become almost impossible for any young person without considerable means to become established in farming. We would hope that a wide-scale irrigation project, with its consequent smaller farming units, would not only diversify our agricultural economy, but would make it possible for more and more of our younger people to become established in the industry of agriculture.

The Saskatchewan Teachers' Federation realizes the very close relation that exists between the income of the farmer of Saskatchewan and the welfare of the teaching profession. The present leaders of the profession are in an age group that was teaching in Saskatchewan in the 1930's, and have very vivid recollections to the effect on themselves and on the profession of consecutive crop failure.

The crop failure and economic depression of the thirties resulted in unprecedented low salaries. Many teachers were contracted to teach for the government grant which, in many cases, was as low as $200.00 per annum; others had to supplement what small amounts of money they received from school districts by relief orders; such emergency means as boarding around and promissory notes in lieu of salary were quite common; lack of money for books and for attendance at summer schools made professional development difficult. We have dwelt on these conditions of the thirties to emphasize our dependence upon a sound agricultural economy, and why we must be interested in this movement which will bring to this province a more stable economy.

We are interested in this matter not only from a standpoint of our own welfare, but from the effect which recurring depressions have on the public, which are, after all, our first concern. Those of us who taught in the thirties are only too vividly aware of the malnutrition, lack of medical and dental services that was the lot of many of our pupils in those lamentable years. We realize that the situation in the thirties was created by both an economic depression and a series of drought years. While the building of this project may not affect a world wide depression, its completion will do something about the drought years. We would, indeed, be very much to blame if, in more prosperous times, we neglected to provide for the recurring lean years, which would appear to be the lot of this part of the continent. While we must leave the feasibility and the planning of this irrigation project to the experts, we do feel that it is one that will ensure greater agricultural stability for our province, with a resultant benefit to all its people. We feel that it will be of great benefit to our members, whose livelihood depends on the public purse. A project of this kind should be a factor in stabilizing the tax income. We hope that a stabilized economy will permit the payment of adequate salaries and the provision of proper school buildings. This, in turn, will attract and retain in teaching the calibre and quantity of personnel needed. In this province today, we have an estimated twelve to fourteen hundred classrooms with-

out properly qualified teachers. We feel this is a direct result of teaching conditions of the thirties, and while we recognize that as citizens of the province, we must share the fortunes of the other citizens, we also feel that we must urge the implementation of measures that will improve the general economic status of our people.

We are finding a great reluctance on the part of teachers to take schools in the isolated rural areas of this province. The situation has reached a very serious state and we find that trained teachers are turning to other occupations, because they will not go to the rural areas of small population and their lack of modern facilities. It is our opinion that a more densely populated area could be provided under an irrigation system which would be better for teachers and the educational process.

In summary, may we again express our support of this project and join with the other groups and individuals which have spoken today. We feel that this project should be proceeded with immediately. We hold to this premise that

(a) the completion of this project will do much to retard the urbanization of our rural population;
(b) the retention of a sound agrarian population is essential to the stability and moral welfare of our country;
(c) that irrigation will diversify our agricultural occupations and create new industries which will in turn give employment to our young people, and will permit more of our people to become established on the farm;
(d) it will help stop the draining off of our younger people to industries in other parts of Canada and the world, with a consequent population loss to this part of Canada;
(e) the completion of this project and a diversification of industry will bring greater stability to our economy.

This in turn will have a salutary effect upon the educational system and the members of our profession, and will make it possible for more adequate educational facilities to be provided, and will attract and retain in teaching in this province a greater supply of teachers.

HECTOR G. TROUT
for
The Saskatchewan Teachers' Federation.

Submission of the Retail Merchants' Association of Canada (Saskatchewan) Incorporated to the Royal Commission Investigating the Proposed Dam and Irrigation Project on the South Saskatchewan River Near Outlook

MR. C. F. R. WENTZ

Mr. Chairman and Gentlemen:

We, the Retail Merchants' Association of Canada (Saskatchewan) Incorporated, representing retail merchants throughout the Province of Saskatchewan, make this submission to you believing that it is in the best interests of not only the citizens in the irrigable area but to the citizens of the Province of Saskatchewan that this project be proceeded with without delay.

It is an established fact that the population of the Province of Saskatchewan has been declining steadily for a number of years. This was borne out by the latest Dominion census in 1951 and since the Commission is fully aware of this fact we do not propose to elaborate further with population figures for the Province over the past ten, twenty or thirty years. This decrease of population in the Province of Saskatchewan is of great concern to the retail merchant, for, as population diminishes, then so does the volume of business of the retail merchant decrease in proportion. Consequently, as volume of business decreases, the number of retail outlets drops, putting retailers out of business and taking away his means of livelihood. This condition is particularly evident in the irrigable area of the project under review. Any area, whether it be in this Province or in another country, can only support retail outlets in proportion to its population, and the area with the larger population warrants more retail outlets, giving, in turn, greater variety and service to the citizens of that area. It is our belief that if the project is carried out then the trend will be for the population of the Province, as a whole, and the irrigable area, in particular, to show a steady and maintained increase with a resulting increase in the volume of business for the retail merchant in the area, and the opening of additional retail outlets, giving greater service to the community. This is, of course, not only a benefit to the retail merchant, through increase in sales, but also a benefit to the citizens in the area, in turn resulting in benefits to those in neighbouring areas since prosperity is contagious.

The periodic droughts have hit the Outlook—Saskatoon area as severely as anywhere on the prairies, resulting in low average crop yields and consequently, since agricultural stability and security are of prime importance everywhere in Saskatchewan, low gross incomes for all classes of the population. This means

that an area which was once closely settled with all necessary services is now sparsely settled with a reduction in these services, since farmers in this area need to farm more land dry farming than a farmer on land which is irrigated and producing a far larger yield per acre. In view of the fact that each farmer would not need to work as much land in order to get a fair return for his labour, it is our opinion that irrigation of this area would mean a return of farmers, along with a large increase in new settlers, making it once again closely settled, giving the area for all classes of the community better living conditions and higher gross incomes. The resulting improvements in living conditions would be not only social and financial but also include better educational, hospital and medical services with increasing tax revenues to the municipalities, providing for properly maintained roads and other essential services. New immigrants arriving from Europe, who have a desire for agricultural life, along with young Canadians who have the same desire, would have the opportunity and inducement to put their talents to the fullest possible advantage to themselves and their fellow man. With the scarcity of food being one of the major problems in the world today every feasible irrigation project should be fully exploited from not only a personal, Provincial or Dominion standpoint, but also from a humanitarian point of view.

Development of irrigated areas in Alberta, and on a small scale in southwestern Saskatchewan, have proved that a project of this nature can, with sound planning, elevate social, cultural and economical life in the area. The investigations made by the officials of the P.F.R.A., who surveyed and planned this project, have been endorsed by eminent authorities in the engineering, irrigation farming, hydro-electric and other fields as being sound and workable. There is no reason whatsoever then to suppose that what has been proven in similar undertakings in other areas cannot become a reality here. It is our belief that the project when put into effect will bring the same improvements to this area as similar projects have to other areas.

As an auxiliary to the main purpose of the project, namely irrigation, the dam has power possibilities of considerable importance. It has been estimated that hydro-power generation on the project offers great savings over alternative forms of generation which in itself is strong justification for support of the project. The provision of relatively cheap power could contribute greatly to the economy of the Province.

The project will also mean the restoration of lakes both large and small, within the irrigable and adjoining areas, to levels of the better years. This will provide the citizens of this Province, especially those in the southern part of the Province, with recreational centres and opportunities within easier access of their homes. In turn it will also give the Province the opportunity to develop these outlets for the holidaymaker so as to provide the tourist from the other Provinces and the United States with the inducement to spend more time in this Province resulting in greater prosperity through more money staying in Saskatchewan.

In making this presentation we realize that all aspects of the project have been fully covered by other briefs and submissions, and we ask you to accept this as an endorsement of the investigations and opinions expressed by the surveyors and planners of the project, namely P.F.R.A., and we consider that this scheme not be judged from a short term viewpoint but rather in the light of its long term value to the community, province and the nation. We, therefore, urge you to recommend that this project be accepted and that construction be proceeded with without delay in order that the benefits to be derived from it are available to all as early as possible.

Respectfully submitted,

RETAIL MERCHANTS' ASSOCIATION OF CANADA (SASKATCHEWAN) INCORPORATED.

H. R. STACEY,
Saskatoon Local President and Past Provincial President.

C. F. R. WENTZ,
Member of the R.M.A.

Saskatoon, Saskatchewan,
September 12, 1952.

Brief Presented by the Saskatoon Construction Association Affiliated with the Canadian Construction Association of Saskatoon, Sask.

MR. CHARLES A. WHEATON

September 11, 1952.

Mr. Chairman and Members of the Royal Commission:

I represent the Saskatoon Construction Association and am presenting this statement in support of the Saskatoon Board of Trade Brief. The Saskatoon Construction Association has in its membership the General Contractors, Plumbing, Heating, Electrical and roofing and Sheet Metal Contractors, the lumber dealers and all the suppliers of building material together with the Road Builders and suppliers of road and construction machinery.

We would like to impress upon you the necessity of carrying out the dam irrigation project at Outlook for the following reasons:

1. To stabilize the economy of this Province and in turn Canada as a whole by making us not wholly dependent on the whims of the weather.

2. By permitting diversification of crops so that the country can sustain a greater population.

The members of our association will remember thirties when nothing moved but the dust. The dry years produced no crops and the construction industry ceased to exist. Our members have millions of dollars invested in buildings and equipment and an irrigation scheme would protect this investment.

The Construction Association feel that the people of Saskatchewan suffer from a lack of numbers. Community living does not exist. Only the irrigation project would permit a more dense population and hence a more pleasant life.

In view of the above we urge that your report be favorable and that the Outlook Dam and Irrigation Project be commenced without further delay.

Yours Truly,
SASKATOON CONSTRUCTION ASSOCIATION,
C. A. WHEATON,
President.

Submission of the Labour Progressive Party to the Royal Commission on the Proposed South Saskatchewan River Project

MR. W. BEREZOWSKY

On behalf of the organization which I represent, I urge your Commission to give consideration to, and to recommend to the Federal Government, the following:

(a) The urgent need to begin the South Saskatchewan project in 1953 and to reduce the time objective for its completion from 10 to 6 years.

(b) To establish a Saskatchewan River authority to administer this project and to plan additional projects related to the conservation of water from the Rocky Mountains with the view to developing additional areas of irrigation and power throughout the entire water system of the west, including Qu'Appelle and Fort a La Corne.

(c) That the South Saskatchewan River project be considered as a major national peace project having as its objective the greater economic security and social, cultural well being of the people of Saskatchewan and the entire country as a whole. The first step towards this should be to devote public funds and energy towards constructions designed not for dealing out death and destruction, but designed to give life, to bring food to the people of the world and the hand of friendship where there is unnatural and artificial animosity.

Build the Dam Now

1. The most outstanding feature in regards to the South Saskatchewan River project is the outspoken support and insistence of people from every walk of life that this development begin without delay. We are confident, fellow Canadians will be proud of our resolution and will support this project, seeing in it a powerful link in the chain of independent Canadian economic, social and cultural development.

For 35 years the people of Saskatchewan and particularly those in the most arid regions, have envisioned in the Saskatchewan River the possibilities of satisfying the aggravated need for water to farm the dry and blowing soils. Engulfed in a heart-breaking battle to live, frustrated in their social and cultural advancement, they have in all these years maintained that vision and fought for it. And that vision and demand have grown. Within the scheme we can see the practical, tangible possibility of power production, flood control, Municipal water supply and tremendous new fields in recreational facilities.

The investigations, surveys and planning endorsed by eminent independent authorities and conducted by competent engineers, geologists and economists bear out and give strength to the demands of the Saskatchewan people that the project begin now. It is practical, economical, feasible and necessary. The project is too urgent, too vital to the peoples' needs to be treated as a political football, a matter of election promises and partisan advantage.

2. Our country is extremely wealthy, first in its people and in the extent of its natural resources. We possess all the manpower required to do the job (over 200,000 unemployed—*Labour Gazette*—August 1952) and we have demonstrated on more than one occasion our engineering skill and technical knowledge. Within our own borders we have an abundance of iron and non-ferrous metals and certainly the capital to finance it. Our national budget surpluses could pay the estimated requirements twice over.

3. The greatest natural hazard throughout the entire Prairies and recognized by all, is the continuous and in all too many cases a losing battle to conserve the precious soil moisture. Particularly is this true in

the development area. Our history over the decades indicates definite possibilities of disastrous droughts, so that over a 10-year period resources which should go to rectify the conditions would needs be allocated to the results of the condition.

Our past experiences, particularly during the second world war, proved our ability to undertake immense national and international projects. In consequence we can hasten the period required to build the project from 10 years to at least six. There is every reason for confidence in the ability of Canadian engineers and technicians to revise their plans and carry them out, given the green light by the Federal Government.

4. An immediate start in the work would have the effect of stemming our depopulation, giving our young people, particularly, a firmer perspective in a real developing future. We have already lost heavily in the emigration of many of our best engineers, technicians, etc., due to our backwardness in developing essential irrigation and power schemes.

5. Because of new discoveries of oil, uranium and other valuable minerals in Saskatchewan the opportunity of building industry in this Province and adding new wealth to our country is greatly enhanced. Within this development can be seen an opportunity to accomplish this, preventing our natural resources being drained off to American industry by using the excuse that our Province suffers prolonged drought and an uncertain economy, that we lack power, that our population is diminishing. The Saskatchewan River Project as projected in the mass of data assembled, will prevent the depopulation of Saskatchewan, the spoliation of the soil and the uncertainties of our economy. The people of Saskatchewan can never again tolerate the "Hungry Thirties."

Saskatchewan River Authority

The South Saskatchewan River project cannot be separated from the whole development of our western water system from the Rockies to Ontario. The vital problem of solving inadequate moisture conditions throughout the western Prairie provinces is one of the most serious. That Canada trails in irrigation developments is proved by the advanced stages of irrigation in many countries of the world. For instance, while Canada has only 950,000 acres under irrigation, the Argentine has 3,200,000 and Australia, a country economically less advanced than Canada, has a million acres under irrigation with a proposed development of 11 million additional acres. France irrigates 3,150,000 acres, Iran 2,500,000, China 90 millions and the Soviet Union 8 million, with both the latter countries launching tremendous conservation and irrigation schemes involving tens of millions of acres. There is a need for a Saskatchewan River Authority empowered to plan and initiate a series of projects in the three Prairie Provinces designed to greatly increase land productivity, productive land areas and power resources.

Build for Peace

Out of the Saskatchewan River Project and certainly out of an entire reorganization of our western economy, through the efficient use of our resources, must arise a more stable agriculture, new sources of electric power, development of various industries and a greater volume of trade and commerce. To our people this will mean more security for our farmers, jobs for our workers and a real place in Canada for our youth, assuring our welfare, social and cultural progress. Is not the welfare of a people the real strength of a nation?

In the world in which we live—divided, launched once more on an armaments race—will not such gigantic construction developments strike at the very roots of the immense danger of war? If the slogan accepted by agriculture and industry in the Second World War, "Produce for War", made a profound contribution to the winning of the war, how much more effective would the slogan "Produce and Build for Peace", be to the maintenance of world peace. This is most forcefully emphasized by the fact that the cost of the entire South Saskatchewan River project is no greater than the cost of 100 jet fighters whose destruction could be effected in one week.

Conclusion

The South Saskatchewan project is urgently required. Its benefits are immense. We possess the plans for its construction: the engineers for its direction, the people to do the job and the materials from which to build. May I again urge the Royal Commission—to recommend to the Federal Government that it act—to begin in 1953 the building of a dam at Coteau and related construction as set forth in the report of the P.F.R.A. engineers; that, to administer the project, a Saskatchewan River Authority be established which shall include representatives of the farm and labour unions of the three provinces and that this Authority also be empowered to plan and execute projects with a view to developing irrigation and power involving the entire water system of the prairie region.

All of which is respectfully submitted by

THE PROVINCIAL COMMITTEE,
LABOUR PROGRESSIVE PARTY

Saskatoon, Sask.
September 12, 1952.

Political Aspects of the Proposed South Saskatchewan River Project

MR. OLAF TURNBULL

Introduction

In considering the multi-faceted and lengthily debated South Saskatchewan River Project, some consideration must be given to the political aspects involved. I do not use the word with any malice prepense, but will attempt to make an honest analysis of the practical political issues involved regardless of the party forming the government. I want to make it perfectly clear that I am not aiming at any particular political party or at any individual or groups of individuals in the provincial or federal arenas. I will try to assess some of the points that undoubtedly would be considered by any government faced with making the decision of whether or not to build the proposed dam and develop the area involved.

The Short Run Political Problem (Federal)

The main short run aspects are the following:

1. The distribution of population and corresponding number of members representing the area directly involved.
2. The distribution of population and corresponding number of members representing areas indirectly involved.
3. The particular party the above members represent.
4. The political complications arising from differences of interest between areas, and alternative public expenditure between these areas.
5. The dilemma of the possible loss of seats in either area as a result of a decision.
6. The aggravation involved if the majority of seats in any one area is held by the opposition, particularly in the directly involved area.
7. The possibility of weakening the government's position so that the balance of power might fall into the hands of a third party.
8. The use of the proposed project as ammunition for election campaigns.

In considering these points it would be well to bear in mind the axiom that radical political thinking is closely linked with any area of spasmodic and irregular productivity. An area under irrigation is the complete antithesis of radicalism and the desire for immediate and complete change. The constant productivity, the long range planning and the assurance of stability would immediately be reflected in the political thinking of such an area. Any government responsible for such development would strengthen their position immeasurably in the districts directly and indirectly involved. A further strengthening would result in the increase in the number of seats as a result of increasing populations. The fact that the people came to the area to accept the tangible results of a government's policy would indicate that they would support it politically.

Even though the area were represented by a member of a party not forming the federal government, no embarrassment would occur to the party in power. By embarking on the program it would steal the opposition's thunder and leave them without much ammunition on this one point. The sooner the project is started the stronger the government's position. Conversely,—it is weakened by delays.

Points (4), (5) and to an extent (8) fall under the general issue of alternative expenditure. Again I submit that it would be more profitable politically to embark on the project immediately. There may be some short run embarrassing effects from (5) but the long run view far outweighs the short run.

Public Expenditure—The Political Aspects

The idea has gradually evolved that a public works program is highly desirable in order to stabilize the business cycle. Fluctuation in political fortunes coincide closely with fluctuations in the business cycle. A very strategic part in the smooth and successful functioning of the economic system can be accomplished if public works are integrated as an agency of economic stabilization.

In the past public works have been entered into as a relief measure and as result the optimum effect could not be utilized because of improper timing. The dam comes not in a time of depression, but in the very opposite. Without entering into the field of economics, it would appear that our boom period may be near a recession, particularly if the Korean war should cease, so that a start might have the project into a position where it could be used to the optimum during a period of falling prices.

I do feel however, that the political factors above out-weigh the economic arguments that might be advanced, just as they did in the decision to construct the St. Lawrence Seaway. This construction was indicated in these times on the grounds that it is vital in the conflict between the United Nations and the Communistic Bloc.

The construction of the dam on the South Saskatchewan River, and the development of the irrigable area is just as important in this struggle that has been entered into and can only end in one victor. A shooting

war may not be engaged in any larger extent than we now have, but the "cold war" is sure to become more and more intense, both at home and abroad, lasting for many years.

Let us consider this unique aspect of the dam and the political struggle; evaluating it in terms of Canadian politics alone.

The Long Run Political Factors

These are more subtle than the short run, and are dangerous not only to the party in power, but to the Canadian society as a whole. These factors have a sufficiently destructive potential capable of starting the disintegration of our present form of political life in the manner we have observed other democratic nations destroyed. We in Canada have watched this trend with hypnotic fascination, almost as a child is drawn too closely to a fire, this slow but sure disintegration, and the use of Fascism, Nazism and Communism. To those that would shrug it off with "it can't happen here" I should like to say "it is happening here".

I am not a political scientist. There are many, many more qualified than I. But I was bred, born and raised in an area where radical thinking is the rule. My generation has been conceived in a dust bowl, weaned on a depression, and matured in the maw of the monster, WAR. We are questioning the standards and functioning of a society that has stood for generations. We are falling away from our churches, but looking for a faith. Above all we have been very thoroughly instructed by our society that material success alone is the single standard by which a man is measured. He can only qualify for the chromium plated pleasures that are dangled before him if he can buy them. We are building towards an uncertain future, with the desperate knowledge that our wheat economy will ultimately result in our own economic destruction, and the destruction of the land that we farm. The lack of conservation of our land resources is paramount, and grows as land holdings increase. Erosion is inevitable under the summerfallow wheat rotation.

The political parallel between our present times and the latter Roman and Grecian eras is startling. The same concentration of property in the hands of the few, the slow disintegration of religion, the same emphasis on material pleasures, the elimination of the small land holder, the destruction of his economic integrity making him look for assistance either from the state or a strong man or group of men. And finally the destruction of the society and the elimination of the nation. These are continual processes that exist in the lifetime of all nations. They must meet them successfully if they are to survive. We can do this, as Dr. Wiltso has indicated. We can meet the challenge in part by the erection of the dam, more than by any other public works, seaway included, as the cornerstones of his philosophy are repeated in the individual, the community, the provincial and federal governments. And the faith, knowledge, co-operation and industriousness grow stronger in life, and larger in proportion with each repetition. Canada would invest in herself and reap a harvest a hundred fold.

The development of the irrigable area means that a start in rebuilding a slowly demoralizing society would begin. Technological factors are such that large farms are impossible, the small holding would increase and a healthy farm class would exist in an area where instability is the rule. If a nation is to be steady politically it must have a solid agricultural class.

If every city in Canada were destroyed but a healthy farming stock existed, the nation could be rebuilt. But let the land and farmers become impoverished and diseased, and the cities will wither away and the society will disappear, for the land and those that till the land are the backbone of the nation.

I believe Mr. Chairman, that your commission was impressed by the calibre of the Canadian citizen you met at Outlook, Saskatchewan. I do not believe a greater bulwark for democracy exists anywhere in the world. Their integrity, their open-faced honesty, and their ability to stick, and stick, in spite of such adversity impresses us all. It was a thrill to see how they still retained their humor even after 35 years of grappling with a problem as immense and almost as immovable as a mountain. I was reminded of a smug city man, visiting a similar area, watching an old and gnarled farmer working his stubborn soil, who couldn't resist asking "What do you expect to grow here?" The old man paused a minute, and spat on the ground, then squelched him with a single word—"men".

They raise men in that area, but they cannot continue to battle alone. Every time one looses his grip and falls to the never-relenting natural forces, s" of Canada looses, the drugs of discontent are strengthened, and the pillars upon which our society is built are eroded a little more. And the rest watch the drowning in a sink and wonder—"will I be next?"

Couple that situation, the dream of irrigation and all it means, and you have a highly explosive social mixture. Every delay in development results in a little more cynicism. Like dropping a pebble into a pool, with ripples going out from the source, bounding off the edges and recrossing in ever-increasing complexity. So these delays and doubts that strike the

one sustaining hope of a better life disturb the minds of these men. A person can only stand so much. Perhaps a different society would be the answer.

Canada cannot stand for such a dangerous situation. Disillusioned men, frustrated youth, migrating to the cities, competing for jobs; men that know the soil, love the soil and the feel of the soil, forced onto cement and punching a time clock. These are the flotsam and jetsam of a wheat economy, striving to do the ridiculous and impossible. These are the men that rightfully question and ridicule a society that apparently rejected its obligations. These are the men that long for the strong state that they are told can do all they ask. These are the ones who fall prey to the communistic philosophy of a better existence.

No political party would willingly retain such a cancer in Canada. No society willingly turned on itself and destroyed the heritage of freedom that has taken generations of brave men to build. For freedom is the supreme good, without it personality is impossible.

We have watched these nations go down. And as we watch, let us turn our gaze inwardly and we will see the same economic demons being fostered. The building of this dam, the development of the area, the repopulating of this semi-arid land by a people flushed with hope and faith in themselves, the soil, the water and their society that made it possible is as solid a blow to the forces that exist to destroy free men, as any other in the whole of the Dominion.

What an envious position you men on the commission hold. To be able to do so much for a land and nation you love, as we do.

Can you imagine the jubilation if you bring down a decision recommending the immediate start on the project? What a drama would begin to unfold. What a building and planning. If by your decision the dam is built you are not only watering the parched soil; you are not only clothing a naked land and making a friendly area out of a hostile one. Far greater than that, you are building a greater Canada watering men's souls with the knowledge that by their way of life they have been able to create for themselves and all of Canada much that never existed before. You will strike as great a blow in Canada for our democratic way of life than any other.

Conclusion

As Dr. Widtsoe said—the building of the dam is inevitable. The only thing to be decided is when. Even if you men do decide to recommend immediate construction the spectre of political expediency hangs over your labours. Your report could be shelved, or put in a pigeon hole already reserved for it. In attempting to present the political aspects of the project I hope I have given you yet another reason why you will be able to convince the government that an immediate start on the project is urgent. The short run political factors would seem to indicate that it is expedient to start construction. Consideration of the long run factors would indicate that delays are extremely dangerous.

I do not mean to imply that if the dam is not built all of Saskatchewan will become communistic. The solution is not as simple as that. But I do insist that if our society cannot accept the challenges that are thrown upon it, if it will allow the existence of a depressed area to continue, when it is possible to make it one of the greatest cornerstones of stability instead of a political bomb that would continue to spread discontent and disillusioned people all over Canada, then it will surely decline, until the people will revoke it here as has been done elsewhere in the world today.

Respectfully submitted.

O. TURNBULL,
S.F.U. Director District 11

Endorsed by Saskatchewan Farmers Union.

Submission by Canadian Association of Consumers

402 Owen Street,
Saskatoon, Sask.,
Sept. 11, 1952.

The Royal Commission on the
South Saskatchewan River Development.

Gentlemen:

Executive members of the Saskatchewan Branch of the Canadian Association of Consumers strongly endorse the overall proposals for construction of the dam and irrigation project. The problems of the area requiring solution, and the benefits that would accrue, have been dealt with at length during the hearings by your Commission. This Association is convinced that the economic betterment of the large area directly concerned will extend to the Province, and in fact, to Canada as a whole.

The large land area capable of irrigation has cost our Provincial and Federal Governments millions of dollars over the past 20 years to assist an extremely hazardous agriculture. Southern Alberta provides the evidence of what water, of which an unlimited quantity is available, will do to transform such a condition. The Saskatchewan Branch of the C.A.C. therefore endorses all those submissions that urge an immediate commencement of the project.

Yours very truly,
(Sgd.) Jean L. Suggitt,
for Mrs. Neil Morris,
Corresponding Secretary,
Saskatchewan Branch C.A.C.