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Northern Transitions

Volume I

Northern Resource
and
Land Use Policy Study

Edited by Everett B. Peterson
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The Portage Mountain Hydro-electric Project

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Introduction

The Peace-Athabasca Delta in northern Alberta near Fort Chipewyan is an area of 1,500 squares miles, comprising large but shallow lakes, smaller perched lakes, many meandering water courses, and sloughs and vast marshland. Approximately half of the area lies within Wood Buffalo National Park (see Figure 1). The delta is an ecologically unique and important area; it serves as a staging area for the spring and fall migrations of countless waterfowl, as well as a nesting and moulting ground for many species of migratory birds, including fifteen species of ducks, four species of geese, and the whistling swan. The vast grasslands and sedge meadows of Wood Buffalo National Park support a bison herd in excess of 10,000 animals. Other large mammals such as moose, mule deer, black bear, coyotes, and wolves are found in the delta region. Barren ground caribou and woodland caribou occur near the delta, although they rarely use delta habitats directly.

In the past the lakes of the delta have provided a bountiful fishery resource which, coupled with the trapping of fur-bearers, particularly the plentiful muskrat, have provided many of the native people of the delta with their livelihood and lifestyle.

The Peace-Athabasca Delta exhibits a complex hydrology upon which its ecological resources are dependent:

Life in the Peace-Athabasca Delta evolves from a hydrological pattern frequently climaxed by the flooding of the Delta in June or July, when all of the channels, lakes and perched basins are filled by flood waters from Lake Athabasca. By late summer, as water drains out of the Lake, levels of Lake Athabasca and the Delta lakes begin to recede, continuing until minimum levels are reached in March and the Delta waits to be recharged once more with spring and summer runoff.¹

These seasonal and annual water fluctuations over the delta

have "fostered an environment in which plant and animal life have achieved a balance that is dependent on frequent flooding."²

In December 1967 the last of three diversion tunnels carrying water around the newly constructed W.A.C. Bennett Dam at Portage Mountain on the Peace River was closed. Water levels fell drastically, allowing willows and other shrubs to encroach upon the marshlands and now-dry lake bottoms. In the following years, many of the smaller lakes and channels began to freeze completely, killing fish, driving out the muskrat, and reducing the habitat available for migratory birds and many of the large mammals. In short, the productivity of the delta was greatly reduced.

The following is an attempt to document the decision-making that brought about these changes and to consider the responses of governments and individuals and their efforts to implement remedial measures.

The Political Climate of British Columbia

W.A.C. Bennett and his Social Credit Party dominated the politics of British Columbia for two decades, from 1952 until the party's defeat at the hands of the New Democratic Party in 1972. The role that Premier Bennett played in the development of such projects as Portage Mountain cannot be underestimated, although it will be seen that Bennett's success lay partly in his ability to take credit for economic prosperity while riding the boom of the 1950s. William Hamilton, a former federal cabinet minister, remarked in 1965 with respect to Bennett: "One man's vision, operating within the constitutional responsibilities assigned a province, has changed the map, the tempo and the economic structure of B.C. We may not yet reckon all the costs. We may not yet appreciate all the benefits. But these things have occurred because of provincial leadership – and, I would be willing to state, provincial leadership alone."³ As will be seen, Bennett on occasion did not confine himself to the constitutional responsibilities of the province; thus, perhaps inadvertently he has also changed the map, the tempo, and the economic structure of areas beyond the borders of British Columbia.

For Bennett, who in 1951 crossed the floor of the House, leaving the Conservatives and the coalition government to sit as an independent, the Social Credit Party was primarily a vehicle for his political ascension. It is not difficult, however, to understand the attraction that some aspects of Social Credit political philosophy had for Bennett. Major C.H. Douglas, the founder of Social Credit, believed that his

obscure monetary theories should not even be debated. The people, he believed, should be told nothing and should be content to rely on the expertise of their leaders. Douglas remarked that "the voters should [only] be asked whether they are in favour of a larger personal income."⁴ His follower in Alberta, William Aberhart, told his audiences that they did not have to understand electricity in order to use it. They simply had to "push the button and get the light."⁵ Premier Bennett described his approach to democratic government in similar terms:

"True direct democracy is that the elected must govern, and must not be governed by the electors. Unless the elected govern, you have a dictatorship. If the electors govern, you have anarchy."

*In other words, people in a democratic way select people to do a job. Then they must have the authority to do a job and they must boldly do that job, and they must not ask questions and have royal commissions all the time. They should take responsibility and bold action. Then when election time comes, the people should kick them out if they are not doing the job. In other words, the elected must govern. I believe democracy is the best system."*⁶

There was little sympathy in British Columbia for the strange monetary policies of the Social Credit Douglasites. Major Douglas had once pronounced, "The financial system is essentially a system of black magic, and one of the best protections against black magic is not to believe in it."⁷ Premier Bennett quickly divorced himself from this economic heresy, for he certainly believed in the "system," despite not unsubstantiated charges that his own government finances were obfuscatory and deliberately misleading. Bennett's massive campaign for reduction of the provincial deficit consisted of a transferral of debts to the agency or Crown corporation responsible for the works for which the debt was incurred. This procedure allowed the government to clear its books and declare itself debt-free, despite the fact that a number of government agencies now carried massive debts for which the government remained responsible. The programme also allowed the government to act as fiscal agent while removing most aspects of legislative scrutiny or control over borrowing. In the words of Gordon Dowding, then a CCF Member of the Legislature, "We vote the authority to borrow money, and we have no control over how the money is borrowed or used. It is undemocratic and irresponsible government, because there is no window for the people to see into the accounts." Dowding wondered if all major government financing might not eventually end up

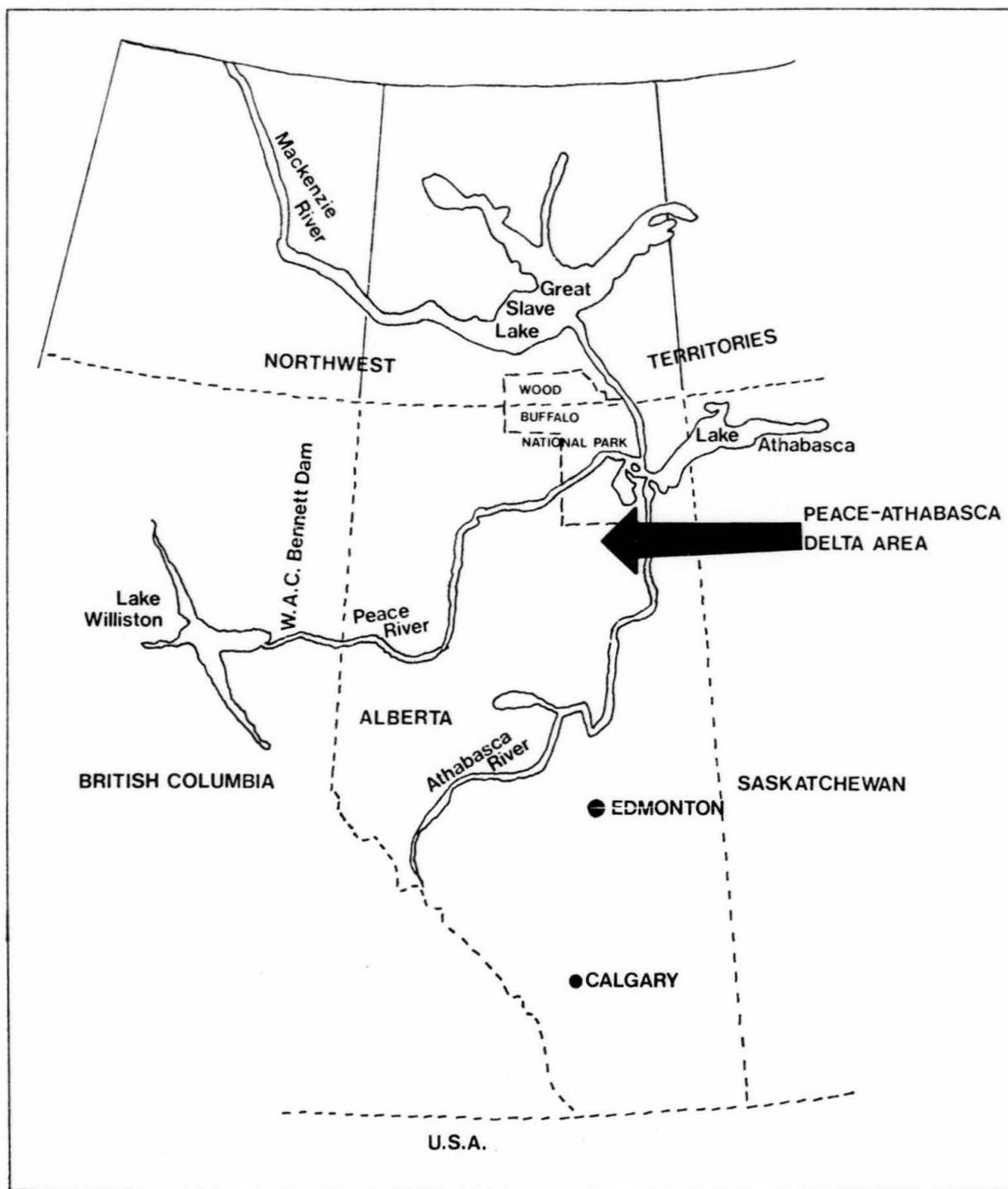


Figure 1 Location of the Peace-Athabasca Delta

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in "private agencies screened and shaded from public gaze."⁸

David LeMarquand, in considering the political and social climate of British Columbia, emphasizes three aspects. He argues that, first, the province has a strong "materialist orientation," and traditionally there are few non-economic considerations to direct political debate; although a number of alternatives to the Social Credit Party exist, they all share the same basic utilitarian attitude towards the environment. Second, in B.C. there are few strong interest groups upon which to base liaisons between the public and government agencies; this lack of intermediate groups tends to allow polarization of debate, frustrating the discussion of alternatives. Finally, the economy of British Columbia is almost wholly dependent on resource extraction.⁹ Black suggests that an underlying reason for the prominence of these factors in B.C. may be the fact that a majority of the province's population was not born there, but was attracted by the economic possibilities of a frontier economy. This influx not only fostered the ethic of exploitation, but also served to inhibit the growth of local customs and institutions.¹⁰

Bennett's government stressed the frontier aspects of British Columbia, the pioneering character of its people, and all the attendant attitudes of man's rightful dominion over nature. The images of great bridges and huge dams served as important political symbols of Bennett's government. It has been suggested that "This interpretation may be especially applicable to British Columbia . . . large-scale projects may not only be symbols in the political game but they may be used to satisfy a quasi-religious measure of the region's level of civilization."¹¹ For Bennett's government, prosperity was always equated with resource exploitation:

The Premier's vision has focused on the development of an infra-structure upon which the natural wealth of the province could be extracted. The massive spending on roads, the extensions of the Pacific Great Eastern Railway, the oil and gas pipelines and the gigantic hydro-electric developments have all been essential in giving this dream a concrete structure. This infra-structure was to benefit 'not big business or big labour but ordinary people.' Within the grand scheme public investments that do not generate further investment capital, such as education and welfare, receive minimum support.¹²

The 1954 sitting of the B.C. legislature became known as the session of the "Northern Vision"; the attorney-general, Robert Bonner, talked in glowing terms of the golden

empire of natural gas in the North and referred with excitement to its oil potential. In his budget speeches of 1954 and 1955, Premier Bennett made the following comments:

If there is any one thing that is of basic importance to the further development of British Columbia, it is the development of the rich resources of the northern and central interior regions of the Province. The Peace River particularly is one of the areas in Canada most ripe for development¹³

Of immediate and particular concern to our people is the development of our abundant and varied natural resources. A rich portion of these is located in the northern and central interior regions of the Province, but development, of necessity, depends almost entirely on adequate railway transportation. The urgency of this has been voiced repeatedly and vigorously in the House of Commons, our Legislature, the press, and by our people generally.¹⁴

There were other reasons besides resource potential behind the government's desire for northern expansion. The premier was concerned about the links between the Peace River area and Alberta: "By most standards, the Peace River was already part of Alberta. It was on the far side of the Rockies from the rest of B.C. Its logical trade outlet was through Edmonton." Under the circumstances, Bennett saw the proposed extension of the Pacific Great Eastern Railway as a way "to take that whole area and make it tributary to B.C."¹⁵ Thus B.C.'s northward push began for reasons very similar to those behind the federal government's broader northern programme. British Columbia was faced with its own mini-sovereignty crisis. Bennett wanted to assert his economic authority over the Peace River area through a northern expansion of the Pacific Great Eastern Railway to the Peace River and a southern connection to Vancouver from Squamish. This expansion was begun despite the fact that then current opinion judged the rail extension to be uneconomical for some years to come.

A similar pattern of northern development with little or no economic justification can be seen with respect to gas and oil pipelines from the Peace region. Frank McMahon, the incorporator of Westcoast Transmission Co. Ltd., had attempted from the early 1950s to promote developments of Peace River area gas, a plan Bennett agreed with and attempted to foster from his first days in office. Bennett's actions in extending the Pacific Great Eastern Railway were partly prompted by the hope that it would assist and be assisted by petroleum development in the North. Despite American rejection of a proposal to export gas from the Peace, Bennett insisted to Westcoast that preparatory work

for a pipeline should continue. In December 1954 a contract to supply gas to the American northwest was completed, and approval was granted by the U.S. Federal Power Commission. Construction of the 650-mile pipeline began. This arrangement was achieved at the expense of locking British Columbia into a long-term commitment to export gas at a price considerably cheaper than it was sold in Vancouver. It is clear that without the U.S. sales there would not have been a pipeline. Only in 1973 was B.C. able to escape from this resource export arrangement, which had been prompted by the decision to construct a pipeline before it was economical.¹⁶

Bennett's development of a transportation infrastructure — both rail and pipeline — in the northern part of the province was a guarantee of further development. His need to show the wisdom of past decisions virtually assured approval and promotion of any and every resource development scheme proposed for the North. The Wenner-Gren proposal to develop a vast area in the Rocky Mountain Trench was seized upon as a method of bolstering the uneconomical Pacific Great Eastern Railway. British Columbia is only now beginning to feel the effects of this pyramiding of resource developments, each one necessitated in part by another previous one. The economic hangover occasioned by this over-emphasis on the primary sector forms a major element in the economic woes that presently beset the province.¹⁷

Discovery of Peace River Hydro-electric Potential

The scheme proposed by the Swedish firm of Axel Wenner-Gren in November 1956 involved a monorail, pulp mills, mining projects, and a large hydro-electric development in the Rocky Mountain Trench. Wenner-Gren began negotiations with the B.C. government after one of the firm's representatives, Bernard Gore, listened to B.C.'s agent general in Britain extol the resource potential of the region at a London cocktail party.¹⁸ After brief negotiations with the B.C. government, a memorandum of intention was signed in which the company agreed to construct a railway from the southerly end of the Rocky Mountain Trench adjacent to the Pacific Great Eastern Railway north to the Yukon border. The memorandum also provided that the principals would apply for forestry rights, with the objective of building several pulp mills of an annual capacity of not less than 100,000 tons of pulp each. In addition, the company to be

incorporated by the principals was required to survey the water resources in the proposed area of development and deposit \$500,000 with the government, to be returned upon evidence of expenditures totalling \$5 million. The government placed a reserve on lands and timber in the area, with the intent that rights on those lands should be granted to the principals upon application under the relevant statutes subject to the furnishing of satisfactory plans. The memo further provided that it was not to be construed so as to restrict the principals from acquiring mineral rights.¹⁹

When the proposal was announced three months after its signing, having been a closely guarded secret during the intervening period, the reactions ranged from glowing praise to incredulity and strong disapproval. Headlines announced "North exults at dream come true,"²⁰ but groups such as the B.C.-Yukon Chamber of Mines regarded it as an "outrageous give-away," involving virtual alienation of one tenth of British Columbia to a single corporation.²¹ This area was promptly dubbed "Wenner-Grenland" or "Swedish Columbia" by the media.²² One B.C. financier compared it to the historic South Sea Bubble, while a coast lawyer called the agreement "an incredible document . . . the kind of thing British financiers used to write three centuries ago for some ivory colony on the coast of Africa."²³ There was reason to be incredulous, for the Swedish magnate had a chequered past, having been blacklisted in Canada, the United States, and Britain for his alleged relationship with Hermann Goering, second in command of the Nazi regime.²⁴ More significantly, Wenner-Gren in 1952 had proposed a virtually identical development scheme for southern Rhodesia:

in the Rhodesian newspapers of September 1952, and in the Canadian papers of February 1957, appeared almost identical stories.

They said that Wenner-Gren and two associates, an Englishman and a Scandinavian, were planning to put five million dollars into mapping the mineral, water-power and forest potentials of a large territory; they envisioned a revolutionary high-speed monorail railway spanning the area and giving access to its riches, airborne electronic devices pinpointing the region's mineral deposits; and profits of the enterprise would benefit educational and welfare work.²⁵

Wenner-Gren had chalked up a list of grandiose but unrealized schemes, including an international rail and road network stretching from Alaska to the Panama Canal, a \$100-million industrialization programme in Mexico, and a revolutionary transit system for New York and environs.²⁶

The major source of contention arising from the agreement was the land reserve that, to some, was reminiscent of the large land grant to the Canadian Pacific Railway on Vancouver Island. It was felt that the reserve would block the plans of many other large companies interested in northern British Columbia. The premier misleadingly contended that the agreement involved "no deals, no giveaways, no land grabs, no concessions."²⁷ The government also stressed that mineral and hydro reserves covered only fifteen percent of the total reserve area and, when these reserves were lifted, Wenner-Gren would be in exactly the same position as any other person with respect to staking claims. However, geologists familiar with the trench said "the statement points out that the Wenner-Gren reservation area is in the low-lying, 'or fault zones,' and 'may be more favorable for mineral occurrence than some of the higher levels which are above the reservation.'"²⁸

The brunt of criticism centred on the involvement of Einar Gunderson, a long-time friend of Premier Bennett and sometime financial advisor to the government. Gunderson, who witnessed the signing of the memorandum of intention, was apparently acting as an advisor at the time. He became a director of the Wenner-Gren B.C. Development Co. Ltd., which was incorporated three days after the signing. Gunderson, besides acting as a government advisor, was also vice-president of the P.G.E. Railway and a director of the Canadian Imperial Bank of Commerce, Black Ball Ferries Ltd., and Deaks-McBride Ltd.²⁹ These various roles were interpreted by the press as *prima facie* examples of conflict of interest and political patronage. Bennett denied any knowledge of Gunderson's appointment, referring to remarks in the House as "carping criticism, smear, snide remarks"; in his opinion Gunderson was "that great Canadian ... there is no finer man in British Columbia tonight."³⁰

After the tumult died, the shiny vision of a northern empire was considerably tarnished.³¹

In February 1957 R.L. Chantrell and N.D. Schell of the British Thomson-Houston Company which was employed by Wenner-Gren to conduct power surveys of the Rocky Mountain Trench, approached the Comptroller of Water Rights, Department of Lands, Forests and Water Resources, seeking advice on available water records and publications on the Peace River basin. They particularly wished hydrologic and climatic information and available data on water resources, and were given a report on the trench area.³² In March they approached the government seeking additional hydrologic data. At this time development of the Peace

River by way of a series of dams was clearly under consideration. The consultants were concerned about potential effects on the Fraser River fishery due to flooding into that system from the Peace River watershed; apparently the topographic maps of the day did not pinpoint precisely the elevations between watersheds. Arthur F. Paget, then the Water Comptroller, sent Schell various in-house surveys and data, including a report entitled "Water Power Possibilities, Rocky Mountain Canyon (Peace River)," prepared by the Water Resources Department. Throughout this initial survey and negotiation phase, the Water Rights Branch provided information and support to the Wenner-Gren interests, and indeed performed a share of the surveying and mapping of the trench area at government expense — a task which the 1956 memorandum of intention had stated was to be performed by Wenner-Gren.³³

At the time that these negotiations and surveys were being performed, there was concern among opposition MLAs at the secrecy with which these plans were being pursued; Gordon Dowding, for instance, requested in the House that all communications pertaining to Rocky Mountain Trench development schemes, between any branches of the B.C. government and any organization or company, be filed in the House. This request was obviously not complied with.³⁴ Throughout the survey phase of the resource development proposal, ongoing discussion took place between Wenner-Gren's consultants and Bennett and his cabinet. In particular, the minister responsible was Ray Williston, Minister of Lands and Forests, in charge of water resources in the province. In April 1957, according to the Water Comptroller's files, Williston was discussing with Wenner-Gren via British Thomson-Houston Company a plan to divert Peace water to another watershed. Whether this was an early conception of an alternate approach to harnessing Peace River power potential or whether it was a precursor to the presently proposed McGregor River diversion is not clear.³⁵ Between May and August 1957, R.L. Chantrell, an engineer and director of the British Thomson-Houston Company, corresponded with the Water Resources Department about development of the Peace.³⁶ One important topic discussed at length was the practicality of long-distance, high tension power lines, particularly the 400-kv lines used in Russia at that time. When the Wenner-Gren proposal was announced in 1956, hydro-electric power was contemplated only as a means to power pulp mills, mining developments, and a proposed monorail. However, the discussion of long-distance, high voltage lines seemed to indicate a decision to exploit hydro power for its own sake or

as a means of satisfying general provincial power needs.³⁷ Although it did not receive much discussion at that time, one of the premises of an industrial empire for northern British Columbia was the provision of cheap power for the North. Removal of this advantage by planning delivery to Vancouver undermined a major advantage of industrial location in the Peace area, and virtually ensured that the development would not assume the proportions originally aspired to. Rather than promoting economic growth for the northern part of the province, the government was proceeding along traditional colonial lines by extracting power from the area for southern use and leaving the North to bear the environmental costs.³⁸

In August 1957 F.J. Pine of British Thomson-Houston Company announced to the Water Comptroller that a preliminary survey and reconnaissance of the Peace was completed; by the spring of 1958 they planned to select twenty to thirty potential dam sites for evaluation.³⁹ Throughout these initial stages Arthur Paget acted in his capacity of Water Comptroller, the regulator of water rights for the province, and also as advisor on water resource questions to Williston, Minister of Lands and Forests; it was in this context that the Water Rights Branch provided advice and support to Wenner-Gren consultants.

By October 1957 the provincial cabinet had received a report on the prospects of power development on the Peace River. Development of the Peace was clearly in accord with Premier Bennett's vision of the North. On 7 October 1957, Paget sent a confidential memo to the Deputy Minister of Lands and Forests, W. Bassett:

As of the 4th instant, I was advised that the interest of the Province has become most dominant in the lands within the Peace River drainage area and for which reservations in whole or part have been created. Alienations for any purpose below a maximum flood contour of 2450 will not be tolerated above Hudson Hope An Order-in-Council to complete reservations on all the water in the Peace River to the Alberta boundary is being prepared in this office to submit to Government.⁴⁰

This action, it appears, was correctly assessed by the press, which reported as follows:

The government has placed more "hands-off" reserves in north-central B.C. to protect Wenner-Gren interests in their new hydro development proposals.

And the way in which it was done suggested that the company has already decided it can go ahead with the

4,000,000 horsepower hydro development of the Peace River. . . .

The new reserves put on the Peace River system Tuesday by the Cabinet cover surface, mineral and water rights.⁴¹

The basis for this joint government-developer decision to carry out detailed feasibility studies of a Peace River power project was a three-page document prepared by R.L. Chantrill based on the brief surveys which had been conducted. This report, a major determinant in the decision to develop the Peace, is reproduced largely in its entirety below:

The survey of the assessment of the power potential of the Rocky Mountain Trench and adjacent areas was undertaken with five main factors in view:

- 1. To conserve the natural resources of British Columbia;*
- 2. To conserve the natural resources of Canada;*
- 3. To provide power without interfering with the valuable salmon industry;*
- 4. To avoid the disruption consequent from river diversion;*
- 5. To avoid the difficulties involved in the development of hydro-electric power on river systems which must await international agreements.*

This involved a study of the catchment areas of the river basins outside the boundaries of the area in order to ensure that the assessment would not prejudice the potential on the individual river basins.

Using the Arctic drainage of the Peace and Liard Rivers provides much needed power without affecting the vital salmon industry.

Investigations carried out to date in the area above-mentioned have brought to light the existence of a power potential appreciably larger than that originally anticipated. These surveys have shown that using as a reservoir that portion of the Trench which forms the catchment of the Peace River, with the water level at approximately 2350 feet above sea level, there is a potential of water power between the Trench and the Alberta border of at least 4 million horsepower. The actual amount is dependent only on the feasibility of constructing suitable dams in that reach of the River. . . .

In assessing the probable cost of the power which would be produced from such a development, it became obvious that with the vast storage reservoir behind the Peace River Canyon, the amount of water stored would reach almost fantastic proportions. While the probable capacity

of the reservoir has not been worked out in detail, the volume of water to be stored can be gauged from the fact that the lake to be created by a dam in the Peace River Canyon may be as long as 260 or more miles. Dependent on what may be agreed as the amount of compensation water which will have to be let down the Peace River during the construction period, it may take as long as seven years to fill the reservoir. Power can be produced before the reservoir is at capacity, however.

If this power potential in the British Columbia reach of the Peace River is developed, it will give the Province a very substantial source of power, and will allow more time for the study of the salmon problem on the Fraser River with a view to finding a solution acceptable to all parties.

No diversion of rivers is necessary.

The planned development is one entirely within the control of the Government of the Province of British Columbia.

The power from the Peace will not only be greater than the potential on the Columbia River within the Province, but it is calculated that the cost of the capital investment in the project should be less than the cost of the dams and plants on the Columbia.

The creation of the reservoir in the Trench would produce a steady and regulated flow in the Peace River, which may be expected to be about 40,000 cubic feet of water per second instead of the variation over the year from some 8000 in the winter to nearly 200,000 cubic feet per second during flood. There can be no doubt that the increase in the winter discharge of the Peace River through Alberta and the North into the Arctic — a natural result of the planned development — can only result in an improvement of the navigational facilities in that vital artery of the North, the Mackenzie River. This would be of great benefit to the whole of Canada.

The steady and regular flow of water in the Peace River through Alberta will also make it possible to construct power plants in that Province to give Alberta substantial benefits at present denied because the Peace River has not been regulated. . . .

Present calculations indicate that power from the proposed development can be delivered to the Southern areas of [British Columbia] . . . at less cost than the far smaller developments in such areas now in operation, or contemplated for the future.

Analysis of the present power position in relation to the anticipated demand in the Province, indicates that the

power position will become critical from about 1964 onwards, unless either a major hydro-electric source is brought into operation or new thermal plants constructed to meet the ever-increasing demand for electricity.

The proposed development should start to deliver power in 1964.

The water reserve to be created in the Trench will be without question the largest man-made reservoir in the world as regards length and the amount of water which will be stored.

It is this very vastness which will give British Columbia the security of its electricity supply for many years in the future, and enable the avoidance of cyclic variations associated with dry years, when the snow and rainfall is short of the average, as well as security against the seasonal differences in river flows caused by either extreme freezing conditions or shortage of rainfall.

This vast generating source in the Peace River makes it possible, as a next stage, to harness the power of the Liard Basin in British Columbia, and to bring such power south for the use of industries not yet conceived in the middle of the Province — in centres such as Prince George — and also down to Vancouver and to Vancouver Island. . . .

Without this very substantial power source in the Peace, the utilization of the power potential of the Liard River would remain merely a dream of the future.⁴²

Prior to the Wenner-Gren survey, the power potential of the Peace River was estimated to be 1,300,000 h.p., and was regarded as being too distant to be of use to the burgeoning population and multiplicity of industries in the lower mainland.⁴³ The newly discovered prospects for Peace power, stemming in part from technological advances in long-distance transmission capabilities, must have appealed to Bennett's grandiose vision for the north of British Columbia. Certainly the opportunity to create, as a monument and symbol of his political career and impact on the province, a project that would form the world's largest man-made lake and produce more power than any development then in existence, surpassing the combined output of both the Grand Coulee and Hoover dams, must have exercised the premier's imagination. But there were also more pragmatic concerns involved; the government's earlier agreement with Wenner-Gren had been subjected to harsh criticism, and "by the summer of 1957, Bennett was hard-pressed to refurbish his fading northern vision."⁴⁴ The Peace seemed to be the magic solution which would also

In addition, the very possibility of constructing the project became a goal in itself. As Williston remarked,

The proposed Peace River development is a real challenge to the free enterprise concept which is so strongly supported by this Government. There is nothing sure in this proposal but the challenge to man's ingenuity and this has been accepted in full measure.³⁰

In retrospect, it can be seen that many of the expected benefits from the project were either naive or fraudulent. The development predicted by Wernner-Creen and the B.C. government never did materialize. Short-term growth took place in northern communities such as Hudson Hope, but it was generally of a "boom-and-bust" nature.³¹ Integrated resource developments were not attracted to the hinterland area as expected by many, in part because there was no incentive such as cheap plentiful power; the power produced from the Peace was available in the lower mainland at the same price as in the Peace area.

Williston commented in 1959 that:

If we are to continue industrial expansion which will provide jobs and relieve unemployment it is absolutely essential that present and future users of electricity are assured an adequate supply of power when required. This is a first essential, or planning, expansion, and present installation of industrial equipment will stop. . . . The second essential is that this power on the long time basis, should be as cheap as possible.³²

It is clear today that this pursuit of growth as a good in itself, coupled with the goal of most utilities in North America which, until very recently, has been to promote increased use of electricity, has been a major contributing factor in our extravagant use of energy. Even today, B.C. Hydro is reluctant to admit that energy demand is responsive to price, and continues to plan for growth in electrical consumption exceeding six percent a year.³³

The Peace project was supposed to enhance the Canadian bargaining position with the United States in the Columbia River Treaty negotiations. Yet that treaty is regarded by some today as one of the more incredible of Canada's resource giveaways, amounting to a sale of Canadian lands rendered useless by flooding for a price of less than \$1 per acre.³⁴

Finally, the improved navigation and expanded recreational areas that were supposed to result from the large reservoir have not materialized. Indeed, they ought not to

The Peace hydro-electric development can be correctly viewed as an example of inverted planning.³⁵ The decision to proceed with the project stemmed not from the attempt to provide necessary electric power, a context in which alternative methods of meeting that need might be satisfactorily compared, but rather because the Peace was recognized as a means, useful to the government in achieving a variety of ends:

Planning in this context is turned upside-down. There is no agreement on overall objectives; therefore comparison of alternatives is meaningless. The extension of this situation is that the analyst determines whether the project is technically feasible; the politician, especially if he proposes the policy, determines whether the electorate will accept it.³⁷

This approach to planning clearly emerges from the government's attempts to justify its commitment to the Peace project. For example, Ray Williston, in a January 1959 address to the legislative assembly, enumerated the benefits stemming from the Peace project:

- development and protection of northern resources
- a solution to the pressing problems of unemployment, re-
- quiring cheap plentiful power, to the unsettled areas of the province
- improvement of communications and transport to hinterland areas
- satisfaction of future power requirements
- an improved bargaining position with the U.S.A. in Columbia River negotiations, due to satisfaction of B.C. power requirements.³⁸

Other, more dubious benefits had been trotted out earlier in support of the Peace project:

- the opening of large recreational areas
- the provision of navigable waterways in B.C.'s North and the improvement of navigation on the Mackenzie system
- beneficial climatic changes in the Peace region, induced by the large reservoir.³⁹

solve a number of other pressing problems — it would provide a strengthened B.C. position in negotiations over the Columbia River, as well as assure an energy supply to meet shortages expected by 1968.⁴⁰

Justification of the Project

have been expected, as a description of Lake Williston (the reservoir created by the W.A.C. Bennett Dam) indicates:

It is a spectacular sight — and parts of it are a spectacular mess.

The spectacular views are the huge clay cliffs towering above its expanse of deep blue water, the Rocky Mountains plunging into its depths and the blaze of autumn gold setting off the rich green of the spruce trees over the foothills.

And then there are the miles upon miles of flooded timber, the snags and stumps sticking out of the water, the logs and branches and forest debris tangled up with the dead and drowning trees and scattered over the lake's 600-square-mile surface. . . .

To try to navigate the lake in a small boat, or land a float plane on it without someone to clear a path through the flotsam, is to invite disaster.⁵⁵

The present condition of Lake Williston was anticipated by the government from the outset: in January 1960 W.C. Mainwaring, president of what came eventually to be known as the Peace River Power Development Company, advised Arthur Paget of reservoir clearing plans:

This matter has been discussed with the Minister of Lands and Forests who has stated he does not wish to put us to any unnecessary expense in connection with clearing of the reservoir because he does not want this to have the effect of increasing the price of energy. We have included the sum of \$5 million in our project estimates for clearing up the shoreline around the reservoir where it is necessary and for removing unmerchantable timber that would be protruding above the water surface at the low water mark. I feel that this item is something that will have to be dealt with by the Minister and at the appropriate time it was our intention to discuss this matter with him.⁵⁶

Thus the government's use of navigation and recreational benefits as a partial justification for the project appears doubtful. Current information indicates that it will take another thirty years and up to \$80 million, with no allowance for inflation, before the reservoir can be considered completely navigable and clear of debris.⁵⁷

When the Peace project was announced in 1957, Bennett presented it in unequivocal terms as "the most momentous announcement I have ever made." He went on to say that power would be produced for one third less than power could be obtained from the Columbia, and that an agreement over downstream benefits would be negotiated

with Alberta. The magnitude of the project inspired the premier to predict that it could make British Columbia "one of the great industrial centres of the world."⁵⁸ Editorials in the *Vancouver Province* were no less congratulatory, revealing as well the profound infatuation with an ethic of growth and domination of nature:

Here, suddenly on the horizon, is the prospect of the industrial development of the vast British Columbia northland which not so very long ago was an unknown territory.

Here, in a future that is no longer so remote, is the possibility of a Canadian Ruhr built around vast mineral resources and vast power. . . .

Visionary it all is, and brain-numbing it is in the sheer size of it — the power of Grand Coulee and Hoover Dam combined; perhaps the biggest man-made lake on earth.

But listen to that gas surging into Vancouver through 650 miles of mountains.

Here, in this growing province, dreams can come true.⁵⁹

Feasibility Studies

Under the memorandum of agreement between Wenner-Gren and the B.C. government which supplemented the original agreement between the parties, Wenner-Gren was required in part to:

1. . . . undertake to carry out such technical feasibility surveys as are deemed necessary to substantiate preliminary conclusions already reached that the construction of a major hydro-electric project on the Peace River is practicable.
2. . . . undertake to carry out these surveys so that on or before December 31st, 1959, if found feasible from the engineering standpoint, a firm construction commitment may be finalized and a comprehensive plan providing for the maximum economic development of the Peace River potential may be filed with the Comptroller of Water Rights.
3. . . . undertake, should the detailed engineering studies and surveys substantiate the preliminary conclusions, to proceed with the construction of a major hydro-electric project on the Peace River in accordance with the laws of the Province and the terms of this agreement.

The Province agreed

That the comprehensive plan for the economic development

of the Peace River potential shall be approved by the Comptroller of Water Rights within three months of the filing of same, such approval not to be unreasonably withheld, and that the plan shall show inter alia the phases and times of construction, estimated costs, and in so far as possible physically the programme for placing generated energy on the market. . .

and committed itself

- (a) *to maintain a reservation on the waters of the Peace River for power purposes, and*
- (b) *if a firm commitment to develop this project is received on or before December 31st, 1959, as herein provided, to ensure priority of application to the Principals for such licences as may be required for the proper development of the project referred to in this agreement.⁶⁰*

Thus, under the terms of this agreement Wenner-Gren's successor, the Peace River Power Development Co. Ltd., had slightly over two years to conduct investigations, engineering studies, prepare a detailed feasibility study, and file a comprehensive plan for the maximum economic development of the Peace River; the comptroller, on the other hand, was given only ninety days to issue his approval. Normally, consideration of feasibility and project design for an undertaking of this magnitude would require three to five years;⁶¹ the developers were under extreme pressure to meet the 31 December deadline. It has been suggested that the government's sense of urgency was occasioned by its desire to have an alternative available, which would provide the province with an improved bargaining position in the Columbia River negotiations.⁶²

The feasibility study prepared for the Peace River Power Development Co. consisted of nine volumes, covering geology, soils engineering, hydrology, dam, transmission system, report, and comprehensive plan. The plan proposed a 650-foot dam on the Peace River, creating a 260-mile-long reservoir and a powerhouse with an installed capacity of 2,535 megawatts, as well as a smaller dam with a gross head of 141 feet and a capacity of 650 megawatts at the lower end of the Peace canyon.⁶³ The whole focus of the study was on the physical possibility of construction and feasibility in the narrowest of economic terms. For example, the second Wenner-Gren agreement called for a "comprehensive plan providing for the maximum economic development of the Peace River potential." This stipulation was interpreted by the power development company to mean the creation of the largest reservoir physically practicable. Accordingly, the

plan called for a dam crest level 2,225 feet above sea level, despite the fact that a reservoir of that elevation made it necessary to relocate a main highway, a railway, and a major pipeline, and necessitated construction of works to reduce leakage in two natural saddles on either side of the river. This work was estimated to cost some \$7 million. It was later found that lowering the reservoir level by fifty feet would eliminate the need for these works and relocations, and the final design was revised accordingly.⁶⁴ The lack of consideration given to environmental costs, and other foregone resource opportunities such as lost timber production and loss of areas with the potential of substantial mineral wealth, will be discussed later.

Due to his limited staff and expertise, Arthur Paget requested additional funds to hire consultants to review the Peace River plans. At a cost of approximately \$200,000 a number of consultants were hired: D.J. Bleifuss, a professional engineer and power consultant from California; H.M. Hunt, an employee of the B.C. Power Commission; Hugh C. Golder to consult on soil mechanics; and Shawinigan Engineering Ltd. to consider transmission systems.⁶⁵ In November 1959 Bleifuss and Hunt outlined a programme of studies to be followed by the Water Rights Branch, and the necessary data to be supplied by the recently incorporated Peace River Power Development Co. In the consultants' view,

The primary concern of the Water Rights Branch is the safety of the structure involved. Its next concern is that the public resource, the Peace River, shall be developed to the best advantage of the Province, and this entails consideration of economics, benefits and possible deleterious effects.⁶⁶

It is difficult to fault the adequacy of the engineering investigations as to the safety of the dam structure. The outline of studies pursued by the comptroller's consultants indicates a careful and thorough review of dam and reservoir engineering.⁶⁷ However, the economic review and consideration of deleterious effects of the project could in no way be considered exhaustive. Under the general heading of economics were listed three deleterious effects of the project: "A, Seasonal navigation of Slave and Mackenzie River affected; B, Alternate icing and flooding of rivers downstream when larger than normal flows occur in winter; C, Submergence of about 589,000 acres of land containing merchantable timber and mineral deposits." No work was performed on these areas by the Water Rights Branch. Apparently these issues were regarded as being the concerns

of — respectively — the federal government and the company, the Alberta government water resources administrators, and the B.C. Forest Service and Mines Branch.⁶⁸

The consultants' report, adopted by the comptroller with slight modifications, stated that the project was feasible from an engineering perspective. Small changes in dam slopes and minimum freeboard were suggested. No consideration of the economics of the project was given in the report, except the statement that there would not be a market for power from more than one such scheme in British Columbia.⁶⁹

The only material produced which bore any resemblance to an impact statement was a document prepared on its own instigation by the British Columbia Fish and Wildlife Branch of the Department of Recreation and Conservation.⁷⁰ The twenty-page paper voiced three major concerns. The first was that northern pike might be introduced into the Fraser drainage system as a result of construction of the Peace River dam, since tributaries of these two great river systems lie in close proximity. In the view of the author, I.L. Withler, this eventuality could have two severe adverse consequences on the Pacific salmon fishery. Since pike are almost entirely piscivorous, within the Fraser system they could feed extensively upon smolt and pre-smolt stages of Pacific salmon. Moreover, pike are the sole host of the adult stage of a tapeworm, *Triacnophorus crassus*, which has been known to infest salmon and trout populations. In these fish it appears as a yellowish cyst about a half-inch long, filled with a viscous yellow fluid and a long, thin, coiled worm. These cysts, while harmless to man and animals, are objectionable in appearance and, when numerous, render the fish unmarketable.

The second major concern of the Fish and Wildlife Branch was the preservation and enhancement of the recreational and fisheries potential of the reservoir area. In their opinion, the creation of a reservoir could improve the fisheries potential of the region. However, they realized that the maintenance of the recreational and aesthetic values of the reservoir area was entirely contingent upon satisfactory clearing of forest cover from within the reservoir area; without such clearing, these values would be seriously reduced.

The following recommendations, predicated upon construction of the dam, were suggested as means of preserving the fishing and general recreational worth of the reservoir and adjacent areas:

1. *Provision must be made to prevent the entry of pike — *Esox lucius* — to the Fraser River drainage from the Peace River drainage system. . . .*
2. *Adequate clearing of the reservoir area must be undertaken to ensure the preservation of the fishing and general recreational worth of the reservoir under storage conditions. . . .*
3. *A flow of water sufficient to maintain fisheries requirements must be allowed to pass the dams during dam construction and reservoir filling and storage.*
4. *The Development Company should provide roads, access trails, campsites and boat launching facilities within the reservoir area for the use and enjoyment of the public. Reasonable public access to all roads, trails and recreational facilities should be guaranteed to the general public.*⁷¹

Awareness of Extra-provincial Effects

There is some truth in the prevailing view that problems in the delta resulting from the construction of the W.A.C. Bennett Dam were a product of the times, stemming from a lack of environmental awareness and a slavish acceptance of growth as an unquestioned good. Others have even suggested that, in retrospect, the entire development may be viewed as a beneficial occurrence, for it acted as a catalyst in raising an awareness of the need for proper consideration of the environmental effects and costs associated with development; it also promoted a greater understanding of the possibility of far-reaching consequences from what may superficially appear to be a relatively benign development.⁷² However, this perspective on the Peace project is only partially correct. It can be seen that there was also a large element of wilful blindness associated with the failure to appreciate the downstream consequences of the Bennett Dam.

By 1959 some consideration had been given to the problems of water levels in the delta and Mackenzie River systems. That year Russell and Kellerhals performed for the Peace River Power Development Co. a study of Athabasca flows and the effect of a proposed dam on the Peace River. Despite somewhat marginal data, their conclusions and predictions of resulting delta water levels were reasonably accurate.⁷³ According to Professor Russell, further data would only have served to refine existing predictions, which were accurate enough to allow reasonable inferences about anticipated effects and appropriate remedial measures.

Russell was assisted in his investigations by the federal government, which surveyed water levels and stream flows.⁷⁴ Thus, the federal government was aware of concerns about water levels in the delta, and in fact conducted its own investigations; E.P. Collier, district engineer in Calgary with the Water Resources Board, Department of Northern Affairs and National Resources, prepared a study of the downstream effects of Peace River regulation.⁷⁵

In March 1959, Arthur Paget, concerned about inter-provincial problems with the Portage Mountain project and yet recognizing that he had no authority to consider any inter-provincial aspect of the water licence application, wrote to the Minister of Lands and Forests, Ray Williston, in part as follows:

The Peace River development as now envisaged would result in material changes in the natural flow conditions downstream in the Peace River in B.C. and Alberta and in the Slave and Mackenzie Rivers in the Northwest Territories. These changes may have beneficial as well as adverse effects to the economy of these lands.

Under Article 4(k) of the agreement any downstream benefit will accrue to the Province rather than to the licensee, and all negotiations in this matter should be carried out by the Province. As to the damage and loss that may result both within and without the Province from the proposed development, it would seem that the responsibility to make full compensation for damage occurring within the Province will lie with the owner of the power development. Responsibility for damage outside the Province may have to be determined by litigation.

*This last aspect of the Peace River development brings up a legal problem, namely, the right of the Province to regulate the use of water of an inter-provincial stream and the rights and obligations of a water licensee on such a stream.*⁷⁶

Accordingly, Paget requested a legal opinion from the attorney-general on these and other matters associated with the project. It is clear from the above memorandum that there was widespread appreciation by the B.C. and federal governments, as well as by the developers, of the change in water levels that could be expected downstream.

It has been suggested that the delta was largely an unknown quantity at this time. Despite accurate predictions of water levels, the changes in the ecological regime and the effects which these changes would have on local communities and native people dependent on fishing and trapping for their livelihood were unforeseeable. The delta, according to

R.E. Bailey, was for most Albertans a disregarded hinterland.⁷⁷ However true this might have been, the nature of the consequences and the magnitude of harm that would be occasioned by the regulation of the Peace River would have been revealed to a knowledgeable person undertaking a cursory perusal of the pertinent literature available at that time. For example, a study by J.D. Soper published in 1951 described features of the delta and some of the wildlife resources dependent upon it:

The Peace-Athabasca Delta region, including the whole lake-lowland country to Lake Claire's western extremity, is a unit geologically and otherwise. A study of the physical conditions indicates that Lake Athabasca at one time extended westward unbrokenly to about the present west shore of Lake Claire. Since glacial times, great changes have taken place. Enormous quantities of silt have been discharged into the area by the Peace and Athabasca Rivers. Wide reaches of the earlier Lake Athabasca have become silted up, creating far-reaching, muddy lowlands, marshes, myriads of shallow ponds and lakes, and sluggish streams. The relatively shallow Mamawi, Claire, and Baril Lakes, and other bodies of water are remnants of the former west end of Lake Athabasca.

Most of the changes mentioned above derived from the action of Peace River, but Athabasca River also, has caused, and is causing, vast alterations. The amount of transportation and deposition of deltoid materials staggers the imagination. It would appear that in an early geological period a large bay existed in Lake Athabasca southwest of Bustard Island extending wide-open to the sandhills south of Richardson Lake. It is now almost completely filled with sediment and it constitutes the present-day delta of the Athabasca River. Yearly, more and more silt is being poured into the area. Vast deposits are slowly filling up Lake Athabasca off the mouths of the various channels southeast of Chipewyan, making the western extremity of the lake shallow from the mouth of Embarras River to the principal outlet at Riviere des Rochers....

*On the whole the country is dreary of aspect, being low, featureless and monotonous. Most of the land is no higher than from a few inches to a few feet above normal lake level (699 feet a.s.l.). Much of the shoreline is permanently swampy.*⁷⁸

Soper went on to describe the importance of the delta to waterfowl:

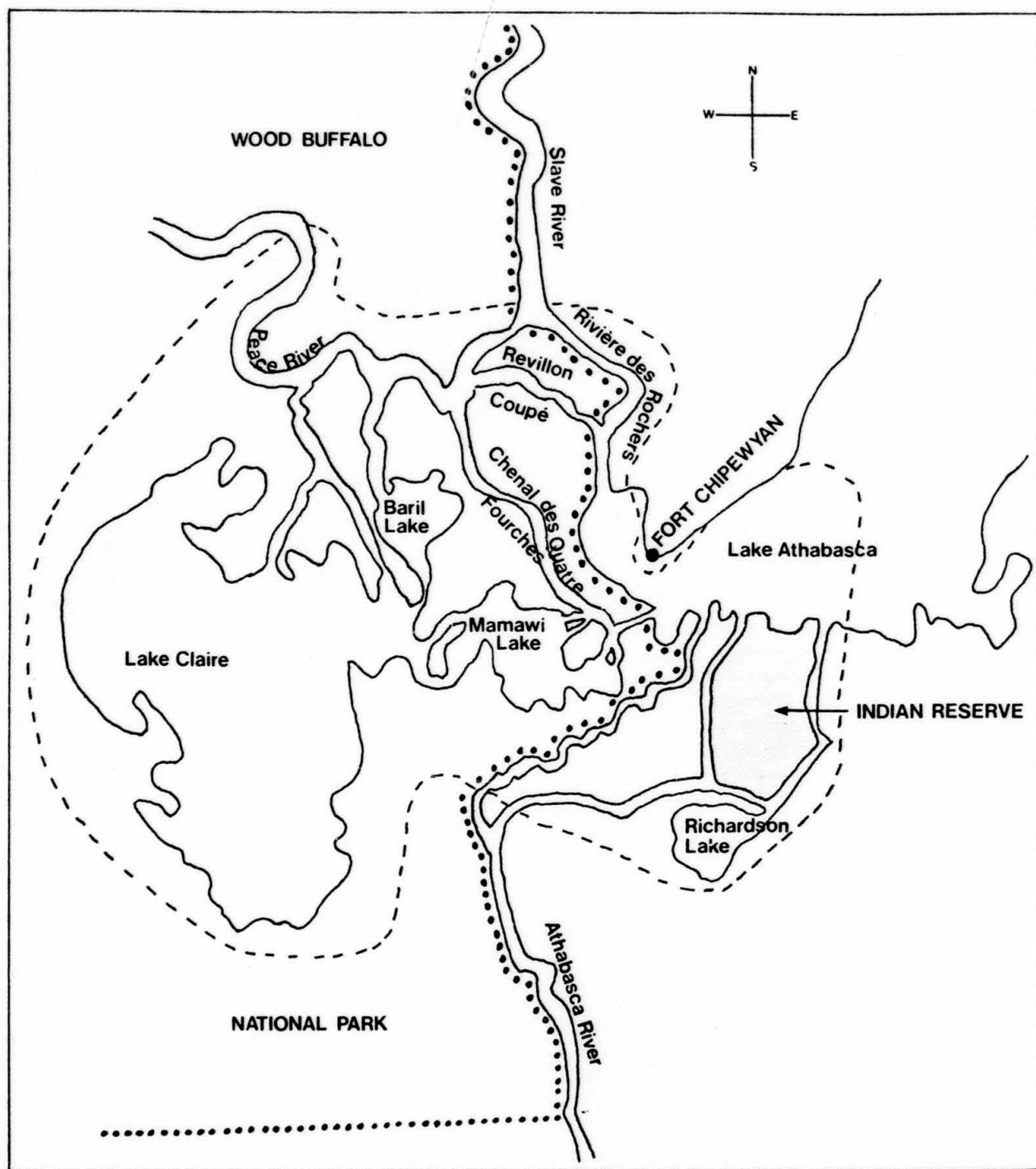


Figure 2 The Peace-Athabasca Delta

The Peace-Athabasca Delta region is the only nesting tract of primary importance for game ducks in the Mackenzie River drainage basin. The Lake Claire marshes support a per-square-mile duck population about nine times as great as that of the Slave or Taltson Deltas, and nearly twice that of the Mackenzie Delta.

Besides being a breeding environment of outstanding merit, it is a great migrational clearing house. Since time immemorial this part of the country has been a favorite stopping-place of migrating ducks and geese. Legions of the birds regularly resort to the region to feed and rest. It is on the direct route from the Mississippi-Missouri drainage region to the far north.⁷⁹

The social and economic importance of the delta to the native and Metis population was extensively detailed in 1951 by W.A. Fuller.⁸⁰ Fuller's report outlined the geology, geography, and vegetation of the area, and went on to describe the nature and behaviour of the muskrat population and its importance to the lifestyle and economy of the surrounding community. Fuller indicated an estimated muskrat productivity of some 43,000 animals annually. He estimated an average annual take of over 30,000 pelts, producing a total cash income of over \$80,000. For many native people, the cash received from pelts represented the only flow of money into an otherwise subsistence lifestyle. In fact, Fuller's figures on the value of muskrat to the local economy must be regarded as conservative; later reports suggest a muskrat catch of 144,000 in the peak year of 1965-66.⁸¹ Further, studies of the fisheries potential of the Athabasca area have pointed out the value of lake trout, walleye, whitefish, pike, and goldeye.⁸²

Given the predictions of reductions in delta water levels of from three to five feet, and the available knowledge that most of the productive delta consisted of shallow marshes and perched lakes, it becomes apparent that a significant impact upon the environment and people of the delta should have been anticipated by the planners of the Peace River project.

Columbia River Treaty Negotiations

By the beginning of the 1960s, development of the Peace River had become firmly linked with plans for the Columbia River, mainly because of Bennett's notorious "two river" policy.⁸³

The Americans provided the impetus for the beginning of negotiations regarding regulation of the Columbia. The

first step in this process was the 1944 referral to the International Joint Commission (I.J.C.) of the matter of co-operative development of the Columbia River Basin. The I.J.C. then created the International Columbia River Engineering Board, and charged it with the task of investigating the various approaches to development of the basin.⁸⁴

As Larratt Higgins has pointed out, the Americans entered this negotiation process with an early advantage because:

... a great deal of work had been done already on the American side. Two of the largest dams in the world were generating power on the main stem of the Columbia at Bonneville and Grand Coulee. In Canada, on the other hand, little was known about the basin, and there were no developments on the Columbia. Topographical maps had to be prepared and streamflow records had to be accumulated for at least a decade in order to provide adequate information of the dimensions of water supply before engineering proposals could be made. Thus the American plans were formulated before the Canadian alternatives emerged.

The [U.S. Army] Corps of Engineers issued a comprehensive report on the American portion of the basin in 1949. This report was important, not only for the detailed information it brought together, but also for a thesis it sought to establish according to which the benefits of storage decline over time. This fallacy was never challenged at the official level by Canada, and ultimately it led to serious defects in the Columbia Treaty as it applied to Canada.⁸⁵

The Americans had pressing reasons for seeking upstream storage on the Columbia. First, there was insufficient storage to justify or render economic the major dams then existing on the Columbia; second, more power was required to satisfy expanding industrialization in the Pacific northwest; third, the Americans were under considerable pressure to provide flood control for the protection of communities and property located within the floodplains of the Columbia; and finally, consumption was increasing because of a growing need for water for municipal, irrigation, and industrial purposes in the American southwest.⁸⁶

Accordingly, the Canadian government negotiators were placed under considerable pressure by the Americans to negotiate a treaty; but they also perceived political and economic benefits to be reaped through the successful negotiation of a treaty that would be in Canada's interest.⁸⁷ Unfortunately, a number of factors militated against such a

happy conclusion. The Americans, as mentioned, approached the bargaining table with considerable information in hand regarding the Columbia system and, more particularly, their own needs. The Canadian negotiating team largely consisted of political appointees, as opposed to its American counterpart which was largely made up of engineers and power experts,⁸⁸ conversant with the various methods available to satisfy American requirements for storage and power production.

Most significantly, the Canadian team had to contend with Premier Bennett, whose ratification of the treaty was required. Bennett touted the Peace River project as an effective means of producing satisfactory compensation from the Americans for the provision of upstream storage on the Columbia. Ultimately, however, he was more concerned that the Columbia River Treaty would jeopardize the Peace project and his expansionist northern plans. He feared that British Columbia could not absorb the power from both these immense developments, as his Water Comptroller, Arthur Paget, had stated in his report on the feasibility of the Peace development.⁸⁹ Gordon Shrum, then chairman of B.C. Hydro, has stated that Bennett proceeded on the basis that if the Peace were to go ahead, the Columbia would be developed as well, as a result of American pressure and the then Prime Minister John Diefenbaker's desire to successfully conclude a Columbia treaty. If the Columbia were to begin prior to any start on the Peace project, however, the power thus provided would forestall construction on the Peace for as long as twenty years, due to lack of domestic demand for power and the capital requirements for Peace construction.⁹⁰

Bennett's concerns led him to veto the then current treaty proposals which would have provided a large amount of electric power, but little money, to British Columbia.⁹¹ Ostensibly his veto was based upon a refusal to tolerate a dam in the East Kootenays; it had the effect of reviving the plan for a Libby dam which the Canadian negotiators had fought hard to forestall.⁹² For Bennett the veto was an unqualified success that resolved his problems. The new treaty did not provide electricity to B.C., but rather emphasized cash payments amounting to some \$275 million for sale of downstream benefits, thus providing part of the capital required for Peace construction without jeopardizing the markets for power provided by the dam.⁹³ However, his success was achieved at great cost to Canada, as Larratt Higgins has remarked:

At one point, early in these political negotiations, the

United States abandoned its demand for Libby and acceded to the Canadian diversion plan, which would provide the needed flood protection downstream in Idaho. Then the Bennett government, for its own political reasons, vetoed the Canadian diversion plan, much to the astonishment of the Americans. It was this action and, incredibly, its acceptance by the government in Ottawa that transformed the development of the Columbia from a triumph of common sense and international co-operation into the wasteful disaster that has integrated the Canadian Columbia into the United States economy. There was no standby Canadian plan. Not only was the Libby proposal included in the Columbia Treaty, but the vested interest so created was reinforced by a clause which effectively prevents Canada from making a significant diversion.⁹⁴

Other examples of anomalous behaviour on the part of both the federal government and Premier Bennett can be explained in light of the conflict over the Columbia River Treaty. At the height of the Columbia negotiations, Bennett and his aides travelled to the United States for some highly publicized meetings with the government and industry as far away as California to discuss markets for the export of power.⁹⁵ In retrospect, the purpose of these forays was mainly to serve notice upon the federal government that the province intended to proceed with the Peace River project. It also created a climate which would prevent the federal government from acting on its long-standing prohibition against the export of electric power, in the event that local markets were unable to absorb the total production from the Peace.⁹⁶

During the course of the Columbia treaty negotiations, the federal government — regrettably — regarded Bennett's proposed Peace project as a bluff to advance the provincial position in the negotiations. In particular, this was the view of E. Davie Fulton, then Minister of Justice, who headed the Canadian negotiating team and who apparently thought the best approach to such a threat was to ignore it.⁹⁷ This attitude prevailed until late in 1962, long after the expropriation of B.C. Electric and after a start had been made on construction of the Peace. At that time the following letter was sent to Gordon Shrum, then chairman of B.C. Hydro, from the federal Department of Public Works, of which Fulton was minister:

While an application under the Navigable Waters Protection Act has been received from you in connection with the Columbia River Power Development, I can find no record of a request relative to the Peace River Power

Development. Up to the present, I appreciate that much of the work was preliminary and planning. However, in the September 1962 issue of the Engineering and Contract Record, I note in an article by Mr. James G. Ripley that more definite plans are now underway.

It is indicated that some \$20 million has already been spent on the preliminary work and plans for a contract for the main dam are underway for next spring. In these circumstances, it seems appropriate that I might write to you about the Navigable Waters Protection Act.

Insofar as the Peace River is concerned it perhaps would seem that navigation will not be affected. On the other hand, we have received considerable comment on how this might affect, adversely, boat travel in the Athabasca, Great Slave and Mackenzie Rivers. For these reasons, we consider that the Navigable Waters Protection Act should be taken into account.⁹⁸

Upon receipt of this request, Shrum consulted with Senator J.W. deB. Farris, legal counsel for B.C. Hydro, whose advice was that there was only an arguable case that the Peace fell within the definition of "navigable waters" as established by case law, and accordingly there was some doubt whether approval was required from the federal government. Farris advised that no response be made to the letter. B.C. Hydro's major concern was that, given an active confrontation, the federal government would pass legislation defining "navigable waters" for the purposes of the act.⁹⁹

B.C. Hydro's attitude towards this and other problems signified an abrupt departure from the practice of its predecessor, the Peace River Power Development Co., which had been engaged in a continuing dialogue with the federal government over the downstream effects of the project. The company had clearly thought it necessary to make application under the Navigable Waters Protection Act, as the following excerpt from a letter, dated 14 January 1960, indicates:

With respect to the Dominion Government, we understand that studies are being carried out at present by the Water Resources Branch in Ottawa on the basis of material supplied by ourselves and others. The results of these studies will, no doubt, be taken into consideration when our application under the Navigable Waters Act is made.¹⁰⁰

The federal government made no further requests for approval of the project, a regrettable omission in that an investigation of the effects of the dam on transportation on the Athabasca and Mackenzie rivers would undoubtedly

have brought to light many of the problems experienced in the delta. It might also have led to the imposition of terms requiring at least the provision of remedial measures, and an enhanced schedule of water releases extending the period for the filling of the reservoir behind the Bennett Dam.

Economic Evaluation of the Project

During the course of the Columbia negotiations, the Portage Mountain project was subjected to serious criticism within British Columbia on the basis of its economics. The Columbia River Treaty, as approved by the I.J.C., provided for the return of substantial blocks of power to British Columbia in exchange for storage provided in the province. The construction on the Peace, however, was dependent upon an undertaking by the B.C. Electric Co. to purchase the power from the Peace River Power Development Co., since B.C. Electric held a monopoly on the distribution and sale of electricity within the lower mainland.¹⁰¹ B.C. Electric consistently refused to deliver such an undertaking. A.E. Grauer, president of B.C. Electric, was of the opinion that returned power from the Columbia would undoubtedly be cheaper than that produced by the Peace. He also felt that the company could thermally produce electricity more cheaply, by utilizing the vast Hat Creek coal deposits which were already largely owned by B.C. Electric.¹⁰²

The premier responded on 28 December 1960 by referring the matter of cost to the recently created B.C. Energy Board. The board was advised that "construction of two major projects involving the Columbia and Peace Rivers in British Columbia now appears feasible and conflicting views are entertained as to the cost and benefits to be derived from each project . . ."¹⁰³ Because the B.C. Energy Board was visibly composed of political appointees and because the major local consulting firms had at one time or another been involved in either the Peace or the Columbia projects, the chairman Gordon Shrum refused to engage any consultants who had previously been employed. Instead, he went to Britain and arranged for studies to be conducted by Sir Alexander Gibbs and Partners, and Mertz and McClelland Ltd.¹⁰⁴ These firms considered the cost of power delivered to Vancouver by both projects. The following elements were considered: capital investment; method of financing; annual operating costs; market for the energy during and after completion of the project; and amount of energy delivered by each project to the load centre. Gibbs and Mertz also gave cursory consideration to the cost of power produced by a Hat Creek development, relying solely on figures provided

by B.C. Electric. They concluded that Hat Creek power "would not be any more economical than the development of the hydro resources in the province."¹⁰⁵

When Shrum received word that the consultants' evaluation indicated that the cost of power from the Columbia would be substantially cheaper than that from the Peace, he immediately went to England to check their figures. There he apparently discovered that the difference in cost was affected by the mode of financing, the Peace delivering power at a cost similar to the Columbia if its financing was changed from private to public.¹⁰⁶ This change allowed the Energy Board to table before the legislature a report which stated that private Peace power was not competitive with publicly-financed Columbia power, but that there was no significant difference between the two if the Peace were publicly-financed.

This was the justification that Bennett needed to expropriate the recalcitrant B.C. Electric, which was done by way of The Power Development Act,¹⁰⁷ passed 1 August 1961, the same day that the B.C. Energy Board report was tabled. The report, however, was misleading. The Columbia calculations did not include a cash payment from the United States of \$64 million in flood control benefits, and no allowance was made for federal participation in the Columbia financing. Further, Professor H.F. Angus, board member and chairman of the Public Utilities Commission, issued a minority report in which he argued that the evidence before the Energy Board was inadequate to support a finding that the public financing of the Peace River project would be cheaper than private financing. He said of the board's majority opinion: "it is based on arbitrary percentage figures representing the interest on government guaranteed bonds in the case of public power, and a supposed rate of return in the case of investor-owned power."¹⁰⁸

The provincial government's decision and the B.C. Energy Board report were further criticized by a group of professors from the University of British Columbia, chaired by A.D. Scott of the Department of Economics.¹⁰⁹ They issued a report dated 26 February 1962, in which they compared the cost of power from the Columbia River Treaty project, the proposed Moran hydro-electric project, the proposed Hat Creek thermal project, the Burrard thermal project, and the Peace River project. Their conclusions were as follows:

1. *The Columbia River Treaty should be ratified if on-site generation at Mica is shown to be unusually low-cost and if the installation of the generators is to be proceeded*

with immediately. However if these two conditions are not met the Treaty should not be ratified and should be re-negotiated either (a) to postpone Mica indefinitely without altering the terms of the Treaty (thus providing Canada with 916,000 kw at a cost of approximately 2 mills per kwh, which is Class 1 electricity), or (b) to alter its other terms so that the cost of Canada's share of the energy under the whole Treaty is reduced approximately to that of Class 1 energy (that is, 2 1/2 mills per kwh).

2. *The Moran project is more attractive than either the Peace or the present Columbia River Treaty projects.*
3. *The Hat Creek project is attractive, especially if it can be operated at a high load factor.*
4. *A cost of 4 mills per kwh should be regarded as the highest cost that need be paid for energy in the lower mainland of British Columbia under present circumstances.*
5. *Because the costs of the Peace River project are higher than those of a re-negotiated Columbia River Treaty, of Moran, or of Hat Creek, the building of the Peace River project should be delayed until, by comparison with these other projects, it is shown to be the most desirable.*¹¹⁰

Unfortunately, this critique was too little and too late. Contracts had been let and construction had begun almost one year prior to the release of this report. The report also made no attempt to quantify any of the indirect economic costs of the various projects, although the authors did issue the following disclaimer, which is indicative of the state of analysis that was applied to major projects in the early 1960s:

*Decisions by governments about the development of river basins are based chiefly on an assessment of the economic merits of the development, but they are complicated by the need for considering political and sociological issues which are not amenable to precise evaluation. The authors have concerned themselves only with economic studies because they consider economic evaluation to be the common basis for comparing widely different projects.*¹¹¹

The only attempt to transcend a narrow economic evaluation appeared in a brief article by M.Y. Williams in the *Canadian Saturday Night* of September 1962. That article considered the losses of arable land and mineral and forest reserves due to reservoir flooding, and contained the first

published refutation of the Williston argument that the reservoir would enhance navigation. The article concluded with the suggestion for the following alternative:

What is the answer? Substantial blocks of power can be developed at the head of, and in the Peace River canyon at Hudson Hope; at the Gates a few miles below; at Finlay Forks; and probably at the Ottetail and Ne-parle-pas rapids, without closing the transportation route or inundating an undue amount of farm land or timber. Such power will serve local needs and help build up the surrounding country. The huge project planned will develop southern communities at the cost of blighting a public domain comparable in size to Washington State.¹¹²

British Columbia-Alberta Negotiations

A consideration of the decision-making leading to construction of the Bennett Dam causes one to ask whether greater inter-provincial co-operation might have prevented or ameliorated the downstream effects of the project, and whether Alberta could have been more vigilant in protecting its interests.

Communications between Alberta and British Columbia began in November 1957, shortly after the signing of a second memorandum of intention between the B.C. government and Wenner-Gren, in which the latter agreed to undertake studies to determine the feasibility of a major Peace River hydro project.¹¹³ On 6 November 1957, L.C. Halmrast, then Alberta Minister of Agriculture, wrote to Ray Williston. He confirmed their prior phone conversation, wherein the B.C. minister had stated that Alberta would suffer no disadvantage by way of the project, but rather would benefit from the more regulated flow of the Peace River. Halmrast also requested engineering reports concerning the proposal.¹¹⁴ Williston replied, enclosing the requested material and stating:

You may be assured that we have no desire to over-ride your interests in the Peace. We believe development will be in the interest of not only the provinces of Alberta and British Columbia, but of Canada as a whole.¹¹⁵

Further correspondence passed between the two ministers, together with an exchange of information between the B.C. Water Comptroller's office and Alberta Water Resources engineers.¹¹⁶ J.L. Reid, the Alberta supervisor of hydro-electric development, visited officials in B.C. in October 1959 to

gather information and review proposals for Peace River power development.¹¹⁷

In addition, W.C. Mainwaring, president of the Peace River Power Development Co., met with E.C. Manning, Premier of Alberta, in early 1959 to outline the investigations being conducted by his company. Manning's major concern emerges from a letter dated 13 May 1959 from Mainwaring to Arthur Paget:

What Premier Manning is chiefly interested in knowing is just what volume of water will be flowing down the Peace River during minimum flow periods. I feel sure our engineers would like to restrict the flow of the Peace River entirely during the time the reservoir is filling and whether the rivers that flow into the Peace at a point between our own dam and the Alberta border would provide sufficient water to meet Alberta's minimum requirements I do not know, but that is one of the important things that we shall have to discuss.¹¹⁸

The Peace River Power Development Co. was apparently charged with the task of ensuring the acceptability of both the Alberta and federal governments of the proposed schedule for water releases during construction of the dam and filling of the reservoir.¹¹⁹ In a letter of 14 January 1960 to Arthur Paget, F.J. Pine of the Peace River Power Development Co. set forth the various meetings that took place between officers of the company and officials of the federal and Alberta governments. The following excerpt sets out Alberta's requirements for water releases:

Considerable discussion (of the Province of Alberta requirements for minimum flow in the Peace River) followed. Messrs. Bouthillier and Somerville pointed out that from their standpoint the limiting factors on the Alberta portion of the river were:

1. *Maintaining sufficient water at the intake of the town of Peace River water works.*
2. *The dilution of Peace River town's sewage.*

"Both of these requirements would be met by a flow of 6,000 c.f.s. at the B.C.-Alberta border.

"Mr. Reid brought up the question of navigation on the Peace River below Peace Point and of the Slave River during certain seasons. The question of ensuring enough water for navigation would have to be referred to the Federal authorities but it appeared that a flow of about 20,000 c.f.s. to 30,000 c.f.s. would be required near the mouth of

the Peace. The critical period to be about September . . ."¹²⁰

An article which appeared in the *Vancouver Province* in August 1961 under the caption "B.C.'s Peace Project Wins Alberta Approval," however, leaves the impression that Alberta was not overly concerned about the effects of the Peace project.¹²¹

No further communication on the subject appears to have taken place between British Columbia and Alberta until 25 October 1962. At that time Harry E. Strom, the new Alberta Minister of Agriculture, wrote Williston suggesting that he and members of his engineering staff visit B.C. to obtain a further progress report.¹²² That consultation never took place. On 10 December 1962 Strom again wrote Williston, apologizing for the delay in answering his correspondence and stating: "Due to pressure of work at this time, I will be unable to visit your Province this year. However, I would like to keep the invitation open for a later date if this can be arranged satisfactorily."¹²³ Strom never made those arrangements. He did, however, become concerned when he learned of the water licence issued to the British Columbia Hydro and Power Authority (B.C. Hydro) in December 1962.¹²⁴ Strom wrote Williston on 11 January 1963 to express concern about the licence, in which it was stated that a flow of not less than 1,000 cubic feet per second (c.f.s.) was to be released from the dam at all times. He noted that the Peace River Power Development Co. had agreed to a minimum flow of 6,000 c.f.s., a figure which Alberta wished to have upheld. In a letter dated 26 March 1963 Williston replied as follows:

*With respect to your remarks concerning promises by the Peace River Power Development Co., it is first recorded that this government was not associated with these presentations and does not feel bound by pronouncements of its officials. However, it could be noted that only once in the period of record has the flow at Peace River, Alberta been as low as 6,350 c.f.s. which was during March, 1919. Extremely low flows are likely the consequence of ice jams acting as temporary dams and would not be corrected by increased flows.*¹²⁵

It is apparent that Alberta was not actively concerned about protecting the interests of the people in the delta area. Any concern that the province did express was directed at protecting the town of Peace River from the consequences of lowered Peace River flows. There were a number of reasons for this. R.E. Bailey has suggested that the Peace-Athabasca

Delta was considered to be a hinterland, largely an unknown quantity and regarded as being of no great moment both before and after construction of the Bennett Dam had begun.¹²⁶ Even when concern was expressed about the possibility of falling water levels in the Peace-Athabasca region, Alberta took the view that this was a federal concern. If the major fear pertained to the effect on navigation, this was a federal responsibility; and as the vast bulk of the potentially affected lands lay within Wood Buffalo National Park, they too were of concern only to the federal government.

This view was expressed by F.L. Grindley, Alberta's Director of Water Resources, in a letter of 24 August 1961 to R. Perrault, British Columbia M.L.A. Grindley remarked that the Peace project would have a beneficial effect in Alberta by absorbing flood peaks and providing a regular flow of some 40,000 c.f.s. which could make feasible a power site in Alberta. He refused to comment on the prediction of lowered water levels made by W. Bruce Hunter, general manager of Northern Transportation Co. Ltd., since this was a federal matter being studied by the federal government.¹²⁷

Alberta's non-response to the potential effects of the Peace project was dictated by the tacit assumption that the project would, on balance, be of benefit to the province. This approach likely stemmed, in part, from the highly publicized negotiations over the Columbia River development, in which for the first time it had become apparent that the provision of upstream storage on a major river might have a tangible value for which the downstream beneficiaries could be expected to pay. The B.C. government adopted the same attitude. Gordon Shrum has stated that the B.C. government was prepared, if Alberta raised any questions about deleterious effects downstream, to present in answer the benefits to be reaped by Alberta.¹²⁸ In short, it appears that the Alberta government felt that by keeping silent the province could gain, at little cost, benefits similar to those for which the Americans were willing to pay handsomely.¹²⁹

Regulatory Procedures

It is usual today in most jurisdictions in Canada to expect at least some form of inquiry or approvals process, usually including a public hearing, before a major project or resource development is allowed to proceed.

As the preceding historical account indicates, the B.C. government, through the feasibility and design stages of the Bennett Dam, acted as project proponent. The memoranda

of intention signed by Premier Bennett were virtual guarantees that the project, if proven feasible in the narrowest sense, would be allowed to proceed. Nevertheless, the Peace project was subjected to certain evaluations, discussed earlier: the feasibility study prepared by the Peace River Power Development Co.; the engineering evaluation and approval-in-principle conducted by the Water Comptroller's office; and the B.C. Energy Board report, which considered in narrow terms the economics of the Peace and Columbia projects.

In addition, the comptroller held hearings in Chetwynd, B.C. and Victoria on 2 August and 15 October 1962 respectively. These hearings were held under the provisions of Sections 9 and 29 of the Water Act R.S.B.C. 1960 which provide:

9.(1) *Any licensee, riparian owner, or applicant for a licence who considers that his rights would be prejudiced by the granting of any application for a licence, or the Deputy Attorney-General, the Deputy Minister of Recreation and Conservation, or the Deputy Minister of Agriculture, may, within such time as may be prescribed in the regulations, file an objection to the granting of the application . . .*

29. *Whenever it appears to the Comptroller, Deputy Comptroller, Engineer, or Water Recorder that the proper determination of any matter within his jurisdiction necessitates a public or other inquiry he has power to hold such inquiry, and for that purpose has all the powers and jurisdiction of a Justice of the Peace under the Summary Convictions Act.*

Some seventy objections to the licence were heard:

In the first hearing representatives of B.C. Hydro were at hand to answer questions of the objectors and the Comptroller. Of the objectors only some major petroleum interests, a representative of Indian Affairs and the Department of Recreation and Conservation made presentations; a few individual objectors with mineral interests had their letters read into the record. Most of the objectors were only concerned with compensation.

The representative for the Indians in the area presented a brief; his aim was to have flooded reservation land replaced by provincial Crown land rather than receive monetary compensation. A Fish and Wildlife fisheries biologist testified that the reservoir would devastate the big game in the area by wiping out essential grazing area and disrupting

the migration patterns. There had been no field investigation to evaluate the extent of this loss. Based on the findings of the scanty 1959 report prepared by the Branch on the possible fisheries problems in the reservoir the author of that report testified that grayling game fish in the river would be diminished, while lake trout would likely flourish. Again concern was expressed that northern pike might be introduced into the Fraser system.¹³⁰

The hearings suffered from the now familiar litany of complaints: the general public had no standing to appear; there was no access to information; there was little relevant information to gain access to; no resources were available to mount an effective intervention; and the scope of the hearings did not allow the public interest to be raised. Obviously the absence of these elements, only today becoming recognized as valid prerequisites to enlightened decision-making, is not an appropriate ground for criticism of a process which occurred almost fifteen years ago. The contrast, however, is instructive. The hearings that were held in 1962 were viewed as merely a formality by the provincial government and B.C. Hydro. Before the hearings began, Gordon Shrum, then chairman of B.C. Hydro, received personal instructions from Bennett — rather than from the cabinet — to commence the project.¹³¹ Accordingly, Shrum called tenders for various stages of the project, and construction of the diversion tunnels began in April 1962. Yet the water licence for the project was not issued until 21 December 1962.

The Peace project also brought about a backward step in the regulatory procedures then existing in the province. Prior to the takeover of B.C. Electric, the B.C. Public Utilities Commission was empowered to hold hearings before issuing a Certificate of Public Convenience and Necessity, required for a power development such as the Peace. The co-ordination of hearings to be held by the commission and by the comptroller had been the subject of some discussion. On 23 November 1959, H.F. Angus, chairman of the P.U.C., wrote to Arthur Paget:

From informal conversation with the solicitors from Northern B.C. Development, I understand that they expect to present applications both to the Water Rights Branch and to the Public Utilities Commission at a very early date and to press for speedy action. . . .

I understand that the view of the solicitors is that they should obtain a Certificate from the Commission and then apply for a water licence but I am inclined to think that this procedure would, as a practical matter, be quite unsuitable in the present case.

My reason for this opinion is that the water licences are the dominating consideration in the disposal of natural resources and that the economic feasibility of a project, which is what the Public Utilities Commission would have to consider, does not arise until the resources problem has been resolved.

*I am, however, of the opinion that the Water Rights Branch and the Public Utilities Commission might very conveniently act concurrently. My idea would be that an application should be made both to the Water Rights Branch and to the Public Utilities Commission and that these two bodies should make the preliminary investigations in collaboration with each other.*¹³²

But this relatively enlightened proposal did not come about. By Section 12 of the B.C. Hydro and Power Authority Act, B.C. Hydro was exempted from the provision of the Public Utilities Act, and hearings regarding the issuance of a Certificate of Public Convenience and Necessity were never held. The Public Utilities Commission is now defunct, having been replaced by a more specialized and expert body, the B.C. Energy Commission. However, B.C. Hydro, in respect of its energy forecasting and the planning and construction of major electrical projects, is still not answerable to the present B.C. Energy Commission, despite the fact that the commission is charged with the task of determining energy needs and regulating every other aspect of energy supply within the province.¹³³

In recent hearings before the Comptroller of Water Rights regarding dams proposed by B.C. Hydro, the comptroller has been willing to listen to any person or group wishing to make a presentation, and has attempted to hold expanded hearings that would touch on the larger interest; but he is not empowered to do so, nor is he empowered to take into consideration questions of policy. His statutory concerns remain the effects of the proposal upon other water licensees and land holders, as well as the safety of the structures involved. These broadened hearings are an improvement but still must be regarded as unsatisfactory, since they serve mainly as a vehicle for the venting of public ire, and provide the illusion but not the reality of an opportunity to influence policy decisions.¹³⁴

In most hearings under the Water Act pertaining to proposed hydro developments, the Department of Recreation and Conservation has appeared as the defender of the natural amenities affected by the project. However, due to a lack of resources and government-imposed restraints, as well as the previously mentioned difficulties with

the forum itself, this department has found itself in a one-sided adversarial contest with the B.C. Hydro authorities. Although Sections 38 (1), 40 (1), and 40 (4) of the Water Act provide for appeals from decisions of the comptroller, these appeal procedures do not afford much opportunity of significantly changing a decision. It has usually been the case that the minister responsible for water resources and the Water Rights Branch — the Minister of Lands and Forests — has also served as one of the directors of B.C. Hydro.¹³⁵ Similarly, an appeal to the provincial cabinet by the Deputy Minister of Recreation and Conservation usually places that department in the position of examining major decisions that have already been taken. Thus B.C. Hydro, as a Crown corporation largely under the direction of the provincial cabinet and exempted from significant accountability otherwise provided by statute, is much less easily regulated than would be a private corporation in a similar position, and is more likely to control the very bodies which are supposed to regulate it.¹³⁶

The federal government possesses significant powers which can allow it to regulate inter-provincial waters and works thereon. The Navigable Waters Protection Act R.S.C. 1970 embodies the federal power over navigation, and Section 5 (1) of the act provides:

No work shall be built or placed in, upon, over, under, through or across any navigable water unless

- (a) the work and the site and plans thereof have been approved by the Minister upon such terms and conditions as he deems fit prior to commencement of construction;*
- (b) the construction of the work is commenced within six months and completed within three years of the approval referred to in paragraph (a) or within such further period as the Minister may fix; and*
- (c) the work is built, placed and maintained in accordance with the plans, the regulations and the terms and conditions set out in the approval referred to in paragraph (a).*

Although the B.C. government was prepared to adopt the view that the Peace project was not a work built upon a navigable river, because the rapids at the dam site did not allow passage of boats,¹³⁷ there is also a defensible view that it was. For example, in *Attorney-General of Quebec v. Fraser* [1906] Mr Justice Girouard remarked:

it is not necessary that navigation should be continuous A river may not be capable of navigation in parts, like the St. Lawrence at the Lachine Rapids, at the Cascades, Coteau and Long Sault rapids, the Ottawa at Carillon, the

*Chaudiere and the Chats rapids, and yet be a navigable river, if, in fact, it is navigated for the purposes of trade and commerce.*¹³⁸

By the above provisions of the act, the federal government possessed sufficient authority to regulate construction of the W.A.C. Bennett Dam and attach such terms and conditions as it saw fit. A measure of blame for the consequences of the project must therefore be placed upon the federal government for its failure to use its regulatory powers. Furthermore, the Alberta government was lulled into inaction by the belief that the federal government would take steps to protect areas within its jurisdiction, such as Wood Buffalo National Park.

Public Interest Action – “Death of a Delta”

Two reports, one published in 1960 and the other in 1962, predicted that after completion of the Bennett Dam the levels of Lake Athabasca would be significantly lowered.¹³⁹ Coulson estimated that during reservoir filling, the maximum levels of Lake Athabasca would be reduced by approximately three feet. These reports were responsible for generating concern over the effect that the Bennett Dam could have on navigation on the Mackenzie River.

By 1965 Dr S.B. Smith, Director of the Alberta Fish and Wildlife Branch, was aware of the possibility that the delta might be jeopardized by the rapidly proceeding construction of the Bennett Dam. Both he and R.E. Bailey of the Alberta Water Resources Branch tried to persuade their superiors to instigate some investigation into the possible effects on the delta.¹⁴⁰ In March 1966 Smith requested funds to investigate the ecological consequences of lowered water levels in the Peace-Athabasca Delta. The Alberta Minister of Lands and Forests, H.A. Ruste, refused funding.¹⁴¹ Smith then took the liberty of writing to federal and provincial agencies having some interest in the delta area. He discovered other individuals in various government departments who had conducted limited investigations in the delta and were concerned about the potential consequences of lowered water levels. These included R.M. Bennett of the Department of Energy, Mines and Resources and W.E. Stevens of the Canadian Wildlife Service (CWS), both of whom were aware of the studies predicting changes in the water regime of the delta.

Out of these initial contacts an *ad hoc* committee was formed to press for action. Due to the efforts of this committee, the CWS became conscious of the delta problem and

in 1968 attempted to obtain funding from Ottawa to conduct a five-year ecological study of the area.¹⁴² Although they failed to receive a positive response from Ottawa, the regional office of the Canadian Wildlife Service in Edmonton asked H.J. Dirschl to conduct studies on succession in the delta. His report, released in 1969, pointed out the vegetational changes occurring in the delta.¹⁴³

Despite its efforts, however, the committee failed to obtain any commitment for action from either the federal or provincial governments. As a result, the group – which by now had expanded to include a number of hydraulic engineers, geographers, and biologists – decided to prepare a brief for presentation to the press, detailing the changes in the Peace-Athabasca Delta.¹⁴⁴ The brief was entitled “Death of a Delta,” and on its cover was a dramatic photograph of the dry basin of Lake Mamawi in the delta. Released on 5 June 1970, it succeeded in galvanizing the governments of Alberta and Canada into almost immediate action.¹⁴⁵

The brief was sent to Pierre Trudeau and Harry Strom and contained the following covering letter:

We the undersigned are familiar with the rapid ecological and hydrological changes taking place in the Peace-Athabasca delta of northeastern Alberta. Those changes have occurred as a direct result of the regulation of the Peace River by the W.A.C. Bennett Dam in British Columbia and will be permanent unless prompt action is taken to reverse them. The accompanying brief expresses our strong concern for the damage that is being caused to the land and the people of the region.

Fortunately, the situation does not appear to be without remedy, provided that certain actions are taken at once. We urge that you consider at least three essential steps to meet the crisis:

1. *Temporary partial obstruction of the outflow channels from Lake Athabasca to the Peace River, to be commenced in the summer of 1970.*
2. *Setting up a task force to plan more complete remedial measures in 1971 and 1972, utilizing the best expertise available in Canada.*
3. *Negotiating at the highest levels with the governments of the adjoining provinces, and the government of Canada, to secure co-operation and to clarify questions of liability and compensation for damages suffered by this province and its residents.*¹⁴⁶

The brief went on to describe the situation and make the following recommendations:

1. *The Government of the Province of Alberta should immediately initiate a crash program to develop Emergency Water Management Measures to allow the delta system to survive until more permanent remedies are found. As a first step the rapids in the Riviere des Rochers could be obstructed during 1970 in order to raise lake levels sufficiently to halt the explosive ecological changes now occurring.*
2. *The governments affected are urged to initiate a thorough study of the present and anticipated changes in the delta region in order to develop permanent remedial measures based upon hydrological and biological considerations.*
3. *Insofar as the Government of Alberta has the duty to protect the rights of the Crown vested in it, as well as the property rights of its residents, we recommend that the Government of the Province demand restoration of the status quo ante from those who knowingly or unknowingly caused damages to happen in the Peace-Athabasca delta that only now are becoming apparent. If restoration cannot be obtained, the Government should take immediate steps to appoint appraisers familiar with the kinds of damages being caused in order that compensation may be demanded. Such mitigation would allow the financing of the above remedial measures, and also compensate the Crown and those residents of Alberta directly affected.*
4. *Insofar as the Government of Canada has duties to safeguard the rights of the Crown with respect to Wood Buffalo National Park, the Migratory Birds Treaty, and Acts in behalf of the Treaty Indians residing in the region affected, it should institute similar action to safeguard the rights being threatened.*
5. *In view of the likelihood that future development will further affect the Peace-Athabasca delta, as well as other unique habitats, it is strongly recommended that studies be undertaken of the ecological consequences of water management planning in the Saskatchewan-Nelson Basin and the Peace-Mackenzie Basin. The intent must be to develop management principles that will allow the hydrological and ecological systems therein to continue to function in the foreseeable future for the benefit of present and future generations of Canadians.*¹⁴⁷

In response to the brief, on 12 December 1970 the governments of Alberta and Canada agreed to establish a joint task force to study the delta problem. Shortly thereafter, F.J.

Forbes of the federal Inland Waters Directorate was dispatched to Alberta to meet with S.B. Smith and R.E. Bailey. The three then drafted the proposal for what became known as the Peace-Athabasca Delta Project,¹⁴⁸ which was then conveyed to the federal government. The proposal suggested a simple administrative arrangement consisting of a study director with a small support staff, and a liaison team consisting of a representative appointed by each of the participating governments. In addition, provision was made for an advisory committee to provide technical advice to the study director, and to assist the director in obtaining technical input from various government agencies.¹⁴⁹

The federal government approached the governments of Saskatchewan and British Columbia, asking them to take part in the proposed study. Saskatchewan, concerned about the effects of the Bennett Dam upon Lake Athabasca — the majority of which is located within Saskatchewan — agreed to participate. British Columbia, whose participation in the study was regarded as essential, because of the possibility of regulating the Bennett Dam in a manner that would lessen the downstream effects in the delta, refused to take part. The province based its refusal on the fact that the B.C. Hydro and Power Authority was currently involved in two court cases dealing with alleged downstream effects of the Bennett Dam, and was therefore "not in a position to participate in any outside study on the Peace River."¹⁵⁰

A symposium on the Peace-Athabasca Delta was first proposed in May 1970. It was organized by a group containing many of the members of the "Death of a Delta" committee, and was ultimately held in January 1971.¹⁵¹ Whether by accident or design, the timing was fortunate; at the time of the symposium, the study group referred to above had been constituted and was establishing its office in Edmonton. The papers presented to the symposium served to advance considerably the knowledge about the delta, analyzing the hydrology and ecology of the region and recommending remedial measures based upon these studies. In addition, the social, economic, and legal aspects of the delta problem were extensively canvassed. Generally, the symposium was a unique and beneficial occurrence, which has served as a precedent for effective involvement in decision-making. Instead of being merely a platform for the highly vocal castigation of government and developer, the symposium served as a platform for the further investigations of the federal-provincial study group, and many of the recommendations were eventually adopted or implemented.

Although the "Death of a Delta" brief can be viewed as the vital element that prodded the government into action,

in many respects its success as a catalyst was a product of the times. A public awareness of environmental problems was newly ascendant, the public was receptive, and the media were more than willing to provide coverage. In these circumstances, the brief served as a trigger for an already awakened public sentiment.¹⁵²

In one sense, the Bennett Dam's downstream effects in the delta have been instructive, because they have served to alert us to the fact that large developments may have significant indirect effects that are not immediately apparent. Some of the improvements in environmental impact analysis, large-scale resource decision-making, and institutional structuring that have occurred since construction of the Bennett Dam can be attributed in part to the impact that the delta problem has had on decision-makers. Another direct result has been the formation of the Mackenzie Basin Intergovernmental Liaison Committee, made up of officials of the federal, British Columbia, Alberta, Saskatchewan, Yukon, and Northwest Territories governments.¹⁵³ The committee was conceived at a seminar held in June 1972 to consider water management problems in the Mackenzie Basin. It now acts primarily as a vehicle for the exchange of information between the various governments regarding the basin itself and works or developments that are contemplated within the basin. This institutional arrangement will be discussed later in the paper.

The Peace-Athabasca Delta Project: Studies and Remedial Measures

The Peace-Athabasca Delta Project was formally constituted in January 1971, and quickly established a head office in Edmonton and a field office in Fort Chipewyan. D.M. Hornby, appointed as director, set the immediate objective of placing a preliminary report before the government by September 1971 and a major report by July 1972. The decision was made to focus first upon ecological aspects, and to assess potential remedial actions, both short- and long-term. Accordingly, thirty different studies were commenced, examining among other things ice and lake depth; water quality; photo interpretation of vegetation patterns; photogrammetric topographic mapping; fish, waterfowl, and all other significant wildlife in the delta area; water control; various alternatives for control of water levels in the delta; and socio-economic, legal, and jurisdictional studies.¹⁵⁴

The director's September 1971 report to Jack Davis,

then federal Minister of the Environment, made the following recommendations:

I. If you accept the lack of an ecological disaster and see instead serious and vital concern for ecological conditions, then I will properly have portrayed the condition I believe exists in the Delta area. Certain matters deserve more attention than others; many will receive attention during the period of study now envisioned to July 1, 1972:

(a) The Bennett Dam and Williston Reservoir require much more detailed appraisal in order to determine their effects and to consider possible corrective measures to override aspects which, at present, seem to have detrimental effects.

(b) It is now necessary to act on the question of the diminution of water levels in the Mamawi, Claire and Baril Lake areas in order to protect the groundwater situation.

(c) The statement "As Lake Athabasca goes, so goes the Delta," indicates that unless there is significant improvement in natural conditions, which I doubt, action will have to be taken in the Riviere des Rochers. I would suggest that this will occur next year.

(d) Another highly dynamic and extremely important aspect is the possibility of the Athabasca River eroding its own banks into the Embarras River and eventually flowing into Lake Claire or Mamawi Lake. This is a matter of grave concern. On one hand we face the prevailing opinion of the National and Historic Parks Branch which accepts ramifications of natural occurrences. On the other hand, the event itself could eventually affect not only the legal area of the Park, but the very nature of the Park's purpose.

(e) The most important question concerns the matter of conditioning the groundwater in the area. For some four years groundwater has been affected by receding surface water to a level some 4 to 5 feet below that which is generally suggested as being appropriate.

II. To my mind and at this date, ecologists have identified the immediate problem as undesirable changes in the natural habitat, particularly the encroachment of willows and sedge meadows and the exposure of lake bottoms in the vicinities of Lakes Claire, Mamawi and Baril. While we have given attention to other problems such as the development and improvement of muskrat populations on Indian Reserve No. 201, and portions of the National Park utilized by Cree Indians, we do not think

that improvement in muskrat alone will necessarily answer the longer range problem. We must solve the groundwater drying-out process.

III. There is a degree of experimentation in our recommendation to place the Quatre Fourches impoundment works this year. I am asking your acceptance of this, based upon the approval of the ecological people who have had some opportunity to appraise the area. There is also the fact that we have only this single possibility, of which I am aware, to undertake simple and reversible remedial works. This recommendation would affect some 60 per cent of the Delta area.

IV. This facility alone would involve movement of 50,000 cubic yards of rock and would cost approximately \$200,000. The possible diversions have not been studied sufficiently to comment further at this stage. I believe that it will be possible for us to appraise these various matters properly and to report to you by July 1st, 1972, provided that you are in the position to convince the Provincial Authority of the Province of Alberta that the utilization of their staff and personnel after December 1971 is almost vital to the ultimate success of this Project.

V. I have been exposed to diverse and valuable expressions of opinion from the Intergovernmental Liaison and Technical Advisory Committee. Certain concerns were expressed, mainly relating to desires and requirements of particular government departments. I must draw them to your attention.

(a) Navigation — There is simply no way we can improve navigation during 1971. This awaits the question of possible works on the Riviere des Rochers and possibly the Slave River.

(b) The Level of Lake Athabasca — As stated, we must address ourselves to the question of raising the level of Lake Athabasca. If outflow through the Chenal de Quatre Fourches and the Riviere des Rochers can be controlled, water levels must be made to intermittently approximate elevation 690 as compared to the existing levels of 683 and 686 [see Figure 3]. The lake not only affects the Delta area but directly and indirectly affects commercial operations in the Province of Saskatchewan. These operations, perhaps unavoidably, may become the ultimate recipients of effects stemming from remedial works in the Delta area. May I stress to you their sympathy and understanding of the problems that we face at this time. This has been expressed by the Saskatchewan

Water Resources Commission. There is, however, firmness in their belief that corrective measures are necessary for Lake Athabasca as a matter of first priority.

(c) Socio-economic Considerations — Comprehensive planning and development will be difficult since unique characteristics of the Fort Chipewyan society must be accommodated.

VI. Without hesitation, I recommend to you the formation of an Authority.

This matter is described in another portion of this report. Basically, the responsibilities of the Authority would be to obtain the highest and best use of the Delta areas in terms of the several demands upon it. Secondly, there is the matter of dispensing statesmanship, judgment and the understanding of your office. I suggest to you, with respect, that the Bennett Dam and its associated works are here to stay, that the problems which arise, at least in a relative sense, can be associated with the development of the Bennett Dam, and that benefits as well as depreciating effects require the mature perspective of the most senior officials in matters of this magnitude.

VII. It is important that we consider these events in perspective. Many of the questions arising during the Project's operations will require as much as ten years to provide solutions. Therein lies the management problem. I also suggest that resource management of the area be structured in the light of changing and dynamic situations.¹⁵⁵

The Quatre Fourches impoundment works mentioned above were considered necessary "to halt the progress of ecological succession that had commenced during the previous four summers of low water. The Quatre Fourches Dam was adopted as a temporary measure until a more permanent solution could be determined."¹⁵⁶ The dam was a simple rock-fill construction, suitable only as a temporary measure since it completely blocked the channel, preventing passage of fish and sediment. It succeeded in raising the water levels in lakes Claire and Mamawi; however, it was an unusually high run-off caused by ice jams on the Peace River in 1972 that actually contributed to the improvement in water levels over some sixty percent of the delta. These naturally recurring floods have always been the mechanism that restores water levels in the delta; and such floods are not influenced by water levels in Lake Athabasca, by the Bennett Dam, or by the Quatre Fourches Dam.

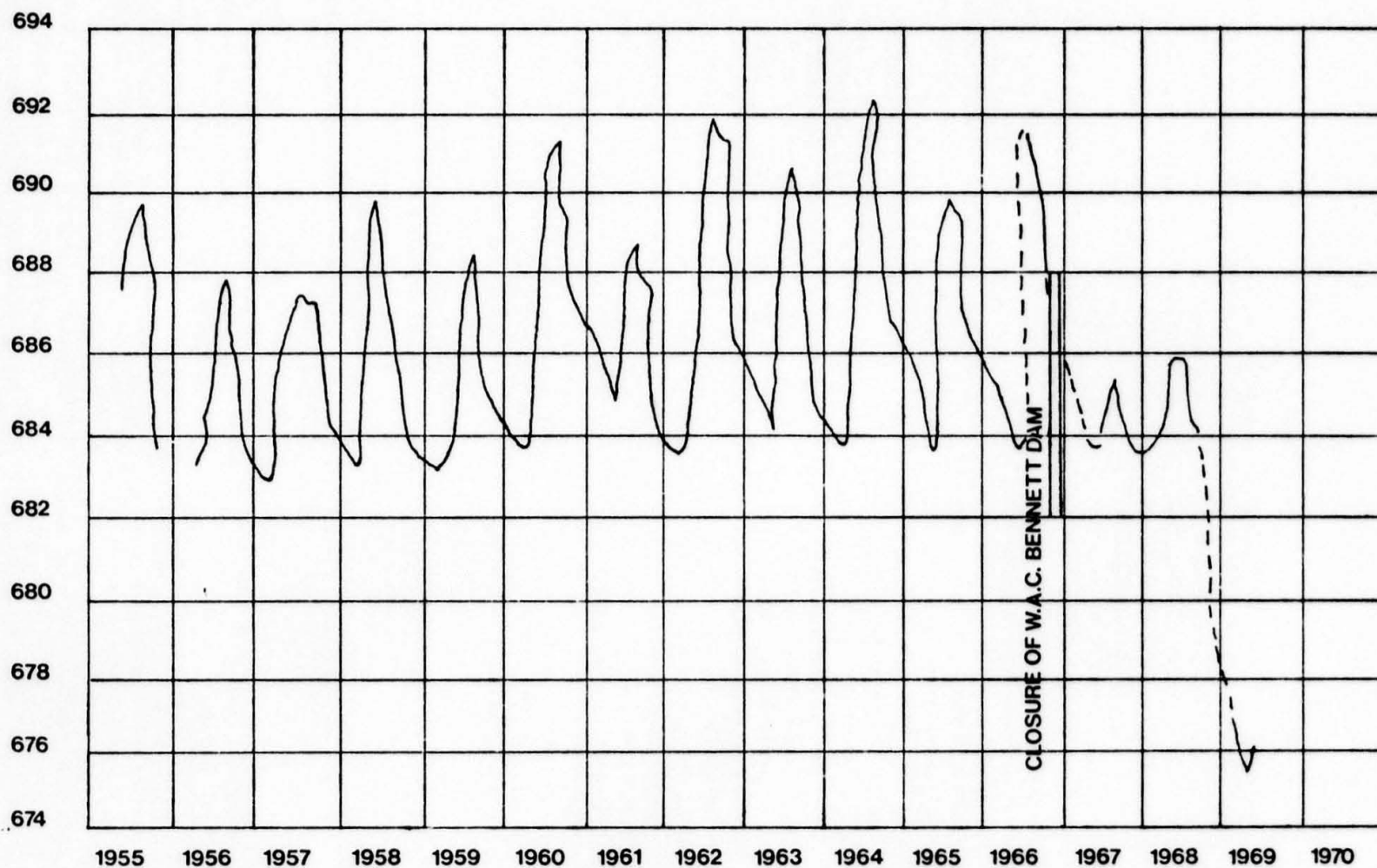


Figure 3 Water Levels in Lake Athabasca 1955-1970

The presence of the Quatre Fourches Dam was not without some cost. According to Smith, the weir was not removed until 1975, due to intense pressure to retain it by local Indian and Metis groups. Because of high run-offs prior to the weir's removal, water levels in the delta area were unusually high for a period and caused high bison mortality. Approximately 3,000 animals drowned.¹⁵⁷

The Peace-Athabasca Delta Project Group issued a summary report in 1972 and a full report in 1973.¹⁵⁸ The full report consisted of four volumes, the first, entitled "Technical Report," containing summaries, syntheses, and recommendations drawn from the three supporting volumes of ecological and hydrological investigations. The Technical Report predicted that the effects that Peace River flows modified by the Bennett Dam would have on the delta would be as follows:

- *Future water levels in Lake Athabasca will be lower than those of the natural regime. The estimated future water levels in Lake Athabasca indicate that the average summer levels will be 1.1 feet lower than those of the natural regime, and that the annual maximum levels will be 1.8 feet lower. It is also estimated that during the summer season the fluctuation in water level will be 0.8 feet compared to a fluctuation of 1.5 feet experienced under the natural regime of the past. Water levels in the Delta will be lower by a similar amount.*
- *Because of the reduction in peak summer levels, many of the Delta's perched basins will be filled less frequently, and it is predicted that shoreline important to many wildlife species will decrease by approximately 50%*
- *A permanent reduction by one foot in average summer levels will eventually shift plant zones to lower elevations around lake margins, advancing plant succession that had already commenced on mud flats during 1968-71.*
- *Waterfowl production is expected to decline by approximately 20% to 35% because of loss of suitable habitat*
- *The average muskrat population under the modified regime will be lower than in the past but will not average as low as during 1968-71. Decreases compared with those of the natural regime are expected to range from 41% to 66%.¹⁵⁹*

Various other effects, some beneficial and some of unknown consequence, were mentioned. Because the delta is an important nesting and staging area for migratory birds, because the National Park portion of the delta embodies

important aesthetic values, and because trapping and fishing constitute an important part of the local economy and an integral part of the lifestyle of the local native people, the Delta Project Group concluded that remedial measures were imperative. The following recommendations were made:

That governments assign a high priority to the conservation of the Peace-Athabasca Delta. . . .

That the Governments of Canada, Alberta, and Saskatchewan immediately establish a senior intergovernmental committee to provide liaison and co-ordination for the restoration of water levels and related matters in the Lake Athabasca and the Delta area. . . .

That a submerged weir control structure be constructed at the Little Rapids site on the Riviere des Rochers to restore lake levels in Lake Athabasca, and consequently on the Delta, to approximate what would have occurred under natural conditions. . . .

That the temporary rockfill dam on the west arm of the Quatre Fourches be removed after the control structure at the Little Rapids site has effectively restored water levels. . . .

That the governments establish a program to provide local fishermen and trappers with both technical and financial assistance for the promotion of local industries, particularly with regard to opportunities such as the development of muskrat farming on specific blocks of marshes in the Chipewyan Reserve. . . .

That the governments continue to monitor the spring spawning migration of walleye into Richardson Lake and conduct further investigations, if necessary, into migratory problems caused by channel ice. . . .

That the governments maintain a continuing resource-monitoring program for Lake Athabasca and the Delta, under the guidance of a senior intergovernmental committee. . . .

That environmental impact studies be conducted on Lake Athabasca, the Delta, and the Slave River prior to any construction of major reservoirs, diversions, or other works that may be proposed in the Lake Athabasca drainage basin. . . .

That the governments expand consultations with local people and work together to develop goals, employment, and leadership, as these matters run concurrent with other environmental considerations. . . .

That the data collected by the Peace-Athabasca Delta Project be made available to the scientific community to

*encourage scientists to continue those studies which are important to the development of the North and to the betterment of its indigenous people.*¹⁶¹

In addition to the recommended submerged weir on the Rivière des Rochers at the Little Rapids site, a number of other remedial works were also considered. These included a gated control structure on the Slave River, which could be manipulated to produce water levels almost identical to those which occur naturally, and a rock-fill constriction or weir, which would have the effect of generally increasing peak lake levels. It was realized, however, that any such constriction would be unable to reproduce the annual fluctuations in water level that were characteristic of the delta prior to the construction of the Bennett Dam. In addition to the proposed submerged weir on the Rivière des Rochers, construction of a gated structure was also considered at that location, as was construction of a rock-fill constriction similar to the one proposed for the Slave River site.¹⁶¹ The cost of the controlled structure was considerably greater than that of the proposed weir on the Rivière des Rochers, although even the most expensive mechanism — the gated structure on the Slave River at \$20 million — was only approximately two percent of the total direct cost of the Bennett Dam at \$900 million,¹⁶² exclusive of future hydro developments on the Peace River made possible by construction of the Bennett Dam.

After release of the Peace-Athabasca Delta Project Group's reports, the Environment Conservation Authority (E.C.A.) of Alberta was requested by the Government of Alberta to conduct hearings to examine the recommendations, particularly the proposal to build a submerged rock-fill weir on the Rivière des Rochers.¹⁶³ Prior to holding hearings, the E.C.A. prepared background materials, both in English and in Cree. These, along with position papers prepared by the Departments of the Environment of Alberta and Saskatchewan, were distributed prior to the hearings. In September and October 1973, the E.C.A. held hearings in Fort Chipewyan, Alberta, Uranium City, Saskatchewan, and Edmonton.

The major thrust of the inquiry was a consideration of the various means of restoring water levels in the delta, ostensibly "with the intent of duplicating as closely as possible the historic water levels and fluctuations in Lake Athabasca and the Delta."¹⁶⁴ Residents of the delta and the native bands making presentations to the hearings were not prepared to comment on the technical aspects of the various proposals. They were, however, concerned about recent low

water levels as well as low water levels which had occurred naturally in the past. They expressed the hope that whichever structure was built would not only reproduce historical conditions, but improve the delta, particularly with respect to their immediate concerns — fishing and trapping. The Cree and Chipewyan bands were not certain that the proposed dam would live up to its expectations, and therefore wished assurances from the Alberta and federal governments:

*The main thing we wish to say about the dam is that we are a bit worried. We think it might be good, but we are not sure. The Athabasca Cree and Chipewyan Band would like letters from Honorable Mr. Davis and Honorable Mr. Yurko telling us exactly what they think the dam will do, what problems it might create and what other control measures might be necessary in the future, before we commit ourselves . . . If a dam is built we hope that every opportunity will be given to the people of the area for work. Also, still about the water, the Band wishes to say that they will be watching closely for any signs of pollution which might again be caused by development at Fort McMurray.*¹⁶⁵

The recommendations of the Delta Project Group were subjected to careful analysis and criticism by an *ad hoc* committee of the Public Advisory Committee to the E.C.A.¹⁶⁶ Three members of the committee — W.M. Schultz, W.A. Fuller, and Rolf Kellerhals — had been involved with delta problems beginning with their brief, "Death of Delta"; such individuals were admirably prepared to provide a critical review and analysis of the studies and recommendations. Although the committee expressed general approval for the work of the Delta Project Group, they noted the time constraints under which it had operated and regretted the lack of attention in the study to establishing what in fact would be a desirable water-level regime for the delta. In the committee's opinion, the proposal for a simple weir on the Rivière des Rochers was inconsistent with the findings of the Delta Project Group's ecological studies, which emphasized that the productivity and diversity of the delta were dependent upon the wide fluctuations of annual and seasonal water levels; whereas the weir, although raising water levels generally, could not invoke the required pattern of fluctuation and could not produce the high yearly peaks needed to refill some of the perched lakes.¹⁶⁷ The committee remarked:

The alternative (ii-b) recommended by the Delta Project Group for construction, is ecologically the least desirable for two main reasons. The weir might do extensive damage by

*eliminating the seasonal level fluctuations, whose exact significance is not clearly understood at this stage. A possible 40-45% reduction in meadows is mentioned in the Technical Report. With meadows being one of the main assets of the delta, this alone should justify rejection of this alternative. Another, even more compelling reason for rejection of this alternative is its complete lack of flexibility. A high degree of flexibility is needed because of the uncertainties in the ecological studies, the probable difficulties with the Chenal des Quatre Fourches, and possible future modifications to the flow regime of the main tributaries to Lake Athabasca.*¹⁶⁸

In its final technical report, the Delta Project Group made conflicting statements regarding the proposed alternatives. In the summary it was said, in justification of the proposal to construct the submerged weir on the Rivière des Rochers, that:

*Preference between a gated structure versus a nongated control was deliberated. The former would afford facilities to manage water levels according to a predetermined but variable pattern, whereas the latter would produce water levels subject to natural hydrologic variations as they have occurred in the past, and would create in the future conditions more closely resembling the natural state.*¹⁶⁹

It was later said in the section on remedial measures, with respect to the proposed gated structure on the Slave River:

With a network of upstream gauging stations, snow surveys, forecasts of releases from the Bennett Dam, and appropriate simulation runs, gate openings could be managed to duplicate almost exactly the natural regime on Lake Athabasca and the Delta. Additional developments within the Mackenzie basin upstream from the Delta, if planned within certain limits, could be compensated for by appropriate adjustments in gate operation.

*A possible disadvantage of the gated structure might be the reluctance of man to manipulate water levels in the way that nature would so that extreme natural events within the Park would be allowed to recur. For example, it might become difficult or controversial to permit a flood to destroy waterfowl or muskrat nests, to drown bison, or kill meadows, if the manager has the power to avoid this. To the ecologist, these extreme events are just as important in maintaining a natural environment as are average ones, and perhaps even more important. The general public, however, may regard these events as cruel and inhumane, and opposition to this type of management may be expected.*¹⁷⁰

The Delta Project Group concluded:

*The ecological effects of the gated structure [on the Rivière des Rochers] were not simulated because it is assumed that the controls can be designed to duplicate almost exactly the natural water regime. The advantages and disadvantages of this structure are similar to those of the Slave gated control, except that a fish ladder would not be required.*¹⁷¹

The Public Advisory Committee to the E.C.A. was also of the opinion that the exact manner in which the gates on a controlled structure should be operated could become controversial, due to the conflicting requirements of different components of the delta ecosystem; however, they were "of the opinion that this is not an obstacle because of the wide consensus that natural levels were reasonably satisfactory."¹⁷² They also felt that the computer model of Lake Athabasca developed by the Delta Project Group would facilitate accurate predictions of lake levels and allow natural levels to be duplicated without difficulty.

Despite the evidence in favour of a structure embodying maximum flexibility and capable of ensuring reproduction of historical lake levels, the decision was made to proceed with the submerged weir proposed for the Rivière des Rochers rather than a controlled dam. This decision was made despite the fact that the E.C.A. suggested a further alternate structure on the Rivière des Rochers, which would have had the capability for later installation of controllable gates if necessary.¹⁷³

By an agreement made on 16 September 1974, the governments of Canada, Alberta, and Saskatchewan agreed to adopt the following recommendations of the Peace-Athabasca Delta Project Group:

- (a) assign a high priority to the conservation of the Peace-Athabasca Delta,
- (b) hereby establish the Peace-Athabasca Delta Implementation Committee (hereinafter called "the Implementation Committee") to provide liaison between the parties in achieving the objectives herein set out;
- (c) agree to undertake jointly remedial works with regard to water levels as recommended in the report, including a weir at the Little Rapids site on the Rivière des Rochers and such ancillary works as may be required;
- (d) agree to undertake jointly the removal of the temporary rockfilled dam on the west arm of the Quatre Fourches after the control structure at the Little Rapids site has effectively restored water levels.¹⁷⁴

By the terms of the agreement, the Implementation

Committee was charged with administering the agreement, providing liaison and co-ordination between the parties, and co-ordinating any management programmes that might be undertaken. The agreement further provided that the cost of the works was not to exceed \$2 million, with Canada paying \$1 million, Saskatchewan \$50,000, and Alberta \$950,000. Alberta assumed ownership of the completed weir, subject to the condition that no substantial modifications were to be made without the joint consideration of the parties. The agreement comes up for review in 1984, at which time it may be terminated, amended, or continued.¹⁷⁵

In view of the fact that future hydro-electric developments are planned or underway on the Peace River in British Columbia, of which the potential effects on the delta are presently unknown, and in view of the fact that hydro developments which could have an effect on the delta are being considered in Alberta,¹⁷⁶ it is unfortunate that a more flexible solution was not chosen. The governments may be seen to have abdicated responsibility by refusing to consider the adoption of a proposal that required continued active management of the delta. There seemed to be a fear that such management would be a politically touchy issue, due to pressure from various (mutually conflicting) interests.¹⁷⁷

The E.C.A. hearings, though laudable in their efforts to involve in the decision-making process the people affected, failed to consider the remedial alternatives in light of long-range planning. If the available options had been fully articulated and put to the people affected, no management difficulties need have arisen. Not only did the E.C.A. hearings suffer from the narrow terms of reference under which they were conducted, but they also failed to have significant impact because the Environment Conservation Authority is a purely advisory body.

Although failings are evident, the efforts exerted to rectify the delta problem broke new ground and served as valuable precedents for the future. The actions of those in Alberta who, through their political and publicizing efforts, forced government action on problems in the Peace-Athabasca Delta, demonstrated the necessity and viability of public action in environmental areas, a relatively new field for Canadians. The downstream problems of the W.A.C. Bennett Dam and the attendant publicity served to heighten awareness of the subtle and long-term problems that may stem from major developments.

The work of the Delta Project Group, too, indicates the kind of environmental assessments necessary before proceeding with major projects, but it also indicates the failings to which such short-term studies are subject. For example,

one possible manipulative solution to the problem of regulatory water levels on the delta was tested and then abandoned. This approach involved the use of thermopiles to produce an ice jam, and therefore a spring flood, on the Peace River. These might have been required about two years out of five, they would have disappeared each time the ice-dam broke, and they would have presented no hazards to navigation. Moreover, it has been suggested that they would have cost only a small fraction of the cost of the weir that was built. This technique was tested but never implemented.

Socio-economic Impacts on Fort Chipewyan

About 5,000 people live in five communities in the Lake Athabasca region; some 1,500, primarily Cree, Chipewyan, and Metis, live in the Fort Chipewyan area, the community most affected by the Bennett Dam.¹⁷⁸ Lowered water levels significantly reduced the productivity of the Peace-Athabasca Delta, seriously affecting the residents who fish, hunt, and trap in the area. Almost all families around Fort Chipewyan depend on muskrat trapping for a portion of their cash income, and on fishing and hunting for cash and subsistence goods. Although the annual muskrat catch in the delta has traditionally been subject to rather wide variation, depending on natural conditions and period population cycles, "between 1960 and 1968 the average annual harvest in the Park portion of the Delta was 65,000 pelts."¹⁷⁹ During the period 1968-72, however, when filling of the Williston Reservoir was in progress, the annual harvest of muskrat declined to less than 2,000 animals. During the same period the muskrat catch for the whole delta experienced a similar decline, to 18,500 pelts in 1972.¹⁸⁰

The area has also supported on a sporadic basis a commercial fishery run by the Athabasca Fish Co-operative, the members of which are largely Indian and Metis residents of Fort Chipewyan. However, this harvest is from Lake Athabasca and was not likely affected by the dam. Although this fishery may have been indirectly influenced by events associated with the Peace River project, it also suffered from transportation and marketing problems and declining prices.¹⁸¹

The low water levels in the delta acted as a precipitating factor, jeopardizing the already tenuous economy and lifestyle of the delta people. The Technical Report characterized the problems of the delta communities as follows:

Fort Chipewyan and other Lake Athabasca communities are typical of hundreds of similar communities in Canada's

north. As power, mining, pipeline, and other major developments occur, these communities come more frequently to the attention of government and the general public. Several characteristics which are common to such communities are critical to an understanding of the region:

1. Unemployment and underemployment.
2. Lack of true mobility on the part of the residents.
3. Large numbers of federal and provincial government departments and agencies, generally exhibiting a lack of any real coordination at both the policy and operating levels.
4. Rapid expansion of such urban amenities as housing, education, health care, social assistance, and community organizations, despite the absence of a viable economic base to support the population.
5. The presence of a wide variety of social problems, aggravated by low incomes, lack of skills, and increasing dependence on social assistance.
6. High cost of living.
7. Isolation.
8. Increasing concentration of native peoples.¹⁸²

The Delta Project Group made a number of suggestions designed to alleviate the social and economic problems of Fort Chipewyan. They recommended strengthening local community organizations such as the Cree and Chipewyan bands and the Metis Association, and creating new bodies to implement and generate community progress and new economic ventures. They recommended that the exploitation of the fur resource in the delta be enhanced, and that a viable commercial fishery and fish processing plant be established in Fort Chipewyan. They also proposed that existing employment opportunities be maximized, and that native employment be increased in various government departments and planned government works projects. They recommended that a plan be developed to increase recreation and tourism in the area, utilizing native resources and skills. Moreover, education and training programmes should be provided. An all-weather road should be constructed from the South to Fort Chipewyan. A social assistance programme that retained work incentives should be provided. And finally research should be conducted into the agricultural potential of the area.¹⁸³

In the course of the public hearings held by the Environment Conservation Authority, native associations, the Athabasca Fish Co-operative, and many individuals presented their views, concrete proposals, and aspirations for the community:

The residents of Fort Chipewyan felt very strongly that there was a lack of local employment opportunity and they demanded alternatives to the welfare assistance that seems to be the main financial support of the community. A number of proposals were brought forward for providing more jobs in the area but all were recognized as requiring the type of financial support which residents cannot themselves provide.

The local fish co-operative suggested the establishment of a fish processing plant. At present, the value of the commercial catch is limited by transportation costs and difficulties. This problem also impairs the recruitment of other businesses and industries into the area and contributes to the high cost of living in Fort Chipewyan. Better transportation linkages with the outside world were, however, viewed with mixed feelings. All-weather road links with either Fort McMurray or Fort Smith would help promote economic development and end the physical and social isolation of the town, but such developments were cautioned against for the effects they could have on the social cohesion of the community.

Improvements in transport were basic, however, to schemes for developing tourism. The area was stated to have important tourist attractions in the Delta, in Wood Buffalo National Park, at the nearby Athabasca Sand Dunes and in the historical past of Fort Chipewyan itself. This last was of particular interest to the community and the local "Voice of Women" group expressed a strong desire to develop a museum and other historical exhibits in the town. However, it was also recognized that the lack of basic facilities in the town would have to be overcome before such developments could be viable.

The serious unemployment and underemployment is mirrored in the lack of social amenities in Fort Chipewyan. A range of needed basic public services and facilities was identified: a bank or Treasury Branch for cashing cheques; improved medical services including a hospital; better housing conditions; the extension of water and sewer facilities to all parts of the town; and the establishment of recreation and communication facilities including a T.V. outlet. These improvements were thought to be particularly necessary if the children of the community were to be offered a viable future in the town.

In this regard, the establishment of a composite type high school offering studies including vocational training to the Grade 12 level was felt to be a key requirement. At present, children have to go elsewhere to complete their education and this apparently discourages many. The request

for higher education facilities was strongly linked to the need for vocational training which could prepare young people for skilled occupations and enable them to provide skilled services within the community.

The social and economic goals outlined at the hearings were recognized as being achievable only if government aid was made available. Paradoxically, there were also complaints about the extent of government direction of everyday life in the community. It was stated that no fewer than 30 government agencies currently administer programs in Fort Chipewyan and these were said to be unco-ordinated and to be run in such a way as not to allow public participation. The community feels confused and overwhelmed by such government involvement and is demanding a greater voice in its own destiny.¹⁸⁴

The recommendations of the Environment Conservation Authority essentially mirrored the recommendations of the Delta Project Group and the community as set out above. There were additional suggestions that seasonal or weekly commuting jobs be created in nearby developments such as the Athabasca oil sands, and that an ungulate management programme be instituted, with the intent of developing the techniques for buffalo ranching.¹⁸⁵

When the report to the federal Minister of the Environment from the director of the Peace-Athabasca Delta Project was released in September 1971, it was quickly labelled confidential and retracted. It was re-issued after changes were made, eliminating what the federal ministry considered to be inflammatory statements regarding the liability of B.C. Hydro and whether it should be held financially responsible for any remedial measures required in the delta.¹⁸⁶ In the later publications of the Delta Project Group, questions of liability and compensation were specifically avoided and the view was adopted that the Bennett Dam should be treated as a *fait accompli*.¹⁸⁷

The Public Advisory Committee, however, raised questions of equity in its presentation to the Environment Conservation Authority:

In the National context, a project can be deemed beneficial if at least one person benefits and no one loses [sic] (Pareto Optimum Principle). Unfortunately, in reality there are always some losers in any proposition. British Columbia decided, upon formal review of the proposal within its borders, that it is, on balance, beneficial to build Bennett Dam. Claims for the benefit are substantial . . . deriving principally from the promise of holding the cost of electricity constant in face of general inflation. . . .

It seems reasonable that British Columbia, which stands to reap benefits in the vicinity of hundreds of millions of dollars for the project, reimburse downstream riparians for damages of two orders of magnitude lower. It is clear that British Columbia's benefits will not be affected greatly by reimbursing the co-operating governments for the cost of remedial measures.

Equity and principles of efficiency demand that damages suffered by innocent bystanders be reimbursed. While the full value of the loss can never be restituted except in kind, the Federal Government's announced intention to bill the province of British Columbia for the cost of downstream remedies is fully endorsed because it is in keeping with the principle of equity and common law, and does not impose unreasonable hardship on the main beneficiary of the Bennett Dam.¹⁸⁸

In fact, the Government of British Columbia has never been billed for the cost of remedial works, although the federal government still maintains its intention of doing so.¹⁸⁹

The recommendations for social and economic improvements in the Peace-Athabasca Delta area have either been implemented slowly or not at all. It has been suggested that this failure may be attributed to difficulties in clarifying responsibilities between the governments of Canada and Alberta.¹⁹⁰ Meanwhile, the plight of the people of Fort Chipewyan is little better today than it was in 1970 when the delta problems first became visible. There are, however, encouraging signs that the delta people are beginning to develop the skills and initiative to improve their condition.¹⁹¹

The Peace-Athabasca situation provides evidence that the government acts positively and consistently only in situations which are of high public visibility.¹⁹² There is therefore a duty incumbent upon the public interest sector to maintain their involvement with a problem, once it has been identified, to ensure continued visibility and appropriate government action.

Inadequacies in the Legal Process

There have been a number of what may be termed legal failures associated with the Portage Mountain project and its downstream effects. The failures within the B.C. regulatory process and the failure of the federal government to exercise its jurisdiction over inter-provincial waters, works, and navigation have been mentioned. But the legal process has also shown itself to be inadequate in terms of providing

compensation to affected parties for damage caused by the Bennett Dam.

In October 1970, members of the Cree and Chipewyan bands, the Athabasca Fish Co-operative, and the Metis Association of Alberta issued a writ out of the Supreme Court of British Columbia, claiming compensation from B.C. Hydro for damages caused to the Peace-Athabasca Delta and an injunction to restrain Hydro from further interference with water levels in the delta.¹⁹³ No formal steps have been taken to further this action since Thomas Berger, who initially acted as counsel for the plaintiffs, withdrew to assume an appointment as a justice of the Supreme Court of British Columbia. There is now little hope of reviving the action. Apparently some of the plaintiffs thought Berger's withdrawal signified the end of the case, while lawyers in Vancouver who had assumed conduct of the matter complained of receiving no disbursements to bring the action forward.¹⁹⁴ Repeated requests from individuals to the Alberta government for financial support to allow the action to proceed have been either rejected or ignored.¹⁹⁵ A number of formal requests by the Public Advisory Committee to the Environment Conservation Authority have also been rejected.¹⁹⁶ The Department of Indian Affairs and Northern Development also shows no inclination to provide assistance, despite the department's general responsibility to uphold the rights of native peoples affected.

In addition to the difficulties of funding such an action, there are complex issues involved in establishing liability for negligence, nuisance, or interference with riparian rights, as well as problems of proof and determining the proper forum if any.¹⁹⁷ As Lucas and Franson have stated, besides the equitable and ethical reasons for wishing to see these actions against B.C. Hydro proceed, there is a need for clarification of legal liability in such cases.¹⁹⁸ Decision-makers are more likely to consider all the possible effects of major projects if it is clear that these effects will give rise to legal liability.

The Fishermen's Assistance and Polluters' Liability Act, 1970 (Man.), c. 32, would have provided a suitable model for determining liability and recovery of loss in connection with downstream effects from development on an inter-provincial river, had the operative sections not been declared *ultra vires* the Manitoba Legislature by the Supreme Court of Canada.¹⁹⁹ The act provided that Manitoba could make assistance payments to commercial fishermen who suffered financial loss as a result of the prohibition of fishing in polluted waters. People so injured were granted the right to assign to the Manitoba government

their right to sue the persons responsible for the water pollution, and the government then could bring an action for those assigned damages or the assistance payments, whichever were greater. The act further provided that it was not a lawful excuse to show that the discharge causing the pollution was permitted by the appropriate regulatory authority having jurisdiction where the discharge occurred. In *Interprovincial Co-operatives Ltd. et al. v. the Queen in Right of Manitoba*, the defendants were operators of chlor-alkali plants in Saskatchewan and Ontario, who, under permit from the relevant provincial authorities, were licensed to discharge mercury into rivers flowing into Manitoba. As a result of these discharges, commercial fishermen in Manitoba suffered damage and were compensated by the Manitoba government. The latter then, as assignee of the fishermen's rights, brought an action against the defendants. The Supreme Court of Canada held that Section 4 (1), which provided for liability for financial loss caused by the discharge of a contaminant into waters whereby it is carried into waters in Manitoba, and Section 4 (2), which prevented a permit being raised as lawful excuse for such a discharge, were *ultra vires*, since these sections purported to deny a civil right acquired in another province, namely the right to discharge contaminants.²⁰⁰

Despite this decision, the Manitoba legislation is instructive because it is capable of extension to other forms of damage occasioned by major developments whose effects occur solely within one jurisdiction. It is also clear that similar legislation dealing with the extra-provincial consequences of resource developments could be validly enacted by the federal parliament. In any event, measures are required to enable the legal process to perform its basic function of clarifying responsibilities and redressing injuries.

Conclusions and Recommendations

Policy Formulation

When the hydro potential of the Peace River was discovered, development-oriented policies required no justification, either in British Columbia or in Canada as a whole. The frontier ethic was accepted without question, becoming in itself a justification for proceeding with major resource developments.

Now, however, it is apparent that unquestioned growth is no longer tolerable.²⁰¹ This change of perspective requires

that different questions be asked in the process of policy formulation. When the Portage Mountain project was first conceived, little or no consideration was given to the question of goals and alternatives. We now feel compelled to consider the various alternative means of satisfying our needs as a society; indeed, the finite nature of resources and global systems requires that we consider not only alternative means of meeting our needs, but also the validity of those needs themselves.

It is also becoming more widely accepted that individuals should be involved in the decisions that directly affect them. Future policy formulation with regard to resource use and development will directly affect everyone, and therefore should involve consideration of a broad perspective of alternatives in a manner that guarantees meaningful involvement of individuals and groups on as wide a basis as possible. This would ensure the evaluation of alternative policies in the larger context, having regard to other policies and long-term priorities. In short, the policy-making process must include a form of anticipatory planning that considers the kind of future that pursuit of a particular goal will produce.²⁰²

Planning

The planning process for the Portage Mountain project was dominated by engineers with little or no training in the life sciences, who were largely incapable of perceiving water as a vital rather than merely a mechanical fluid or hydraulic medium. This perspective accounts in part for the failure to predict the biological consequences of lowered water levels in the Peace-Athabasca Delta.

Biological and ecological expertise ought to be located centrally in the planning process, rather than serving, as it now does — in both government and development-oriented bodies — as merely an adjunct and accessory conscience to the planning process. The jurisdiction of both federal and provincial Departments of the Environment must be expanded to include significant regulatory powers, rather than merely advisory ones.

Conflicts of Interest

Many glaring conflicts of interest were present during the proposal, planning, and implementation of the Peace River development. Some of these still exist in British Columbia and are markedly similar to those found in other jurisdictions within Canada.

The B.C. Department of Lands, Forests and Water Resources and the Water Rights Branch constituted one

department with interchangeable staff, both responsible to the same minister and charged with the conflicting tasks of advising on policy and performing regulatory functions. In addition, the minister responsible served as a director of the major developer, B.C. Hydro, and decisions by the regulatory arm, which is one of the few bodies having any jurisdiction over B.C. Hydro, were appealed to either the minister or the cabinet. Control of regulators by developers is unavoidable in such a situation.²⁰³

Advisory and regulatory bodies must be clearly separated. The formulation of visible and explicit policies would also provide a greater independence for regulators.²⁰⁴ In addition, Crown corporations must be managed at arm's length from the government, being subject to the same, if not more stringent, controls as those applied to private developers. Ministers and policy formulators should not have a role in the management of such bodies.²⁰⁵

Jurisdiction over Inter-provincial Waters

There is also a need, evidenced by the Portage Mountain project, to clarify responsibility and jurisdiction over inter-provincial waters. The Canada Water Act was enacted "to provide for the management of the water resources of Canada including research and the planning and implementation of programs relating to the conservation, development and utilization of water resources."²⁰⁶ The preamble to the act states in part:

Whereas the demands on the water resources of Canada are increasing rapidly and more knowledge is needed of the nature, extent and distribution, of those resources, of the present and future demands thereon and of the means by which these demands may be met; . . .

And whereas the Parliament of Canada is desirous that, in addition, comprehensive programs be undertaken by the government of Canada and by the government of Canada in cooperation with provincial governments, in accordance with the responsibilities of the federal government and each of the provincial governments in relation to water resources, for research and planning with respect to those resources and for their conservation, development and utilization to ensure their optimum use for the benefit of all Canadians;

Section 3 of the act allows the federal government to enter into arrangements with one or more provincial governments to establish inter-governmental committees, on a national, provincial, regional, or lake or river basin basis:

(a) to maintain continuing consultation on water resource

matters and to advise on priorities for research, planning, conservation, development and utilization relating thereto;

- (b) to advise on the formulation of water policies and programs; and*
- (c) to facilitate the coordination and implementation of water policies and programs.*

By Section 4 of the act, the federal government may, with respect to waters where there is "a significant national interest in the water resource management thereof," enter into agreements with provincial governments to:

- (c) conduct research in connection with any aspect of those waters or provide for the conduct of any such research by or in cooperation with any government, institution or person,*
- (d) formulate comprehensive water resource management plans, including detailed estimates of the cost of implementation of those plans and of revenues and other benefits likely to be realized from the implementation thereof, based upon an examination of the full range of reasonable alternatives and taking into account views expressed at public hearings and otherwise by persons likely to be affected by implementation of the plans,*
- (e) design projects for the efficient conservation, development and utilization of those waters,*

By Section 5 (1) of the act, upon failure to reach an agreement as provided by Section 4, the federal government may undertake directly with respect to any inter-jurisdictional waters involving a significant national interest, a programme described in Section 4 (d) or (e).

An example of a body similar to those contemplated by the Canada Water Act is the Mackenzie Basin Intergovernmental Liaison Committee mentioned earlier, which was created to "provide a vehicle for data and information exchange on investigatory and research matters and intended developments within the basin."²⁰⁷ However, this particular committee was not created pursuant to the provisions of the Canada Water Act, despite the fact that its functions clearly fall within the provisions of the act. Since its inception in 1972, the committee has served to inform the parties — the governments of Alberta, British Columbia, Saskatchewan, and Canada for the Northwest Territories — of the existing or contemplated activities of each within the Mackenzie Basin.

Although the formation of such a body should be considered as a significant improvement over the lack of

communication that was the norm during development of the Portage Mountain project, the informality of such an arrangement constitutes its most basic flaw. There is no guarantee of continued involvement by any of the parties, nor is there any clarification of jurisdiction with respect to a river system such as that in the Mackenzie Basin. The exchange of information operates confidentially among the parties, with its release at the discretion of the committee. Despite its role as a quasi-planning body, the committee has no provisions for any formal review of proposals, nor for public involvement or access to information.

A water basin approach to management of inter-provincial rivers would be a definite improvement over existing practice if it were embodied in legislation, approved by the various governments, and if it provided for a formal review and assessment procedure for proposed inter-provincial water developments. It should contain provisions to guarantee effective public involvement in the planning process, particularly by those potentially affected; this would mean a process providing for proper impact assessment, enlightened hearing procedures, and provision of the resources necessary to ensure effective involvement.

Decision-making

The decision-making process today is far more elaborate than that which applied to the Portage Mountain project almost two decades ago. The techniques of justification have become far more sophisticated, relying upon cost/benefit analyses which, it is maintained, allow meaningful comparisons to be made between alternatives. It should be recognized, however, that these efforts are dependent upon the assumption that it is possible to quantify intangibles, an assumption that decision-makers are loathe to reject for it saves them from the difficult task of making decisions based on ethics rather than dollar values. When considering this "scientific" approach to decision-making, it should be borne in mind that "To conceive the world as value-free is a task which men set themselves on account of a value: the vital value of mastery and power over things."²⁰⁸

It is recommended that greater emphasis be placed upon developing an understanding of the methodology of decision-making and the inescapability of the ethical component therein. In the long term it is not sufficient merely to demonstrate that the assessment of any given proposal has "stacked the deck" in its favour.²⁰⁹

Public Participation

Since the Water Comptroller's hearings regarding the Portage Mountain project, greater efforts have been made to involve the public — especially those directly affected — in the decision-making process. However, present hearings in British Columbia and elsewhere still suffer from significant defects. The terms of reference for the hearings are generally too narrow to allow proper consideration of all relevant evidence. Too often, as was the case in the Environment Conservation Authority's hearings about the restoration measures in the Peace-Athabasca Delta, they are merely advisory in nature. Although it is recognized that such advisory hearings can generate considerable pressure, they are useful in only a limited range of situations.²¹⁰

The provisions for disclosure of information are sadly inadequate. The only solution appears to be freedom of information legislation that would vest with the courts the discretion to release any information for which privilege is claimed.²¹¹

At present, provisions for impact assessment are also either inadequate or non-existent. Impact assessments should be required of all significant projects, whether by private developer or public body. Legislation providing for assessments should take into account the realities of organizational behaviour by precluding, except in limited cases, proponent-conducted assessments. There should also be provision for public involvement in the setting of the terms of reference for such studies.

Legislation providing for impact assessments and hearings into proposed resource developments should also make provision for funding to public interest groups for review of assessment and for participation in hearings. This could be accomplished by requiring the proponent to place in trust, for the benefit of public interest participants, a small portion — perhaps a fraction of one percent — of the total project cost.²¹²

Liability

In very few documented cases has a major resource developer been held accountable, after the fact, for damage caused by a development. There is a need — both to ensure that affected individuals are compensated and that proponents consider even the remote consequences of proposed developments — to clarify the liability for environmental and social effects of major projects. It is also necessary to extend the scope of remedies and provisions for compensation, both legal and political, that are available to injured

parties.²¹³ These changes will necessarily entail, particularly with respect to water developments, clarification of jurisdiction among the territories, provinces, and the federal government. It is a telling indictment of our society and its political and administrative processes that, with respect to the Portage Mountain project, native peoples in both the area of the Williston Reservoir and the Peace-Athabasca Delta received no benefits from the project whatsoever, and the legal process was unable to afford them any redress for injury.

Footnotes and References

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4. *Ibid.*, p. 84.
5. *Ibid.*, p. 85.
6. *Ibid.*, p. ix.
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30. *Vancouver Province*, 15 February 1957. See above, n. 27.
31. Robin, op. cit., pp. 209-210.
32. Province of British Columbia, Ministry of the Environment, Water Rights Branch, Peace River File No. 0214872. (Hereinafter referred to as Water Comptroller's File). The former Ministry of Lands, Forests and Water Resources has been reorganized - the Ministry of the Environment now has jurisdiction over water resources, pollution control, and all matters connected with them, while the Ministry of Forests has jurisdiction over forestry matters.
33. Memorandum of Intention, 16 November 1956. See above, n. 19.
34. Water Comptroller's File, per note by Deputy Comptroller, V. Raudsepp.
35. Water Comptroller's File. It is likely that this was an alternative approach.
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124. Conditional Water Licence No. 27722, issued 21 December 1962.
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126. Bailey interview. See above, n. 72.
127. LeMarquand, op. cit., pp. 137-138.
128. Shrum interview. See above, n. 90.
129. This, of course, was the appearance at the time, but not the reality. Larratt Higgins, in "The Alienation of Canadian Resources: The Case of the Columbia River Treaty," has suggested that a billion dollars is a modest estimate for the worth of benefits conferred upon the Americans by way of the Columbia River Treaty (p. 236). In the British Columbia Hansard of 9 April 1976, the Hon. Jack Davis is reported as stating that the total including interest received under the Columbia River Treaty was \$479,107,523, while to 31 December 1975, \$1,033,588,494 had been spent on construction of storage projects, generation, transformation, and transmission facilities. A further \$434,838,029 was the estimate of the total amount required to complete the project.
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133. Energy Act, S.B.C. 1973.
134. An example of these broadened hearings was the hearing held by the Water Comptroller in July 1974 in Trail, B.C., regarding B.C. Hydro's proposed "Seven-Mile Hydro-electric Project." See transcripts, B.C. Attorney-General's Department, 1974.
135. B.C. Hydro annual reports reveal that Ray Williston acted as a director of B.C. Hydro from 1963 until the defeat of Bennett's Social Credit government in 1973. During that period, W.A.C. Bennett's confreere Einar Gunderson also acted as a director of B.C. Hydro. The NDP continued this tradition. R.A. Williams, then Minister of Lands, Forests and Water Resources, was a director of B.C. Hydro from 1973 until 1975, when Jack Davis, Minister of Transport and Communications, became director. The present minister responsible for and serving as a director of B.C. Hydro is the Minister of Energy, Mines, and Petroleum Resources - James J. Hewitt.
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142. Dr A.H. Macpherson, Canadian Wildlife Service, interview with the author, 14 July 1976.
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148. Forbes interview. See above, n. 77.
149. Report on the Proposed Joint Federal-Provincial Study of the Peace-Athabasca Delta Problem.
150. For the attitudes of the B.C. government and the B.C. Hydro and Power Authority, see the diary of H.K. Pratt of the Authority on the subject of "Portage Mountain Project - Effect on Levels of Lake Athabasca," 25 June 1970. See also letter from Jack Davis, federal Minister of Fisheries and Forestry, to Ray Williston, Minister of Lands, Forests and Water Resources, 9 December 1970, and

Williston's reply, dated 8 January 1971. Davis refers to the "Peace-Athabasca Delta Problem" as "a touchy subject," and expresses the hope that Williston will agree that "a joint approach is the only one which makes sense." Williston's letter of refusal is fairly terse, but offers to "make available factual information on the operation of the Peace River reservoir including the British Columbia Hydro and Power Authority Peace River operating plans." Water Comptroller's File.

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152. Smith interview, n. 72 above; see, for example, the article appearing in *Time* magazine on 29 June 1970 (n. 145 above), dealing with the delta problem and the environment generally.
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156. Technical Report, p. 127. See above, n. 81.
157. Smith interview. See above, n. 72.
158. The complete report consists of Summary Report (1972); Technical Report; Volume I - Hydrological Investigations; Volume II - Ecological Investigations; Volume III - Support Studies.
159. Technical Report, p. 12. See above, n. 81.
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171. *Ibid.*, p. 148.
172. Environment Conservation Authority, *Proceedings*, p. 246. See above, n. 163.
173. See "The Restoration of Water Levels in the Peace-Athabasca Delta," *Report and Recommendations*, (Edmonton: Environment Conservation Authority, September 1974), pp. 40-41.
174. *Peace-Athabasca Delta Implementation Agreement*, between the Government of Canada, ... the Government of the Province of Alberta, ... and the Government of the Province of Saskatchewan, 16 September 1974, pp. 2-3.
175. *Ibid.*, p. 7.
176. *The Mackenzie Basin*, p. 73 et passim. See above, n. 153; *Fraser River Upstream Storage Review Report*, Canada-British Columbia Fraser River Joint Advisory Board, Victoria, B.C., December 1976; Lower McGregor Diversion, p. 62.
177. Environment Conservation Authority, *Proceedings*, p. 246; Forbes and Smith interviews. See above, notes 163, 77, and 72.
178. Summary Report, pp. 39, 42. See above, n. 1.
179. Technical Report, p. 70. See above, n. 81.
180. *Ibid.*
181. *Ibid.*, pp. 91-93; Environment Conservation Authority, *Proceedings*, pp. 72-78. See above, n. 163.
182. Technical Report, pp. 85-86. See above, n. 81.
183. *Ibid.*, pp. 97-98.
184. Environment Conservation Authority, *Report and Recommendations*, pp. 21-22. See above, n. 173.
185. *Ibid.*, pp. 33-54.
186. Forbes interview. See above, n. 77.
187. *Ibid.*; Technical Report, p. 163.
188. Environment Conservation Authority, *Proceedings*, op. cit., pp. 254-255. See above, n. 163.
189. J.P. Bruce, Department of Fisheries and Environment, Inland Waters Directorate, interview with the author, September 1976.
190. Dr W.R. Trost, Chairman, Environment Conservation Authority, interview with the author, 12 July 1976.
191. See, for example, an article by Eric Denhoff, "The People: Cree, Chipewyan, Metis Raising a Unified Voice," *The Albertan*, 14 February 1976.
192. The community of Fort Chipewyan has, by and large, languished with very little government assistance since the conclusion of the Peace-Athabasca Delta Project. In addition, according to S.B. Smith and others, there is continuing difficulty in obtaining government funds to monitor the water levels and ecology of the delta.
193. "Indians claim damages," *Vancouver Sun*, 17 October 1970, p. 12.
194. D.K. Pidgeon, barrister and solicitor, personal communication to the author.
195. Schultz interview. See above, n. 144.

196. Minister of the Environment's response to the 1974 resolutions of the Public Advisory Committee on the Environment, 3 October 1975, pp. 5-6.
197. A.R. Lucas and R.T. Franson, "Legal Liabilities in Water Resource Projects," in *Proceedings of the Peace-Athabasca Delta Symposium*, op.cit., pp. 272-277. See above, n. 151.
198. Ibid., pp. 271-272.
199. *Interprovincial Co-operatives Ltd. et al. v. The Queen in Right of Manitoba* (1975), 53 D.L.R. (3rd), p. 321.
200. Ibid., pp. 321, 322.
201. William Ophuls provides perhaps the most trenchant analysis in *Ecology and the Politics of Scarcity: Prologue to a Political Theory of the Steady State*, (San Francisco: W.H. Freeman and Company, 1977).
202. See, for example, Lawrence H. Tribe, "Technology Assessment and the Fourth Discontinuity: The Limits of Instrumental Rationality," *Southern California Law Review*, Vol. 46, No. 2 (1973): 617-660.
203. See Sax, n. 136 above.
204. In British Columbia, the lack of any explicit energy policy makes the regulatory task much more difficult and allows policies to be formulated by B.C. Hydro rather than by the government.
205. The use by government of Crown corporations as policy implementation vehicles, as is the case with the federal government's petroleum corporation, should also be regarded with suspicion.
206. Canada Water Act, R.S.C. 1970, c. 5 (1st Supp.).
207. Mackenzie Basin Intergovernmental Liaison Committee, First Report (to 31 December 1974).
208. Quoted in William Leiss, *The Domination of Nature*, (Boston: Beacon Press, 1972), p. 109.
209. See Lawrence H. Tribe, "Policy Science: Analysis or Ideology?," *Philosophy and Public Affairs*, Vol. 2, No. 1 (1972): 66-110; "Trial by Mathematics: Precision and Ritual in the Legal Process," *Harvard Law Review*, Vol. 84, No. 6 (1971): 1329-1393; "Ways Not to Think About Plastic Trees: New Foundations for Environmental Law," *Yale Law Journal*, Vol. 83, No. 7 (1974): 1315-1348.
210. One such case was the Mackenzie Valley Pipeline Inquiry, which acted as a form of public enlightenment process and national referendum.
211. The champion of such legislation is the Hon. Gerald Baldwin, Honorary Chairman of "Access," a Canadian Committee for the Right to Public Information.
212. This approach has several advantages. First, it recognizes that public involvement is a necessary and beneficial adjunct to the decision-making process. Second, it directly relates the importance of a project, as measured in dollars, and the amount of funds available for public consideration of the project. Third, it recognizes that the cost of public involvement is a legitimate part of the project cost itself, and places that cost on the party best able to ensure that the cost is passed on to the

ultimate consumer. Finally, it provides an assurance of continued funding, not subject to the vagaries and budgetary constraints of the political party in power.

213. It should be recognized that injured parties are not necessarily limited to individuals or corporations. See Christopher D. Stone, "Should Trees Have Standing? - Toward Legal Rights for Natural Objects," *Southern California Law Review*, Vol. 45, No. 1 (1972): 450-501.