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The Columbia River Treaty—Where Do We Go From Here?

INTRODUCTION

When John Krutilla wrote his classic study on the Columbia River Treaty nearly twenty years ago, he wisely devoted part of his introduction to reviewing a number of ways in which cooperative international river development can be justified.[1] Readers of this article are encouraged to read or re-read Dr. Krutilla. At the same time it will be helpful if we begin with a reminder that while we have learned a good deal about international river development over the last generation, the advisers to the governments of Canada and the United States forty years ago were well aware at that time of the fact that the case for or against the cooperative development of shared watersheds is far from being a self-evident one. They were conscious of the relevance to it of the great range of values associated with such river development.[2] To some extent they were also aware of the manner in which actions on international rivers, whether upstream or downstream, can produce sets of benefits and costs distributed in extraordinarily asymmetric ways between upstream and downstream riparians. Furthermore, they were sensitive to the fact that when two nations share a watershed, and when the two sectors of it have been developed to very different degrees, differing national perspectives are almost bound to complicate the processes of adjustment required when the prospect of seemingly justified cooperative development emerges.

Thus it is reasonable to suggest that when Canada and the United States asked the International Joint Commission (IJC), in March 1944, to investigate whether further development in the Columbia watershed would be "practicable and in the public interest from the points of view of the two Governments,"[3] that they had some feeling for the complexity of

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1. *See generally* J. KRUTILLA, THE COLUMBIA RIVER TREATY: THE ECONOMICS OF AN INTERNATIONAL RIVER BASIN DEVELOPMENT (1967). For information regarding the Columbia River Treaty, see CANADA DEPARTMENTS OF EXTERNAL AFFAIRS AND NORTHERN AFFAIRS AND NATIONAL RESOURCES, THE COLUMBIA RIVER TREATY AND RELATED DOCUMENTS (Feb. 1944) [hereinafter cited as THE COLUMBIA RIVER TREATY AND RELATED DOCUMENTS]. *See also* Columbia River Treaty, January 17, 1961, United States-Canada, 15 U.S.T. 1555, T.I.A.S. No. 5638.

2. *See* L. BLOOMFIELD & G. FITZGERALD, BOUNDARY WATERS PROBLEMS OF CANADA AND THE UNITED STATES: THE INTERNATIONAL JOINT COMMISSION 1912-1958 164-65 (1958).

3. *Id.* at 164.

what they were about. At the same time, this IJC reference was based on a perception, shared by the two nations and by the government of British Columbia, that the response to their inquiry might well be positive. The reasons for this are clear. While less than one-sixth of the entire Columbia River basin lies in Canada, it produces a disproportionally large share of the Columbia's average flow.[4] Furthermore, not only is the Columbia's run-off in the natural state highly variable regionally, but also it varies dramatically from month to month, and indeed from year to year. Additionally, in 1944, the watershed of the Canadian mainstream was entirely undeveloped and contained, as did the watershed of some of its major tributaries, some superb storage sites.[5] In short, the possibility existed that some works in Canada might generate significant benefits, especially in the form of flood control downstream in both countries, and enhanced electric power generation at site and downstream, again in both countries. The issue which prompted this investigation, and ultimately led to the Columbia River Treaty of 1961, was the possibility of creating storage in Canada which could generate system benefits which might be shared by both countries. A related prospect stemmed from the fact that five of the Columbia's tributaries (one twice) and some of its secondary tributaries are, as the mainstream is, transboundary waters.[6] The possibility was recognized in 1944 that some development on them might literally straddle latitude 49°N.

Only the highlights of the immediate response to the challenges just identified can be reviewed in the space available here. A major exercise in data gathering, especially concerning the Canadian watershed, had to precede the analysis evoked by the IJC reference. For a decade and more the bulk of the effort required to produce it came from personnel drawn into an infrastructure established by the IJC, largely from the staffs of the two federal governments and their agencies, and joined in time by some technical personnel from British Columbia.[7] Although during the 1950s the IJC moved to produce a comprehensive analysis of almost the entire range of Columbia development options, its efforts were complicated in a number of significant ways. One of these involved the emergence of proposals to proceed with incremental development in the basin—in 1951 concerning projects at Libby on the Kootenay and at Waneta on

4. INTERNATIONAL COLUMBIA RIVER ENGINEERING BOARD, WATER RESOURCES OF THE COLUMBIA BASIN: REPORT TO THE I.J.C. 33-34 (1959) [hereinafter cited as BOARD REPORT TO THE I.J.C.].

5. *Id.* at 43-88.

6. CANADA, DEPARTMENT OF EXTERNAL AFFAIRS AND NORTHERN AFFAIRS AND NATIONAL RESOURCES, THE COLUMBIA RIVER TREATY AND PROTOCOL: A PRESENTATION 29 (1964) [hereinafter cited as THE COLUMBIA RIVER TREATY AND PROTOCOL]. The Kootenay River crosses the border twice.

7. N SWAINSON, CONFLICT OVER THE COLUMBIA: THE CANADIAN BACKGROUND TO AN HISTORIC TREATY 41-42 (1979).

the Pend d'Oreille, and in 1954 projects at Mica Creek on the Columbia itself and on the Arrow Lakes. Only the relatively small Waneta project, with almost no storage capacity, was cleared to proceed at the time.

Another complication was the emergence of a determination by the governments of Canada and British Columbia to veto clearances for projects requiring IJC approval, such as Libby, until the United States had explicitly accepted an obligation to credit Canada with some share of the benefits accruing to the United States as a result of storage in Canada or extending into it. This position was not formally conceded until 1958. The analysis under IJC auspices was affected as well by the lack of support from the American federal government for storage construction in the American basin during the Eisenhower years.[8] It was complicated also in the mid-1950s when the government of British Columbia became openly skeptical of the perceptions emerging in Ottawa concerning the form of Columbia River development likely to be in the best interest of Canada, by British Columbia's willingness to consider incremental development without waiting for the emergence of a "master plan," and by its determination not to allow the Canadian co-chairman of the IJC, General A.G.L. McNaughton, to play a key role in harmonizing different perspectives on Columbia development held in Ottawa and Victoria.[9] The IJC's analysis was delayed also as a result of that body's involvement with the development of the St. Lawrence River, and pursued, after 1955, in the knowledge that advances in high voltage transmission technology were giving some credibility to alternatives in British Columbia and the United States to storage on the Upper Columbia River.[10]

Quite apart from the investigation pursued in governmental offices for the IJC, the in-house technical advisers to the governments of Canada, the United States, and British Columbia produced further analyses of their own. Additionally, after 1955, the governments of Canada and British Columbia agreed to commission major Columbia River studies from external consultants, and to exchange these, as they sought to indentify in a competitive manner an optional policy for Canada to pursue.[11] In any

8. J. KRUTILLA, *supra* note 1, at 12.

9. N. SWAINSON, *supra* note 7, at 94.

10. From 1958 on, Canadian and American governmental personnel working on the IJC Columbia River studies were very conscious of the way in which new transmission technology was being incorporated into feasibility studies of power development on the Peace River in northern British Columbia. These studies led to: R. CHANTRILL & J. STEVENS, A REPORT ON POWER CAPABILITIES AND OPERTING ASPECTS OF THE PEACE RIVER POWER PROJECT AND A PACIFIC INTERNATIONAL POWER POOL (1960) (prepared for the Peace River Power Dev. Co., Ltd.).

11. *See* MONTREAL ENGINEERING COMPANY, LTD., PRELIMINARY REPORT ON THE DEVELOPMENT OF CANADA'S WATER POWER RESOURCES IN THE COLUMBIA RIVER BASIN (1957) (prepared for the government of Canada), and CRIPPEN-WRIGHT ENGINEERING, LTD., HYDRO-ELECTRIC DEVELOPMENT OF THE COLUMBIA RIVER BASIN IN CANADA (1959) [hereinafter cited as CRIPPEN-WRIGHT REPORT] (prepared for the government of British Columbia).

case, in 1959 the IJC's Columbia River Engineering Board, in a massive report, responded affirmatively to the question asked by the two governments in 1944, identified three alternative schemes of development without opting for one, and recognized the existence of others.[12] Furthermore, after another reference to it, at the end of 1959 the IJC produced a set of principles designed to govern the selection of a set of cooperatively developed projects, and to guide both the determination of and the division of the benefits derived from them.[13]

THE COLUMBIA RIVER TREATY

By 1959, although over fourteen years of effort had produced much basic and widely agreed-upon data and analysis, they had not evoked a consensus either across the international border or between the governments of Canada and British Columbia as to which projects should finally be seriously considered for cooperative development. The consensus was sought when, before reaching an understanding with British Columbia, in January 1960 the Canadian government inaugurated formal negotiations with the United States leading to a Columbia agreement, and pursued concurrent negotiations with the province. Both sets of negotiations lasted through that year.[14]

Out of this complex environment came the treaty, signed on January 17, 1961, which provided for cooperative Columbia River development over a sixty year period—after which it may be cancelled on ten years notice.[15] Canada undertook to build three projects, committing in the process 15.5 million acre-feet of storage to jointly controlled operation. In return she was credited with one-half the present value of the flood damage prevented downstream from 8.5 million acre-feet of this storage, to be prepaid on the completion of the Canadian storage. As well, Canada was to receive title to one-half the downstream power produced in the United States from the Canadian storage. This was to be returned to Canada, although provision was made for disposing of portions of it in the United States. The United States at the same time was given an option to build a project at Libby in Montana, with Canada to provide its flowage area in Canada, and to receive title to the downstream benefits derived from Libby in Canada.

Although the U.S. Senate gave its consent to the Columbia River Treaty within two months of its signature, thirty-nine months were to pass before

12. BOARD REPORT TO THE I.J.C., *supra* note 4, at 67, 97-110.
13. J. KRUTILLA, *supra* note 1, at 59-67.
14. N. SWAINSON, *supra* note 7, at 121-85.
15. Columbia River Treaty, *supra* note 1, art. XIX, para. 2.

the Canadian Parliament endorsed the treaty by resolution.[16] This is a simplification of reality, but still an accurate statement, and one largely explained by the post-January 1961 decisions of the government of British Columbia to sell in the United States the whole of its downstream power entitlement, for a period at least, and secondly, after mid-year 1961, to move ahead with a major development on the Peace River.[17] Two years of intense federal-provincial controversy were evoked by these provincial initiatives. Following a change of federal government in Canada in April 1963, a sale of the Canadian power entitlement was provided for in a protocol[18] to the treaty which also contained some clarifications of and modifications to that agreement, and in a related power sale attachment, both of which were signed in January 1964.[19] After the formal power purchase agreement had been signed between Canada's treaty entity, the B.C. Hydro and Power Authority, and a new American instrumentality, the Columbia Storage Power Exchange (consisting of forty-one utilities), in August 1964, and after the Canadian Parliament had examined the entire arrangement between April and June of that year, the treaty and protocol were ratified and proclaimed and the power purchase agreement was brought into effect on September 16, 1964.

The treaty, now slightly over one-third of the way through its minimal projected life, has been implemented basically as intended. Two Canadian storages, Duncan and High Arrow, were completed ahead of schedule, and the third, Mica, on schedule.[20] The United States picked up its option to build Libby, which became operational in 1973. Since 1964 B.C. Hydro and the joint American entity, the Bonneville Power Administration and the Corps of Engineers, have been responsible for the management of the Canadian storage under the provisions of the treaty. Their primary instrument has been an eight member operating committee, drawn equally from the technical personnel of the two entities.[21] The entities' efforts, in turn, have been monitored as the treaty provided by a Permanent Engineering Board, with power to settle disputes, and containing two representatives from each country.[22] Fortunately, the entities' performance has been exemplary, and the Engineering Board's role largely a routine one.

16. The Treaty was endorsed by the Canadian Parliament on June 10, 1964.
17. N. SWAINSON, *supra* note 7, at 187-249.
18. THE COLUMBIA RIVER TREATY AND RELATED DOCUMENTS, *supra* note 1, at 111-14.
19. *Id.* at 117-20.
20. The Duncan Lake storage was completed on July 13, 1967; High Arrow Lake on Oct. 10, 1968; and Mica was completed on Mar. 29, 1973.
21. *See* P. WANDSCHNEIDER, CONTROL AND MANAGEMENT OF THE COLUMBIA-SNAKE RIVER SYSTEMS 41 (Monograph XB 0937-1984, Agric. Research Center, Washington St. Univ.)(1984).
22. Columbia River Treaty, *supra* note 1, art. XV.

Readers interested in the intricacies of the production of the downstream power benefit at U.S. federal and non-federal Columbia mainstream plants, in the distribution of this benefit to its purchasers and in its subsequent sale, should turn to two excellent monographs on the subject recently produced by Philip Wandschneider.[23] They will find details there also of the manner in which the operating committee already referred to, within guidelines established by the treaty, regulates the use of Canadian treaty storage via Assured Operating Plans, prepared annually six years in advance, and Detailed Operating Plans, relating to the year after the present one. Both sets of plans feature rule curves governing the draw-down of reservoirs for power production and flood control purposes, and are themselves subsumed, within limits, into more detailed planning pursued under the auspices of the Northwest Power Pool and a Pacific Northwest Coordination Agreement, which agreement itself is an outcome of the treaty.

When one takes into account the range of constitutional, treaty, and statutory policy constraints relevant to the Columbia in the United States and Canada, and the detailed adjustments ranging from monthly to weekly to daily and hourly scheduling required to operate this river system, it is not surprising that its management is extraordinarily complicated. As Professor Wandschneider suggests, "it is remarkable how smoothly the present system works."[24] That it does, he contends, is largely due to the "glue" of some sets of contractual agreements—of which the Columbia River Treaty is one.[25] A good deal of the credit for the fact that the administrative arrangements associated with the Columbia River Treaty have worked well, beyond that accruing to the designers of the contractual agreements in the first place, has to be attributed to able technical personnel in the entities, and their realization that, intelligently pursued, the cooperative management of a river system can be a positive sum game.

LESSONS LEARNED

We must now turn first to some general reflections on the lessons which may be derived from our Columbia River experience to date, and then to some of the on-going problems facing a continuance of its cooperative management internationally. Preeminently there was one quite extraordinary feature of the treaty or, better, of its creation. This was the consideration that, although the governments of Canada, the United States,

23. *See* P. WANDSCHNEIDER, *supra* note 21, and P. WANDSCHNEIDER, MANAGEMENT OF A UNITED STATES-CANADA COMMON RESOURCE: THE COLUMBIA RIVER (1983)(Dep't of Agric. Econ., Washington St. Univ., Staff Paper #83-2) [hereinafter cited as MANAGEMENT OF A UNITED STATES-CANADA COMMON RESOURCE].

24. MANAGEMENT OF A UNITED STATES-CANADA COMMON RESOURCE, *supra* note 23, at 21.

25. *Id.* at 25.

and British Columbia devoted so many years and resources to preparatory data gathering and analysis, much of it shared under the auspices of the IJC, the circumstance under which the Columbia was actually ultimately developed was never made the subject of comprehensive examination. This is a reference to the fact that, although the premier of British Columbia, the late W.A.C. Bennett, insisted repeatedly in public between 1958 and 1960 that he wished the Columbia to be developed in parallel with the Peace River in the North, the technical planners of the Columbia River Treaty did not assume in fact that this would be the case.[26] The treaty was designed on the assumption that the Columbia would be developed first!

How could this have happened in view of the commitment to planning and the associated investment in it generated in Victoria, Ottawa, and Washington? There were several immediate explanations for this unusual set of affairs. One was the outright opposition to concurrent Peace-Columbia River development at both political and technical levels in Ottawa, and in Washington, which rightly feared that the then strained American money market would have to finance both river developments, and amongst technical advisers to the government of British Columbia. Much of this opposition stemmed from an awareness of the cost of transmitting power from the relatively isolated Peace River to the major market in British Columbia, from a desire to bring lower cost energy on to the market first, and from a desire to capitalize on the prospect of American assistance for Columbia development before development in the American watershed made its Canadian equivalent into a wasting asset.[27] A second explanation lay in the then modest size of the British Columbia energy market, and in the existence at that time in Canada of a *de facto* ban on long-term power exports which might have absorbed much of the otherwise surplus energy from development of two rivers.[28] A third was the relatively late stage arrival (1957-1958) on the analytic scene of the Peace River as a potential energy source and energy bank. A fourth was a widespread underestimation of the determination and tactical skill of Mr. Bennett. And still another explanation lies in the fact that, in the face of all this opposition, Mr. Bennett really followed the classic response to strategic complexity; in a sense he split the problem. Unbeknownst to him, however, there were relationships between the two sections of it, with real significance for project selection in a Columbia River development.[29]

On a more profound level, this extraordinary state of affairs can be

26. N. SWAINSON, *supra* note 7, at 329-31.
27. *Id.* at 332.
28. *Id.* at 331-32.
29. *Id.* at 333, 362-63.

attributed in part to the nature of the major bargaining which the approach to the treaty evoked *in Canada*, and which we have already characterized as a two-party contest. The two parties, of course, were the governments of British Columbia and Canada. The point being emphasized here is that the hidden hand in bargaining to which Charles Lindblom quite reasonably directs our attention may largely be rendered inoperative in contests where the search for allies and coalition building is not a major concern, and where a tactical premium is placed instead on strategic intransigence.[30] This appears to have happened in Canada prior to and during the treaty negotiations, and to have happened at least in part because of a tangling of the jurisdictional roles of the two Canadian governments involved. Such issues concerning the Columbia's development as a project selection, and the pace and scale of project building—all matters in which Canada's national government tried to play a crucial role—are normally in the Canadian federal system matters for provincial determination.[31] One of the major ironies of the Columbia River decisionmaking is the possibility that, insofar as Canada is concerned, if decisions on the issues just mentioned had been left to the province with the basic proprietary rights to the resource, the interaction of four public utilities within it, all of which might have been responsible for marketing Columbia-Peace energy, could easily have inspired the comprehensive assessment of the implications for Columbia River project selection of concurrent two river development—which we have already seen was not pursued.

All this really is just to underscore the basic proposition that analysis, whenever sunk costs are large and decisions often irreversible, should be made as synoptic as possible. This, of course, is the point to Dr. Krutilla's study. He does not argue that the dictates of economic efficiency ought necessarily to override all other considerations when cooperative river development is being considered, but he does suggest, unanswerably, that insight into the economic opportunity costs of policy options ought, where possible, to be available at least to illuminate the act of choice.[32] The decisionmaking apropos the Columbia also emphasizes the wisdom of Amitai Etzioni's endorsement of mixed scanning, involving a periodic setting aside of a concern over means as policy makers refocus on goals, and on the basic assumptions being fed into their calculations.[33] A periodic

30. *See* C. LINDBLOM, THE INTELLIGENCE OF DEMOCRACY 33, 47, 54-86 (1965).

31. N. SWAINSON, *supra* note 7, at 352-55.

32. *See* J. KRUTILLA, *supra* note 1, at 99, ch. 9, 10. A major goal of Krutilla's work was to demonstrate the complexity and the breadth of the planning horizon involved in the analysis required to compare the net benefits associated with mutually exclusive components in cooperative and non-cooperative system development.

33. Etzioni, *Mixed Scanning: A Third Approach to Decision Making*, 27 PUB. AD. REV. 385 (1967).

review and a reassessment of ultimate goals were notably missing in some of the most crucial Columbia River decisionmaking.

There were some other features of the Columbia River's development of particular interest to students of policy formation. One was that the analysis conducted for so long under IJC auspices was pursued from a system perspective. Eventually the existence of an international boundary, along with the concerns of two if not three friendly, but still different, political systems had to be inserted into the analysis, and the negotiating-cum-bargaining. The insertion had a major impact on the decisionmaking, affecting such questions as the allocation of costs, the determination of benefits to be shared, and the selection of projects to be constructed. British Columbia's representatives played a leading role in this process, in 1959, as they persuaded first federal Canadian, and then American representatives, that Canadian political reality required each riparian to meet its own costs of cooperative development, and not to share them.[34] It is now possible to argue that, realistic though the province was at the time, the grossing formula for the determination of benefits which it endorsed returned to haunt it. The sharing of costs may well have to be taken more seriously in the future as nations consider the merits of joint project development, not least because this may be the only practical way to hedge against the unexpected and unpredictable.[35] Still it is necessary to acknowledge in the real world of public affairs the necessity, on occasion, of deferring to the sometimes perverse dictates of the nation state.

Something else was inserted into the decisionmaking in 1959, and that was pressure, especially from the political level in Ottawa and Washington, to move to a decision quickly. A broad range of considerations, including a desire by almost all concerned to bring to an end uncertainty within the Columbia Valley itself, a desire to generate public investment in a period of economic recession, a desire to capture the benefits of Canadian watershed regulation which could be outflanked if preceded by additional American storage, and a desire in Ottawa to forestall the Peace River development, contributed to this new constraint on the analysts and negotiators. Not the least of the consequences of the accelerated pace of decision in 1960, and the mix of goals just alluded to, was that the Columbia River Treaty acquired a specificity both with respect to project selection and project development over an extended timeframe which some of the most sophisticated planners of the treaty had hoped to avoid.[36]

34. N. SWAINSON, *supra* note 7, at 109, 113.

35. *Id.* at 366. In logic only a considerable fluke could produce equal division of net benefits in a cooperative system development via the use of a grossing formula. In this case, Dr. Krutilla calculated that the considerable gain enjoyed by Canada was offset by an approximately equal American loss—that, in effect, the treaty had produced overall no net benefit and possibly a net loss. J. KRUTILLA, *supra* note 1, at 195.

36. *See* J. KRUTILLA, *supra* note 1, at 203; N. SWAINSON, *supra* note 7, at 360-61.

This last comment serves to emphasize the problems involved in any long range assessment of project significance in the face of unpredictable technical and economic change. One of the great difficulties faced in comparing analyses produced about Columbia development between 1957 and 1961 was that so many utilized different discount rates.[37] The range between them, however, was minimal compared to the wild swings in the cost of money, not to mention in the value of energy and the cost of material, which have distinguished recent years, and which have bedevilled attempts to improve the cognitive input into the act of decision. This is not the least of the costs which modern man is now paying in part for his folly in waiting so long to recognize the socially destructive impact of inflation.

The specificity of the treaty, of course, in time served its purpose and elicited the project development and operation already referred to. It did so, however, in a manner which, at least in its early years and even before its ratification, forestalled major adaptations to a rapidly changing world. The decisions in British Columbia to go ahead with Peace River Development, and in the United States to build the Dworshak Dam and the Pacific Northwest-California and Southwest inter-tie, all taken before 1963, did in some measure render obsolete the case for parts of the treaty. Only a complete revision in 1963 could have produced the adaptation required, and in the end neither country felt prepared to risk losing agreement on the cooperative concept in the process. The case for enshrining an agreement to cooperatively develop a shared watershed in a treaty, but for permitting subsequently the incremental approval of projects for joint development, appears to be impressive in the light of the Columbia experience.

One of the most notable changes in the environment of Columbia River decisionmaking, of course, has been the weight now attributed in both countries to environmental values. Environmental sensitivity was not excluded from the calculus of 1960,[38] but the overall emphasis on such matters was not then what it has been since; the dominant values represented in the treaty bargain were those of flood control and power generation. Two projects in the Canadian watershed, one at Revelstoke

37. The CRIPPEN-WRIGHT REPORT, *supra* note 11, used, for example, four percent; the BOARD REPORT TO THE I.J.C., *supra* note 4, used three percent; the Caseco Consultants, Ltd., *Report on Columbia River Development: Prepared for the B.C. Power Commission* (May 1961) used five percent. Still a classic study of the significance of assumed interest rates on analytic findings is: Fox & Herfindahl, *Attainment of Efficiency in Satisfying Demands for Water Resources*, in PAPERS AND PROCEEDINGS OF THE AMER. ECON. ASSOC. 198-206 (May 1964) (Resources for the Future, Inc. reprint No. 46).

38. The opposition of British Columbia's government in 1960 to construction of major storages in the headwaters of the Kootenay and Columbia Rivers in Canada was based, to a considerable degree, on the likely environmental impact of such projects.

on the mainstream, and the other at Seven Mile, on the Pend d'Oreille, were the subject of very extensive environmental impact assessment before being approved in the 1970s.[39] They have since been constructed. Undoubtedly, however, the most significant manifestation of environmental concern—at least for the future joint management of some aspects of this watershed—has emerged in the United States, especially in a series of decisions there concerning Indian water and fishing rights,[40] and in the Pacific Northwest Electric Power Planning and Conservation Act of 1980.[41] This last named statute has led to the creation of an eight member Power Planning Council composed of two members from each of the four Pacific Northwestern states, with a mandate both to create a Regional Energy and Conservation Plan, including a Columbia Basin Fish and Wildlife Program, and (to a degree currently the subject of some controversy) to implement the said plans.[42] The upshot has been the adoption by the Power Planning Council of a water budget designed to enhance the remaining Columbia-Snake anadromous fishery, by assisting the springtime downstream migration of young fish through accelerated water releases.[43] Within the last decade an explicit "fish flow" directed by fishery interests rather than by project operators has become, in Professor Wandschneider's words, "a hard constraint" and in a sense "a full partner" in the management of the Columbia's flow in the United States. We shall comment shortly on what this may mean for the implementation of the Columbia River Treaty.

Some very considerable challenges face the two entities in the years directly ahead. Both of them, in the light of rapidly changing economic circumstances, find themselves faced with domestic power surpluses—one consequence of which is that B.C. Hydro, for the first time in almost twenty-five years, now has no major power projects under construction. Still, the current power surplus has not been without its compensations. It recently came in handy, for example, when the entities had to face an issue not anticipated in the treaty—the withdrawal of 4.3 million acre-feet of storage in the Revelstoke Dam reservoir. Here, as so often happens, lawyers coopted by the two entities gave quite different interpretations

39. Environmental impact statements were presented to public hearings on licensing of both projects. (The record of the proceedings at the 1976-77 Revelstoke hearings fills 36 volumes.) *See* ENVIROCAN, LTD., PEARSE-BOWDEN CONSULTANTS, LTD., ENVIRONMENTAL IMPACT REPORT: SEVEN MILE PROJECT (1973) (prepared for the B.C. Hydro and Power Authority). *See also* B.C. HYDRO AND POWER AUTHORITY, ENVIRONMENTAL IMPACT STATEMENT (1976).

40. *See, e.g.*, United States v. Washington, 506 F. Supp. 187 (W.D. Wash., 1980), *modified*, 694 F.2d 1374 (9th Cir. 1982), *modified*, 759 F.2d 1353 (9th Cir. 1985), *cert. denied*, 106 U.S. 407 (1985). *See also* P. WANDSCHNEIDER, *supra* note 21, at 13-14.

41. Pacific Northwest Electric Power Planning and Conservation Act, 16 U.S.C. § 839 (1980).

42. *Id.* § 839b discusses the constitution, mandate, and operation of the Power Council.

43. *See* Northwest Power Planning Council, Draft Fish and Wildlife Program 26-27 (Sept. 16, 1982); P. WANDSCHNEIDER, *supra* note 21, at 40.

of the rights and obligations of B.C. Hydro as it faced this task. Ultimately, technical personnel found a common sense solution to this problem in a joint sharing of the cost of this reservoir filling. In the course of this solution Canada was able to export some of its surplus energy to make up for American losses attributed to the Revelstoke impoundment.

Not all of the difficulties faced by the entities, incidentally, have been as cleanly solved as this one. The responsible technical staffs have faced some real problems stemming from the complexity of parts of the treaty. Annex B, for example, raises issues over which the technically most sophisticated sometimes disagree. Further, the task of both entities has been complicated by a notable loss of "organizational memory," as most of the key personnel in the formative years of the treaty who incorporated many informal understandings into its drafting, have left government, retired, or died.[44]

It is this writer's understanding that the power surplus in the American system during the first half of the 1980s helped its management respond to the requirements of the water budget already referred to.[45] When in a few years time this surplus has evaporated, however, the trade-off between operating there concurrently for fishery enhancement and power production is likely to be a difficult one. It is not surprising, consequently, that approaches have already been made to B.C. Hydro from the United States seeking a modification of Canadian storage releases to accommodate in part these new requirements downstream of United States domestic law. The Canadian Section of the Permanent Engineering Board has insisted that the treaty be adhered to, not least in the calculations inserted into the Assured Operating Plan as a guide to the two entities and as a base for calculating the downstream power entitlement. The current Canadian position seems to be that if room can be found within the more up-to-date Detailed Operating Plan for the Canadian storages to accommodate some of the water budget requirements this will be done, but only if it is possible to still adhere to the Assured Operating Plan in the process. Exchanges on this issue can be expected to continue.

One of the most widely debated sections of the Columbia River Treaty a quarter century ago (Article XIII) provides that Canada, which in effect means British Columbia, has the right to divert successively larger portions of the Kootenay River north into the Columbia twenty, sixty, and eighty years after the treaty's ratification. The fact that the first of these deadlines was passed in 1984 without any action being taken by Canada

44. For example, on the U.S. side: D. Lewis, C. Luce, and the late B. Goldhammer. On the Canadian side: G. Kidd, G. Robertson, and the late A. Paget.

45. *See* Sheets, *Roles and Responsibilities of the Northwest Power Planning Council*, in THE POLITICS AND ECONOMICS OF COLUMBIA RIVER WATER 32-35 (C. Broches & M. Spranger eds. 1985).

reflects both the heightened sensitivity to environmental matters in British Columbia already referred to, and a long-standing lack of enthusiasm in its government—at both the technical and political levels—for "acting on" the upper Kootenay in Canada at all. The diversion concept, of course, was a crucial component of General McNaughton's plan for Columbia River development.[46] At this stage, it is impossible to predict whether those in political power in British Columbia will want to take up the first, let alone the other diversion options just mentioned. The Mica and Revelstoke powerhouses have been engineered in such a way as to make possible their handling the augmented mainstream flow which diversion would involve.

Reference has already been made to the sale for thirty year periods of the Canadian downstream power entitlement. Crucial to this transaction was the determination of the amount of power actually being sold.[47] As the sale was for the prepaid sum, before the event, calculations of the benefit being sold (in capacity and energy terms) were required, and finally agreed upon. Although the sale itself was the subject of much controversy in British Columbia twenty years ago, monitoring it has attracted limited public attention there in recent years. On the other hand, in B.C. Hydro and a few Canadian federal and provincial government offices, there has been a good deal of interest in the relationship between the before-the-event calculation of the power sold, and the after-the-event calculation annually of the declining power benefit actually realized. Until the mid-1970s, the two sets of figures were remarkably close together. Since that time, however, the downstream power benefit produced has moved ahead of that earlier estimated, and paid for—in some years as much as 30 percent! This discrepancy, of course, is a reflection of the recognized risk in a prepaid sale; it could have varied the other way. Had the evolution of the Pacific Northwest's power system from a primarily hydro towards a primarily thermal base moved more rapidly than it did, the downstream power benefit, in treaty terms, presumably would have declined more rapidly.

In any case, the extent to which the downstream power benefit has not declined, when combined with the great increase over the last twenty years in the value of electrical energy, has produced a major change in the significance of the Canadian power entitlement which will remain between 1998–2003, the end of the thirty year sale, and 2024, the formal expiry of the treaty. Initially at least this entitlement will be roughly comparable to the planned output of B.C. Hydro's deferred Site C project on the Peace River, which project in the early 1980s was expected to

46. Interview with A. McNaughton (Sept. 10, 1964). *See also* McNaughton, *The Proposed Columbia River Treaty*, 18 INT'L J. 148, 160 (1963).

47. *See* THE COLUMBIA RIVER TREATY AND PROTOCOL, *supra* note 6, at 98-101.

involve a $3 billion investment. In recent years B.C. Hydro's planning has assumed that the Canadian entitlement would be returned to Canada after the present sale ends, not least because by the dates in question its own domestic load will be large enough to absorb what will be still a sizeable block of power.

The long lead times now associated with power system management are such that international negotiations on the use of the Canadian entitlement will have to begin well before 1997, probably before the end of this decade. At this point in time one can only speculate on the prospect that all or part of the remaining entitlement might be the subject of another sale. What is certain is that if such a possibility did emerge, British Columbia would be very unlikely to accept any agreement which did not contain provision for periodic adjustments in the price, and possibly also periodic adjustments and revisions of the quantum of power being sold.

It is quite possible to envisage a whole range of organizational responses to the question incorporated in the title of this paper—"Where do we go from here?" Our answer to it could well be that there will be few, if any, formal changes to the treaty and its associated agreements during the remainder of the treaty's life. Under such circumstances British Columbia would be quite free to take back the power entitlement after 1998–2003, to insist on operating its storages within the constraints of the annually revised Assured Operating Plans, and to be relatively inflexible in adapting its storage releases to accommodate the American desire for fishery enhancement flow augmentation. The Permanent Engineering Board, at least its Canadian section, and the government of Canada could well support the province in such a stand, not least because of its effect on maximizing the residual downstream power entitlement. As well, although this writer hopes this does not happen, it is at least conceivable that the province might invoke first stage Kootenay diversion rights. Indeed, it has the option of moving to the second stage, a roughly 75 percent Kootenay diversion, in 2024.

A related consideration to keep in mind when reflecting on this scenario is that neither the Department of External Affairs in Ottawa nor the government of British Columbia has forgotten that during international negotiations in 1960 and in 1963, the prospect was raised that a Canadian province might not be prepared to live up to the provisions of an international bargain to which, indirectly, it was a party.[48] The determination in Canada to prove otherwise, which is very real, tends to reinforce both a close adherence to the provisions of the treaty and a feeling there that, if modifications to it are to be advanced, they will have to come from the other side.

48. N. SWAINSON, *supra* note 7, at 268-69.

At the other extreme, of course, it is always possible that the treaty and its related agreements might be reworked in the context of a formal re-opening, involving a completely new set of international negotiations. The chance of this happening, however, appears to be limited, in view of the fact that neither country is calling for it. The point has already been made that, in the changed world of the last two decades, both countries do appear to have derived significant benefits from the treaty, and their entities have been able to resolve a good many, if not all, of the problems which have emerged in the course of its implementation. Some informal use of a forty year period of stream flow records for the river's management (where the treaty called for using a twenty year record and the protocol for a thirty year period), and B.C. Hydro's willingness to schedule storage releases on a weekly basis (where the treaty only requires monthly scheduling), are but examples of modifications in practice which seem to have been agreed upon to make the cooperative system work.

It should be noted that this writer's discounting of a major treaty re-opening may improperly evaluate an inbalance in the role which the Columbia River has come to play over the last decade in the political systems of the Pacific Northwest. As the Columbia has moved well down political agendas in Canada and British Columbia, with the result that the key decisions concerning it in Canada since 1964 have been taken by B.C. Hydro and a few government officials, quite the reverse has happened in the United States. The 1980 Power Planning Act has opened up the control and management of the American watershed to a broad range of interested groups,[49] and to enhanced political direction. All that can be said at this point about complete renegotiation is that if it did occur, the evidence suggests that another time around Canada's identification of its goals would not be clouded by a federal-provincial jurisdictional contest. In its handling of international negotiations involving provincial proprietary rights, the Canadian political system appears to have matured considerably over the last twenty years.

If a major treaty re-opening is unlikely, it still remains true that both Canada and the United States have good reason to seriously consider some modifications to the treaty and its associated agreements—at least in the context of a range of bargains which, in fact, could move well beyond the Columbia itself. The modifications could be incorporated in an exchange of notes, perhaps a further protocol, and some supplementary agreements. A new sale of downstream entitlement power could be part of such an agreement. So could a formal deferment or abandonment of Canada's Kootenay diversion options—with significant implications for

49. *See* Sheets, *supra* note 45, at 45-80.

the future operation of downstream projects on the Kootenay River, both in the United States and Canada. Some Canadian storage operation to help with the United States fishery enhancement experiment could be another component, perhaps facilitated in the short run by the current power surplus in British Columbia. Still another provision in such an agreement, for example, might authorize the scheduling of Canadian storage releases (currently weekly, although the treaty in fact requires monthly releases) on a daily basis. This has been requested by the United States entity, but not agreed to, as it appears to create a new form of downstream power benefit not identified in the treaty. Agreement upon such scheduling is at least conceivable, however, if the new form of benefit were recognized and shared.

To this observer, the primary incentive for British Columbia's participation in adjustments of the sort just suggested would be the making available to it of an opportunity to export some of its current surplus, or prospective electrical energy. This would have to go to the American Southwest. Both the Canadian and American Columbia River entities share an interest in servicing this market which, in practical terms, may well mean encouraging and facilitating an expansion of the inter-tie linking it with the Pacific Northwest. Not only does B.C. Hydro have an immediate surplus of energy, but in the short run it could build ahead of domestic demand its two remaining Columbia River projects, a High Arrow Dam powerhouse, and a dam at Murphy Creek. For longer term exports British Columbia could also turn to some superb underdeveloped hydro power sites on its northern rivers, such as Site C on the Peace River. Until 1985 no government in the province was prepared to follow the example of New Brunswick, Quebec, and Manitoba in actively seeking and successfully negotiating long-term sales of large blocks of completely renewable hydro electric energy.[50] The most that was done in the early 1980s was to approve a sizeable three year sale to Los Angeles, which actually has been blocked by the lack of access to the required transmission facilities.[51] However, in August 1985 British Columbia's Premier W.R. Bennett announced that his administration would be prepared to approve long-term power exports if a satisfactory firm contract could be obtained.[52] He has since become actively involved in pursuing

50. For a succinct reference to the export of electrical power from Canada to the United States, *see* ECONOMIC COUNCIL OF CANADA, CONNECTIONS: AN ENERGY STRATEGY FOR CANADA 94-96 (1985). For data on the magnitude of the exports from particular provinces, see Statistics Canada, *Electrical Power Statistics* (July 1985), 8-9 regarding New Brunswick and Quebec, 10-11 regarding Manitoba.

51. *See* B.C. HYDRO AND POWER AUTHORITY, NATIONAL ENERGY BOARD REASONS FOR DECISIONS: IN THE MATTER OF APPLICATION UNDER THE NATIONAL ENERGY BOARD ACT (July 1984).

52. His announcement was made at the official opening of the Revelstoke Dam on the Columbia. *See* Vancouver Sun, Aug. 29, 1985, at 1.

such an agreement. All that can be said here is that a major export sale requiring increased access for Canadian power to the Pacific inter-tie would involve complex bargaining, which could lead both to modifications to the Columbia Treaty operation, and to the increased coordination of the adjacent Canadian and American power systems.

There is another set of speculations to mention in conclusion, assuming some modification of the arrangements bearing on the shared management of the Columbia resource. These concern the strategies which, in the light of earlier experience, the two countries might utilize to acquire the greatest possible insight concerning their ultimate goals, the consequences of acts of cooperative and non-cooperative behavior, and the ways of preserving as much operational flexibility as possible into an uncertain future. The ethos of our age suggests that these objectives in part might be sought via massive exercises in public participation. On the other hand, the implications of such a process are daunting, not least because of the complexities of so many of the issues involved, and suggest that this time the two countries might be wise, initially, to let the technical staffs currently serving the two entities shape the basic dimensions of a reasonable international bargain. Ultimately, as accommodation between conflicting values is required, the politicians would have to be involved. Identifying the mix of strategies actually utilized or considered will be one more reason to continue to examine this on-going, far from perfect, and yet not unsuccessful example of cooperative international river development.