

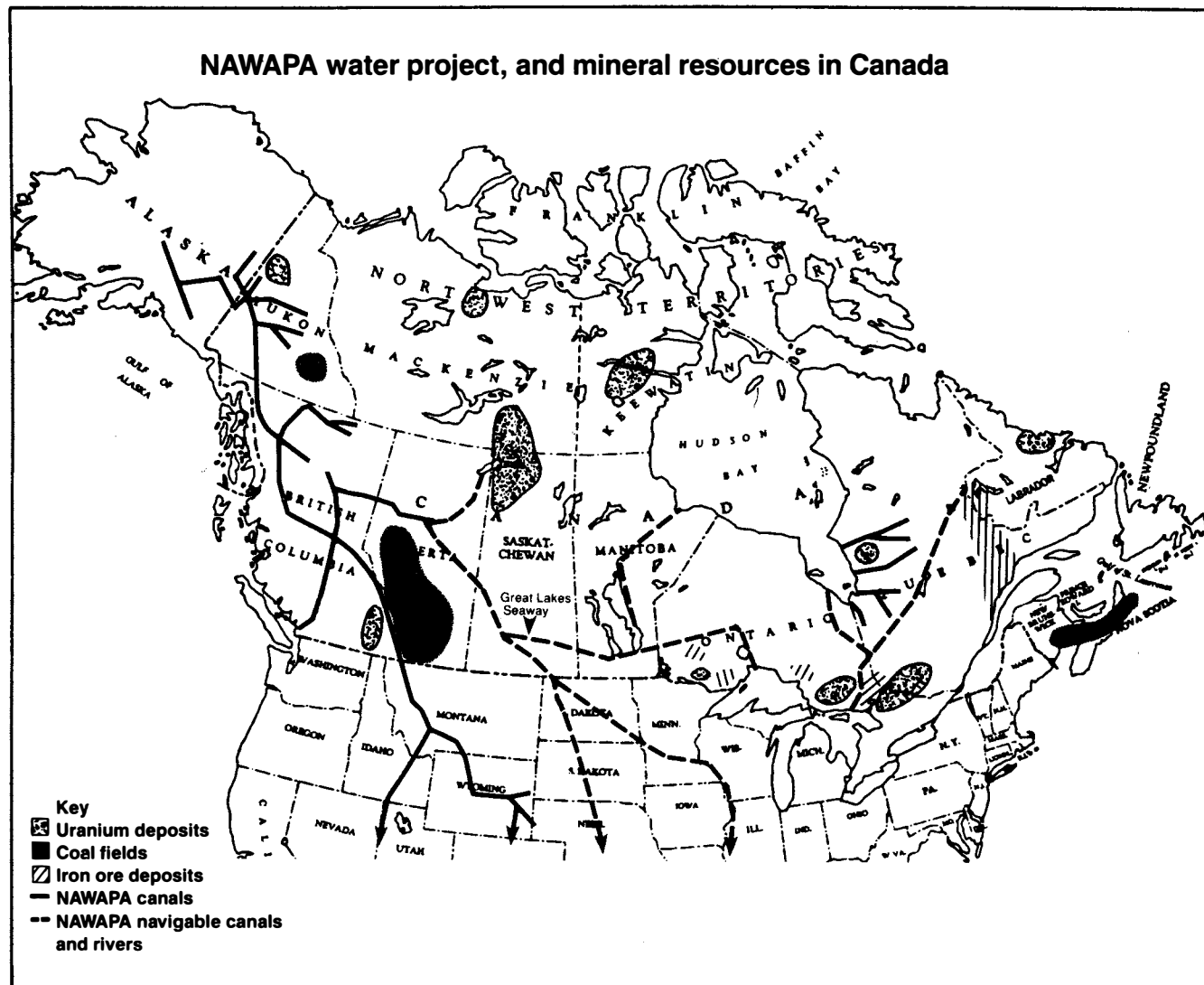
# Developing Canada's economic potential: the NAWAPA role

by Sylvia Barkley

Today, Canada is in the grip of a depression, with official unemployment close to 1 million (8.6 percent), net profits down 20 percent from last year, and soaring interest rates. Yet beneath this, Canada maintains its potential for enormous economic growth, a potential which has never been truly tapped. There exists a method for reviving the Canadian economy, bringing together the dispar-

ate regions of the country, and at the same time giving the United States and Mexico a much-needed economic boost. That method is embodied in the North American Water and Power Alliance plan.

NAWAPA has been decried by Canadian officials as a "monstrous scheme" selling Canada's birthright to the rapacious forces of the United States. In fact, the



plan was originally devised by the California Parsons Company engineers to benefit all three North American countries, and *EIR*'s economic analysis confirms that it would have this effect.

NAWAPA provides 250 million acre-feet of usable water per year, 20 times the annual consumption in Canada. This water would be collected from Alaskan and northern-flowing Canadian rivers, and from U.S. sources in the northern Rocky mountains.

The benefits for Canada can be divided into three categories: power, irrigation, and transportation. Of these, Canada has been most energetic in developing hydro-power, has done little with water for agriculture, and almost nothing with water transportation since the St. Lawrence Seaway was completed. The development of hydro-power in northern Quebec, on the other hand, has already far exceeded the goals set in the NAWAPA project with a capacity of 5.3 megawatts. Similar large-scale construction is planned for British Columbia, although there the designers of NAWAPA had estimated the power-generating capacity at a hefty 15 megawatts.

Agriculture will be a major beneficiary of NAWAPA. This is connected to transportation, since water is the ideal means of transport for both bulk agricultural products and for fertilizer. The direct benefits from irrigation and water management can be considered together.

### **Irrigating the prairies**

The benefits which would be felt in the prairie provinces from irrigation were spelled out in 1966 by a researcher at the Winnipeg, Manitoba, Research Station, Dr. Hannah, who estimated yield increases from adequate irrigation as averaging 100 percent for wheat. Although current yields have increased, the "irrigated" values he cites are still a 50 percent increase over those achieved today.

NAWAPA calls for the provision of 30 million acre-feet of water for irrigation in Canada, most of it in the prairies. Due to the cool, short growing season, this amount of water can irrigate approximately 22.5 million acres. At present, the total irrigated area in Canada is barely over 1 million acres. Using the conservative estimate of a 50 percent increase in yield on this acreage, this represents the potential for an extra 9 million tons of grain, which is half of the *total* current wheat production of the three prairie provinces.

There is also little doubt that NAWAPA would reverse Canada's present *laissez-faire* policy towards flooding. In 1979, for example, over \$30 million (Canadian) damage was inflicted on an area near Winnipeg by a single flood. This area is one targeted by the Parsons Company for improved flood control through NAWAPA.

A further indirect benefit would come through the stimulation of the farm machinery industry. In addition

to direct spending on irrigation equipment, farmers are freed from the fear of a severe drought, such as occurred in 1979, and can therefore justify more capital-intensive operation *in general*. This is simply one example of the process whereby infrastructure investments generate productivity, the ability to produce wealth, as well as any direct profits they may yield.

The benefits of NAWAPA are not free, of course, and the costs are high. Canada's share of the overall construction bill would be between \$50 and \$150 billion (U.S. 1981), and some 50 million acre-feet of Canadian water would be diverted outside the country. But the costs would be counterbalanced by the stimulation from such massive, high-technology infrastructure projects.

### **Transportation capabilities**

The effect of NAWAPA on the Canadian transportation infrastructure is not easy to quantify, but some preliminary estimates can be made, based on the existing transfers of high-bulk commodities between Saskatchewan and Manitoba in the west and Ontario and the eastern provinces. In 1978, over 13 million tons of grain was moved into Ontario, a transportation load of over 10 billion ton-miles, where most of it was transferred to water transport. The Great Lakes Seaway, an integral part of the NAWAPA plan from its conception, would allow transshipment of the grain to be done much closer to the point of production. If we assume a saving of 25 cents per ton-mile (a very conservative assumption, since U.S. studies, such as estimates for the Tennessee-Tombigbee projects, assumed double that rate), on half the ton-mileage, the net saving to the economy would be \$1.25 billion.

Fertilizer imports partially balance the traffic in grain and other agricultural products moving out of the western provinces. Canada bought over three million tons of phosphate rock for fertilizer production from the United States. Florida is the major area for phosphate mining in the United States; the Mississippi River and projected Great Lakes Seaway would connect Florida directly to the Canadian prairies.

In addition, Canadian potash exports to the United States could grow significantly. At this time, Canada produces potash in Saskatchewan, supplying almost the entire requirements of the northern and mid-western part of the United States, from North Dakota to Ohio. If NAWAPA were built as projected, water transport connections between Saskatchewan and the Mississippi through the Great Lakes Seaway would make areas of the South and Southern Great Plains accessible to Canadian potash producers. In 1979, the total demand for potash in Texas, Louisiana, Mississippi, and Florida was over half a million tons, of which Canada supplied only 185,000 tons.

The most significant aspect of transportation devel-

opment that NAWAPA would contribute would be improvements in Canada's internal water transport network. At present, Canada's iron and steel industry is hampered by lack of cheap transport facilities between the coal fields of Alberta and the iron ore deposits in Labrador. A barge canal from Labrador to Lake Huron, which was originally designed in conjunction with, rather than in competition with, the hydro-electric development of James Bay, would allow efficient transport of the area's rich ore to the coal-bearing areas of the Maritime provinces and of Alberta. Most important, the development of a steel industry in the western provinces would expand the industrialization of Canada, which is now overly concentrated in Ontario.

As the map shows, NAWAPA would also make existing uranium deposits much more accessible to industry. The processing of uranium is an extremely high-technology operation. The effect of the exploitation of the uranium fields would be to move technical capabilities northward, breaking the pattern of border-strip development which has prevailed in Canada to this point. In 1961, almost three-quarters of the Canadian population lived within 200 miles of the border, and less than 5 percent of Canadian land area was officially classified as occupied land. Given the high value of uranium, exploiting of the deposits will provide impetus for developing prefabricated modular units for large-

scale, complex industrial processes.

In addition, barge canals, leading to the western shore of Hudson Bay and the southern tip of James Bay will have a similar effect on minerals development. These canals will allow access to known uranium, nickel, and copper deposits, and more importantly, the same type of industrial and population expansion which is being done in Siberia could be done in Canada.

One problem with the NAWAPA plan is the lack of any connection to the Pacific. The Parson proposal originally included a tentative proposal for adding barge-transport capabilities to the westernmost leg of NAWAPA. However, the Fraser River, the natural pathway for such a canal, is very steep and is currently being fully developed for hydro-power. A possible alternative is the construction of a shorter, lower-altitude canal across the northern section of British Columbia, connecting to the existing port facility at Prince Rupert. Although this would be an enormous project, the remote location would allow the use of Peaceful Nuclear Explosives, which are extremely efficient at moving large quantities of rock. Although the necessary preliminary studies for this plan have not yet been done, it would provide the one necessary portion missing from the currently projected NAWAPA project, and would be the true technological challenge which could act as a science "driver" to the entire economy.

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