CHAPTER 12

The Natural Resource Sectors

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Agriculture

Profile

It is not easy to draw a profile of Canadian agriculture. The Canadian farmer is the Prairie wheat grower with over 1000 hectares of land, hundreds of thousands of dollars' worth of equipment, and annual sales of more than $250 000; the Canadian farmer is also the small vegetable grower or orchard operator with 40 hectares and sales of a few tens of thousands of dollars. Agriculture varies almost as much within a given region of Canada as it varies from one region to another. What is common to Canadian agriculture in all of its forms, however, is the characteristic production unit, the family farm. The last Census indicates that in 1981, 87 per cent of the 318 000 farms in Canada were operated by sole proprietors and 9.3 per cent were partnerships. Fewer than one-half of 1 per cent were owned by corporations whose shares were not held by a single family. Two-thirds of operators (based on average farm size) owned all of the land they farmed. These figures were much the same in 1971. As Table 12-1 shows, the largest farms are in Saskatchewan and Alberta, and the smallest are in Newfoundland and central Canada.

In 1982, the agriculture sector contributed 3.3 per cent of Canada's gross domestic product (GDP); the figure was not much different in 1971. The importance of agriculture varies greatly from province to province. In 1982, agriculture's share of gross provincial product (GPP) was highest in Saskatchewan (15 per cent) and Prince Edward Island (10 per cent) and lowest in Newfoundland (less than 1 per cent). During the 1970s, agriculture grew in relative importance in Prince Edward Island, and to a lesser extent, in British Columbia, but declined in nearly all other provinces.[1] Agriculture remains the economic basis of many rural communities all across Canada which serve as supply, service and distribution centres for the industry.

Primary agriculture currently employs 476 000 people, a figure that represents less than 5 per cent of total national employment. The agri-food system as a whole, however, employs 1.45 million Canadians and accounts for 15 per cent of total employment. For example, the food-processing and beverage industries employ 255 000 people, the food service industry employs 359 000, and food stores currently employ 221 000. A number of other important industries, such as rail and water transportation, depend to a significant extent on the agri-food sector.

Figure 12-1 summarizes the commodity composition of Canadian agriculture in 1984. Grains and oil-seeds together accounted for over one-third of total farm cash receipts of $20 billion. Cattle and dairy receipts made up a second third. The other important commodities are fruits and vegetables, hogs, and poultry and eggs. Production of grains, especially wheat, and oil-seeds is concentrated in the Prairie provinces, while corn production is concentrated in Ontario and Quebec. Soybeans are grown only in Ontario, dairy production is highest in Ontario and Quebec, and fruits and vegetables are grown chiefly in southern Ontario, the Fraser and Okanagan valleys of British Columbia, and Nova Scotia. Prince Edward Island and New Brunswick are important potato producers, Alberta and Ontario are important producers of beef, and Quebec and Ontario produce significant quantities of pork. (See Table 12-1.) Ontario is Canada's premier agricultural province, with an annual value of farm output of about $5 billion. Saskatchewan, Alberta, and Quebec, in that order, are the next-largest producing provinces by value.

Canada is self-sufficient in many agricultural sub-sectors: grains, oil-seeds (except soybeans), most dairy products, potatoes, and livestock and meat products (except lamb). There is, however, as Table 12–2 shows, a substantial trade deficit in fruits and vegetables. This deficit is partly the result of an increase in demand of 11 per cent per year, on average, over the past decade for products not grown in Canada; these include citrus and tropical fruits, coffee, and cocoa. But it is also the result of an 8-per cent average annual increase in imports of products that are grown in Canada. For all non-tropical fresh fruits and vegetables, the import share is two-thirds of Canadian consumption.

The bulk of Canada's output of all agricultural commodities, except grains and oil-seeds, is absorbed by our domestic market. The net trade balance on grain amounted to $4.8 billion in 1983. That year, Canada enjoyed a net surplus in all agricultural trade of $3.7 billion. The agricultural sector was thus responsible for more than one-quarter of our country's total trade surplus in all commodities. (See Table 12-2.)

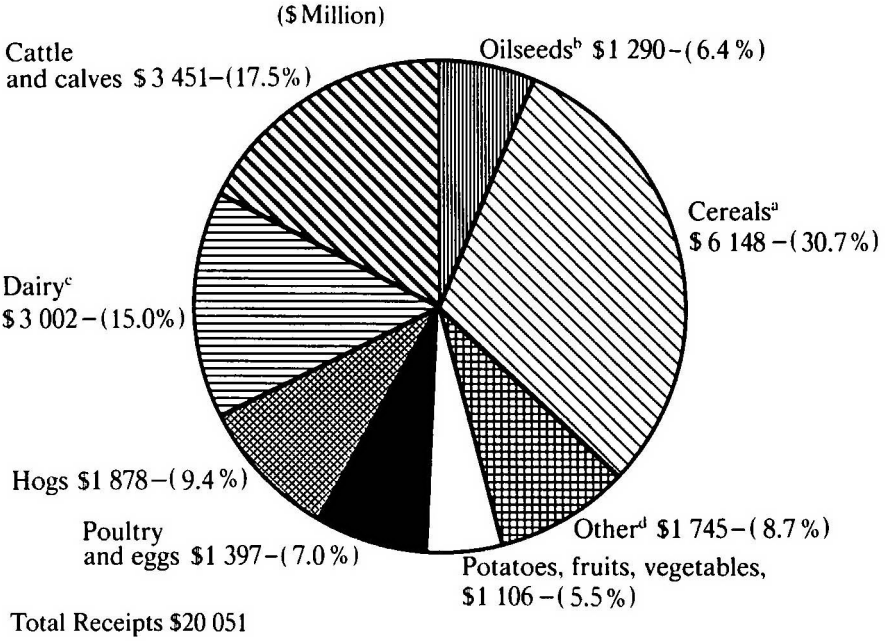
Canada's share of the world market in grains and oil-seeds declined somewhat during the late 1970s. The decline was a function of reduced production, bottlenecks in the grain-transportation system, and concentration on traditional but relatively slow-growing markets in the developed world. The use of export subsidies and aggressive marketing techniques by competitor countries also challenged our position. Canadian grain exports have rebounded during the 1980s, thanks, in part, to improvements in the Canadian grain-handling system. However, a more important factor in the

TABLE 12-1 Structure of Agriculture by Province

Province	Number of Farms	Average Farm Size (hectares)	Farm Cash Receipts 1984 (million $)	Top Three Commodities by Value of Farm Cash Receipts		
Newfoundland	679	49	40.9	Poultry and eggs	Dairy	Hogs
Prince Edward Island	3 154	90	186.7	Fruit and vegetables	Dairy	Cattle
Nova Scotia	5 045	92	261.2	Dairy	Poultry and eggs	Fruit and vegetables
New Brunswick	4 063	108	229.4	Fruit and vegetables	Dairy	Poultry and eggs
Quebec	48 144	79	3 073.2	Dairy	Hogs	Cattle
Ontario	82 448	73	5 284.3	Cattle	Dairy	Small grains (excluding wheat)
Manitoba	29 442	263	1 926.4	Wheat	Cattle	Small grains
Saskatchewan	67 318	394	4 221.2	Wheat	Cattle	Small grains
Alberta	58 056	348	3 863.8	Cattle	Wheat	Small grains
British Columbia	20 016	123	964.5	Dairy	Fruit and vegetables	Poultry and eggs
Canada	318 361	214	20 051.6	Wheat	Cattle	Dairy

Sources: Canada, Agriculture Canada, *Handbook of Selected Agricultural Statistics 1984* (Ottawa: Minister of Supply and Services Canada, 1984); and Statistics Canada, *Farm Cash Receipts* (December 1984), Cat. No. 21-001 (Ottawa: Minister of Supply and Services Canada, 1985).

FIGURE 12-1 Canada's Farm Cash Receipts by Major Category, 1984



a. Includes wheat, oats, barley, rye, corn, Western Grain Stabilization Payments, Canada Wheat Board Payments, crop insurance payments, Canada Wheat Board cash advances and liquidation of deferred grain receipts; minus Canada Wheat Board Cash Advance Repayments and deferred grain receipts.

b. Includes flaxseed, canola and soybeans.

c. Includes dairy supplementary payments.

d. Includes sheep and lambs, wool, honey, fur farming, miscellaneous livestock, forest and maple products, provincial income stabilization program, deficiency payments, supplementary payments, floriculture and nursery, tobacco, mustard seed, sunflower seed, clover and grass seed, hay and clover, dry beans, dry peas, miscellaneous crops, net non grain cash advances.

e. Addends do not sum to exactly this total because of rounding.

Source: Statistics Canada, *Farm Cash Receipts*, No. 21-001, February, 1985, (Ottawa: Minister of Supply and Services Canada, 1985).

growth of exports has been increased sales to the centrally planned economies, which now account for over 50 per cent of our wheat exports and 35 per cent of our barley exports. Because of the European Community's (EC) common agricultural policy (CAP), exports to Europe and the United Kingdom have declined.

In 1982, Canada's production of wheat, amounting to 27 million tonnes, was exceeded by only four other nations: the Soviet Union, the United States, China, and India. Canadian wheat exports currently account for approximately 22 per cent of world trade, but other nations have lately emerged as significant competitors. The EC, for example, has increased its world-market

TABLE 12-2 Net Trade Balance For Agricultural Commodity Groups

	(millions of constant 1981 $)				
	1971–75 (average)	1976–80 (average)	1981	1982	1983
Grain and grain products	3 478	3 706	4 827	4 796	4 813
Oil-seeds and oil-seed products	272	331	498	332	312
Animal feeds	102	128	136	123	150
Animals, meat and other animal products	14	241	400	728	558
Dairy products	30	39	115	162	118
Poultry and eggs	(9)	(46)	(17)	(30)	(33)
Fruits and vegetables	(1 036)	(1 408)	(1 487)	(1 388)	(1 319)
Other	(1 125)	(1 398)	(1 299)	(872)	(844)
Total agricultural commodities	1 726	1 594	3 173	3 851	3 715
All commodities	1 029	2 424	1 855	12 665	11 108

Sources: Canada, Agriculture Canada, *Handbook of Selected Agricultural Statistics 1984* (Ottawa: Minister of Supply and Services Canada, 1984); and R. Daviault, *Selected Agricultural Statistics for Canada* (Ottawa: Agriculture Canada, Economics Branch, 1976).

share for wheat from 8 per cent in the early 1970s to nearly 16 per cent in recent years; France alone currently accounts for more than 10 per cent of world wheat exports.

Although Canada is still the world's largest producer of barley (14 million tonnes in 1982–83), our share of world exports has declined over the last decade from about 27 per cent to 23 per cent. Meanwhile, the Community's share of exports has risen from 45 per cent to 52 per cent. Oil-seeds, particularly canola, have become an important Canadian export (2 million tonnes in 1981–82). Canola accounts for about 7 per cent of total world oil-seed output, while soybeans constitute over one-half of world oil-seed output. Canada's position as the world's largest producer of canola has recently been taken over by China: our share of world production declined from about one-third in 1979 to one-sixth in 1982–83.

Canadian exports of live animals, beef, and pork are also significant. The United States is still Canada's major market: Americans buy 70 per cent of our pork exports and 90 per cent of our beef exports. Since 1970, Japan has become increasingly important as a market for Canadian meat, especially for pork. Exports to Japan fluctuate considerably, and therefore various provincial hog-marketing boards and private processors have been attempting to develop exports to Japan through long-term contracts.

Prospects

Global Projections

Global projections of future prospects for agricultural production vary with the assumptions made about population growth, increases in productive capacity, income and price elasticities of demand, and the agricultural and

commercial policies of both importing and exporting nations. The *Global 2000* report to the President of the United States, the United Nations Food and Agriculture Organization's (FAO) *Agriculture: Toward 2000*, and other reports conclude that developing countries will continue to accept large increases in agricultural imports over the next few decades, provided that they can finance them. According to the FAO's projections, agricultural imports by developing nations will grow at a rate of 3.8 per cent annually to 2000; the average annual rate of increase between 1961 and 1980 was 5.7 per cent.[2] It is expected that the centrally planned economies will depend even more heavily on grain imports, although the change will be slower than it has been in the past.[3] The Soviet Union's grain imports are expected to level out. Various studies indicate that by 2000, North America will be the largest available source of imported cereals and oil-seeds for the developing world.

Table 12-3 shows recent projections of growth rates of world consumption and production to 2000 and 2020 for the major agricultural commodity groups. For cereals, the 1.8 per cent expansion rate to 2000 represents a considerable decline from the 2.6 per cent annual growth rate of the 1970s. The projected 2.1 per cent growth rate for oil-seeds is about one-half the rate of the 1970s. For the period from 2000 to 2020, the expected rates of growth are lower again. It is expected that most of the twenty-first/century increases must come from improved yields, rather than from increased land use.

Opinions vary about price projections of agricultural products, and recent projections tend to be more conservative than those made a few years ago. Some observers foresee growing scarcities of food and a concomitant rise in real food prices. The *Global 2000* report and the subsequent Canadian "Agri-food Strategy" predicted that real food prices would rise by about 1 to 2 per cent per year to 2000.[4] Other observers suggest that real prices for grains could continue their historical decline.[5] More recent predictions by Agriculture Canada foresee that real prices will remain much as they are or, possibly, will decline by up to 1 per cent per year to 2000.[6] The most certain prospect is that price instability will be common, as it has been in the past.

TABLE 12-3 Projections of World Production and Consumption, 1980 to the Years 2000 and 2020

	(annual compound percentage growth rates)	
Products	**1980–2000**	**2000–2020**
Cereals	1.8	1.4
Oil-seeds	2.1	1.9
Meats	2.4	2.0
Milk products	1.5	1.1

Source: Kenneth R. Farrell, Fred H. Sanderson, Trang T. Vo, and Michael F. Brewer, "Meeting Future Needs for United States Food, Fiber and Forest Products", in Joint Council on Food and Agricultural Sciences, *Reference Document: Needs Assessment for Food and Agricultural Sciences* (Washington, D.C., 1984).

Projections for Canada

How will these projected global developments affect Canadian agricultural prospects in international markets? Commissioners heard a variety of views on this question. The Alberta Wheat Pool, for example, was cautiously optimistic:

> *In the case of the prairie provinces: a) The outlook for increasing volumes of grain exports continues to be bright. b) The outlook for meat product exports is modest. c) The prospects for vegetable oil exports are promising in the long run, though undefined in this decade.*
>
> *Considering these circumstances, it is clear that Canada must maintain a viable economic climate for the production, handling and exporting of grain. Steps should be taken to protect the infrastructure now in place which will permit western Canada to be an effective world trader in vegetable oils. The future of livestock feeding, meat processing and exporting deserves immediate and special study in order to determine a recommended course of action from a national standpoint.* (Alberta Wheat Pool, Brief, October 24, 1983, p. 6.)

The Christian Farmers Federation of Ontario (CFFO) expressed a much more pessimistic view:

> *The CFFO does not share the optimism of the Federal government's agri-food strategy: Challenge for Growth, published in July 1981. We see around us mounting difficulties such as soil degradation, the industrialization of agriculture, erratic international markets and deteriorating food quality.*
>
> *We do not expect major increases in our agri-food production because of the limits of our foodland resource, the growing cost of our technology, and the disturbing side-effects of many of our current farm practices.*
>
> *Exports are an increasingly unreliable solution to Canadian food marketing problems. Export markets are becoming more unstable and are often dependent upon some form of export subsidy . . .*
>
> *A Canadian strategy should be based on import replacement, resource stewardship, a family farm structure and nutritional improvements.*
>
> (Christian Farmers Federation of Ontario, Brief, December 6, 1983, p. 2.)

Projections of annual growth of global grains trade to 1990 and 2000 vary between 1.2 per cent and 5 per cent: a wide range indeed! Whatever projection proves correct, it appears that grain exports will not expand as rapidly in the 1980s as they did between 1960 and 1980.[7] The Canadian Wheat Board anticipates, as Table 12-4 records, that Canadian grain and oil-seed exports will expand to 37 million tonnes annually by 1990. This projection appears to be not unreasonable: in 1983–84, exports of wheat alone already amounted to nearly 22 million tonnes, less than 1 million tonnes short of the 1990 target, and these levels were reached even though much of the world was experiencing a recession. Nevertheless, to achieve the exports projected to 2000 will require a substantial effort to bring new land under cultivation, reduce the land presently put into summerfallow, and improve yields.[8]

Grain and oil-seeds projections to the year 2000 are more tentative. The expansion of wheat exports to 44 million tonnes, projected by Agriculture

TABLE 12-4 Canadian Grain and Oil-seeds Exports, Actual and Projected

	(millions of tonnes)			
	Actual		Projected	Projected
	1978–79[a]	1983–84	1990[b]	2000[c]
Wheat	13.0	21.8	22.0	44
Coarse grains	4.1	6.8	8.5	12
Oil-seeds	2.8	2.1	6.5	N.A.

Sources: Historical numbers: Statistics Canada, *Cereals and Oilseeds Review* (Ottawa: Minister of Supply and Services Canada, 1984); and W.E. Jarvis, "Market Demand and Production Requirements for Prairie Grain", in Canadian Wheat Board, Advisory Committee, Prairie Production Symposium, October 1980; and Stewart Borland and Gerald Robertson, "A Sectoral View of the Longer-Term: Agriculture", in *Long-term Economic Prospects for Canada: A Symposium*, vol. 23, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985).

Note: N.A. = not available.

a. Exports at the time the 1990 projection was initially set.

b. 1990: Jarvis.

c. 2000: Borland and Robertson.

Canada, implies an annual growth rate from 1990 to 2000 of 7.5 per cent. The estimate for barley assumes a more modest growth rate of 3.5 per cent. Such exports, even at current nominal prices, would mean an increase of 70 per cent by the turn of the century over 1983 levels in the value of these agricultural exports.

In general, future growth in agricultural trade surpluses will occur in the traditional wheat and course grain sector, and to a lesser extent, in the canola and red meats sectors. We can expect to import increasing amounts of fruit and vegetables, and to face serious competition in pork, poultry, and eggs. In order to take advantage of the opportunities – or to beat the competition – we must improve the performance of Canadian agriculture. In spite of Canada's past success as a producer and exporter of agricultural commodities, there is some reason to be apprehensive about our ability to meet these challenges adequately.

Issues and Recommendations

The Future of the Family Farm

The family farm is at one and the same time an economic unit and a social unit. It is together a business, generating a family income and a life style generating human qualities of individual initiative, co-operation and leadership . . . It is a farm in which the decisions regarding production and marketing are made by the family which operates the farm. The household is the centre of the farming operation, providing the bulk of the labour, making the farm decisions and interacting with the community.

(Family Farm Foundation of Canada, Brief, October 24, 1983, p. 2.)

The traumatic economic events of the 1980s have increased Canadians' concern about the continued viability of the traditional production unit, the family farm. The Family Farm Foundation described the dimensions of the problem:

> *Family farms have [proved] themselves extremely efficient producers of agricultural products. Despite weather, changing technology, economic stress ranging from poverty to prosperity, the family farm has stood the test of time over 80 years and indeed has led the way in many, many areas.*
>
> *Today, the family farm is being threatened. Inflation, the price of farm inputs, high interest rates, [and] falling commodity prices ... are placing serious economic and social strains on the family farm. The family farm deserves protection, both as a family unit and as an economic unit.*
>
> (Family Farm Foundation of Canada, Transcript, Regina, November 23, 1983 [vol. 50], p. 10325.)

It is clear that farmers are currently experiencing economic difficulties. Farmers' net income as a percentage of their gross income fell from 30 per cent in 1972 to less than 20 per cent in 1982. Statistics Canada's index of prices of total farm-input costs rose by 76.5 per cent between 1976 and 1983, while its index of prices for all farm products rose by only 47.5 per cent. Since 1981, a weighted index of farm-product prices has actually fallen, while input costs have continued to rise.[9] For the last 30 years, in fact, productivity gains in agriculture have largely been captured by consumers, who have been able to meet their food needs with a decreasing proportion of their incomes. As a proportion of income, the food bill of the average Canadian is the second-lowest in the world; only American consumers pay less.

Agriculture is a notoriously cyclical industry. Prices for most products are set in world markets, and they are susceptible to myriad climatic and political influences beyond the producers' control. Moreover, it is difficult for farmers to make rapid adjustments in production. On the other hand, input costs – with the exception of costs for land and, recently, for fuels and fertilizers – have risen more or less continuously. The result of this fluctuation in revenues and the continuous increase in costs is a highly variable income stream. While the boom in commodity prices in the 1970s raised farm income to record levels, the price declines and cost increases of more recent years have severely eroded these gains.

There is an additional element in the "boom-bust" cycle of agriculture. High incomes tend to become quickly capitalized into higher land values. Consequently, established farmers who add to their landholdings and farmers who are starting out incur large debts. If interest rates are high as well, the burden of debt becomes even more onerous. Net revenues will decline, but the carrying charges on acquisitions of land (and on any machinery purchased to farm it) will continue.

The number of Canada's farm bankruptcies tripled between 1979 and 1982, although in proportionate terms the number is still small, standing at 0.13 per cent of all farms in 1982. However, bankruptcy rates are not necessarily a good indication of the financial health of farming, since many farmers "voluntarily" liquidate their assets before the bankruptcy stage, and

many others struggle with severe cash-flow problems. A study released by the Farm Credit Corporation in October 1984 stated that 39 000 or 17 per cent of Canadian farmers were under severe financial stress.[10]

Canadian farmers have consistently proved themselves to be among the best in the world at adopting new technologies and new methods, and this Commission sees no reason to doubt that they will maintain this record in the future. The problem is how to keep the financial erosion of family farms to a minimum, in the face of the worst agricultural recession since the 1930s. Canada's productive farmland is a national asset of great value, and it should be passed on intact to future generations. The survival of the Canadian family farm is also justified on grounds of regional equity, since single-proprietor agriculture is the economic mainstay and social basis of much of non-urban Canada. While the scope for massive movement off the farm is far more limited today, it nevertheless remains true that cyclically induced departures, based on financial losses, are socially disruptive. Moreover, it can be argued – although Commissioners have seen little evidence on this point – that support for the family farm is warranted on general economic grounds: that is, on the grounds that an owner/operator can be expected to husband his resources better and to use less energy and fewer chemical fertilizers than the operators of a corporate farm.

How should we Canadians support our agriculture sector? The sections that follow set out recommendations for much larger research and development (R&D) expenditures, to be funded in part by producers, and an aggressive international trade policy. In this present section, Commissioners wish to draw attention to other problems that invite government attention: the problem of farmers' limited access to capital markets and the closely related question of intergenerational land transfers.

The viability of the single-owner farm depends more and more on the farmer's ability to expand his hectarage and to engage in capital-intensive production. As farmers' capital requirements grow, they become less able to meet them out of the returns to their own equity and more and more dependent on access to capital markets. Relative to other businesses, however, farm enterprises are generally at a disadvantage in capital markets since the variability of the weather compounds the uncertainties of the farmers' business cycle. Because farming is generally a riskier undertaking than other business ventures, operators of non-farm businesses can usually obtain bank financing more easily than farmers. In recent years, for instance, banks have been unwilling to provide long-term farm loans at fixed rates of interest. The advantage that other businesses enjoy in capital markets contributes to their ability to buy agricultural land – for industrial-park development, for example – at prices that are unrelated to the price of agricultural land, making it ever more difficult for the family farmer to compete for land resources.

There are, however, several programs, both federal and provincial, aimed at increasing small farmers' access to financial markets. Among them are subsidized credit schemes such as the Special Farm Financial Assistance Program (SFFAP) of the federally funded Farm Credit Corporation (FCC), the Saskatchewan Farm Purchase Program (FPP), and Ontario's Beginning

Farmer Assistance Program (BFAP). Before the mid-1970s, the FCC was the major source of fixed-rate long-term funding for land acquisition and the purchase of capital equipment. Over the past decade, however, much of this lending has shifted to the private banking sector at floating rates.

A variant of the capital-access problem arises when farmers wish to transfer farm property to their offspring. Typically, the assets represented by land, buildings and machinery are the only provision farmers have been able to make towards retirement. Regrettably, farmers' children may find it impossible to raise the funds necessary to buy out their parents and keep the farm in the family.

In view of these problems, Comissioners support the maintenance of effective special credit arrangements for farmers, but the special schemes should not subsidize the sector by providing access to capital at less than market rates. Indeed, we do not believe that policies should be designed specifically to keep marginal operations permanently in business. Nevertheless, the design of special credit arrangements should take into account the unusual features of agriculture: its volatility, its lack of access to equity capital, and the need to transfer ownership intergenerationally. The specifics of any such policies can be left to the experts. We wish only to endorse the general point that special programs are necessary and to urge constructive action by governments and farm groups.

Land Supply and Quality

Many participants in this Commission's consultation process put forward the view that Canada faces potentially serious problems in maintaining its supply of productive agricultural land:

> *Even in the recent past Canada's legislators and the Canadian public believed that Canada has almost inexhaustible supplies of land for farming. Also, they were convinced that improved agricultural technology and its application would ensure the availability of farmland forever.*
>
> *These misconceptions have created a misleading impression of abundance and have resulted in land use practices which are precipitating some major concerns . . .* (Agricultural Institute of Canada, Brief, November 29, 1983, p. 5.)

> *Soil salinity affects an estimated 5.4 million acres (2.2 million hectares) or 4.1 percent of the cultivated and range land on the prairies. Conservative estimates put the monetary losses resulting from salinization at $29 million annually and this will increase to $465 million by the end of the century.*
>
> (Canadian Organic Producers Marketing Cooperative Limited, Brief, November 3, 1983, p. 8.)

> *Subtle deterioration of the inherent productivity of prairie farmland is also of great concern. In the eight decades since cultivation began, the humus content of the Prairie soils has decreased by nearly 50%.*
>
> (Lethbridge Research Station, Brief, October 31, 1983, p. 4.)

Nor did intervenors limit their attention to soil quality. They also expressed concern about the conversion of rural land – often land of high agricultural capability – to urban uses:

We are shocked at the disappearance of much of Canada's agricultural heartlands as cities like Toronto, St. Catharines, Winnipeg, Regina and others expand. We wonder at the wisdom of continued expansion of major cities, especially those surrounded by prime farmland.

(Thompson Industrial Commission, Brief, October 6, 1983, p. 6.)

Industrial development centred around large urban communities, coupled with urban sprawl, has already gobbled up much of the best agricultural land in Canada, as in other countries . . . If this trend is not controlled, millions more acres of the most productive farm land in this country will be covered with concrete and lost as a food resource base for future generations.

(National Farmers Union, Brief, November 21, 1983, p. 22.)

Are these concerns justified? During the 1960s and 1970s, the federal government and the provinces carried out a detailed inventory of Canada's land resources.[11] According to this inventory, only 11 per cent of Canada's land is capable of sustaining agriculture of any kind, less than 5 per cent is capable of producing crops, and less than 0.5 per cent is valuable class-one land capable of sustaining the whole range of Canadian crops. Although Canada is the second-largest country on earth, the amount of Canadian land available for crop production of any kind is approximately equal to the area of Sweden. Canada's whole stock of class-one agricultural land is smaller than the area of New Brunswick. For obvious historical reasons, most of the best agricultural land in Canada is located near our largest cities: 37 per cent of Canada's class-one agricultural land and 25 per cent of our class-two land can be seen from the top of Toronto's CN tower.

A federal government study of urban centres with populations greater than 25 000 documents the quantity and quality of land converted to direct urban use between 1966 and 1976.[12] During this decade, rural lands equal in area to the city of Hamilton were built over. Of all the rural land converted to urban uses, 63 per cent was rated in the top three classes for agriculture. In Ontario, 79 per cent of the rural land converted to urban uses was prime farmland. In Manitoba, the figure was 91 per cent; in Prince Edward Island, it was 99 per cent.[13]

The pursuit of leisure and recreation imposes further demands on land resources. Recent years have seen an explosion in demand for campgrounds, cottage sites, highway picnic sites, ski trails, parklands. Car graveyards, race tracks, gravel pits and quarries, and other urban-related undertakings take an additional toll of rural lands. Once farmland is appropriated for urban or urban-related use, it seldom reverts to agriculture.

The continued loss of farm land to urbanization has important implications for Canada's production potential. In considering this loss, we must be chary in taking comfort from the increases in total hectarage that come from improving land. There is no benefit in replacing land that can grow fruits, vegetables and corn with land suitable only for barley or hay. In areas such as the Golden Horseshoe, between Toronto and St. Catharines, and the Okanagan Valley of British Columbia, one-third of improved farmland has been converted to other uses in the last 25 years.[14] Some of the crops grown in

these areas, such as tender fruits and hybrid or vinifera grapes, cannot be produced commercially in any other part of Canada.

Commissioners support the call for a comprehensive study of the loss of prime farmland to urban development. How rapidly is this loss proceeding? Does it represent a failure of the private-land market? That is, are we ignoring important social considerations in tolerating a situation in which urban developers can consistently outbid farmers for agricultural land? Is a development freeze – a solution that has been tried in some jurisdictions – an adequate solution, or are there better avenues to try? Commissioners agree with the many intervenors who argued that we cannot put off much longer finding firm answers to these questions.

Most agronomists agree that the deterioration of Canadian soils threatens the expansion of our agricultural production. About one-third of the productivity of Canada's prairie soils has been lost since cultivation began, making them more susceptible to erosion. Excessive salinity results when unused water absorbs salts, moves down through the soil, and then seeps to the surface in other, lower areas. Salinity affects an estimated 2.7 to 4.0 per cent of all dryland in Western Canada and more than 20 per cent of irrigated hectarage, mostly in southern Alberta. The area affected by salinity is increasing by about 10 per cent annually. It is not known how much soil Canadian agriculture loses to wind and water erosion, but estimates are available for some localities. In the southern Prairies, for example, losses to wind erosion are substantial in dry years. Excess soil acidity, caused by the use of fertilizers (especially nitrogen) and by emissions from natural-gas/processing plants, thermal power plants, and smelters, now affects more than 2.5 million hectares in the Prairies; 70 per cent of the affected land is in Alberta.[15] Significant topsoil losses have been recorded in Prince Edward Island (20 tonnes per hectare on potato land) and Ontario (as much as 50 tonnes per hectare on corn land). Sixty to 70 per cent of all sediments in the Great Lakes originate from agricultural land.[16]

The problems of soil deterioration are serious but not unmanageable, given a concerted effort to solve them. Initial research suggests that the problem of acid soils can be dealt with in a relatively straightforward manner, although more investigation is needed. As for salinity, one important cause of the problem is summerfallowing. This practice began primarily as a means of storing moisture in the soil for a year so that a better crop could be produced the following year. Yet summerfallowing retains only a relatively small percentage (7 to 14 per cent) of the year's precipitation for the following year's crop. The remainder passes down through the soil, often forming a salt seep elsewhere. Continuous cropping helps to absorb the excess moisture, reduces erosion, and, if an annual legume crop is included in the rotation, restores organic matter and nitrogen to the soil.

Even without improvements in farming technology, it appears that summerfallowing could be substantially reduced on at least 50 per cent of the total cultivated hectarage on the Prairies. Given additional research and a program of education designed to make farmers more aware of the long-term adverse effects of summerfallowing, it should be possible to improve on this

estimate. On the other hand, it may be unreasonable to expect many farmers to change their practices in the absence of improvement in the farm economy. No farmers set out to follow practices that will cause deterioration of their land, but financial restrictions may make it impossible for them to apply all available knowledge.

Marketing Boards

Agricultural marketing boards constitute a contentious subject. This became evident at this Commission's hearings:

> *Agricultural marketing boards which restrict the supply of agricultural output should be eliminated.* (Campeau Corporation, Brief, November 24, 1983, p. 2.)

> *Marketing Boards of all descriptions should be discontinued. The point has been reached in Canada that because of government regulation there is so much distortion in the market place that no one knows what the true value is for many food items, commodities, or utilities.* (Charles W. Houston, Brief, July 14, 1984, p. 3.)

Understandably, producers' organizations did not agree:

> *The Canadian Federation of Agriculture unequivocally supports ... supply-management programs [for the poultry and milk industries]. They are necessary for the healthy survival of these sectors. They are extensively supervised in the public interest. They are productivity-increasing in their operations.*
> (Canadian Federation of Agriculture, Brief, September 22, 1983, p. 13.)

What effect do marketing boards have on agricultural performance? In order to answer this question, it is necessary to distinguish between agencies that control the supply of their product (eggs, chickens, turkeys, tobacco, and milk) and agencies that simply facilitate farmers' common marketing (of hogs, fruits and vegetables). With respect to the latter, the Economic Council of Canada has concluded that:

> *These boards have worked to the advantage of producers, who are now able to secure a fair return formerly denied them because of their insufficient bargaining power. To the extent that markets function better, that additional detailed information is provided, and that quality is controlled, both the consumer and the producer benefit. No doubt, as in the case of other institutions, the operation of the boards could be improved. Nevertheless, the Council endorses their activities and sees no need for radical changes in their mandates.*[17]

For boards with supply-management capabilities, the evidence is very different. Numerous studies have demonstrated that such marketing boards insulate domestic producers from foreign competition, often to the point of eliminating foreign supplies altogether. They also reduce interprovincial trade in agricultural commodities, with the frequent result that these commodities are not produced in the provinces that can produce them at the lowest cost. Finally, supply-management marketing boards raise the prices of agricultural products above the level that might be achieved in a market where common marketing took place, but supply control did not.

There are several studies that attempt to estimate the extent of the excess return extracted from consumers by supply-management marketing boards.[18] One study sets the annual excess payments at $56 million for eggs, $97 million for broilers, and $33 million for turkeys.[19] Another study sets the annual excess payments for fluid and industrial milk at $366 million and $629 million respectively.[20] These excess payments show up as quota values, which are essentially payments for the right to produce. One study estimates that the value of quota for five commodities – milk, eggs, broiler chickens, turkeys, and tobacco – increased by more than 33 per cent in the two-year period from 1978 to 1980.[21]

The supply-management marketing boards do not extract these excess returns without imposing an efficiency loss on the Canadian economy. The loss can take a number of forms, but most studies restrict their estimates to the surplus forgone as a result of diminished consumption and the cost of replacing foreign suppliers by Canadian suppliers. These studies find that of each dollar transferred from consumers to farmers, approximately 25 cents is wasted. A study of egg marketing in British Columbia attempted to estimate the value of every type of waste induced by the egg-marketing board.[22] It concluded that it costs $3.3 million annually in lost output to transfer $5.3 million to B.C. egg producers; this sum represented an efficiency loss of 60 cents per dollar transferred. Still other studies calculate that it may cost as much as $3 to transfer one dollar from consumers to farmers.[23]

In sum, by restricting foreign and domestic supply, supply-management marketing boards raise the prices of agricultural commodities and thus augment farm incomes. They appear to accomplish this, however, at a significant efficiency cost to the Canadian economy as a whole. Nor do they benefit all producers equally. They bring very little benefit to new farmers, who must buy their quota. Indeed, it may be that few of the beneficiaries of marketing boards are still on the land; many have sold their quota and retired. Again, Commissioners would repeat that these criticisms are levelled at national supply-management marketing boards controlling the supply of agricultural products such as eggs, chickens, turkeys, tobacco and milk; we are not criticizing those marketing boards which do not restrict supply, many of which operate at the provincial level.

Commissioners assume that in general, Canadians support the goal of augmenting and stabilizing farm incomes. Nevertheless, national supply-management marketing boards represent an expensive way to meet a perfectly acceptable social goal. One alternative would be a scheme that reduced the extent of income fluctuations experienced by the producers, instead of supporting their level of income, as such marketing boards do. Unlike the boards' methods, an income-stablization scheme would smooth out market risks without generating efficiency losses. The Western Grain Stabilization Act and the Agricultural Stabilization Act might serve as models for a program of this kind. This Commission recommends that the federal government, the provinces, farm groups and consumer associations commit themselves to the task of designing and implementing other possibilities such as an income stabilization scheme. We further recommend that Canada move gradually to phase out supply-management marketing boards.

Pending replacement of marketing boards by an alternative scheme, Commissioners recommend that such boards be made more flexible and accountable. Specifically, we suggest that governments exercise caution in authorizing additional supply-management boards; that existing boards increase their production quotas so that quota values fall to more reasonable levels; that quantitative import restrictions be used only as a last resort; that quota be freely transferable between individuals (that is, not tied to farms) and across provinces; and that consumer groups be more adequately represented on the boards.

The Western Grains Economy

Grain Handling and Transportation. If Western grain producers are to retain their share of world markets, there must be improvement in the grading, handling, storing, and transporting of grain. Some adjustments have been made, and there have been a few very modest changes in the grading system. By and large, however, the rate of improvement has been glacial. The country elevator system is much what it was before the First World War. Nearly two decades ago, a recommendation was made that the number of grades of grain be reduced, a step that would have reduced the number of separate storage bins in country elevators and speeded up the filling of hopper cars. A freeing-up of elevator-bin space would have given farmers an opportunity to grow and sell other products through the elevator system. The recommendation is still valid today, indeed, it was reiterated in a major study by the Canada Grains Council in 1982.[24] As yet, major changes have not been forthcoming.

Another source of inefficiency in the grain-handling system is the practice of charging farmers, rather than the grain-handling companies, for leakages of grain that occur between the producer and the final sale at the terminal or the shipping port. This custom lessens the incentive to reduce shrinkage. In short, there is much that could be done to reduce the costs per tonne of grading and mixing grain and of moving grain from farmers' fields to ocean-going ships. Steps should also be taken to increase the system's efficiency in coping with greater farm output. For all of these purposes, substantial new investment and major technical innovations in the handling of grain will be necessary, both before rail transport and during rail transportation itself.

The Statutory Grains Freight Rate (the Crow Rate) is, of course, another very important factor in the efficiency of grain handling and marketing. During our hearings, Commissioners heard both vigorous defences of the historic Crow Rate and just as vigorous condemnations.

The matters at issue in the Crow Rate debate have been discussed extensively in recent years. For a variety of complex historical and political reasons, the rail-freight rates for grain shipments in effect at the beginning of the 1980s were the rates that had been in effect in 1897. This arrangement had two important implications for the Western grains economy and, by extension, for the Canadian economy as a whole. First, since railway costs had obviously increased significantly since 1897, the revenues derived from hauling grain were not compensatory. The predictable result was that the

railways had ceased to invest in rail lines and infrastructure for the export grain trade. No new lines were being built, and existing ones were deteriorating. Planned increases in grain shipments were impossible; even more worrying was the fact that existing export levels were threatened.

The other result was a distortion in the relationship between the costs of shipping grain and the costs of shipping grain products and animal products out of the Western provinces. Since freight rates for grain exports were artificially low, while those for grain and animal products were set in the market-place, there was less processing, feedlot, and meat-packing activity in the Prairies than there might have been if all rates had been set on the same basis.

The solution to the problem of deteriorating infrastructure was clear: the railway companies had to be induced to upgrade existing rail facilities and to invest in new ones. This inducement could take one of two forms. The companies could be given direct subsidies, which might, perhaps, be linked to performance guarantees. Alternatively, rail rates could be allowed to move to compensatory levels, so that the railways would receive the normal return from investing their own funds in infrastructure improvement. Each solution had its advantages and disadvantages, but basically, either solution would stimulate the necessary investment. If direct subsidies were paid, however, rail rates would stay at their existing level and the disincentive to locate grain-processing and meat-processing facilities in Western Canada would remain. If rates were allowed to rise to compensatory levels, this disincentive would disappear, and interregional comparative advantage would dictate the location of processing activities.

The problem was further complicated by equity issues. If the government subsidized the railways directly, Canadians in general would pay for rail-line investments. If rates were to rise to compensatory levels, Western farmers would pay the costs. To many Western Canadians, the latter solution represented an abrogation of a fundamental historical concession, which they had received in return for the costs imposed on them by the other features of the National Policy. Since the federal government seems to have accepted from the beginning that the Western grain producers were entitled to a continuation of an historical "Crow Benefit", the issue became: to whom and how should that continuing benefit be paid?

It was not just Western farmers who were interested in the outcome of the Crow Rate debate. The subsidization of Western grain farmers was a contentious issue in other parts of the country, particularly in Quebec, but sentiment outside the West was not altogether hostile to the Crow Rate. As Commissioners were told at our hearings in the fall of 1983, at the height of the Crow Rate debate in Parliament,

> *The death of the Crow would have serious consequences for the Maritimes. If the Crow goes, it would be a matter of a short time before the Maritime and Atlantic subsidies would be taken off. Primary producers in the Maritimes could not survive the extra costs of transporting their product to the markets.*
>
> (National Farmers Union, Prince Edward Island, Brief, September 2, 1983, p. 10.)

Opinion outside the agriculture sector did not universally favour retention of the historic arrangement:

> *While our original attention was focused on the effect that these arbitrarily low freight rates might have on the movement of other commodities, such as lumber and pulp, we are now looking at the even more alarming prospect of the railways being unable to finance future capacity needs in the system. A crunch in the form of railway equipment shortages or rationing would eventually have impacts on the forest industry that would include losses of earnings, losses of jobs, as well as taxes and capital investment.*
>
> (Council of Forest Industries of British Columbia, Transcript, Prince George, September 13, 1983 [vol. 7A], p. 1775.)

There were two choices for the federal government. It could transfer sufficient funds directly to the railways to cover the full cost of moving the grain to export positions, leaving freight rates at the 1897 levels. Alternatively, it could let rates rise to market levels and make the same subsidy payments directly to Western producers. Under either option, provision would have to be made for future cost increases.

In 1983, after considerable study and negotiation, the federal government passed legislation that payments of the Crow Benefit would go directly to the railways, in return for performance guarantees on infrastructure development. This position was favoured by a major part of the Western farming community. The federal government's decision to make payments to the railways rather than to the farmers was also determined, in part, by the fact that the feedlot industry in central Canada depends to a considerable extent on subsidized shipping rates for feed grains. The new scheme, however, would also permit freight rates to rise as railway costs rose. A complicated sharing formula was developed, a variety of safeguards were introduced, and provision was made to review the entire situation in a few years.

This compromise solution still leaves intact major distortions, both in the location of grain-processing industries and in the structure of the Western grains economy. As this Report is being written, the effectiveness of the new system is the subject of a thorough study initiated by the federal government under the chairmanship of Mr. Justice Gordon Hall of Manitoba.[25] In view of this ongoing review, this Commission does not recommend any specific formula. We do, however, support further adjustment on the payment of the Crow Benefit, as provided for in the Western Grains Transportation Act, in line with market principles and the need for flexibility, and the promotion of modernization and efficiency.

International Markets for Grains. Canada depends on relatively few buyers for its grain exports. The two largest buyers of Canadian wheat are the Soviet Union and China, both of which have rather unpredictable buying patterns.[26] If Soviet agriculture were reorganized, the country's imports might decline substantially. Projections suggest that annual imports of grain into the Soviet Union and Eastern Europe will decline substantially to the year 2000.[27] Similarly, if China continues to improve incentives to its farmers, its demand for Canadian grain could decline or shift from wheat to feedgrains. Indeed, China is now an exporter of wheat.

It is obvious that Canada should diversify its markets for grains, especially wheat. Diversification will require a shift in the mix of wheat produced in Canada. Canada's main wheat crops are hard spring-wheat varieties. Some nations, such as Japan and the United Kingdom, demand this kind of wheat and are willing to pay a premium for it. Canada does have a special niche in these markets, but growth in demand for high-protein hard wheats is not anticipated. Demand is expanding, however, particularly in the developing world, for high-yield wheats of the "Triple-M" type.[28] Canadian exports of wheat to less-developed countries (LDCs), except China, are very small. Canada must develop production of these kinds of wheats if we are to share in this expanding market.

Before the 1980s, uncertainties in the world grain markets often led to a situation where Canada carried the burden of shortages and excess inventories. In recent years, the United States has carried that burden, as Canadian grain stocks have been minimal. Since 1971, major importing and exporting countries have lived under an International Wheat Agreement which has no economic provisions such as a buffer-stock provision or export-quota commitments. In 1979, the last attempt to renegotiate such economic provisions failed, and there is little reason to believe that member countries, particularly the United States, would come to an agreement in the short term. Nevertheless, a renewal of an International Wheat Agreement with economic provisions would be of general benefit to Canada, as well as to other major exporters and importers of grain because it would promote stability and market growth. Canada has generally supported such international undertakings and should continue to do so.

Commercial Policy

World agricultural policy is substantially interventionist. Most nations use a striking number and variety of tariff and non-tariff barriers (NTBs) to protect their farming communities, even when international treaties seem to preclude such measures. There is virtually no country that does not, as a matter of established policy, seek to preserve and expand its domestic agricultural base.

In most cases, Canadian agriculture can compete effectively with other producers anywhere in the world if it is allowed to compete on a fair basis. But Canadian farmers cannot, and must not be expected to, compete with farmers who are heavily subsidized by their governments or in markets where they face a wide range of tariff and non-tariff barriers. As the Canadian Food Processors Association stated to this Commission:

> *We are in a world market game which doesn't abide by the rules of GATT by any manner or means. Unless Canada is prepared to take the same actions as some of these other countries, we are going to be left out in left field.*
>
> (Transcript, Winnipeg, November 30, 1983 [vol. 54], p. 11486.)

Commissioners are loathe to recommend that Canada emulate its trading partners by increasing barriers to trade. It would, in our opinion, be better to work towards a true free-trade environment for agricultural products, especially given Canada's comparative advantage in many of these products and its status as a major exporter. Care should be taken, however, in any

trade negotiations dealing with farm products that Canada's special interests are met.

Fruits and Vegetables

Over the past decade or so, there has been a substantial increase in the per capita consumption by Canadians of fresh produce. A wide range of imported fruits and vegetables are directly competitive with domestic sources of supply. For heavily consumed items such as tomatoes, celery and lettuce, the foreign share is over 80 per cent. For tomatoes alone (excluding greenhouse production), the foreign share is 96 per cent. For all non-tropical fresh fruits and vegetables, the foreign share is well over 50 per cent. When potatoes are excluded from this total, the foreign share rises to nearly two-thirds of our domestic consumption of fresh produce.

At first glance, it might appear that Canadians have major opportunities for increasing the domestic share of fruit and vegetable sales. Canada has vast supplies of land and water. Moreover, horticultural production does not depend entirely on class-one land. The technology exists for large-scale greenhouse production and for proper storage of many basic fruits and vegetables to provide produce outside the usual field-crop season.

Yet any move to import-substitution will not be simple. Capital costs of field-crop production are substantial. Because our Canadian growing seasons are fairly short, suitable storage facilities would be essential to any expansion of domestic output in this sector. To undertake either a 100-hectare potato operation or to invest in a 50-hectare vegetable farm with the appropriate storage facilities involves an investment of about $1 million, a capital intensity higher than that required for grain farming. Labour is cheaper both in the southern United States and in Mexico. There are obstacles to expansion of output on the marketing side as well. Canadian growers would have to break into supply channels of wholesalers (and accompanying retail chains) with long-established contacts in Florida, California, and Arizona. To do this, they would have to be able to provide guaranteed quantities and qualities of produce. On the other hand, some factors favour Canada over our competitors: lower outlays for insecticides because of the cooler climate; lower costs of transportation to market; the depreciated Canadian dollar; and cheaper water. This last factor will become especially important in the future.

While detailed costing studies are not available, there is some evidence that Canadian producers are not yet making the best of what appear to be expanding opportunities. Lack of attention to reliability of supply and, especially, to quality are frequently cited weaknesses in the practice of Canadian growers.[29] Nor do Canadian growers always make use of the latest developments in storage, even though some provincial governments have supportive loan programs. Canadian farms are too often small-scale operations. In recent years, however, Canadian growers have gained experience in using the most modern greenhouse technologies as well as hydroponics. In most provinces, too, there are commercial greenhouse operations using excess industrial heat. Nonetheless, in general, Canadians have not yet taken full advantage of these technologies in producing vegetables.

In summary, although there may be some cost advantages for producers in the southern United States over producers in Canada, there is potential for Canadian producers to expand. Provincial governments should encourage growers to practise more efficient methods and should work together to establish Canada-wide policies. Additional research to develop improved seed varieties, better insect and disease control, more efficient use of space, and new vegetable products could yield satisfactory returns to Canadian horticultural producers.

Research and Development

The need for enhanced research and development efforts was a theme common to many of the agricultural submissions Commissioners received. We were reminded, correctly, that it is scientific achievement rather than unaided nature that has made Canada a leading agricultural nation. Important social, as well as economic, benefits accrue from agricultural research:

> *Research and innovation are essential to future growth and competitiveness of agriculture and the food industries . . . Perhaps it is not sufficiently appreciated that it is publicly funded research that has made Canada a leading agricultural country in the world . . . Our failure to keep up, let alone lead, in this field would greatly undermine our long run competitive position.*
>
> (Ontario Federation of Agriculture, Brief, November 2, 1983, pp. 14–15.)

> *Agricultural research is one of the best investments the people of Canada can make. Net return on investment is estimated to be 40–50% per year, far higher than most commercial ventures.*
>
> (Lethbridge Research Station, Brief, October 31, 1983, p. 5.)

> *Between now and the year 2000, the federal government ought to increase the funds earmarked for research in agriculture. However, the producers would like to be involved, in order to contribute their views, and they are even prepared to contribute financially, taking into account, of course, their financial abilities. They are convinced that their participation would make for the better application of the research to the real need of agriculture to become more and more competitive.* (*La fédération de l'UPA du Saguenay-Lac-St-Jean*, Brief, November 2, 1983, p. 22.)

Tragically, Canada has allowed its emphasis on such research to diminish, relative both to gross national product and to our competitors. Federal government outlays are now about one-half the proportion of GNP spent on agricultural research in the United States or Japan.[30]

There can be no debate about Canada's need to increase its commitment to agricultural research and development, and to increase it at a rate that will allow us to catch up with our competitors. There can be no debate, either, about the necessity for government support. Individual producers, even producer groups, are simply too small and too widely dispersed to undertake sophisticated basic research. A check-off system, under which a levy of so many cents per unit of output would be assessed for research purposes, should certainly be considered wherever it is feasible. Producer groups might welcome such a system as a means of gaining some control over the ways in

which R&D dollars were being used. But ultimately it is governments, acting for Canada as a whole, that must make the commitment. Given returns to research as significant as they have been in the past, such a commitment would be a productive use of the nation's resources. Commissioners do not wish to make recommendations, beyond the ones we have already mentioned, about specific amounts or particular directions for this research effort. These questions are best left to the network of granting agencies, research scientists, and farm groups involved. In nearly every area we have surveyed, however, we see major opportunities for Canadian agriculture if new and better products are developed, or if improved production, handling, and marketing techniques are devised.

Conclusions

The potential exists for continued expansion of Canada's exports of grains, oil-seeds and red meats, but there are major uncertainties in world markets. Although some of these are not within Canadians' control, there are a number of steps than can be taken to enhance our competitive position. These include:

- Significant improvements in the production, handling and transportation of grains, supported by amendments to the Western Grains Transportation Act
- Making steady progress towards freer trade in this difficult area
- Supporting, over the longer term, a renewal of an International Wheat Agreement including economic provisions
- Greatly increasing public commitment to research and development
- Exploring alternatives, such as income stabilization, to national supply-management boards. Failing outright replacement, we urge substantial reforms of such marketing boards.

Steps must also be taken to ensure that Canadian farmland and the family farm are preserved into the next century. We recommend a careful study of the loss of prime farmland. We do not advocate farm-support programs which will keep marginal operations in business, but because of the special risk factors associated with farming, we support the retention of special credit arrangements for farmers.

Notes

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3. Kenneth R. Farrell, Fred H. Sanderson, Trang T. Vo, and Michael F. Brewer, "Meeting Future Needs for United States, Food, Fiber and Forest Products", in Joint Council on Food and Agricultural Sciences, *Reference Document: Needs Assessment for Food and Agricultural Sciences* (Washington, D.C., 1984); and

David Cole and S. Horton, "World Grain Trade and Its Financing: Past Patterns and Future Prospects", paper prepared for the Institute for Research on Public Policy, Montreal, 1983.

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5. See, for example, Terry Veeman and Michele Veeman, *The Future of Grain: Canada's Prospects for Grains, Oilseeds and Related Industries* (Ottawa: Canadian Institute for Economic Policy, 1984).
6. Stewart Borland and Gerald Robertson, "A Sectoral View of the Longer-Term: Agriculture", in *Long-Term Economic Prospects for Canada: A Symposium*, vol. 23, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985).
7. Based on models discussed in C.A. Carter, "International Trade Opportunities for Canadian Agriculture", paper presented at the Canadian Agricultural Economics and Farm Management Society 1984 Workshop, Ottawa, July 5, 1984. Models discussed were: International Wheat Council, "Long Term Grain Outlook", Secretariat Paper No. 14 (London, 1983); Australia, Department of Trade and Resources, "The World Food Economy in the 1980's" (Canberra, 1982); and Michigan State University, Department of Agricultural Economics, "Long Term Forecast" (East Lansing, 1982).
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9. Canada, Agriculture Canada, *Handbook of Selected Agricultural Statistics 1984* (Ottawa: Minister of Supply and Services Canada, 1984).
10. Canada, Farm Credit Corporation, Research Division, *Farm Survey* (Ottawa: Minister of Supply and Services Canada, 1984).
11. This survey, the Canada Land Inventory, divided Canada's land resources into seven categories: class one land is the best for agricultural purposes, and class seven land is of no use for agriculture. Once complete, the Canada Land Inventory yielded the first clear picture of just how much of Canada's land resource could produce agricultural products.
12. C. Leigh Warren and Paul C. Rump, *The Urbanization of Rural Land in Canada, 1966–1971 and 1971–1976* (Ottawa: Environment Canada, Lands Directorate, 1981). In the 1971–75 study, comparisons are made with 1966–71 data from an earlier federal government study.
13. David M. Gierman, *Rural to Urban Land Conversion*, Occasional Paper No. 16, Lands Directorate, Environment Canada (Ottawa: Minister of Supply and Services Canada, 1977), pp. 48–49. As cited in Wendy L. Simpson-Lewis and Edward W. Manning, "Food for Thought: Can We Preserve Our Agricultural Land Resource?", *Alternatives* 10 (Spring–Summer 1981).
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15. P.B. Hoyt, M. Nyborg, D. Penny, and H. Ukrainetz, "A Degradion by Acidification", paper presented to the Alberta Soil Science Workshop, 1981.
16. The Honourable Eugene F. Whelan, Brief, November 24, 1983.
17. Economic Council of Canada, *Reforming Regulation* (Ottawa: Minister of Supply and Services Canada, 1981), p. 65.
18. These studies were surveyed and evaluated for the Commission by Wayne Thirsk, "Interprovincial Trade and the Welfare Effects of Marketing Boards", in *Perspectives on the Canadian Economic Union*, vol. 60 (Toronto: University of Toronto Press, 1985).
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20. Richard R. Barichello, *The Economics of Canadian Dairy Industry Regulation*, Technical Report No. E/12 (Ottawa: Economic Council of Canada and Institute for Research on Public Policy, 1981).
21. Economic Council, *Reforming Regulation.*
22. T.E. Borcherding and G.W. Dorosh, "The British Columbia Egg Marketing Board: Monopolistic Restrictions and Social Costs", Discussion Paper 80-03-1 (Burnaby: Simon Fraser University, School of Administration and Economies, 1980).
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24. Canada Grains Council, *Prospects for Prairie Grain Industry, 1990* (Winnipeg: The Council, 1982).
25. Committee of Inquiry on Crow Benefit Payment.
26. Borland and Robertson, "A Sectoral View of the Longer-Term".
27. For example, see Organisation for Economic Co-operation and Development, *Prospects for Soviet Agricultural Production and Trade* (Paris: OECD, 1983); and International Wheat Council, *Long Term Grain Outlook*, Secretariat Paper No. 14 (London: The Council, 1983).
28. Medium hard kernel, medium gluten strength, and medium protein content.
29. Ted Hole, "Production and Marketing of Fresh", and John Wiebe, "The Alberta Industry", in Alberta Agriculture, *Proceedings of Alberta Horticulture Conference, 1980* (Edmonton: The Department, 1980).
30. Veeman and Veeman, *The Future of Grain.*

Forestry

Profile

The forest-products sector, which embraces both logging and manufacturing, is a major component of the Canadian economy. In 1982, logging shipments amounted to $4.0 billion, and shipments of paper and processed-wood products totalled $22 billion. The forest industry accounted for 13.5 per cent of all manufacturing shipments and nearly 15 per cent of manufacturing value-added. In 1982, the sector employed 260 000 people, of whom about 40 000 worked at logging.

Although most of the provinces have important forestry activity, the industry is largely concentrated in British Columbia, Ontario, and Quebec. British Columbia produces about one-half the value-added in both the logging and the wood-products industries. Forest products account for half the value of British Columbia's manufacturing shipments, 60 per cent of the province's exports, and 10 per cent of its labour force. Ontario and Quebec account for nearly two-thirds of Canadian manufacture of pulp and paper.

Canada is a major player in the world market for forest products. In 1981, we accounted for 20.2 per cent of world exports (a slight decline since the mid-1960s); British Columbia's share alone amounted to 7.9 per cent. By comparison, the United States accounted for 12.7 per cent of world forestry product exports in that year.[1] Approximately half of total forest-industry shipments in Canada are exported, accounting for nearly 15 per cent of Canadian merchandise exports and making a major contribution to Canada's trade balance. The United States buys over 70 per cent of our exported forest products; Western Europe and Japan are Canada's other significant customers.

Table 12-5 summarizes changes over the last three decades in the relative importance of each major type of forest product export. Like the steep jump in the dollar value of our exports of forest products in the 1970s, the substantial decline, since 1950, in the relative importance of newsprint is of particular interest (although newsprint exports have increased in absolute terms over the same period). This shift is also evident in the figures for Canadian shares of world production and world exports, which are given in Tables 12-6 and 12-7. Canada's share of world newsprint production fell from 53 per cent in 1951–55 to 32 per cent in 1980–81. Although our share of world production of woodpulp also declined, we maintained our share of world exports. Our share of world lumber exports rose during the 1970s, from 37 per cent to 44 per cent; however, the latter figure represents a decline from a peak, in 1978, of nearly 50 per cent. Canada's share of the U.S. newsprint market has dwindled to 57 per cent in 1984, from 72 per cent in 1965, although, again, absolute volume has risen slightly. On the other hand, Canada's share of the U.S. lumber market increased from one-fifth to nearly one-third between 1974 and 1984.

Prospects

Although projections of world consumption of paper and paperboard vary considerably, one fact seems clear: the growth rate will be slower in the future

TABLE 12-5 Canadian Forest Products Exports: Selected Years 1950–1983

Year	Softwood Lumber	Woodpulp	Newsprint	Other	Total	Millions of $
		(percentages)				
1950	24.3	19.0	44.3	12.4	100.0	1 102
1960	20.4	20.5	47.8	11.4	100.0	1 587
1970	21.8	26.8	37.9	13.5	100.0	2 929
1980	25.7	30.5	29.0	14.8	100.0	12 697
1983	29.7	28.3	30.5	16.6	100.0	13 148

Source: *Bank of Canada Review* (various years).

TABLE 12-6 Canadian Volume Shares of World Production, Selected Years

Years	Softwood Lumber	Woodpulp	Newsprint
	(annual average percentages)		
1951–55	9	22	53
1961–65	8	17	41
1971–75	9	16	36
1980–81	13	14	32

Sources: Forest Products Research Society, *Proceedings: Timber Demand: The Future Is Now*, p. 62; FAO, *1981 Yearbook of Forest Products Reports* (Rome: FAO, 1983).

TABLE 12-7 Canadian Volume Shares of World Exports

Years	Softwood Lumber	Woodpulp	Newsprint
	(annual average percentages)		
1970–71	37	32	69
1980–81	44[a]	33	61

Sources: Forest Products Research Society, *Proceedings: Timber Demand: The Future Is Now*, p. 62; FAO, *1981 Yearbook of Forest Products Reports* (Rome: FAO, 1983).

a. The Canadian share of softwood lumber exports reached a peak of 49.7 per cent in 1978 and it has been declining gradually since then.

than it has been in recent decades. The downward trend began in the 1970s, when the annual growth rate in the world pulp and paper industry fell from an average of 5.6 per cent in the 1960s to an average of 3.0 per cent.[2] The prime reasons for expecting this shift to continue into the future are an anticipated lower rate of income growth in the future and increased competition from substitutes. By the mid-1990s, technological developments, particularly new computer applications and advances in the electronic transmission of information, may further reduce the volume of paper used. Various forecasts predict that in the 1985–90 period, the growth rate for paper and paperboard will average 2.7 per cent, while for the years 1990–95 it will decline to 2.3 per cent.[3]

Global demand for lumber and wood products has grown at about 2 per cent annually over the past 25 years. For the years to 2000, world demand is projected to expand, at most, about half as rapidly as demand for paper products: that is, at an annual rate of 1 to 1.5 per cent.[4] However, some intervenors at our hearings argued that the outlook beyond 2000 is brighter:

> *As the population of the world increases, you are going to see a tremendous increase in the demand for forest products . . . They say that nobody will be able to meet the world demand for forest products after the year 2000.*
>
> (Association of British Columbia Professional Foresters, Transcript, Vancouver, September 8, 1983 [vol. 3], p. 502.)

It is not certain that the Canadian industry will maintain even its current share of this slowly growing market. Access to the American market may be eroded by competition from lower-cost sources of softwoods, both in the southern United States and overseas. Recent U.S. estimates predict that until 2000, annual imports of softwood forest products will be no greater than they were in 1980, and that by 2010 they will be 9 per cent lower, although they will rise again by nearly 2 per cent per year over the subsequent 10 years to 2020.[5] While new chemical/mechanical pulping technology is making the production of softwood pulp in Canada cheaper, the southeastern United States is expected to remain a lower-cost producer of softwood market pulp and newsprint than the northwestern United States or Canada.

Changes taking place in other parts of the world may further limit our ability to compete. Even a decade ago, there were as many as 90 million hectares of plantation forests in the world. The higher-quality ones can produce 15 to 20 cubic metres of timber growth per hectare per year. In Brazil, timber growth is 40 to 60 cubic metres per hectare per year. Success stories in nations such as Brazil, Chile, and Zambia suggest that while development and transportation costs are likely to be prohibitive in the medium term, new industrial plantations can be financially successful and could eventually reduce developing countries' imports of forest products from developed nations by as much as U.S. $10 billion a year.[6] As both developed and developing countries move forward rapidly with afforestation and plantation programs, long-term European and Japanese demand for Canadian natural forest products may also decline.

New technology allows the production of low-cost pulp from hardwoods, the major forest reserve of many tropical and Southern Temperate Zone nations. This development and the fact that hardwood is much cheaper in these countries (recently in the order of U.S. $50 per tonne in Brazil as compared to U.S. $105 in Canada),[7] adds another negative element to the situation. However, work on fast-growing hardwood poplar that matures in 10 to 12 years suggests that Canada may eventually become competitive in this area.

Another factor that makes future markets for Canadian forest products uncertain is the possibility of an increase in trade barriers in the United States and other markets. In 1983, American producers attempted to block the unrestricted access that Canada enjoys in the U.S. softwood-lumber market. Several hundred American companies and nine trade associations argued that Canadian federal and provincial policies and practices violated

the U.S. countervailing law. This attempt failed, but the possibility of eventual success remains.

Since January 1, 1984, the Scandinavian countries have had unrestricted tariff-free access to the European Community (EC), Canada's second-largest market. As a result, the EC has reduced its 1.5 million-tonne tariff-free quota on newsprint imports from outside the European Free Trade Association (EFTA), even though this amount was stipulated in the GATT as compensation to Canada for the United Kingdom's entry into the Community. Over the last three or four years, the devaluation of the Swedish kroner by more than 40 per cent, relative to the Canadian dollar, has made Swedish products in that market highly competitive.

Finally, Canada's efforts to remain competitive in world markets are hampered by two domestic factors: high labour costs and inadequate investment. Labour costs account for about one-half of the cost of wood delivered to mills, and labour costs are higher in Canada than they are in the southern United States and the tropics. For newsprint, our labour costs are currently about 20 per cent above those in the southern United States. Moreover, Canada has had an unenviable record of labour strife in this sector.[8]

Investment in the Canadian pulp and paper industry was sluggish through most of the 1970s as compared to investment in the rest of the world, particularly in the United States. Much of the machinery now in use in Canada is technologically obsolete, and hence less productive than our major competitors' machinery. Over 50 per cent of our paper-making machines were built before 1950, as compared with 25 per cent in the United States and 5 per cent in Scandinavia. The Canadian average for employee-hours required per tonne of newsprint is 50 per cent above the average required in Scandinavia, and 25 per cent above the U.S. average. Moreover, Canadian plants for fine papers and other specialized products are relatively small and inefficient. It will take substantial investment to bring this sector up to a world-competitive level.[9]

Large investments are also necessary in many areas of the wood-products sector. In British Columbia, for example, much of the existing equipment now in use was bought when first-growth timber was still plentiful, and it is unsuited to the smaller diameter of second-growth timber. Consequently, unit production costs are high. The Canadian Forestry Service informed this Commission:

> *The industry has a very good history of generating inventions in the processing of wood and developing wood products. However, limited empirical studies of the sector's technological productivity suggest that it has not been particularly innovative in implementing new technologies . . . In brief, the capital plant of the sector has been heavily run down and has simply not kept pace with international competitors.* (Canadian Forestry Service, Brief, February 10, 1984, p. 4.)

All projections of Canadian production and exports must be considered tentative. Table 12-8 summarizes one set of projections. Exports are expected to grow somewhat more slowly than domestic shipments, that is, at annual rates of about 2 per cent for woodpulp, and paper and allied products, and 2.2

per cent for lumber and other wood products. Even these estimates will prove overly optimistic if the United States realizes the projections mentioned earlier for growth of its domestic supply. To compensate for this loss, Canada would have to find huge new markets in the rest of the world. Given the current and prospective development of plantation forestry in the southern hemisphere, this would be a difficult challenge. Of a range of estimates provided by British Columbia's Ministry of Forests, the Economic Council of Canada considers as "most likely" a scenario, based on future demand as well as on supply factors, in which provincial harvests expand at only 1 per cent per year until 2000.[10]

Finally, there is the matter of future employment levels in the forest-products industry. The prospect is not encouraging. The Department of Regional Industrial Expansion (DRIE) estimates that employment cuts may be kept to 10 per cent from currently depressed levels, given possible new investment and modernization of the industry. If such investment is not undertaken, labour-force reductions could approach 20 per cent. Other sources predict still higher unemployment effects for some regions and for some sectors of the industry. The forestry subsector least likely to experience declines is pulp production.[11]

Issues and Recommendations

Although the predicted industry-growth rates are less than those experienced in earlier years, they nevertheless represent substantially increased consumption of Canadian forest products. A 2 per cent annual compound growth rate for the forest industry implies that the demand for Canadian products will increase by more than 37 per cent by the year 2000, and by more than 67 per cent by the year 2010. A 2.5 per cent growth rate would require increases in output of nearly 50 per cent and 90 per cent respectively.

In fact, our ability to meet even the minimum projected increases in market potential is by no means assured. Contrary to the belief of many Canadians, we do not have limitless supplies of high-grade accessible timber. There are

TABLE 12-8 Canadian Projections for the Forestry Industries, 1980–95

	(per cent per year)		
Industries	**Total Shipments**	**Domestic Shipments**	**Exports**
Logging	2.0	2.0	N.A.
Lumber and other wood products	2.4	2.7	2.2
Paper and allied products (including woodpulp)	2.2	2.4	2.0

Sources: *Interim Report of the Forest Industries Advisory Committee* (Ottawa: Minister of Supply and Services Canada, 1983); and John Wansbrough, "Sectional View of the Longer Term: Forest Products", in *Long-term Economic Prospects for Canada: A Symposium*, vol. 23, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada, (Toronto: University of Toronto Press, 1985).

also grounds for concern about the age of the capital stock in the industry, as well as about labour relations, government policies and the state of research and development. It is clear that we face some real problems in this sector, problems that need attention soon if we are to continue to prosper as a significant international producer.

Timber Supply

Our supply of softwoods is declining rapidly, and in many regions of Canada, it will not be possible to sustain our present levels of production, even if the current decline is arrested. (Canadian Institute of Forestry, Brief, October 31, 1983, p. 9.)

[The lumber industry's] problem is going to be one of supply. Our fibre is limited. Unless we husband it extremely well and use every management tool, we are going to be short of fibre. (Maritime Lumber Bureau, Transcript, Fredericton, September 23, 1983 [vol. 15], p. 3553.)

Forests cover 44 per cent of our country's total area and represent 15 per cent of the world's forest lands. Quantity, however, is one thing and quality another. Less than half of Canada's forest area consists of stocked and productive lands. Furthermore, much of our productive forest land supports understocked forests of low quality. A unit of forest land in Canada supports much less wood than the same unit supports in Europe or in the United States. Finally, the forest-land base in Canada has been declining in the face of agricultural expansion, growing recreational land use, overharvesting, and poor management practices. Therefore, Canada's timber supply is not nearly as large relative to annual harvests as was once thought.

The peak harvest year to date was 1979. The difference between the harvest that year and the regulated annual allowable cut (AAC) is the theoretical timber reserve, or the amount by which the industry could theoretically expand the annual harvest. The size of the theoretical reserve for softwood timber (37 per cent above the AAC) would appear to suggest that the predicted 2 per cent annual increase in the softwood harvest could be achieved. However, a host of factors reduces the amount of timber worth harvesting, given existing and anticipated price and cost factors. These factors include inaccessibility; small size, poor quality or inappropriate mix of trees in relation to the available processing facilities; and inferior land bases for which reforestation is uneconomic. In addition, the AAC estimates for some areas are gross figures that ignore losses arising from forest fires, disease and insect destruction. Such losses are substantial: in the late 1970s, they were equal to about 80 per cent of the annual harvest.

When reserves of softwood are realistically evaluated, only Alberta has much scope for increased production on the basis of existing forest stands. Alberta's potential is almost double its 1979 harvest level.[12] For the nation as a whole, 2 per cent annual growth in the rate of softwood harvesting would create a deficit by 1995. Hardwood is another matter: projections indicate that reserves will still be substantial in 1995, amounting to nearly 160 per cent of requirements. Hardwood harvests, however, currently represent only a small proportion of total wood production in Canada.

Forest reserves have dwindled because the current forest-management policies of governments and the forest industry have failed to ensure adequate levels of reforestation. Canadians cut over an area of about 770 000 hectares annually. The area replanted or seeded annually is approximately 240 000 hectares.[13] The Canadian Forestry Service estimates that 25 to 50 per cent of the area harvested annually fails to regenerate or reverts to non-commercial stocks. According to the Science Council of Canada, 25 million hectares of formerly productive forest land are now in a waste state.[14] This area is equal to one-eighth of Canada's surviving productive forest land.

Poor harvesting and management practices are not the only cause of shrinking forest reserves. For every hectare of wood harvested between 1975 and 1979, nearly two hectares were consumed in forest fires, amounting to an average annual loss of 1.46 million hectares of forest. No more than half the total area of burned-over land will return naturally to commercially productive forest. Yet little of this land is being reforested. Other stands of timber are lost to insects, disease and windthrow. During the 1970s, the spruce budworm damaged nearly 75 million hectares of forest in the Atlantic provinces, Quebec, and Ontario, an area almost three-quarters of Ontario's size. And, of course, some productive forest land is converted each year to other uses.

In total, we are losing coniferous forest alone at a rate of about 1 million hectares per year.[15] This figure does not take into account the significant damage by acid rain that is likely to occur in future decades. Research sponsored by the federal government has confirmed that acid rain reduces the germination rate and early growth of a variety of tree species. Over 38 million hectares of forest in eastern Canada may be subject to damage from this source.

The problems of our forests are not insoluable. Intensive silviculture, which involves genetic improvement, proper site preparation, prompt reforestation, fertilization, removal of brush and weeds, and commercial thinning, can produce average annual timber growth several times greater than the current average AAC per hectare for all of Canada. Any major reforestation and management programs undertaken in the near future, however, will not result in enhanced yields until well into the next century. As one intervenor suggested, the redemption of our forests is both an urgent task and one that will require great patience:

> *To work for the development of our forests is to work today for a distant future. Actions taken in 1984 will not produce results for 30, 40, 50, or even 80 years, but they have to be taken now if we don't want to sacrifice our forests. If it isn't done today, we'll lose them.*
>
> (Canadian Federation of Professional Foresters' Association, Transcript, Hull, December 14, 1983 [vol. 71], p. 14697.)

It will be difficult to design a policy that will embody enough patience to wait for trees to grow to maturity. Nevertheless, a policy of intensive forest management, that is, of forest husbandry, is essential. The Commissioners would invoke the familiar adage that a forest is not a gift we inherit from our ancestors, but rather a resource we borrow from our children and our grandchildren.

Land Tenure

One serious obstacle to proper long-term forest management in Canada is our system of forest-land tenure. In the United States, Sweden and Finland, about three-quarters of commercial forest land is privately owned. While private ownership is extensive in some provinces – 73 per cent of Nova Scotia's forest land is in private hands, for instance – the figure for Canada as a whole is only 6 per cent. The remainder is Crown land controlled chiefly by the provinces, which delegate responsibility for forest-lands management to the private sector under various term licensing arrangements. From the public's point of view, this system has the advantage that it gives ultimate control over resource exploitation and management to government, and yet makes use of the labour and capital resources, organizational skills and operational efficiency of the private sector. The province's right to compensation for use of the publicly owned resource is upheld through the collection of stumpage fees on harvesting.

This system has a fundamental disadvantage: it is extremely difficult to design a tenure arrangement that will create sufficient economic incentives to ensure the efficient long-term management of timber resources. A private company will harvest timber at an optimal rate only if it bears the full opportunity costs of holding the timber as uncut inventory and has security of tenure for at least the period necessary for the forest to mature. Similarly, a private company will invest in reforestation and stand-improvement projects only if it can be certain that its tenure will be upheld over a term of several decades. Although forest tenure is usually renewable, the terms of tenure are subject both to periodic revision and to statutory amendment. For example, British Columbia granted Forest Management Licenses "in perpetuity" in 1947, only to reduce their term to 21-years renewable a mere 11 years later. Given that in Canada a stand of softwood trees takes 50 to 80 years to mature, the uncertainties generated by this system are obvious.

Because licensees have little inducement to engage in good management, government is obliged to intervene. Most licensing agreements specify harvest rates and recovery standards and require reforestation to some minimum standard. The Crown meets the costs of these contractual obligations by providing credits against stumpage payments. As a rule, it also extends credits for approved silvicultural management beyond the contractual minimum. In practice, however, these credits rarely provide an incentive sufficient to encourage licensees to pursue a standard higher than the minimum.

A recent Economic Council of Canada report[16] rejects one alternative: selling Crown forest lands to the private sector; it gives several grounds for doing so. This action would result in an unacceptably high level of concentration in the ownership of the resource. It would leave some problems of market failure unsolved. The transition from public to private ownership would bring dislocation and uncertainty and thus delay required investment. Finally, in the Council's judgement, "privatization" of our forests would be politically unpopular and therefore, presumably, politically infeasible.

It should be possible to design systems of land tenure short of private ownership that would provide some incentive to licensees to practice more

efficient forest management. One simple improvement would be an increase in the duration of leasing agreements. This Commission recommends that leases be extended to coincide with the average maturation periods of the various tree species to which they apply, thus giving lessees a long-range incentive to protect and maintain the forest. This arrangement would not end the responsibility of government foresters to oversee the forest-management practices of the private occupier. Nor would this task exhaust the role of government. Commissioners see a need for a dramatic increase in public expenditure for forest renewal, forest protection and forest management.

Investment in Forest Renewal and Management

What scale of investment, public or private, would be needed to upgrade our forests and guarantee their future productivity? Estimates vary, but all are in the range of hundreds of millions of dollars. The Association of British Columbia Professional Foresters gave Commissioners an annual figure of from $700 million to $1 billion.[17] The 1981 National Forestry Conference in Banff recommended that expenditure on silviculture be raised to $600 million annually, approximately the expenditure required to raise the practice of silviculture in Canada to the level of practice in Sweden.[18] Currently, annual spending in Canada on silviculture, public and private, amounts to $240 million.

Commissioners recommend that provincial governments dramatically increase their expenditures for reforestation, for forest protection, and for silviculture generally, in keeping with the scope of the problem. Management of the resource falls squarely within provincial jurisdiction, and it is the provinces that will receive the direct benefits of investment in the form of higher stumpage fees. The monies should be dispensed on a case-by-case basis and only after careful study of the project's costs and potential benefits.

If Canada is to increase its standard of forest management, then we must also increase our expenditure for forest-service staff and for research. We lack enough professional and scientific personnel to carry out adequate forest management. The Scandinavian countries and the United States employ one professional forester for every 15 000 hectares of forest land. Canada employs one forester for every 43 000 hectares of forest land, and only a very small proportion of these are actively engaged in the field, making the actual ratio one forester to 380 000 hectares of forest. This Commission recommends major assistance for Canada's schools of forestry.

Canada also lags behind other countries in forestry research. In the fiscal year 1981–82, the federal government and the provinces together spent $56 million on research related to forest management. The benefits that arise from forestry research can be very large: the U.S. Forestry Service has estimated that the average benefit-to-cost ratio for its forestry research is 50:1.[19] A few case studies in Canada indicate that the ratio in this country is even higher.[20]

Increased research is needed in two broad areas. First, Canadians must seek new ways to protect and improve the resource base: to limit insect damage, control disease and increase yields. This research should be modelled

on a systems approach, to include overall management strategies designed to put the Canadian forest back on a sustained-yield basis. Research should also be directed to the development of new varieties of trees. Development of fast-growing hardwoods would clearly benefit the Canadian industry. Softwoods take 50 to 80 years to mature; the hybrid poplar can be harvested in about 12 years. Hardwood fibres, which are much shorter than softwood fibres, cannot be used with current newsprint technology. At present, hardwood pulp is used on only a very limited basis, mostly for waferboard and fine papers. However, in view of the indications for future softwood supply and our substantial surplus of hardwoods, research that led to wider use of hardwoods could bring high returns. Given the importance of our forest industry and the obvious market failures described above, a case can be made for government participation in general research, such as an effort to develop faster-growing trees. Here we see a continuation of the traditional role of the federal government, in association with industry and provincial governments.

The private sector should bear the main responsibility for product and process innovation. Innovation characterizes any viable industry, and there is no more reason for government to subsidize innovation in forestry than there is reason for it to subsidize innovation in other sectors. In fact, government aid in the areas of reforestation, silviculture and basic research should be contingent on industry investment both in product and process innovation and in modern plant and equipment. If the public is to direct hundreds of millions of dollars annually toward the forestry sector, it must have some guarantee that the companies involved will carry their share as well.

While most of the Canadian forest is owned by the Crown, there are important holdings in private hands, particularly in the Great Lakes-St. Lawrence region and in New Brunswick and Nova Scotia. Private landowners, like the lessees of Crown lands, must be encouraged to carry out good forest practices. At present, certain aspects of public policy work against such practices and, in particular, fail to recognize the multi-generational nature of forestry. For example, the income-tax system encourages a private landowner to sell a forest stand outright to a jobber who will then clear-cut it, with no reforestation. The landowner who takes this course is subject to a capital gains tax at half the regular tax rate, whereas careful management and judicious harvesting would involve him in annual expenditure and potentially subject him to his full personal or corporate tax rate at the time of harvest. Stumpage would be sounder than a continuing property tax as a way of securing a return to provincial and local governments. Some provinces have recognized this situation: Ontario's Woodlands Improvement Act, for example, provides for a rebate of taxes on lands that are maintained in forest condition. Commissioners recommend that provincial governments actively pursue such policies, which can do much to assure proper management of existing stands and a rapid return to forest status of lands best suited to that use.

Given that private forest holdings are generally more accessible than most Crown lands to both markets and recreational use, and that they are capable of sustaining a wider range of tree species than lands within the boreal forest

region, the policies of all three levels of government should encourage the practice of good forest management on private landholdings.

This example illustrates the close link between taxation and the issues of forest management and development. Obviously, the taxation system is one important channel through which government could provide increased incentives for productive forest management to the forestry sector. As we move into a new era in Canadian forestry that will place more emphasis on proper husbandry, it will be necessary to re-examine the taxation structures now in place. A tax system that worked in an era of relatively cheap and plentiful timber may not work now.

Federal-Provincial Co-operation

In the course of the consultative process, Commissioners found broad support for some sort of nation-wide forestry plan or strategy:

> *Both levels of government must pursue a policy of investment in the development of our forests, private and public.*
>
> (*Fédération de l'UPA du Saguenay-Lac-St-Jean*, Transcript, Chicoutimi, October 27, 1983 [vol. 35], p. 6855.)

> *It is imperative for federal-provincial agreements to be established to provide for commitment and continuity for forest management in a more meaningful and rational manner than heretofore.*
>
> (Canadian Forestry Association, Brief, September 26, 1983, p. 18.)

Commissioners agree that forestry is an area where enhanced federal-provincial co-operation is called for. We have already indicated the ways in which we see responsibilities being divided in the areas of reforestation, silviculture, and basic research. Other opportunities for co-operation will occur in the context of regional development policies involving forestry projects. The future of our forests is so critical to so many Canadians living in so many locations that jurisdictional issues cannot be permitted to hold up progress.

Conclusions

The forest products sector is typical of the state of natural resources in Canada. The sector is extraordinarily important to our country and especially so to some regions. The future seems bright enough, but not as robust as the past. In any event, there are serious and obvious failures of management which, if corrected, would provide a greater degree of assurance in the period of slower growth and tough competition ahead.

Much greater federal-provincial co-operation will be necessary to undertake policies that will:

- Increase substantially the investment in forest renewal, protection and management by the public sector, in return for performance and modernization guarantees by the forest companies
- Enhance the timber supply through a more intensive system of forest husbandry. Additional research funds will be required.

- Modify the forest-land/tenure system by extending the duration of leasing agreements
- Adjust the tax system so as to encourage proper maintenance of private woodlots.

Notes

1. Economic Council of Canada, *Western Transition* (Ottawa: Minister of Supply and Services Canada, 1984), p. 43.
2. Canadian Pulp and Paper Association, Brief, October 14, 1983, p. 17.
3. Peter Graff, "Paper Consumption – A Global Forecast", *Pulp and Paper International* (May 1983), p. 58.
4. Kenneth R. Farrell, Fred H. Sanderson, Trang T. Vo, and Michael F. Brewer, "Meeting Future Needs for United States Food, Fiber and Forest Products", in Joint Council on Food and Agricultural Sciences, *Reference Document: Needs Assessment for Food and Agricultural Sciences* (Washington, D.C., 1984).
5. *Ibid.*
6. John Spears and Edward S. Ayensu, "Sectoral Paper on Forestry", background paper prepared for the conference The Global Possible: Resources, Development and the New Century (Washington, D.C.: World Resources Institute, 1984).
7. Claes G. Hall, "Brazil and Its Economy – A Few Highlights" (mimeo, 1984).
8. Raymond R. Pinard, "The Forest Industry: Main Driving Force of Quebec's Industry", 1983–84 Hautes Études Commerciales Lectures (Montreal: DOMTAR, 1984).
9. Canada, Department of Regional Industrial Expansion, "Canadian Forest Product Industries: Vol. 1, An Assessment of the Pulp and Paper Industries; Vol. 2, An Assessment of the Lumber and Panel Industries" (Ottawa: The Department, 1984).
10. Economic Council, *Western Transition*, p. 45.
11. Department of Regional Industrial Expansion, "Canadian Forest Product Industries".
12. F.L.C. Reed and Associates Ltd., "Recent Reductions in the Canadian Timber Base", in Proceedings of the Canadian Forest Congress, Toronto, 1980, Appendix 4, p. 171.
13. Canadian Forestry Service, *Selected Forestry Statistics* (Ottawa, 1984).
14. Science Council of Canada, *Canada's Threatened Forests* (Ottawa: The Council, 1983).
15. Canadian Institute of Forestry, Brief, October 31, 1983, p. 8.
16. Economic Council, *Western Transition*, p. 53.
17. Association of British Columbia Professional Foresters, Brief, September 23, 1983, p. 7.
18. See Barry Sadler, ed., *Canada's Forests: Transition to Management*, proceedings of the National Resources Conference 1981 (Banff: Banff Centre, School of Management, 1982), p. 103.
19. Science Council, *Canada's Threatened Forests*, p. 12.
20. *Ibid.*

Fisheries

Profile

Fishing is Canada's oldest industry. Portuguese boats were visiting the bountiful Grand Banks regularly by 1450, a half century before the lands of what we now know as Canada were officially "discovered". Today Canada is the world's largest exporter of fish, although the total Canadian catch represents just 2 per cent of the world total. The catching and processing of fish contributed nearly $1.3 billion to Canadian gross domestic product (GDP) in 1982 and employed 100 000 people.

There are three separate fisheries in Canada. The largest, the Atlantic coast fishery, accounted for 82 per cent of total tonnage and 71 per cent of total value of output in 1983. The catch is dominated by groundfish, mostly cod, and by luxury species of shellfish, in particular scallops and lobster. On the Pacific coast, the catch consists largely of herring, most of it destined for the Japanese roe market, and of highly valuable salmon. Though the commercial catch of freshwater fish in Canada is small in relation to the catch of marine fish, it is by no means insignificant. In 1983, it accounted for 3.6 per cent by weight and nearly 5.5 per cent by value of Canada's total fisheries harvest. Freshwater fisheries are especially important to Native communities throughout Canada.

Approximately 80 per cent of Canada's total annual fish catch is exported. Table 12-9 shows that our largest customer is the United States, followed by the countries of the European Community (EC) and Japan. Although we rank first in value of exports in world markets, earning nearly $1.6 billion in 1984, our shipments make up only about 8 per cent of total value of trade in fish products. As a result, most of the Canadian industry has little market power in world fish markets; the exception is the British Columbia roe-herring industry. Control of markets for Canadian fish generally lies in the hands of American buyers.

TABLE 12-9 Canadian Fish Products Exports 1975–84

	1975–76	1983–84
Average annual value of exports (current dollars)	$459 million	$1 559 million
Percentage of total Canadian exports	1.4	1.4
Distribution of trade (%)	**1976**	**1984**
United States	67.9	60.9
Japan	1.7	14.8
European Community	18.3	13.2
Other	12.1	11.1
	100.0	100.0

Sources: Statistics Canada, *Summary of External Trade* (December 1976 and December 1984), Cat. No. 65-001 (Ottawa: Minister of Supply and Services Canada, 1977, 1985).

Fishing and fish processing provide only 0.4 per cent of Canada's GDP and employ approximately 1 per cent of our labour force. In British Columbia, the fishery accounts for less than 2 per cent of total employment. In the Atlantic region, however, fishery employment ranges from nearly 3 per cent of the labour force in New Brunswick to 20 per cent in Newfoundland. More than one-quarter of the total population of the Atlantic provinces lives in 1339 small fishing communities. At least half of these communities have essentially single-sector economies in which fishing and processing plants employ 30 per cent or more of the labour force.[1] These facts highlight the cultural, economic, and community significance of the fishing industry throughout the Atlantic region. As the President of the Canadian Saltfish Corporation stated at this Commission's hearing in St. John's:

> *In terms of Canada's GNP, [the fishery] is not of great consequence in total figures. In terms of the social and political and economic realities of Newfoundland, it is of tremendous significance. That must be recognized.*
>
> (Bill Wells, Transcript, St. John's, September 21, 1983 [vol. 12], pp. 2821–22.)

Prospects

The United Nations' Food and Agriculture Organization (FAO) has projected that the global demand for fish protein in 2000 could be more than double the demand in 1980 if relative prices for fish were to remain stable. It expects the demand for fish (and for food commodities generally) to expand most rapidly in the developing nations.[2]

If recent growth in the world catch is any indication of future supplies, we can anticipate a global shortfall by 2000. The world fishing industry experienced a dramatic decline in the rate of growth in landings during the 1970s. Throughout the 1950s and 1960s, the total saltwater and freshwater catch grew at an average annual rate of almost 6 per cent, from 22 to 71 million tonnes, but since the mid-1970s, the ocean catch has grown at a rate of about 1 per cent per year. The freshwater harvest in 1981 was 12 per cent lower than the harvest in 1970. The main reason for the decline is simply that global fish stocks are limited: some species are already over-fished and others are nearing that point. The dramatic reduction in 1973 of the Peruvian anchoveta harvest, from 13 million to 1.7 million tonnes, was the result both of over-fishing and of a great drop in the supply of plankton in 1972. This catch is still at least 80 per cent below the catch in 1970.

In Canada, too, over-fishing caused a severe decline in landings for some species in the 1970s. The greatest declines were in the Atlantic coast's gulf-herring fishery and in the catches for some types of Pacific salmon. The rebuilding of stocks has begun, but problems remain. Gulf herring is coming back only very slowly. In British Columbia, the management of salmon stocks is increasingly complicated by the effects on upstream spawning areas and downstream transit areas of forestry, irrigation, flood control, hydroelectric power generation, pollution, and urban and industrial development. Effective salmon-fishery management requires a highly sophisticated and carefully co-ordinated management plan for entire river basins. This represents an

expensive and a politically sensitive undertaking, not least because it involves both the federal government and the province.

On balance, however, the volume of most Canadian fish stocks, if effectively managed, should be more than sufficient to reach predicted levels of future domestic and export demand. Although the biological limits of prudent harvesting have been reached, or nearly reached, for some stocks, other stocks are still well above their equilibrium populations. Cod landings are expected to increase by perhaps 75 per cent over 1982 levels by 1987, and the potential for yield increases in some salmon stocks is also very large.[3] Other potentially commercial stocks – redfish and Greenland halibut, for example – are now only lightly fished because of persistent weakness in traditional markets. Thus, while dwindling supplies constitute the long-term problem for the world as a whole, the principal problem for Canada, particularly in the next decade, is how to secure access to foreign markets and deliver the product to meet the quality and taste features demanded. For a few important high-value species such as scallops, lobster and Pacific roe herring, there is no shortage of demand. One intervenor described the situation as follows:

> *I think that fish, unlike the forest industry and the agriculture industry in Atlantic Canada still has considerable growth potential . . . The problem in the Atlantic fishery tends to be more a superabundance of fish and an inability to market it profitably, than it is a threat to the resource.*
>
> (Peter J. Nicholson, Transcript, Halifax, June 5, 1984 [vol. 5], pp. 1166–67.)

The potential for expansion in the Canadian market is relatively small. Our annual consumption of fish is very low – less than 7 kilograms per capita – but amounts vary substantially across regions. Domestic consumption amounts to about 20 per cent of domestic production. In the future, it is very unlikely to rise enough to match potential expansion in output; however, better distribution, particularly to regions with below-average per capita consumption, would improve the delivered product and increase consumption. Higher volumes of exports are the only viable solution.

The United States is Canada's largest export market. However, fish accounts for only 5.5 per cent of American consumption of animal protein. Groundfish, including cod, the major source of Canada's anticipated growth in supply, accounts for only 1.7 per cent. In order to absorb the anticipated expansion in Canadian cod output, Americans would have to increase their consumption of fish by one pound per capita, or about 7 per cent. If prices for fish products increase only modestly in the future, consumption may increase, and the development of new fish products might attract new buyers. In addition, a substantial and sustained advertising program could help to shift consumer demand from red meats and chicken to fish products. Larger and more dependable supplies of good-quality fresh fish offer by far our greatest market opportunity. It should be noted, however, that Canadian fresh fish exports, particularly of cod, haddock, and flounder, face perennial protectionist agitation by segments of the American fishing industry, a factor that could constrain future exports.

Japan has provided an increasingly important export market for Canadian fish in recent years: its share of Canadian exports increased from less than 2 per cent in 1976 to 14.8 per cent in 1984. On the other hand, increases in exports to Europe are likely to be limited by tariffs and quotas that give the Scandinavian countries privileged access. Expanded market access for Canadian groundfish in Europe is important. The strategy of several European fishing nations appears to be to limit or deny Canadian access to the European market in order to force Canada to concede quotas inside the 200-mile zone. European freezer trawlers produce for the higher-value portion of the market, confining Canadian exports largely to salt cod and some frozen products.

If Canada is to increase its share of markets, domestic and foreign, it must build a reputation for superior quality and quality consistency, particularly in frozen groundfish products. In the past, a reputation for inconsistent quality has damaged our country's position in the world market to some degree. One result has been Iceland's capture of most of the "high quality" frozen cod market in the United States, although Canada has recently made encouraging strides towards gaining a share of this market. The Japanese and western European markets are extremely quality-conscious, and they have come to expect a number of products to possess a freshness that is possible only if the fish has been processed and frozen at sea.

Canadian fisheries policy has forbidden the use by our own fishermen of the freezer-factory trawlers that are routinely employed by the Japanese, the West Germans, the French, and, recently, the Americans. The purpose of the prohibition has been to protect on-shore plant employment, but this objective must now be weighed against the increasing cost of missed opportunities to diversify our markets and take maximum advantage of currently underutilized species. Unless we open significant new outlets for increased production, we can only expect continuing price depression in our traditional market, the United States, with the effect that the future of existing shore-based employment will remain precarious and confined to traditional species.

What of the rapidly growing markets for fish products in the developing nations? While there will certainly be some opportunities for increasing Canadian exports of fish to these markets, they will be limited by the perishability of the product, given current technology and delivery systems, and by the relative poverty of many of the developing countries.

Issues and Recommendations

The dominant theme of those who appeared before this Commission to discuss the fishery was one of missed opportunity. Many intervenors doubted the sector's ability to take full advantage of the great opportunities that do exist, and there was no hesitation in identifying where the problems lie:

> *The current crisis in our fishery is perhaps an excellent example of the economic enterprise allowed to flounder because of lack of management, innovation, productivity and market development.*
>
> (Sandy Cameron, Transcript, Halifax, October 13, 1983 [vol. 24], p. 4621.)

With the extension of jurisdiction, when [we] finally had a nation that was prepared and had the capability to control the resource, to husband it and farm it and then develop a pattern of harvesting production and marketing to take advantage of the resource, for the first time in 400 years of history, that opportunity presented itself and we completely blew it.

(Bill Wells, Transcript, St. John's, September 21, 1983 [vol. 12], p. 2824.)

Fishing has been the object of a series of inquiries that stretch back into the last century. Two recent inquiries undertaken by the Commission on Pacific Fisheries Policy (the Pearse Commission) and the Task Force on the Atlantic Fisheries (the Kirby Task Force) have identified the major problems facing the industry on each coast and have made many recommendations for reform. Much of the analysis that follows has been adapted from the reports of these bodies.[4]

Overcapacity

Overcapacity abounds in both the harvesting and the processing sectors of the fishing industry. There was a rapid increase in capital investment and employment in the fisheries just before and again after the introduction of the 200-mile limit in 1977. The increase was based on an expectation, encouraged by both the federal government and the interested provinces, that Canadians would now have access to greater fish stocks, and that export demand would increase as a result of the exclusion of foreign fleets. Notwithstanding its own dire warnings that the fishery resource could not sustain many of the grandiose schemes being proposed, the Department of Fisheries and Oceans permitted the number of licensed fishermen on the Atlantic coast alone to increase by 45 per cent between 1974 and 1981. Between 1977 and 1981, the number of east coast processing facilities, under provincial jurisdiction, but with financial encouragement from programs delivered by the federal government's Department of Regional Economic Expansion (DREE), rose by 35 per cent. In the same period, employment in the fishing sector on the Pacific coast increased by 37 per cent. On neither coast, however, did the anticipated export boom occur, although a few markets, such as the Japanese market for Pacific salmon, did create a market for increased Canadian exports. It is clear, in the circumstances, that expansion has been excessive.

The basic source of overcapacity lies in the common-property aspect of the resource. The lack of identifiable ownership of the fish stocks both encourages a higher than optimal number of participants to remain in the industry and provides an incentive for each participant to maximize potential catch through investment in gear. A more powerful vessel enables an individual fisherman to anticipate a larger share of a common quota. Since everyone reasons similarly, the result is a fleet of more powerful and more expensive vessels, without any increase in each fisherman's share of the quota. In some fisheries, the result of intensive competition for limited stocks has been a depletion of the resource. In most fisheries, the result is excess capacity and thus lower profitability. Appropriate regulation of the fisheries requires both allocation of the stock and prevention of overinvestment in gear on the part of individuals.

Overcapacity in processing plants also arises, unavoidably, from the seasonal nature of the inshore fisheries. Because plants are built to handle peak capacity and are idle for much of the year, profitability is lower than it would be in less seasonally oriented sectors. The seasonal peaking also strains quality control.

Possible solutions to the problem of overcapacity in the harvesting sector will be taken up below. As for overcapacity in the processing sector, the Kirby Report advances a number of recommendations aimed at increasing off-season use of processing facilities. These recommendations include the establishment of specific allocations for "resource-short" plants in the off-peak season, the freezing of a portion of the summer inshore catch for off-season processing, and the introduction of an intermediate-sized vessel, the so-called "Scandinavian longliner", that would be able to operate almost year round off the northeastern coast of Newfoundland.

Income

Another important issue in the Canadian fishing industry, one obviously related to overcapacity in the harvesting sector, is the generally inadequate level of income earned from fishing. In the Atlantic industry, in particular, many fishermen must supplement their income from fishing with income from other sources, of which Unemployment Insurance (UI) is the most important. In 1981, the average income of full-time east coast fishermen was approximately $16 000; 75 per cent of this amount was derived from fishing and 16 per cent from UI. In the smaller Pacific-coast fishery, the average fishing income was roughly twice as high. The difference was partly a result of the higher value of Pacific species such as salmon and roe herring.

The Pearse Report urges review of the Unemployment Insurance provisions for fishermen. Contributions to Unemployment Insurance by fishermen fall far short of benefits received, a situation that encourages participation in an overcrowded activity. The Pearse Commission found that because of the shortness of the fishing season for most fishermen, the contributions of west coast fishermen amount to less than 5 per cent of the benefits received. Furthermore, the criteria for eligibility for seasonal benefits can result in pressures to alter fishing periods in order to comply with UI requirements. Average weekly catches, which determine benefits, usually decline near the end of the season and so have the effect of reducing benefits. Naturally, the fishermen tend to quit early to avoid this penalty.

The Kirby Report proposes a scheme that would replace Unemployment Insurance for fishermen with new production-bonus and income-stabilization programs. The federally funded production bonus would consist of cash credits paid in the off-season and determined by criteria such as gross value of landings, fish quality, season of catch, and gear used. The gross-income/stabilization plan (based on a rolling five-year period) would be funded by the federal government and the participants in the program. The Kirby Report suggested that pilot projects be designed to test these ideas.

Commissioners' general recommendations about unemployment insurance appear in the section of Part V that deals with social support. Fishing

Benefits, however, constitute an entirely separate program, only 10 per cent of which is financed from premium contributions of fishermen and 90 per cent from consolidated revenues.[5] It is therefore more appropriately dealt with here.

This Commission believes that both the general economic foundation of the fishery and the ultimate welfare of those remaining in fishing will be better served if the fishing-benefits provision of the UI program is terminated and replaced by an income-stabilization scheme of the type recommended in the Kirby Report. The substitution of such a scheme was envisaged at the time of the 1971 amendments to the Unemployment Insurance Act, yet implementation has been repeatedly delayed by considerations very far removed from those of either efficiency or equity. After termination of Fishing Benefits, fishermen would be eligible not only for an income-stabilization scheme, but also for income supplementation under the Universal Income Security Program (UISP) proposed in Part V. Income from fishing and from the stabilization plan would be taken into account in determining UISP benefits. Consequently, lower-income fishermen would receive income support from UISP, while higher-income fishermen, many of whom now qualify for full UI benefits, would no longer receive assistance. The proposal would not reduce the total value of transfer payments to fishermen, but it would reallocate these funds according to criteria designed to promote more economically efficient behaviour.

Fleet Licensing and Allocation of Stocks

Both the Pearse and the Kirby Reports conclude that "quota licenses" or "enterprise allocations" are the preferred licensing practice where they are feasible. Quota licenses are similar to techniques used to regulate the use of other renewable resources (such as timber, water, and grazing land) in that the licence assigns a specific catch to each licensee. This system eliminates the basic cause of overcapacity (the common-property aspect of the fishery) and encourages participants to adapt their vessels and fishing methods in order to take the licensed catch at the lowest cost.

However, the effective use of quota licensing requires reliable information on fish landings. In addition, it is difficult to adjust quotas in fisheries where stocks fluctuate widely and unpredictably. These considerations preclude the use of quota licensing in the salmon and roe-herring fisheries. Consequently, the Pearse Report recommends the use of a revised limited-entry licensing system based on gear capacity in these two fisheries and a quota-licensing system in most other west coast fisheries. As noted above, the licensing procedure is an effective means of controlling fleet size. The Pearse Report recommends resort to a buy-back scheme to reduce the salmon and herring fleets by 50 per cent.

On the Atlantic coast, quota licensing is most feasible for trawlers longer than about 18 metres, for herring seiners, and for scallop draggers. Since the inshore fishery includes approximately 8000 smaller vessels, the monitoring of individual catches that a quota system requires would not be practical in this sector. It would be better to control the landings of inshore fishermen by

setting a limit on the amount of gear that each fisherman is allowed to use. The Kirby Report advises that licences should not be transferable between inshore and offshore sectors, but that "enterprise allocations" should be divisible and tradable within sectors. Since the report was received, the enterprise-allocations scheme has been formally implemented throughout the Atlantic offshore-trawler fishery and, on an experimental basis, for boats in the 16- to 19-metre range on Newfoundland's western coast. The method has been well received by fishermen and has not produced any serious practical problems.

The issue of inshore versus offshore allocation of stocks is contentious. At present, the two fisheries share the total catch about equally. Because of the employment patterns, however, the Atlantic inshore fishery (estimated at 85 to 90 per cent of fishermen, including the mid-shore fleet) is seen as the "social" fishery, while the offshore fishery, which covers 10 to 15 per cent of employment, is considered more efficient economically. However, as the Kirby Report notes, there are many particular situations that reverse this pattern. For example, the inshore fishery of southwestern Nova Scotia has had more economic success than the trawler-based fishery on Newfoundland's southern coast. Ultimately, the economics are determined by the practical length of the fishing season, the cost of catching, the inherent value of the stocks available, and the number of fishermen sharing the landed value of the catch in any given region.

Since the 200-mile limit was set in 1977, the inshore and offshore sectors of the Atlantic fishery have been engaged in a tug-of-war for allocations of fish stocks. While the conflict is real, the terms used to characterize it are misleading. At stake is not the distance from land at which fish are caught, but rather the control of resource supply and the timing of its delivery to processors.

Integrated, trawler-owning companies (the offshore sector) have sought the security of a year-round fish supply. This purpose has led them to oppose the award of larger allocations to independent fishermen (the inshore sector), who are generally unable to deliver fish throughout the year because of environmental factors, that is, the weather and fish migrations, and who are not bound to deliver their catches to any particular plant. The seasonal peaking of deliveries from the inshore fishery also causes difficulties in marketing.

While the struggle between fleet sectors and between provinces for larger shares of the resource is bound to continue, its intensity is likely to abate. In the first place, the rate of quota growth has slowed substantially, which means that there is much less "new fish" to fight over. Moreover, it has finally become widely recognized that the preoccupation with larger and larger catches is inappropriate in light of limitations in the market. Again, following the Kirby Report, the Department of Fisheries and Oceans has divided all Atlantic groundfish quotas into inshore and offshore percentage allocations that have been guaranteed to remain fixed for at least five years. Canadians may hope that this arrangement has eliminated most of the remaining potential for "inshore/offshore" conflict, at least for the medium term.

International Considerations

Fisheries policy and management are subject to influence by a variety of factors in the international environment. Foreign (mainly European) governments continue to seek permission to fish, particularly for cod, within the Canadian 200-mile limit. As a rule, these governments back up their requests both with an offer to give Canada preferred access to their own markets and with a threat to close their markets to our fish products unless we accede to their request.

The Kirby Report recommends that Canada develop and expand its markets by conventional means, rather than by making allocations to foreign fleets in return for access to their markets. It also calls for re-examination of Canada's traditional hostility toward foreign investment in our fishery. Foreign investment could afford access to new markets and new technology, as well as to badly needed capital. Ultimate government control of the resource provides a measure of protection of sovereign interests that is not available in many other sectors of the economy. However, little capital, Canadian or foreign, will be forthcoming as long as the currently available technology is barred from the Canadian fishery and access to the United States market remains insecure.

Some of Canada's fishery-development and management problems, particularly in the Pacific salmon and halibut fisheries, arise from conflict between Canadian and American fishery policies and programs, both at the federal level and the state or provincial level. These problems demand the bilateral negotiation of politically sensitive issues and the successful administration of bilateral commissions, such as the International Pacific Salmon Fisheries Commission (IPSFC) and the International Pacific Halibut Commission (IPHC). In addition, because Canada is a major coastal nation, it is both our responsibility and in our interest to maintain an active role in the negotiation of international issues under the Law of the Sea. By and large, the effect on the Pacific fishery of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), or the UNCLOS III "enclosure movement", has been to reinforce the vulnerability of Canadian fishery development and management to the vagaries of Canada-U.S. diplomacy and transboundary-management arrangements. Thus international pressures have reduced the Canadian halibut fishery. Some difficult diplomatic issues relating to the salmon fishery have been resolved: after 14 years of negotiation, the Pacific Salmon Treaty was signed in March 1985.

Aquaculture

Opportunities both for growth of supply and for reduction of seasonal unemployment in the fisheries may arise from the development of aquaculture (the raising of fish stocks within enclosures) and the culturing of shellfish. Salmon farming is in an early developmental stage in a few operations in British Columbia and on the Atlantic coast. The results so far are mixed, but many observers are optimistic about the future of these technologies.

Aquaculture has long been practised in Asia and Europe. Some European nations have now moved into aquaculture as a large commercial venture. In 1982, Norway and Denmark each produced about 20 000 tonnes of salmon and trout by aquaculture, a tonnage that Norway hopes to double shortly. In contrast, Canada's production by aquaculture of these two types of fish for 1982 was less than 800 tonnes. Oyster farming by Japan in 1982 amounted to about 250 000 tonnes, compared with Canada's 2000 tonnes.

The greatest advantage of aquaculture is that it enables producers to supply fresh fish of uniformly high quality on a regular basis. Aquaculture is also a means of providing alternate employment to some of the workers who withdraw from traditional fishing as excess capacity is reduced. Norway's aquaculture demonstrates both these features: it has at once moved strongly into European markets and provided direct employment (about 2000 person-years in 1983) in small seaside communities.

Aquaculture will probably be the area of greatest future growth in the world's fisheries. Like expenditure for basic agricultural and forestry research, expenditure for aquacultural research is not something that private producers undertake naturally. The amounts involved are too large, and the possibility of a direct pay-off is too small. Consequently, a substantial portion, but certainly not all, of the contribution must come from governments at both levels.

Employment, Efficiency, and Regional Development

Fisheries employment on both coasts is expected to decline over the next decade in response to reduction of excess capacity, modernization and rationalization. On the east coast, particularly in Newfoundland, these factors may be partly offset by greater production as cod stocks continue to increase over the next few years, but elsewhere the tendency is unambiguous. The challenge is to devise policies that will allow the number of people employed in the fishery to decline slowly. If the decline is gradual, it should be possible to ensure adequate incomes for those who remain and to develop other employment opportunities for those out of work. We deal elsewhere in this Report with adjustment assistance, and our recommendations there apply to the fisheries.

Fishery-policy issues in the Atlantic region have invariably had a political and cultural, as well as an economic, significance. Rationalization measures will unavoidably have implications for the coastal settlement pattern and for the rural way of life. It is difficult to envisage any formulation of fishery policy for the Atlantic coast that does not attempt to accommodate these concerns. Canadians have come to recognize the inevitability of balancing efficiency and social considerations. As Commissioners were told at our hearings:

> *This unique problem of, in some cases, a single industry dependence, and fluctuations in its economic environment can lead to social disruption and the constant debate between the industry's social goals and its economic efficiency.*
>
> (Fisheries Council of Canada, Brief, September 13, 1983, p. 4.)

The Kirby Report recognized this duality in setting out what it saw as two important objectives for the Atlantic fishery:

1. *The Atlantic fishing industry should be economically viable on an ongoing basis, where to be viable implies an ability to survive downturns with only a normal business failure rate and without government assistance.*
2. *Employment in the Atlantic fishing industry should be maximized subject to the constraint that those employed receive a reasonable income as a result of fishery-related income transfer payments.*[6]

The debate centres on the specific terms of the trade-off, that is, on the public cost implied by the trade-off in relation to both the resources of government and the values that Canadians assign to the preservation of certain traditions. Out of this implicit balance evolves a view of the proper role of government in fisheries policy and of the fishery in the social and economic development of the region.

There is little that this Report can add to the technical material already available in the reports of the Pearse Commission and the Kirby Task Force. We can only reiterate what is already obvious to many Canadians: that any change in fisheries policy is extraordinarily difficult to achieve because the industry has become inextricably bound up with regional development, employment policy and profound desires to preserve lifestyles and communities.

This Commission is convinced that Canadians are forgoing significant economic benefits from the fishing industry because of the way it is operated. The real issue may not be whether economic efficiency should override social objectives. Rather, it may be whether Canadians are prepared to implement the recommendations discussed in this section, applying the discipline required to facilitate adjustment and so attain a longer-term gain for both the "social" and the "economic" fisheries.

Conclusions

We Commissioners shall not attempt, at this point, to summarize the many recommendations we have referred to, but we shall make some suggestions which strike us as vital for the medium- and longer-term success of the Canadian fisheries. A secure access to export markets, particularly that of the United States, will require considerable attention. Quality and technological factors, including freezer ships, quality-related pricing, aquaculture, and less-perishable delivered products, will be important for the development of the fresh-fish and other markets.

Problems of overcapacity ought to be addressed along the lines of the Pearse and Kirby recommendations, a few of which are already being implemented to some extent. An income-stabilization scheme should replace the Fishing Benefits provision of the Unemployment Insurance program. The results of declining employment opportunities should be dealt with according to the proposals set out in Parts III, V and VI of this Report, where adjustment assistance and regional development are discussed.

Commissioners believe that if Canadians and their governments move in these directions, the fishery should continue to show potential for growth on a national basis. It should also have a pre-eminent part in preserving and enhancing the network of small communities of Canada's coastal regions.

Notes

1. Canada, Task Force on Atlantic Fisheries, *Navigating Troubled Waters: A New Policy for the Atlantic Fisheries* (Ottawa: Minister of Supply and Services Canada, 1982), p. 23 (Michael J.L. Kirby, Commissioner).
2. Food and Agriculture Organization of the United Nations, *Agriculture: Toward 2000* (Rome: FAO, 1981), p. 82.
3. See Task Force on Atlantic Fisheries, *Navigating Troubled Waters*, p. 49; and Canada, Commission on Pacific Fisheries Policy, *Turning the Tide: A New Policy for Canada's Pacific Fisheries* (Ottawa: Minister of Supply and Services Canada, 1982) (Peter H. Pearse, Commissioner).
4. Commission on Pacific Fisheries Policy, *Turning the Tide*; and Task Force on Atlantic Fisheries, *Navigating Troubled Waters*.
5. The financing for the national UI program is split 25/75, on average, when unemployment approximates 10 per cent; that is, 25 per cent is paid from consolidated revenue, and 75 per cent is paid from premiums. Fishermen represent an anomoly in the UI program, since many are self-employed and thus have no "employer contribution". The proportion of UI benefits paid from consolidated revenue would naturally tend to be higher than the national average.
6. Task Force on Atlantic Fisheries, *Navigating Troubled Waters*, p. 60.

Minerals

Profile

In the period leading up to the First World War, railway construction and the discovery of new deposits led to the establishment of the first permanent mining communities in Canada. These were places such as Glace Bay, founded in 1901; Kimberley, in 1892; Thetford Mines, in 1892; and Timmins, in 1912. In the 1920s, improved exploration and mining techniques, coupled with a sharp increase in the demand for minerals, stimulated more development. The greatest growth in mining occurred during the 25 years after 1945, and it was in those years that Canada attained its present prominence in the international minerals trade.

Table 12-10 shows Canada's output, our share of world output, and our rank among world producers for 14 major minerals (excluding oil and gas) in 1973 and 1983. For all of these minerals, except coal, Canada is among the top seven producing nations in the world. Overall, we are the world's largest exporter of minerals, selling over 80 per cent of our total production abroad. Nevertheless, Canada has not had for some time, and cannot now expect to have, much market power in mineral resources, with the possible exception of nickel. Competition from new sources has substantially reduced Canada's share of world production for several minerals. Between 1973 and 1983, nickel's share slipped from about 42 per cent to 19 per cent, asbestos slipped from about 42 per cent to 20 per cent, and silver dropped from over 16 per cent to less than 9 per cent. Smaller, but by no means trifling, declines occurred in our production shares for copper, zinc and lead. Only in the production of potash and sulphur has Canada's role increased significantly in recent years. Representatives of the Quebec mining industry told this Commission that:

> *The situation of the mining industry in Quebec is particularly gloomy. Over the past 10 years, copper production has dropped by 36 per cent, zinc production by 54 per cent, and asbestos production by 56 per cent. The production of iron ore has decreased by 25 per cent in the last five years. Only the production of gold has increased – by 145 per cent – in the course of the last decade.*
>
> (*Association des mines de métaux du Québec Inc.*, Transcript, Quebec City, October 25, 1983 [vol. 33], p. 6415.)

While Canada sells minerals to more than 100 countries, in 1983, Canada's most important foreign customers were the United States (60 per cent of exports), the European Community (15 per cent), and Japan (7.5 per cent). In 1983, the metallic and non-metallic minerals (excluding hydrocarbons) that brought the largest export revenues were aluminum, copper, iron ore, potash, nickel, zinc, asbestos, molybdenum and lead, in that order.

The minerals industry has played a pivotal role in the economic and regional development of our country. Today, the mining industry dominates economic activity in some 140 communities in every part of Canada,[1] although those employed directly in mining account for less than 2 per cent of the labour force. In value of mineral production (excluding hydrocarbons), Ontario ranked first among the provinces in 1984; it was followed by Quebec, British Columbia, Saskatchewan and Newfoundland.

TABLE 12-10 Canadian Production and World Rank of Major Minerals

Minerals	Canadian Production 1983 (1973)	Share of World Production 1983[a] (%) (share in 1973)	Canadian Rank in 1983[a] (rank in 1973)	Major Producers 1983 (rank)
Iron ore (mine production)	33.5 million t[b] (47.5 million t)	4.5 (5.7)	7 (4)	U.S.S.R. (1) Brazil (2) Australia (3) China (4) India (5) U.S.A. (6)
Copper (mine production)	653 000 t (824 000 t)	7.6 (11.3)	4 (3)	Chile (1) U.S.S.R. (2) U.S.A. (3) Zambia (5)
Nickel (mine production)	125 000 t (249 000 t)	19.1 (42.5)	2 (1)	U.S.S.R. (1) Australia (3) New Caledonia (4) Cuba (5)
Zinc (mine production)	988 000 t (1 226 000 t)	16.5 (22.4)	1 (1)	U.S.S.R. (2) Australia (3) Peru (4) U.S.A. (5)
Lead (mine production)	272 000 t (342 000 t)	7.3 (10.0)	4 (4)	U.S.S.R. (1) U.S.A. (2) Australia (3) Peru (5)
Gold (mine production)	73 512 kg (64 650 kg)	5.1 (4.7)	3 (3)	South Africa (1) U.S.S.R. (2) China (4) USA (5)
Silver (mine production)	1 197 t (1 477 t)	8.9 (16.3)	5 (1)	Mexico (1) Peru (2) U.S.S.R. (3) U.S.A. (4)
Molybdenum (Western world)	10 194 t (13 785 t)	16.7 (16.5)	4 (2)	Chile (1) U.S.A. (2) U.S.S.R. (3) Mexico (5)
Aluminum[c] (primary metal)	1 094 000 t (941 500 t)	7.6 (7.5)	3 (4)	U.S.A. (1) U.S.S.R. (2) West Germany (4) Norway (5)
Asbestos	858 000 t (1 690 000 t)	20.3 (41.5)	2 (1)	U.S.S.R. (1) South Africa (3) Zimbabwe (4) Brazil (5)

TABLE 12-10 (cont'd.)

Potash (K_2O equivalent)	6 294 000 t (4 453 000 t)	23.6 (19.9)	2 (2)	U.S.S.R. (1) E. Germany (3) W. Germany (4) France (5)
Sulphur (elemental)	6 631 000 t (4 168 000 t)	17.9 (14.5)	2 (2)	U.S.A. (1) U.S.S.R. (3) Poland (4) France (5)
Uranium[d] (U concentrates)	6 823 t (3 661 t)	19.2 (18.7)	2 (2)	U.S.A. (1) South Africa (3) Namibia (4)
Coal	44 787 000 t (20 473 000 t)	N.A.	N.A.	N.A.

Sources: Canada, Energy, Mines and Resources Canada, *Canadian Minerals Yearbook*, 1973, 1983, (Ottawa: Minister of Supply and Services Canada, 1975, 1984), Table 8, and *The Canadian Mineral Industry, Monthly Report* (January 1985), Table 3.

Note: N.A. = Not available. Canada does not rank in the world's top ten coal producers. The top five producers are the United States, the Soviet Union, China, Poland, and West Germany.

a. Preliminary figures.

b. t = tonnes.

c. Shipments rather than production.

d. Western world only.

As Table 12-11 shows, employment in metal and non-metal mining increased steadily in the 1960s to include about 87 000 persons by 1970. The 1970s saw fluctuations in metal-mining employment, but overall, mining employment in 1980 was the same as it had been in 1970. The recession of 1981–82 caused a significant shrinkage in mining employment. The job total had fallen below 79 000 by 1982, the lowest level since the mid 1960s. Certain regions, such as Quebec-Labrador and Yukon, were particularly hard hit. Employment in mineral-manufacturing industries grew more steadily between 1960 and 1980, reaching 180 000 in the latter year. The recent recession had an impact here, too: by 1982, the job total was 161 000.

Market structure in the minerals sector is dominated by a few multi-national corporations that often set prices among themselves in an oligopolistic style, and pre-empt the market through vertical integration and long-term contracts. For instance, the world prices for aluminum, asbestos, sulphur, uranium, and potash are set by multi-national corporations, as are the American, Canadian and South American prices for copper and zinc, and the European price for zinc. Because of weak demand, oligopolistic pricing of nickel and molybdenum has not been possible. Long-term contracts are very important for copper, iron ore, coal, manganese, bauxite, aluminum, and uranium.

TABLE 12-11 Number of Persons Employed in the Minerals Sector

	Mining-Industry Employment 1961–82[a]						
	1961	**1966**	**1970**	**1976**	**1980**	**1981**	**1982**
Metals	58 591	61 670	66 590	68 269	66 118	68 712	61 503
Non-metals	16 238	18 734	20 660	21 334	21 440	20 574	17 171
Total	74 829	80 404	87 250	89 603	87 558	89 286	78 674
	Mineral-Manufacturing/Industry[b] Employment 1963–82[a]						
	1963[c]	**1966**	**1970**	**1976**	**1980**	**1981**	**1982**
Primary metal industries	91 621	110 303	116 545	117 041	126 450	125 168	113 215
Non-metallic mineral products industries	44 487	51 144	49 428	55 021	56 086	55 269	47 949
Total	136 108	161 447	165 973	172 062	182 536	180 437	161 164

Source: Canada, Energy, Mines and Resources Canada, *Canadian Minerals Yearbook 1970, 1975, 1984–85* (Ottawa: Minister of Supply and Services Canada, 1972, 1977, 1985), Statistical Summary.

a. Includes production, administrative and office workers. Excludes fuels, except for petroleum refining.

b. Includes metal rolling, casting, iron foundries, iron and steel mills, cement, lime and clay products, glass manufacturing, petroleum refining.

c. Figures for 1961 are unavailable.

World output of most minerals grew rapidly during the 1950s and 1960s. In the same period, average prices declined. In the 1970s, however, growth in output fell sharply, while prices reversed their long decline and underwent a significant rise. The price increases of the 1970s were not caused by a failure to provide new reserves, for reserves continued to swell. They were caused, in part, by the sharp rise in the price of oil during the 1970s, since energy cost is a sizeable factor in the cost of minerals production. Rising concern about the environmental and health hazards associated with the production of minerals has also resulted in higher costs for producers.

Prospects

Commissioners encountered a wide range of views about the future prospects for Canada's mining industries. Some intervenors were quite optimistic:

> *This isn't the end of the world for the mining business. We have properties of merit [for example,] . . . Canada is very rich in potential. God, we are one of the richest countries in resources in the world!*
>
> (Falconbridge Limited, Transcript, Sudbury, October 20, 1983 [vol. 31], p. 5993.)

Many others were decidedly more pessimistic:

As many of you know, the mining industry in Canada is experiencing its most severe economic downturn since the 1930s. This malaise, however, is not merely the result of cyclical metal markets or the deep recessions that have affected most western economies. It is attributed also to the deep-seated changes that have taken place in international metal markets.

The last several years have seen rising energy costs which have the twin effects of raising production costs for most industrial manufacturing operations and of reducing the consumption growth rate for most base metals.

In addition, many mineral producers have remained in the market largely as a result of subsidies or other support they receive from their respective countries. The outcome of all this is heightened competition . . .

(Prospectors and Developers Association, Transcript, Regina, November 24, 1983 [vol. 51], p. 10746.)

Canada ranks third amongst the world's mineral producing countries; but while it is still the largest producer of several minerals, its market share is slipping badly, and the world mineral market in which it shares is a stagnant or contracting one. (BP Selco Inc., Brief, December 14, 1983, p. 4.)

Generally, the sentiment seemed to be that while there is genuine cause for concern, mining is not a "sunset" industry; it can be improved if both government and the private sector take the appropriate steps:

Contrary to common perception, we do not have a very rich mineral endowment by world standards . . . What we do have in Canada is a mineral endowment that is ample enough, given the application of Canadian exploration and mining skills and a supportive governmental environment, to continue to generate new wealth for most of Canada's less advantaged regions.

(BP Selco, Brief, December 14, 1983, pp. 8–9.)

Opinion varied, however, about whether the problems we face are endemic to the industry as a whole or apply only to particular commodities. Inco Limited told us that "whatever ails the copper industry, ails to various degrees our Canadian mining companies" (Inco Limited, Transcript, Thompson, October 19, 1983 [vol. 30], p. 5808), but the Canadian Chamber of Commerce tended to the second view:

Within the mining sector there are going to be some areas where obviously we are going to have a very rough time. Copper is certainly one. But there are others where we have an edge, and where in regard to our productivity, we believe that we can compete. And potash, coal and . . . zinc, as well, where we have the majority production in the world in the developed countries.

(Canadian Chamber of Commerce, Transcript, Hull, December 14, 1983 [vol. 70], pp. 14861–62.)

The present problems of the Canadian mining industry are largely the result of three inseparable factors: the recent recession, structural changes in world production and trading patterns, and technological change. The impact of the recession on world mineral consumption was dramatic. Like other major producers, Canada found itself saddled with large excess reserves and unused

capacity in virtually every mining sector. World consumption of some minerals has yet to return to the peak levels of a decade ago.

Structural changes in world mineral markets began to have a noticeable effect at the same time that the world economy slowed down. Thus, the maturation of industry in Western countries has resulted in a decline in the intensity of metals use, a trend not offset by high rates of economic growth in some industrializing countries. Other factors of change are the entry of new producing countries in particular mining sectors; the substitution of plastics, ceramics and even glass for copper, steel, lead and nickel; the substitution of one metal, such as aluminum, for another, such as copper or nickel; the development of new uses for some metals, such as the use of copper for solar heating and air-conditioning; reduction in demand, as cars become smaller, for iron and steel, zinc, copper, nickel and lead; a reduction in demand for lead and asbestos because of their threat to health; and more recycling of metals. On balance, these changes suggest that one of the main challenges to the world mining industry will be to develop and market new uses for its output.

The more recent the projections of demand growth and price increases, the more modest they tend to be. Nearly all studies completed before 1980, or even before 1982, now look unrealistically high. The September 1984 projections from the World Bank, shown in Table 12-12, suggest that in general, world demand for minerals will grow much more slowly over the next decade than it did during the two decades before 1973, although not quite as slowly as it grew between 1973 and 1980. The World Bank expects the greatest growth in demand to occur in the developing nations. These countries, however, may not provide a market sufficient to absorb a large expansion of exports from the mining sector of developed countries such as Canada.

As for prices, the future is mixed. Column 6 of Table 12-12 presents the World Bank's predicted rates of real price change over the next decade. Only the prices for lead and potash are expected to rise from their 1983 levels by 1990. The World Bank anticipates some recovery in real prices after 1990 for all the minerals listed, except iron ore and potash; even so, only copper, aluminum, and zinc are expected to reach prices even modestly above the 1981 levels by 1995. In general, then, the next decade promises prices for minerals that are not much different, on average, from the prices that were obtained before 1970.

What do these projections imply for specific Canadian minerals? It seems clear that a number of metal-mining, smelting, and refining industries are under considerable competitive pressure. This is particularly true of industries that depend on copper, which is losing many of its traditional markets to other materials. As for nickel, even though Canada is the lowest-cost producer in the world, subsidized protection in less-developed countries (LDCs) and among members of the Council for Mutual Economic Assistance (COMECON) means that excess capacity and depressed prices will likely be characteristic of this industry for years to come. Canadian production costs have declined substantially in recent years, but even with the Canadian dollar below $.75 U.S. our costs are still somewhat above prevailing world prices.

TABLE 12-12 Global Projections of Demand

Minerals	Demand Growth Rate (% per year) by Economies				Real Price Changes	
	Industrial	Centrally Planned	Develop-ing World		(1983/1981) x 100	1984 Projection (% per year)
Iron-ore[a]					102.5	
1983–90						−1.12
1990–95						0.00
1985–95	0.1	1.1	5.3	1.0		
Aluminum[b]					107.1	
1983–90						−0.75
1990–95						0.79
1985–95	2.6	2.0	4.7	2.9		
Copper					95.8	
1983–90						−0.14
1990–95						1.72
1985–95	0.9	2.1	3.4	1.6		
Nickel[c]					97.8	
1983–90						−0.22
1990–95						1.69
1985–95	1.6	0.7	3.6	1.5		
Zinc					94.6	
1983–90						−0.22
1990–95						1.69
1985–95	2.2	1.9	3.1	2.3		
Lead					61.3	
1983–90						3.21
1990–95						0.63
1985–95	0.7	2.6	3.0	1.6		
Potash					60.6	
1983–90						5.75
1990–95						0.00
1985–95	1.6	3.1	4.6	2.8		

Source: World Bank, "Price Prospects for Major Primary Commodities" (Washington, D.C.: World Bank, Economics and Research Staff, 1984), Vol. I, II, IV.

a. Projected growth rates for gross imports (1985–1995).

b. U.S. producers' list prices are used.

c. Merchant market prices as published by *Metals Week* are used.

Lead has lost a significant portion of its traditional market through the discontinuation of its use in paint and the decline in its use in gasoline. The most important market for lead, accounting for about 50 per cent of sales, is the lead-acid battery industry. To date, no substitute for the lead-acid battery has appeared, although the down-sizing of cars has reduced demand for the metal. Zinc sales depend greatly on zinc's use in steel alloys. Thus the degree to which improved steels, such as the new High Strength Low Alloy and Dual

Phase steels, can compete successfully with plastics and other new materials that are encroaching on steel's traditional markets will affect not only the iron and steel industry, but the zinc industry as well.

Projections for iron ore forecast a surplus on world markets until the early 1990s, primarily because of decreasing demand for steel. This chronic overcapacity suggests that high-cost producers, including those in Canada, may face financial difficulties. Inco Limited told this Commission that "Australia and Brazil alone could satisfy the world's iron-ore requirements for more than 50 years at current rates of consumption." (Inco Limited, Brief, October 11, 1983, p. 7.)

Canada's share of world aluminum production has risen modestly over the last decade, largely because our electric power is relatively cheap. Moreover, in contrast with most of its competitors, the Canadian industry is opening new energy-efficient plants. Consequently, the future of aluminum production in Canada appears quite satisfactory.

Gold is the major focus of exploration and development activity in the Canadian mining industry at this time. In 1983, 70 per cent of all new capital investment in mining was directed to gold production.[2]

Canada produced 19 per cent of the Western world's total output of uranium in 1983. We may soon replace the United States as the world's leading producer. At present, Canada generates only 11 per cent of its electricity with nuclear power. This figure is expected to increase to 19 per cent in 1990 and to 22 per cent in 2005.[3] Although domestic use of uranium will increase, Canada will require only about 15 per cent of domestic uranium production for its own use.

The difficulty, in the short term at least, will be to find markets for our own surplus output in a world which tends to over-supply. Since, over the next few years, the United States is expected to account for about half of the non-communist world's requirements for uranium which is not already covered by domestic production or long-term contracts, new sales to that nation are important.[4] Over the years, moreover, American producers have attempted to embargo Canadian uranium imports through Congressional action. So far, as with timber, these efforts have been unsuccessful. The next-most-important market for new sales is Western Europe, where the Canadian product is already well represented.

Both of these obstacles to uranium production and export may prove to be temporary. Nuclear power production in the Western world is expected to double over the next decade. It will probably do so even in the United States, where the growth of nuclear capacity has been retarded by cancellations and delays. In the long term, then, the value of Canada's uranium exports is expected to rise substantially.

For the four major non-metallic minerals – asbestos, potash, sulphur and coal – the outlook is mixed. The industry likely to face the most difficult time is asbestos, whose prospects are reduced by serious health concerns about its use. World demand for potash will grow substantially in the longer term, although there will be excess supply for the next few years. Saskatchewan has the largest and lowest-cost reserves of potash, and it will undoubtedly take a major place in world markets in the years ahead. It is expected that the

province's potash production will rise by 7 per cent annually. The most likely markets for Saskatchewan's potash are the United States, China, India and Brazil.[5] An important question is whether Canada's potash industry should be content to suffer the ups and downs of a marginal supplier, or attempt to dominate markets through long-term contracts.

Most of the sulphur produced in Canada is a by-product of the natural gas industry. Sulphur is removed from the gas in order to "sweeten" it. World consumption of sulphur increased in 1983 and 1984 after a sharp drop in the United States and a smaller decline in Western Europe in 1982. In the short term, world consumption should exceed production. As a result, sulphur inventories in Canada should continue to decline and prices should rise. Natural gas-price deregulation in Canada is expected to result in increased production and sales of gas to the United States and consequently, in higher sulphur production.[6]

Coal reserves have a wider global distribution than those of most other minerals, and so international trade in coal is relatively limited. Metallurgical coal for steel making has long been the main world coal export. In recent years, however, trade in thermal coal – that is, coal burned to generate electric power – has been increasing as countries strive to diversify their energy supply sources. Meanwhile, growing efficiency in steel production and substitution of other materials for steel has reduced demand for metallurgical coal. The Canadian metallurgical coal industry, which still accounts for about 85 per cent of Canada's coal exports, is burdened with substantial excess capacity and faces numerous foreign competitors. Just as huge new developments came on stream in northeastern British Columbia in 1984, producers in southeastern British Columbia were shutting down some of their production. Projections of export demand suggest that it will not be necessary to develop much new capacity beyond what will become available during the mid-1980s. Nevertheless, the National Energy Board (NEB) predicts that exports will expand sufficiently to constitute 38 per cent of total demand for Canadian coal in 2005, compared with 29 per cent in 1983.[7]

Although Canadian coal costs at the minehead are generally in line with those in other producing countries, our costs of transportation over the long distances from minehead to port are relatively high. Thus Canadian thermal coal, in spite of its low sulphur content, is often at a noticeable cost disadvantage in European markets, relative to supplies from the eastern United States, Poland, South Africa and even Australia.

Japan is the nation with the largest appetite for imported coal. Canada holds a 15 per cent share of the Japanese market for metallurgical coal, and opinions vary as to whether the Japanese portion of Canadian exports will grow or decline. The future Japanese demand for coal imports from all countries is also uncertain. It may be necessary for Canadian producers and provincial governments to develop a united front in negotiating with Japan as their Australian counterparts are now doing. Japan is financing new mines in northeastern British Columbia and other places around the world. These developments are depressing the prices which all producers can get for their exports to that country.

The NEB expects Canadian demand for coal to grow about 2 per cent annually, on average, betwen 1983 and 2005. The mix of demand will remain about the same as it was in 1983, with electrical generation accounting for about 74 per cent. The share of coal in domestic electricity generation is projected to decline from 17.3 per cent in 1983 to 14.3 per cent in 2005. However, the total use of coal in terms of the energy it will provide (for electricity generation and all other uses) is expected to increase by 53 per cent by 2005.[8] It is often suggested that if Ontario Hydro were to buy more thermal coal from Canada's Western sources and less from the United States, the market for Western coal could be expanded. On efficiency grounds relating to transportation costs and energy value, it is more expensive to shift to Canadian sources. On the other hand, American coal has a higher sulphur content than Canadian coal and creates larger social costs in increased emissions. In sum, although growth in production and exports of coal will not match the rapid pace of the last decade, coal production should continue to expand.

Clearly, unless unforeseen changes occur on the world scene, it is unlikely that the Canadian mineral sector as a whole will soon – or, perhaps, ever – re-experience the buoyant conditions it enjoyed in the 1950s and 1960s. Some minerals, such as potash, aluminum and gold, will continue to do well. For many other minerals, however, gains will be harder to achieve than they were in earlier decades. If our Canadian industry is to maintain its current world market shares, that is, if it is to expand at the same rate, at least, as world demand, it will have to cope effectively with world competition.

Issues and Recommendations

World Marketing Issues

There are several important obstacles to the expansion of Canadian mineral exports. Many developing nations have used domestic subsidies and international aid to exploit their mineral resources. In spite of slack demand, these countries will continue to produce minerals and to export them, at subsidized prices if necessary, in order to maintain employment and to earn vital foreign exchange. There is some evidence that some COMECON nations are also following subsidized export strategies. Much of world trade in minerals is tightly controlled by governments: about 50 per cent of world copper trade and 40 per cent of nickel trade, for example.

Trade barriers, too, are often detrimental to Canada's minerals trade. Most developed countries grant preferential access to non-ferrous metals from most developing countries under a Generalized System of Preferences. In addition, some markets are difficult to enter because of special regional trade-and-aid arrangements, such as those the European Community maintains with former African colonies. Furthermore, many countries allow free entry to raw materials, but maintain high effective tariffs on processed minerals. U.S. protectionism is a threat to Canadian exports of steel, copper, uranium and, possibly, aluminum exports because of Canada's cheap and allegedly subsidized hydro-electricity rates.

Canada does bring some advantages to the competition for world minerals trade. Because Canada is a price taker, rather than a price setter, even a one-cent decline in the value of the Canadian dollar in relation to the U.S. dollar can give Canada a more competitive position or, alternatively, raise the profits of Canadian firms. If depreciation is to be helpful to the industry, however, a lower Canadian dollar must not simply result in offsetting increases in costs. Other factors that improve our position in world minerals trade are the country's political stability, a well-educated labour force, technological know-how, and developed transportation systems. These factors help to offset Canadian disadvantages, relative to many developing nations, of less rich deposits and higher wages.

Success in international markets will require renewed effort on the part of both the mining industry and our government. We can continue to be an important mineral-producing nation, but we cannot assume that this will come about naturally. We shall obviously need to maintain and secure access to international markets, but there are other, more specific measures that need to be taken as well.

Industry Performance

The biggest difficulty presently facing many Canadian mining companies is their financial predicament: specifically, their high ratio of debt to equity and hence their high interest costs. Although this ratio has been evident since the late 1960s, it reached serious proportions with the advent of very high interest rates and a world recession in the early 1980s. The debt-to-equity ratio rose from 0.60 in 1979–80 to 1.04 in 1982, and the cashflow-to-debt ratio dropped, during the same period, from 0.54 to 0.04.[9] This situation, however, was largely a result of the companies' own decision to shift their reliance from equity and long-term bonds to bank loans with floating interest rates. This decision apparently represented an attempt to prevent dilution of shareholders' equity and raise the return on this equity. It was not forced on the industry by any increase in its capital requirements: the ratio of capital to value added in mining actually decreased between 1941 and 1976.[10] Neither was it purely a consequence of economic recession, for the trend to greater dependence on debt financing has continued over several business cycles.

In the past, expenditure for research and development (R&D) in exploration, mining, smelting and refining techniques did much to keep the Canadian mining industry competitive. In recent years, however, only the aluminum industry has invested significantly in R&D for process innovation. In the other mineral sectors, R&D expenditure has been very small, nor is much work being done to develop new product uses for metals, a crucial need in light of the many substitutes for metals being introduced.

Many critics of mining management emphasize its inadequate and short-range view of corporate planning, which has led to rapid reversals of policy and erosion of longer-term cost and efficiency improvements; its lack of attention to market and product diversification; and its tendency to substitute higher pay for the appropriate development of human resources and

employer-employee relations. Intervenors at this Commission's public hearings admitted to these problems:

> *The first onus is on the mining industry to put its house in order. (a) It must expand and make more efficient the exploration process in Canada . . . (b) It must expand research into exploration and mining technologies . . . (c) It must re-direct its efforts towards smaller, high grade, low cost mines . . . (d) We must look for new markets and new applications for our projects.*
>
> (BP Selco Inc., Brief, December 15, 1983, pp. 16–17).

Thus, although many of the changes in world circumstances are beyond the control of Canadian firms, it would appear that the industry itself could do much to improve its performance. The industry should place less reliance on bank loans and more on equity capital, even if this step means that new shares are priced below book value. It should also pay more attention to employee relations and human resource development. While depreciation of the dollar enhances the international competitiveness of the Canadian mining industry, it is important that wage and executive-salary costs do not become unrealistically high. Finally, increased research and development would make the industry both more competitive and more environmentally sound.

Obviously these measures will not be efficacious in every case. We must accept the fact that some mines will face increasing difficulties over time, and we must be prepared to see them phased out, intervening to provide adjustment assistance only when necessary. Governments cannot, and should not, intervene to bail out failing operations. If a deposit is truly viable, the private sector can be counted on to refinance and reorganize the operation and resume production. If it is no longer profitable, we must let it go.

Taxation

A frequent theme in mineral industry representations to this Commission was the complaint that, in general, taxation of the industry is at once too high and of the wrong type. The industry argued that governments have failed adequately to recognize the cyclical nature of returns on minerals, particularly metals. Thus many of the tax measures now in place are based on a temporary improvement in profitability in the 1970s and the widespread assumption that there were very substantial economic rents to be collected by governments. In the present context, the effect of these measures is punitive.

Among the variety of views we Commissioners heard during our hearings were:

> *Value based royalties are inefficient because they arbitrarily reduce the net value of ore in the ground regardless of the price it can command. Dual tax jurisdictions resulting in a variety of anomalies and differing classifications are difficult to administer from the tax payer's point of view and have resulted in unduly high effective tax rates relative to profits.*
>
> (BP Selco Inc., Brief, December 15, 1983, p. 18.)

> *The principle of economic rents coming off the top as opposed to a residual is one the Commission should examine with respect to other mineral products as*

well as gas and oil. I happen to know of a situation currently where the fact that the economic rents come off the top is stifling a further investment and expansion in a mining industry in Canada which then provides advantages to world wide competitors.

(Dr. Lloyd Barber, Transcript, Calgary, June 19, 1984 [vol. 11], p. 2816.)

The two essential features of mineral resources are that they are limited in supply and that deposits vary in quality. If the revenue from the highest-cost source exploited (that is, the marginal source) equals the owner's costs for labour and materials, plus a normal return to the capital in use, then lower-cost sources will generate revenues in excess of the costs and the normal return. This surplus is called "economic rent".

Governments capture economic rents from non-renewable resources through leases, auctions, Crown corporations, regulation and taxes. Among the taxes that have been used to secure resource rents are those on the units sold or value of output (such as the Petroleum and Gas Revenue Tax), export taxes, property taxes, profit taxes and royalties. The prevalent form of royalty is a fixed levy on each unit of output.

Three factors need to be taken into account in any evaluation of a tax designed to capture resource rents: the efficiency aspects of the tax, its equity aspects, and its effect on government revenues. A tax introduces inefficiency into the pattern of resource use to the extent that it causes the resource to be allocated in a way that it would not be allocated in the absence of the tax. A tax that is expressed as a fraction of economic rent should not affect resource allocation. However, a tax per unit of output, which constitutes a gross royalty, can distort allocation by making it unprofitable to exploit deposits that, in the absence of the tax, would be profitable to exploit. If the royalty exceeds the potential rent from a deposit of a given quality, the producer will have no incentive to exploit that deposit. The royalty thus induces the producer to raise the cut-off grade and to reduce the amount of resource extracted in order to maximize profits. A number of provinces now permit the producers of many resources to deduct some operating and other costs from their royalty payments, an arrangement that reduces the cut-off/grade effect.

Taxes on returns to equity, that is, profit taxes, make no distinction between the normal return to the capital in use and the rent; consequently they generate some disincentive to efficient use of inputs, especially at high rates of taxation. In general, however, a profit tax reduces efficiency less than does a gross royalty system. Royalties are appealing to governments because they are easy to administer: the rate of tax is simply multiplied by the output of the producer. The computation of a tax on profits is more complicated, since allowances must be made for production costs. In some circumstances, moreover, the greater allocative efficiency associated with a profit tax can be a disadvantage: since a profit tax does not affect output, it does not favour conservation over extraction.

Because non-renewable resources are seen as society's property, taxing economic rents away from the producers does not violate any notion of equity. Nevertheless, it is difficult, in the absence of a conclusive definition of a "normal return to capital", to determine what proportion of the returns to the

producer consists of economic rent. Even if this proportion could be determined to the entire satisfaction of producers and governments alike, gross royalties would not be an equitable way to extract the rent: because the royalty rate under a gross royalty system is uniform, firms with the same income can face different tax bills. A tax on profits is more equitable than a gross royalty system; so is a net royalty system, which allows the deduction of certain costs from gross royalties.

A royalty system is a more stable source of government revenue than a tax on profits. Profit taxes are paid only when an operation becomes profitable; they stop when losses are realized. Royalties, on the other hand, are paid on a continuous basis from the moment the operation begins. Moreover, profit taxes are affected by both changes in price and changes in output, while the amount of royalties paid depends on output alone (though output may fluctuate more under a royalty system than under a profit-tax system). The latter point is not necessarily an argument in favour of royalties: it may be that governments are better equipped than are firms to support cyclical variations in income.

The choice between the two tax systems depends, then, on the weights assigned to their respective costs and benefits. A profit tax has no effect on output; however, the higher the tax rates associated with a profit tax, the smaller the incentive to the firm to lower its production costs. A gross royalty system, on the other hand, is easier to administer than a profit tax and generates a steadier flow of government revenues; it also provides some incentive to resource conservation, which a profit tax does not. By the same token, a gross royalty distorts allocative efficiency to a greater extent than does a profit tax, and it might also be seen as less equitable.

Commissioners recommend that the federal government and the provinces collaborate in the establishment of a tax system that is more closely related to profits, while retaining a minimum gross royalty. After collection of a low-level gross royalty, taxes should be levied on profits rather than on output. For income-tax purposes, gross-royalty payments should be deductible from income. Exploration costs and other expenses necessary to bring properties to the stage where capital expenditures for production facilities become necessary should be deductible from current income, or it should be possible to carry them forward for deduction in future years. An amortized portion of capital expenditures, including property-acquisition costs, should also be deductible or carried forward.

Since minerals are a non-renewable resource, the provinces, as owners, are entitled to compensation. Royalties based on output have long been a part of the Canadian rent-collection structure and they should continue to be so. The argument has been made that to maintain a minimum gross royalty on non-renewable resources would ensure that some lower-grade ores will not be produced because they would not contribute to a profit. So be it: what is not produced now will be available for production in the future.

Regulation

Regulation ranked next after taxation in the list of the mining industry's concerns. Intervenors complained about the sheer number of regulations, the

costs of complying with them, and the unpredictability with which they are implemented and then altered:

> *A further burden on our industry is the cost to us of the regulatory environment in which we are asked to operate. The Federal Government uses 25 different departments and agencies to administer 35 separate Acts and 78 separate sets of regulations which govern mining activities. This is largely duplicated at the Provincial level in each province in which we choose to operate.*
>
> *The costs of this are twofold. Not only do we incur the loss of productivity and direct costs of our side of the regulatory interface, but the sheer size and complexity of government means that there is no longer an effective government/industry interface.* (BP Selco, Brief, December 15, 1983, p. 8)

> *In the development stage government intervention can be a heavy burden. Assurances of stable regulation and security of tenure are essential in order to enable a company to finance the project and negotiate long term contracts for its product.* (Saskatchewan Mining Association Inc., Brief, October 25, 1983, p. 4)

This is not an area in which it is easy to make recommendations. It is understandable that the industry should find frustrating the multiplicity of boards, hearings and regulations. At the same time, it must be remembered that each of these interventions exists for a reason, however unreasonable the overall structure of intervention may sometimes seem. Many regulations are aimed at protecting the environment, and this is a purpose that Canadians generally support, for it is of critical importance in the long term. Many people argue, indeed, that even economic development is eventually threatened if the natural environment is not safeguarded. Other regulations seek special employment advantages for groups that have not always fared well in the minerals sector. Still others attempt to maximize the economic spin-offs to the province, region or municipality; again most Canadians support this practice in principle.

As Commissioners will point out below, in our review of environmental issues, a case can be made for imposing more and tougher environmental regulations. In general, however, we are sympathetic to the claim that the regulatory process for mining properties is cumbersome and slow, and that it is hampered by unnecessary duplication of regulations by different jurisdictions. Clearly, there is room for improvement. It would be helpful if governments were to sit down with industry representatives and relevant public interest groups and work out a mutually acceptable set of procedures. Companies must have reasonable assurance that they will face substantially the same regulatory environment over the lifetime of a planned investment. We urge governments to undertake a systematic review of their regulatory regimes affecting the mining industry, with a view to simplifying and streamlining them and to removing interjurisdictional duplication. Given the evidence that the industry will face a harsh competitive climate over the next 20 years, it is all the more important to undertake a review of this type now.

Conclusions

It is generally expected that average annual growth in demand for non-fuel minerals in the next two decades will run at less than half the rates attained

since the close of the Second World War. Global structural changes and mineral substitution have left a legacy of surplus productive capacity that for Canada's non-ferrous metals may take five, ten or even more years to correct. The minerals industry is not without its bright spots, however: the outlook is encouraging for aluminum, potash, the precious metals and, perhaps, uranium.

In the minerals area, this Commission recommends that:

- After collection of a minimum royalty, taxation be based on profit rather than output
- Canadians take a more realistic attitude towards the economic adjustments that will be necessary. Commissioners have suggested that criteria be established for government intervention.
- Governments undertake a systematic review of their regulatory regimes with the intent of streamlining the processes.

Given suportive public policies, the minerals sector will remain a significant, if relatively declining, contributor to the Canadian economy in the forseeable future.

Notes

1. A 1979 DREE study identified 142 communities in which 30 per cent or more of the total labour force depended on metal and non-metal mining, smelting, and refining. See Task Force on Mining Communities, established by Federal, Provincial and Territorial Ministers with Responsibilities for Mining, *Report* (Ottawa, 1982).
2. Canada, Energy, Mines and Resources Canada, *Canadian Reserves as of January 1, 1983* (Ottawa: Minister of Supply and Services Canada, 1984), and *Canadian Mines: Perspectives from 1983* (Ottawa: Minister of Supply and Services Canada, 1984).
3. National Energy Board, *Canadian Energy: Supply and Demand 1983–2005*, Technical Report (Ottawa: NEB, 1984).
4. Noel O'Brien, "A Canadian Viewpoint on the Outlook for Uranium", paper presented at Mineral Outlook Conference, Ottawa, 1984 (Toronto: Denison Mines Limited, 1984).
5. Economic Council of Canada, *Western Transition* (Ottawa: Minister of Supply and Services Canada, 1984).
6. Canada, Energy, Mines and Resources Canada, *1983–84 Sulphur Review* (Ottawa: The Department, 1984).
7. National Energy Board, *Canadian Energy*, p. 95.
8. *Ibid.*, pp. 49 and 95.
9. Canada, Energy, Mines and Resources Canada, *Medium-Term Outlook for Minerals: A Preliminary View* (Ottawa: The Department, 1984).
10. Ralph Sultan, "Financing the Future", in *Financing Canadian Mining in the 1980s: Strategies for Action*, edited by David Yudelman (Kingston: Queen's University, Centre for Resource Studies, 1984).

Oil and Gas

Energy issues loom large in the affairs of most nations, and Canada is no exception in this respect. Over the last decade, energy policies have been the subject of protracted and sometimes rancorous debate among Canadian governments and between Canada's private and public sectors. Much of the rancour is now past, but many questions remain.

Retrospective

From Leduc to the National Oil Policy

Canada's modern oil and gas industry began with the discovery of Imperial #1 at Leduc, Alberta, in 1947. This find led to a basic re-evaluation of the geology of the Western Sedimentary Basin, and soon other oil and gas fields were discovered, most of them in Alberta, but some in Saskatchewan and British Columbia. Western Canadian oil needs were quickly met, and the search began for markets to absorb the surplus capacity. The Interprovincial Pipeline reached Manitoba in 1949. It was extended to Sarnia in 1953, and eventually, to Toronto. Another pipeline, the Transmountain, took Alberta crude oil through the Yellowhead Pass to Vancouver and Seattle. The pattern was repeated for natural gas. After much political debate, the Trans-Canada Pipeline was completed to carry natural gas to eastern Canadian markets. Westcoast Transmission brought gas from Alberta and the Peace River district of British Columbia to Vancouver and the northwestern United States.

Even with these pipelines in place, the Western oil and gas industry operated well below capacity. Pressure soon developed in the West for import restrictions that would reserve the eastern Canadian market for Western producers. The federal government referred this and other energy issues to the Royal Commission on Energy (the Borden Commission). Its report, issued in two parts in 1958 and 1959, set the stage for the next era in Canadian energy policy.

The National Oil Policy

The federal government announced the National Oil Policy (NOP) on February 1, 1961. Following the report of the Borden Commission, it drew the "Ottawa Valley Line", as it came to be known, west of Ottawa and along the Quebec-Ontario border. All oil purchased west of this "Borden line" had to come from western Canada. Quebec and the Maritimes, on the other hand, were allowed to continue to import lower-cost off-shore supplies. In exchange for a Canadian agreement not to restrict imports of Venezuelan crude, which was controlled in large measure by American companies, U.S. authorities agreed to open up the important Chicago market to Western producers. The National Energy Board (NEB) was created to oversee this marketing arrangement, and to monitor and approve natural gas-export contracts.

With the fillip of the NOP and the general economic expansion of the times, the Canadian oil and gas industry continued to grow. The main purchasers of

crude oil in eastern Canada were a highly concentrated group of refiners, owned in large part by the same companies that supplied the oil and in some instances owned the pipelines through which it travelled. Alberta instituted a pro-rationing system in order to exert some influence on the price. Canadian oil prices were also affected at this time by the fact that Ontario prices were not to rise to the point where they encouraged the "smuggling" of refined products from Quebec. (They did rise to that point eventually, and "smuggling" did begin.) Import restrictions drove up prices in the United States, and gradually Canadian supplies to the Chicago market became cheaper than comparable U.S. deliveries. The net result of these influences was a remarkable stability in Canadian crude oil prices throughout the NOP years. This stability provides a vivid contrast with what was to come.

From 1971 to 1980

The Organization of Petroleum Exporting Countries (OPEC) had existed for some time before it was able to exploit its market power effectively. Growing international shortages and agreements between OPEC and the multi-national oil companies began pushing prices up in 1971, but it was the Arab-Israeli war in 1973 that led to a truly dramatic price rise. Canada, as a small importing *and* exporting country, was affected by these developments in two quite different ways. As an importer, we faced the same new economic burdens as other oil-importing nations. As an exporter, however, we found that our petroleum supplies had suddenly become much more valuable. Oil, which had been freely marketed at less than four dollars a barrel, was now to quadruple in price.

Because of geography and past marketing arrangements, losses were concentrated in one part of the country—central Canada, the Atlantic Provinces, and Manitoba—and gains in another—the three Western provinces. Westerners were able to view this assymetry without any great alarm, but Easterners and the federal government were not. Relative regional welfare levels rise and fall continuously in Canada as economic circumstances change, but this shock appeared to be too large and too sudden simply to ride out.

The situation facing Canadian policy makers was complicated. It was not clear exactly what was happening in world oil markets. Many analysts were predicting the imminent collapse of OPEC. There was understandable reluctance to force a costly adjustment to a situation that might well be reversed. Moreover, most of the economic rent that would result from moving Canadian prices to world prices, assuming that the world-price level was stable, would accrue, in the first instance, to multi-national oil companies with reserves and production in western Canada. Neither the provincial royalties in place nor corporate income taxes would capture more than a small portion of the windfall gain. Under the terms of the existing equalization scheme, the entitlements of the recipient provinces rose each time Alberta's revenues increased. Since even Ontario would soon become a "have-not" province under the formula, the potential drain on federal revenues was enormous. The Arab nations' embargo on oil exports, a consequence of the

Arab-Israeli war, emphasized the vulnerability to loss of supply of the market in Quebec and the Atlantic provinces. Serious doubts began to arise about the adequacy of our remaining reserves of oil and gas. We spoke of exhausting our reserves in 13 years, rather than in hundreds of years. Oil-price increases of the extent occurring in the world market would certainly add to what was already considered a serious inflation problem.

The National Oil Policy died in the fall of 1973. In September, as part of its anti-inflation program, the federal government temporarily froze the domestic price for Canadian crude at the then-current level of $3.80 per barrel. Export prices were to rise to the world level, and the federal government would collect as an export tax the difference between the Chicago price and the frozen Canadian price. Revenue from this surcharge would be used to subsidize the costs of importing OPEC oil into eastern Canada. The announcement in December of a single national price structure below world levels consolidated this policy.

The second part of the strategy was to address the threat of supply disruption in Quebec and the Atlantic provinces. The provinces and the federal government set up task forces to monitor the supply situation on a daily basis. Eventually, legislation was introduced to permit emergency allocation of supplies in the event of another disruption. While some shipments of western crude were made to Canada's east coast by way of the Panama Canal, the government's longer-term solution to the problem was an extension of the Interprovincial Pipeline to Montreal. Since the Western industry was already operating at capacity, supplies to Montreal had to be diverted from elsewhere. Thus crude oil exports to the United States were to be reduced to zero in 10 years. The NEB had already begun to adopt a more restrictive position on natural gas exports, and this policy was to continue as well.

As a short-term reaction to the situation and from a national perspective, the plan had much to recommend it. The reservation of domestic oil for domestic use did reduce the threat of supply disruption and decrease Canada's dependence on imported supplies. The price freeze provided some stability while the market power of OPEC was being tested. It also provided temporary insulation against the stagflation that was affecting other countries, although many would now argue that the approach was too gradual and of doubtful efficacy. As a rent-collection device, the package was superb. The export tax captured all of the economic rent on remaining shipments to the United States. The use of these receipts to subsidize oil imports into eastern Canada complemented the price freeze on domestic oil consumed west of the Ottawa Valley. Together, these measures spread the rent across the country and kept it from accumulating in the hands of the multi-national oil companies and the Western provincial governments. Since Alberta's revenues would not rise as rapidly as they would do in the absence of the freeze, equalization entitlements, and hence federal obligations, would not rise as rapidly either.

The problem with the 1973 program was that from longer-term and Western provincial government perspectives the measures were inappropriate. Freezing oil and gas prices for lengthy periods worked against the desired

goal of energy self-sufficiency. Canadians continued to waste valuable petroleum supplies long after other nations were implementing conservation measures. Exploration and development, particularly development of frontier and non-conventional supplies, were not encouraged precisely when they were most needed. Canada's long-term energy requirements would not be met with $3.80-a-barrel oil. To Western Canadians, the policy seemed discriminatory. It addressed one energy sector and ignored others, such as hydro, although special arrangements were eventually made for synthetic oil plants.

Reaction in the producing provinces was immediate. In order to capture the economic rents and reassert their constitutional rights of ownership, the provinces scrapped existing royalty agreements and imposed a higher royalty based on a sliding scale. Much of what the provinces gained, the federal government lost, since the increase in companies' deductions for royalty payments reduced the income-tax base. The federal government responded, in 1974, by disallowing deductions of royalty payments for purposes of calculating corporate taxable income and ending a number of other long-standing tax breaks to the oil industry. The result was a squeeze on producer profits and a threatened flight of capital, whereupon both levels of government drew back somewhat. While the compromise did not restore the deduction for royalties, it provided a special "resource-allowance" deduction in its place. Overall, taxation of the industry was somewhat reduced.

The following six years provided a period of relative calm. Canadian oil prices moved in a series of steps toward the world level, and every adjustment but one was agreed to by both parties. (See Figure 12-4, below.) By 1978, the Canadian price was more than 80 per cent of the world price. The federal government, Alberta, and Ontario acted together to ensure that the Syncrude operation proceeded as planned. With the help of federal subsidies, the Interprovincial Pipeline was extended to Montreal. Ottawa implemented *ad hoc* revisions to the equalization formula to restrict entitlements arising from growing Western energy revenues.

In retrospect, it is clear that over these years Canadian energy policy was developing into a long-term strategy. It was also becoming less discriminatory toward regions. The question remained, however, whether this new rationality could stand the test of another dramatic increase in world oil prices.

The National Energy Program

The next chapter in the story of Canada's energy policy is a dramatic one. World oil prices doubled in 1979–80. The Canadian price dropped from 80 per cent of the world price in 1978 to 45 per cent by 1980. The 1973 energy-policy dilemma had to be faced anew. Economic efficiency suggested that Canadian prices should follow international prices upwards, and the producing provinces echoed this notion. But the federal government had as yet no formal mechanisms in place with which to capture part of the economic rents that this price movement would generate. In spite of excluding one-half of non-renewable resource revenues from the equalization formula in 1977, the federal government would not be able to meet the full amount of the increase in equalization entitlements that would arise from a substantial

increase in the rents collected by the Western provinces. Moreover, federal officials were again worried about the inflationary effect of allowing an energy price increase of the extent demanded. They also wished to keep energy prices below world levels in order to give the Canadian manufacturing sector a competitive advantage in world trade and, in any event, once again to soften the adjustment shocks for both labour and capital.

After intensive negotiations between federal and provincial governments and the public and private sectors and after two federal elections, the Government of Canada unveiled the National Energy Program (NEP) at the same time that it disclosed the federal budget, in October 1980. Ottawa's solution was a bold one. The program had three stated objectives: security of supply through ultimate independence from the international market; Canadianization of the industry through increased domestic ownership; and fairness in the determination of prices and the assignment of revenues. These objectives were pursued in several ways. First, Ottawa unilaterally imposed a schedule that provided for a gradual increase in the domestic prices of oil and natural gas. Under this schedule, Canadian crude oil prices were not to exceed 75 per cent of world price, though some major projects were excepted. Natural gas prices were to be tied to oil prices, on a ratio of 65 cents to the dollar, in order to encourage substitution of gas for oil in eastern Canadian markets. This policy did redistribute Western petroleum rents across the country, in keeping with the "fair share" objective of the NEP. Some observers argued, however, that it encouraged consumption and discouraged exploration and development, a policy directly at odds with the NEP's self-sufficiency goal.

The second major feature of the NEP was a host of new and complex taxation measures designed to increase federal revenues from the oil industry. These measures included the Petroleum and Gas Revenue Tax (PGRT), the Natural Gas and Gas Liquids Tax (NGGLT), the Petroleum Compensation Charge (PCC), and a Canadian Ownership Charge. The first tax was a flat levy of 8 per cent on net operating revenue – not net income – from oil and gas production; the 1981 Canada-Alberta Agreement increased this levy to 16 per cent. The tax on natural gas was a flat levy per million cubic feet, so that it, too, bore no necessary relationship to producer income. The Petroleum Compensation Charge was a standard excise tax designed to raise revenue to cover the cost of subsidizing the importation of expensive off-shore crude oil into eastern Canada. The Canadian Ownership Charge was a similar levy on petroleum products. Its purpose was to finance takeovers of foreign oil companies.

The NEP also made substantive changes in the incentive structure. The consumer was offered inducements to substitute natural gas for oil and to undertake energy conservation measures such as home insulation. Producers were offered direct subsidies for exploration and development activity, the Petroleum Incentive Payments (PIPs), which would replace depletion and "super-depletion" allowances. The NEP extended preferential treatment to firms on the basis of their degree of Canadian ownership, and to activity carried on offshore and in the Territories ("Canada Lands") rather than in the provinces. It also made provision for the federal Crown oil company,

Petro-Canada, to take over one or more of the large multi-national oil companies operating in the country, with the help of the "Canadianization" levy. Finally, the federal government reserved for the Crown a 25 per cent interest in development rights on Canada Lands, including pre-NEP discoveries (the so-called "back-in provision"). This provision was controversial and much debated, but it was not without a history or precedents in the evolution of land-management arrangements. In 1961, for example, the federal government had introduced the Canada Oil and Gas Lands Regulations, which established tests for granting leases based on Canadian ownership, and which provided for the surrender to the Crown, on a chequerboard basis, of a sizeable portion of the area of any oil or gas discovery.

The NEP did attain many of its objectives. It moved Canadian energy demand away from oil to substitutes, particularly natural gas; it gradually increased prices for Canadian oil and gas; it distributed economic rents throughout the country; it encouraged extensive exploration in frontier areas; and it created opportunities for more extensive Canadian ownership of the petroleum sector in frontier areas and for participation of Canadian firms in exploration from which they had previously been shut out by the multinationals. To many observers, however, federal policies seemed overly concerned with the costs of adjusting to higher energy prices and too little concerned with realizing the potential economic benefits. Many Westerners saw the NEP as a policy that slighted their region and its interests.

The ten months following the announcement of the NEP provided one of the low points in federal-provincial relations. Alberta reacted to the NEP by reducing deliveries to eastern Canada. Ottawa responded by implementing a special excise tax to cover the cost of additional imported oil. Alberta also held up progress on an oil-sands project, in an effort to strike at federal concerns about self-sufficiency. The Canadian public was the loser in the dispute, and in the end it was public opinion that forced the two governments to resolve their differences.

The September 1981 Agreement and After

Agreement between Alberta and the federal government was reached in September 1981. Oil prices were still to be set by government rather than in the market-place, but they were now to rise substantially faster than they had risen under the NEP. The 75 per cent ceiling on "old" oil was retained, but oil from recent discoveries and non-conventional sources was guaranteed the international price. Existing taxes underwent considerable adjustment, and a new tax was introduced: the Incremental Oil Royalties Tax. The Petroleum and Gas Revenue Tax was restructured and its rate increased to 16 per cent, but new deductions reduced the effective rate to 12 per cent. The tax on exports of gas and gas liquids was reduced to zero; in exchange, Alberta took over the PIP program in that province. The NEP's special provisions for new and non-conventional oil were retained.

The new agreement was important in several respects. It established that Alberta and the other Western provinces were willing to turn over substantial

amounts of oil and gas revenue to other Canadians. The Western provinces would turn these revenues over directly, through special federal taxes on petroleum, and indirectly, through agreeing to accept less than world prices for their output. The agreement explicitly recognized the link between prices and incentives for exploration and development, and it re-established the practice of setting price and taxation arrangements by negotiation and agreement.

The NEP and even the September 1981 agreement were based on highly optimistic price projections. Almost before the ink was dry on the 1981 accord, international oil prices began to slip. Consequently, neither revenues nor drilling activity developed as expected. In the face of soft oil markets, both Alberta and the federal government adjusted prices and taxes. The domestic price of old oil rose above the 75 per cent ceiling, and by the fall of 1984, more than 50 per cent of Canadian production was receiving the international price. In 1985, the federal government and three Western provinces agreed to dismantle crude-oil price controls and allow oil to follow world prices.[1] Under this agreement, a more market-sensitive price system for natural gas is to be implemented later in 1985. In addition, the fiscal regime is to be adjusted downwards in hope of stimulating exploration and development.

Prospects

Energy Use

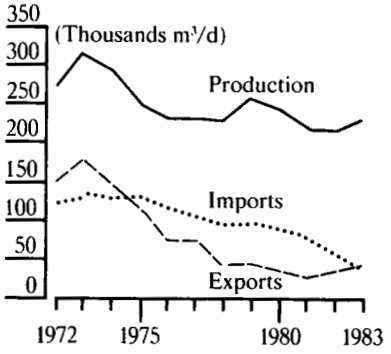
As Table 12-14 (below) shows, oil accounted for nearly 32 per cent of primary energy demand in Canada in 1983. Natural gas accounted for another 18 per cent. Oil's share is down by more than 10 percentage points from 1973, but the natural gas share has remained roughly constant. Primary consumption of oil and natural gas in Canada varies across regions, depending on the availability and relative prices of competing energy sources. In the Atlantic region, oil accounts for over two-thirds of energy consumption, although there has been a shift over the past decade in favour of hydroelectricity and coal. In Quebec, off-oil substitution has been particularly marked: oil's share of consumption declined from nearly 56 per cent in 1973 to 38 per cent in 1982. The shift has been largely to hydro-electricity, which now accounts for 56 per cent of Quebec's primary energy consumption. In Ontario, where oil accounts for 35 per cent of energy demand, its share has declined by only 5 percentage points over the same period. The significant shift in Ontario has been the increase in the share of nuclear-generated power at the expense of hydro-electricity. In the Prairie provinces, oil's share has changed relatively little. In Saskatchewan and Alberta, there has been a decline in the share of natural gas and an increase in the use of coal in electricity generation. In Manitoba and British Columbia, hydro-electricity is the largest source of energy.[2]

Oil

Domestic production of crude oil, including synthetics and pentanes plus, is lower than it was in the early 1970s, as Figure 12-2 shows. Figure 12-3

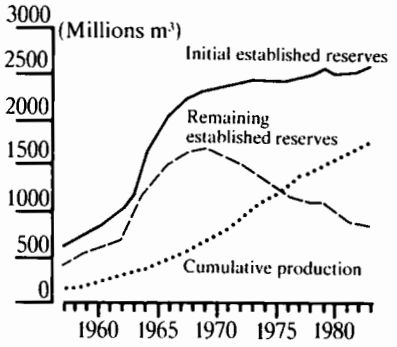
demonstrates that production of conventional crude oil has consistently outstripped additions to reserves since the late 1960s. Over 70 per cent of the 1983 average daily crude oil output of 241 500 cubic metres was conventional light oil; conventional heavy oil and supplies from non-conventional sources made up the balance. Alberta produces over four-fifths of Canadian oil, and Saskatchewan contributes nearly all the rest.

FIGURE 12-2 Production and Trade of Crude Oil and Equivalent, Canada, 1972–83



Source: Based on data from Energy, Mines and Resources Canada. Taken from Economic Council of Canada, *Connections: An Energy Strategy for the Future* (Ottawa: Minister of Supply and Services Canada, 1985), p. 33.

FIGURE 12-3 Established Reserves and Cumulative Production of Conventional Crude Oil, Canada, 1957-83.



Source: Based on data from the Canadian Petroleum Association. Taken from Economic Council of Canada, *Connections: An Energy Strategy for the Future* (Ottawa: Minister of Supply and Services Canada, 1985), p. 31.

A net exporter through most of the 1960s and the early 1970s, Canada became a substantial net importer by 1975. As Table 12-13 indicates, however, trade in crude petroleum and fuel oil was roughly in balance again by 1984. This balance was the result both of a continuous decline in imports and of an increase in exports. The vast majority of our crude oil exports go to the United States; they earned $1.8 billion (net) in 1982. Venezuela, Mexico, and Iran supplied 63 per cent of Canada's total imports in 1983.

The growth rate of energy consumption during the 1970s has been declining in the world as a whole as a consequence of OPEC's success at raising oil prices. During the 1960s, consumption expanded at an annual average rate of 6.0 per cent; in the 1970s, that rate was only 3.1 per cent.[3] It is expected to continue to grow only slowly over the next 20 to 30 years. Generally speaking, the more recent the projections, the lower are the anticipated growth rates. Most countries are expected to continue to move toward greater self-sufficiency in energy and to rely increasingly on alternative sources of energy. The National Energy Board's projection for Canada to 2005 shows an increase, recorded in Table 12-14, in the importance of natural gas, hydro, and nuclear power, at the expense of oil. The primary basis for this projection is an assumption that these other energy sources will be cheaper than oil. As we indicated earlier, and as Figure 12-4 illustrates, Canadian oil prices have remained well below international prices over most of the past decade. In recent years, however, the gap between domestic and international prices has been closing, and the present Canadian government approves of a move to parity.

Like estimates of future energy consumption, estimates of future world oil prices have become more moderate since the 1970s. In September 1984, the National Energy Board offered two scenarios: under its low-price scenario, there would be no real increase in the world price of oil before 2005; under its high-price scenario, which allowed for such events as an escalation of the

TABLE 12-13 Canadian Trade in Energy Products, 1984

	(millions of dollars)		
	Imports	**Exports**	**Balance**
Natural gas	—	3 886.4	3 886.4
Crude petroleum	3 375.6	4 390.5	1 014.9
Fuel oil	962.3	—	−962.3
Coal and other crude bituminous substances	1 095.2	1 846.6	751.4
Other petroleum and coal products	608.8	3 192.7	2 583.9
Electricity	—	1 378.7	1 378.7
Radioactive ores and concentrates	—	333.7	333.7
Total	6 041.9	15 028.6	8 986.7

Source: Statistics Canada, *Summary of External Trade* (December 1984) Cat. No. 65-001 (Ottawa: Minister of Supply and Services Canada, 1985).

TABLE 12-14 Current and Projected Fuel Shares in Primary Energy Demand in Canada

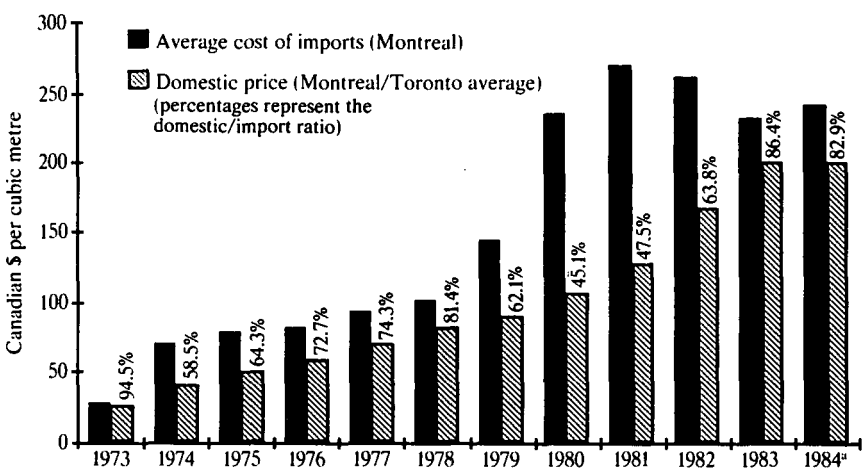
	(percentages) Primary Energy Demand[a]	
	1983	**2005**
Oil	32	21
Gas	18	21
Coal	10	10
Nuclear	5	11
Hydro	28	31
Other	7	6
Total	100	100

Source: National Energy Board, *Canadian Energy: Supply and Demand 1983–2005*, Technical Report (Ottawa: NEB, 1984), p. 101.

a. Hydro and nuclear are converted at 10.5 petajoules per terawatt hour.

Middle East War between Iran and Iraq, there would be annual real-price increases of 2.5 per cent from 1983 to 1990, and of 2.4 per cent from 1990 to 2005.[4] Energy developments must be planned with these more modest price increases in mind.

FIGURE 12-4 Canadian Crude Oil Prices 1973–84



Source: Canada, Energy, Mines and Resources Canada, *Energy Statistics Handbook* (Ottawa: The Department, 1984).

a. Average prices to second quarter.

Future Canadian demand for oil is difficult to predict with any certainty: it will depend on the rate of economic growth, the extent of the continuation of conservation measures, the amount of excess capacity in the hydro, nuclear and thermal electricity industries, and the pricing policies of these industries. To forecast future oil supply is even more difficult. Many intervenors were cautiously optimistic:

> *We have opportunities in the frontiers; we have opportunities still remaining in the western Canada basin. Again, to enhance the recovery of oil, there have been initiatives by both governments to make this possible. We have a tremendous resource in the oil sands of Alberta, which, if we put these things in place, [would give us] self-sufficiency. I don't think we would be responsible if we said that the east coast is going to do it or the Beaufort Sea or the Arctic Islands. All of these areas have potential, and we should be working to see which ones benefit us in terms of the industrial spin-offs for Canadians.*
>
> (Canadian Petroleum Association, Transcript, Calgary, November 4, 1983 [vol.41], pp. 8291–92.)

In one respect, the answer to the question of future supply is clear. Our reliance on conventional oil from the Western Sedimentary Basin, including oil from enhanced recovery projects, will diminish. The volume of oil already recovered from this basin is larger than its known and its anticipated reserves. Consequently, non-conventional sources of supply will become increasingly important.

Table 12-15 summarizes the National Energy Board's 1984 projection of changes in the relative importance of the different sources of oil over the next two decades. Synthetic light crude oil, frontier light, and blended heavy crude and bitumen accounted for 28 per cent of total supply in 1983; the NEB expects this figure to swell to 77 per cent by 2005. It also expects conventional light crude to account for less than 25 per cent of Canadian production by the same date.

The Economic Council of Canada has recently assessed the costs of recovering oil from various non-conventional sources.[5] The figures in Table 12-16 are social costs: that is, the total costs experienced by industry, excluding all taxes and royalties. Estimates that included taxes and royalties would be higher. The Council's study suggests that regardless of the method used to increase Canadian oil production, projects will have to be virtually free of taxes if they are to succeed. Economic rents cannot be extracted if there are none to be had. Yet even projects that yield no economic rents can be of immense benefit to the economy if, while yielding a reasonable return to the operators, they provide employment and produce oil that is competitive with world prices, thus reducing our reliance on imports.

Natural Gas

Table 12-17 summarizes world natural gas reserves and gas consumption. Canada's proved gas reserves of about 3484 billion (10^9) cubic metres seem immense, but they account for only 4 per cent of proved world reserves. Canadian share of world consumption amounting to 3.3 per cent is also small.

TABLE 12-15 Estimated Sources of Crude Oil Production, 1983–2005

	(thousands of cubic metres per day)		
	1983	**1990**	**2005**
Conventional light and pentanes plus	174.1	117.5	49.9
Oil sands synthetic (including upgraded heavy crude)	23.5	42.5	63.5
Frontier	—	1.9	44.0
Total light	197.6	161.9	157.4
Blended heavy crude and bitumen	43.9	39.1	59.2
Total	241.5	201.0	216.6

Source: National Energy Board, *Canadian Energy: Supply and Demand 1983–2005*, Summary Report (Ottawa: Minister of Supply and Services Canada, 1984).

Because of current prices and transportation costs, much of the world's natural gas cannot be marketed at long distances from the source of supply. The huge figures for world reserves suggest that even after the year 2000, when gas prices may be considerably higher than they are now, gas from the Canadian Arctic and other frontier areas is not likely to have any market power abroad except, perhaps, in the United States. Therefore any increase in exports must come primarily from sales to the United States, where our product will have to compete with U.S. gas and alternate sources of energy.

Unlike our reserves of conventional oil, our established reserves of natural gas have increased almost continuously since the Second World War. (See Figure 12-5.) Canada's domestic sales of natural gas rose substantially during the 1960s, but they have remained fairly constant since the early 1970s. Exports of natural gas to the United States have followed the same pattern. At present, Canadian gas accounts for approximately 4 per cent of total U.S. gas consumption. Because the United States' own capacity for production exceeds current domestic demand, and because Canadian export prices are higher than U.S. domestic prices, we have been able to sell, in recent years, only about 40 per cent of authorized export volumes. Since November 1984, in an effort to bolster these sales, the federal government has permitted greater flexibility in gas-export pricing, and the matter of domestic and export-pricing policies is under study.

Additions to reserves in the United States are, however, unlikely to keep pace with future demand in that country. Consequently the NEB expects that by 1987, gas exports to the United States will reach 68 per cent of committed volumes. By 1990, they will be up to 90 per cent of authorized sales.[6] Annual export revenues in the peak years are expected to reach $7 to $8 billion, more than double the current revenues.

TABLE 12-16 Summary of Social Supply Costs[a] for Alternate Oil Supplies

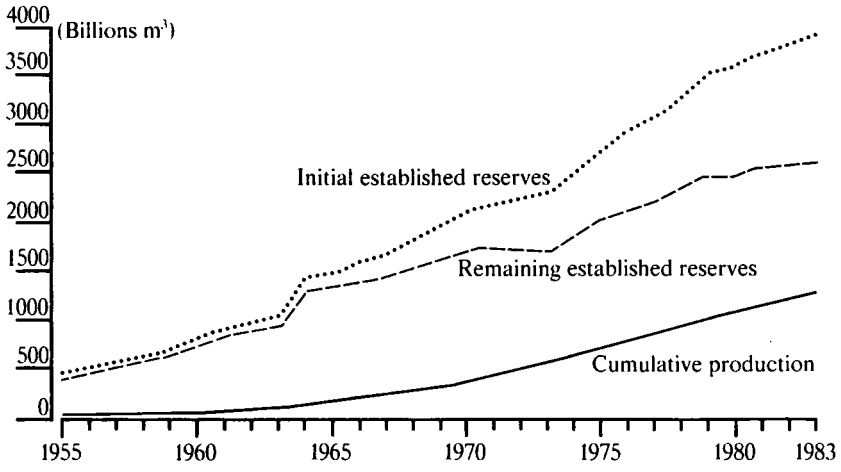
Source	Social Supply Costs ($1983 per barrel)	Comments
Western Canadian conventional light oil	$16	Although risk and costs are relatively low, supplies are limited, even with the New Oil Reference Price. Reductions in taxes could expand additions to reserves beyond National Energy Board forecasts.
Western Canada enhanced oil recovery from existing known reserves	$13–25	Some projects are profitable; others will be quite marginal under existing price and tax regimes. Lower taxes would enlarge the number of profitable projects.
Large-scale surface mining of oilsands to produce synthetic high quality oil	$47	Based on Alsands data. High financial risk.
In situ oilsands production of bitumen (without upgrading)	$28	Wolfe Lake data; still at experimental stage.
East coast Hibernia oil	$15	Delivered to Montreal. Costs count *only* the development and production stages, so this source is not fully comparable to other sources of supply because exploration costs are not included. High technological risk (including iceberg problems, for example).
Beaufort Sea oil (assuming a commercial discovery)	$15–40	Delivered to Montreal. Costs count *only* the development and production stages, so this source is not fully comparable to other non-frontier supply sources. Considerable environmental risk.

Source: Adapted from David H. Slater, "Submission" by the Chairman of the Economic Council of Canada to the Standing Senate Committee on Energy and Natural Resources, May 24, 1984.

a. Social supply costs = total costs experienced by industry excluding all taxes and royalties. Calculations based on 10% rate of discount.

Whether we will, in fact, increase our U.S. exports and export revenues to this extent depends on a variety of circumstances, including future gas-pricing policies in the United States, the extent of new reserves discovered there, the rigour of future U.S. clean air legislation and enforcement, and the extent to which other exporters to the United States, such as Mexico, reduce their export prices.[7] Although the United States did not object to Canada's partial

FIGURE 12-5 Established Reserves and Cumulative Production of Marketable Natural Gas, Canada, 1955–83



Source: Based on data from the Canadian Petroleum Association. Taken from Economic Council of Canada, *Connections: An Energy Strategy for the Future* (Ottawa: Minister of Supply and Services Canada, 1985), p. 57.

deregulation of export prices when it was introduced, the prospect of growing imports, at a time when U.S. demand for gas is not increasing, has since raised concern about Canadian competition in that country. U.S. demand is so nearly static that it now appears unlikely that the Alaska Natural Gas Transportation System (ANGTS) will be used in this century to move Alaskan gas to the lower 48 United States.

Gas-export growth will also depend on the Canadian supply situation. According to projections released by the Canadian Energy Research Institute (CERI) in early 1984, surplus gas from non-frontier sources – that is, gas from these sources that will not be committed under existing licenses or required for domestic consumption – will be available for export up to the early years of the coming century. Projections published by the NEB in September 1984 indicate that Canada's conventional reserves alone are sufficient to sustain export growth until at least 2000.[8] Surplus supplies from the Arctic and from offshore projects might allow us to increase our gas exports for a few years longer.

These projections assume that future returns to producers will be high enough to stimulate exploration and development. In recent years, however, drilling for gas in Canada has declined substantially: in 1983–84, estimated exploratory and development gas-well drilling was only 40 per cent of the 1976–80 average. The decline had several causes: the difficulty of increasing exports to the United States, a slow-down in the growth of domestic demand owing to the recession, mild winters, fierce competition from electricity utilities, and a decline in gas producers' net revenues. Some of these causes, or similar ones, could affect supply growth in the future. For example, any

TABLE 12-17 **World Natural Gas Reserves and Consumption (1982)**

	Proven Reserves (10^9 cubic metres)	Percentage of World	Consumption (10^9 cubic metres)	Percentage of World
OPEC	28 834.9	33.3	69.4	4.5
North America	8 359.5	9.6	575.3	37.5
of which Canada	3 484.3	4.0	50.7	3.3
Western Europe	4 243.5	4.9	207.1	13.5
Eastern Europe	35 169.0	40.6	541.1	35.2
of which U.S.S.R.	34 514.6	39.8	445.6	29.0
Other	10 098.9	11.6	143.1	9.3
Total world	86 705.9	100.0	1 535.4	100.0

Source: Adapted from Bijan Mossover-Rahmani, "The OPEC Natural Gas Dilemma", in *Proceedings of the International Gas Markets Conference*, edited by Shane S. Streifel (Calgary: Canadian Energy Research Institute, 1983).

Note: Canadian reserves are from NEB estimates. Canadian consumption figures are from NEB estimates.

significant increase in the value of the Canadian dollar relative to the U.S. dollar would depress our export revenues and therefore discourage drilling.

New export licenses are granted only if current reserves exceed the sum of commitments under existing export licenses, plus 25 times the present year's domestic demand for gas. Some observers argue that the requirement of 25 years' domestic supply inhibits exports unduly. Others defend the requirement, arguing that supply from conventional sources will satisfy projected domestic demand and existing export contracts for some 20 years only, that alternative supplies from the Arctic will be substantially higher priced, and that gas is cleaner than coal and safer than nuclear power.

One prospect beyond the U.S. market should be mentioned: the export to Japan of Canadian Arctic gas in liquified form. Japan expects liquified natural gas to make up about 13 per cent of its total energy demand by 1990–95 and is moving ahead with plans to import it from a number of countries. The Japanese anticipate that Canada will supply about 6 to 8 per cent of their gas imports between 1990 and 1995.[9]

A New Energy Framework

Encouraging Future Supply

The most important energy issue facing Canada is that of future supply. How shall we meet our energy needs, particularly our need for oil, over the next 20 to 30 years? What portion of our needs can we reasonably expect to supply from Canadian sources? And what policies must accompany whatever

objectives we set for ourselves? The question facing policy makers is not whether we have oil and gas. We clearly do. What we do not know with any certainty is the extent to which it will be profitable to develop new sources of oil and gas under the economic conditions that are expected to prevail over the next two to three decades. The ultimate issue is whether the economic incentives will be sufficient, or can be made sufficient, to encourage the industry to meet the targets we set.

An Economic Council of Canada study published before the 1985 energy accord was struck shows the effects of price deregulation under various taxation regimes.[10] It concludes that deregulation of oil and gas prices would encourage substitution of gas because of the change in relative prices that would follow. On average, oil imports would decline by about 9 per cent per year over the period 1985–90, and total oil demand would fall by an estimated 4 per cent. Demand for natural gas, on the other hand, would increase by nearly 13 per cent. On the supply side, the Council's results suggest that the deregulation of oil and natural gas prices would stimulate domestic oil production and exploration over the next few years. Gas production would also increase, but gas exploration and development would decline.

The Council also considered the results of simultaneous price deregulation and modificiation[11] of the Petroleum and Gas Revenue Tax (PGRT); it found another significant positive effect on discoveries of oil and gas reserves. Under price deregulation alone, additions to oil reserves would average 2.3 per cent per year between 1985 and 1990; under price deregulation plus modification of the PGRT, additions would average 8.4 per cent annually. Gas-exploration activity would still fall under the latter regime, but by only 3.8 per cent, instead of by 6.6 per cent.

Prices and taxes are only the most obvious determinants of exploration and development activity. Two other factors are important as well. One is the regulatory regime that governs the industry. The other is the stability or predictability of any administered prices, taxes and regulations. The following sections review each of these factors in turn, setting out Commissioners' recommendations for public policy.

Crude Oil Pricing. The first longer-term issue is the relationship that Canadian oil and gas prices should bear to the international price. The determination of prices for Canadian oil and natural gas has rarely been left to market forces alone. The National Oil Policy of the 1960s, by keeping foreign crude oil out of Ontario and the West, pushed prices in those regions higher than they would otherwise have climbed. Since 1973, the federal government has set prices below the world level.

A number of submissions to this Commission held that Canada should continue to keep domestic petroleum prices below world prices. The rationale for this policy was the argument that the world price is an artificial one, based not on international costs of production, but rather on an exercise of market power by a few oil-producing nations. Commissioners disagree with this argument. The world price is the real opportunity cost for Canadian supplies, even if it is only the "artificial" creation of OPEC's market power.

The difference between the world price and the domestic Canadian price is the value that is forgone every time a barrel of oil is consumed domestically rather than sold abroad. Likewise, it is the cost of replacing this same oil if we are forced to turn to the international market. To assign any price to oil other than the world price is to distort both supply incentives and demand incentives as well.

Accordingly, Commissioners recommend that Canadian crude regularly be sold within Canada at world prices. We welcome the recent "Western Accord", an agreement between the federal government and three Western provinces, which adopts this policy. In extraordinary circumstances, however, we would reserve to governments the right to put a temporary freeze on domestic petroleum prices. There are real economic costs involved in forcing Canadians to make a sharp adjustment if it is only to be reversed shortly thereafter. Given a sharp upward movement in the world price, such as occurred in 1973–74 and in 1979–80, a temporary freeze or sliding scale of prices should be contemplated. Similarly, if the OPEC price were to tumble dramatically, we would be well advised to keep a floor under the domestic price through a tariff or import-pricing regime. Even then, the decision to depart from world prices should only be taken by federal-provincial agreement. If it became clear – as clear, at any rate, as these things can ever be – that the price rise or decline was permanent, we would have to be prepared to see our prices follow the international ones.

This recommendation does not mean that Canada must necessarily sacrifice marginal frontier or non-conventional operations. It simply means that we should not use artificially high prices to support such projects. If we judge continued development of these projects to be valuable, as we would under currently foreseeable circumstances, and if international price trends are rendering them increasingly unattractive, other measures are available to support them. For example, governments could defer royalties and taxes on a given project until that project achieved a reasonable rate of return, or they could provide tax credits or other subsidies.

Natural Gas Pricing. It is not possible to make such a simple recommendation for natural gas pricing. Because there is no international market for gas, such as there is for oil, there is no handy reference price. There are two separate markets for western Canadian gas: domestic sales and exports to the United States. Prices within Canada have been set so that gas selling at the Toronto "city gate" has cost approximately 65 per cent of the price of crude oil. The price paid to producers, however, was an Alberta border price, set by federal-provincial agreement. Any difference between the two, beyond transport costs, has been made up by federal taxes or subsidies. Since November 1984, export prices have been set by negotiation between gas exporters and customers, but they can never be less than the Toronto level. The Western Accord requires the implementation of a more flexible, market-sensitive pricing mechanism by November 1985, and this direction is one Commissioners endorse. Our recommendation is that natural gas prices be allowed, over time, to find their own levels in *both* domestic *and* export markets. This policy will entail a substantial deregulation of gas markets over

a period of years, both at the producer and the consumer ends of the system. In particular, there would be no attempt to set the price of gas in relation to the price of oil. Given the relatively greater endowment of natural gas as compared with oil from conventional producing regions and given, too, the competitive markets for gas in the United States, it is likely that natural gas prices will continue to be lower than oil prices. To assure more flexibility in the domestic market, more large consumers should be encouraged to buy directly from Western producers. This shift will be facilitated if the pipeline companies carry such gas under no more onerous tariffs and conditions than those which apply to their own gas.

The current system of export regulation, under which the National Energy Board monitors supply and demand in Canada and approves export sales negotiated privately, should remain in place. Although the Western Accord does not deal with this issue, we would expect it to become an important one in 1985. Security of supply should remain an important objective, but the reserve period, presently standing at 25 years, should be re-evaluated now and periodically in the future.

Taxation and Subsidies. As our historical review has shown, the gas and oil sector has been the target of a bewildering succession of federal and provincial tax and subsidy schemes. A number of intervenors argued that the present range of such programs is confusing, inappropriate and unfair, and that the federal-provincial disputes it engenders are harmful to the industry and, ultimately, to the country.

> *Under the terms of the National Energy Program and the Federal/Provincial Energy Agreements of 1981 and 1983, the oil and gas industry has been subjected to a heavy burden of taxes and royalties and does not receive the full price for the largest portion of its oil production. These government policy decisions reduce the confidence of industry investors and impair financing capability for investments. Industry should not be faced with discriminatory taxes which other forms of energy are not required to pay.*
>
> (Canadian Gas Association, Brief, December 1, 1983, p. 7.)

> *The third area I would like to touch on is the area of incentives. Again, these have changed from being income tax related incentives to the grant form. Whatever one may say about the grant form, it produces far more capability on the part of the government giving the grant, to direct who will get the grant and where the grant will be spent, than an income tax related system of stimulation does. So, there has been a pronounced movement in recent years from a system of encouragement of exploration and development of energy in this country that was primarily related to the tax system, and therefore had a very commercial economic analysis and bias connected with it, to a system that was a good deal less dependent on normal economic analysis.*
>
> (R.R. Latimer, TransCanada PipeLines Limited, Transcript, Ottawa, December 15, 1983 [vol. 72], p. 15107.)

> *The constitutional division of resource jurisdiction has resulted in deepening rifts and confrontation between governments and industry and has harmed*

Canada's economic performance. Oil and gas sector activity has particularly suffered from this situation.

(Canadian Petroleum Association, Brief, October 24, 1983, p. 7.)

It is time to establish some basic principles with respect to taxation and subsidy of the petroleum industry, to develop a system that is compatible with these general precepts, and to make a commitment to leave the new system as it is for the forseeable future, barring any disruptive developments. Commissioners therefore propose three principles to govern taxation of the oil and gas sector. The provinces' rights as landlords must continue to be recognized. The treatment of the oil and gas sector under the tax system should not differ from the treatment of any other non-renewable resource industry. Taxation above a minimal provincial royalty should be based on profits rather than on the value of production.

This Commission specifically recommends that:

- The producing province would continue to levy an incentive-based royalty to reflect the compensation due to the owners of a non-renewable resource, up to a maximum level set by federal-provincial agreement. Royalty payments would be deductible as business expenses for the purposes of calculating corporate income tax. The present system, which does not permit the deduction of royalty payments from income for tax purposes, and which specifies a special resource allowance as a general deduction, would be scrapped. Royalty payments would be the province's first, but not its only, claim on the industry's revenues. We would suggest that the royalty level be lowered: the collection of rents by governments must be based largely on profits, rather than on output volumes and gross revenues, if the development of marginal supplies is not to be discouraged.

If the provinces were to agree to an incentive-based royalty approach, it would follow that the income-tax share would increase at the expense of the royalty share. As noted below, some adjustment in the division of revenue between the two levels of government may be required.

Commissioners further recommend that:

- Governments collect the remainder of their share of the rent in the form of corporate income taxes, both provincial and federal. Taxes on the value of production would be avoided. We welcome the phasing-out or elimination of such forms of taxation as those announced in the Western Accord. Deductions permitted would be royalty payments up to the agreed maximum and the business expenses normally allowed in other industry sectors. These would include operating expenses (including exploration expenses) and an amortized portion of all capital costs, including acquisition and development costs. Depletion, earned or otherwise, would not be deductible. Deductions not used in any tax year could be carried forward. To promote exploration and investment in the petroleum industry, unused deductions arising from exploration expenditures or investment in the industry would result in refundable tax credits, replacing the Petroleum

Incentive Payments (PIP) system being phased out under the Western Accord.

- There be provision for a temporary windfall-profits tax to be levied, after agreement with the provinces concerned, in the event of a major disruption in international oil markets.
- With respect to non-conventional petroleum resources and conventional resources outside the Western Sedimentary Basin (including heavy oil and oil sands, tertiary recovery of conventional resources, Beaufort near-shore and on-shore, and eastern offshore), we believe some continuing "tilt" in incentives is appropriate on two grounds: regional economic development and security of supply. Accordingly, as PIP is phased out, a more modest incentive ought to be introduced in the form of a refundable tax credit for exploration. This measure would both encourage exploration generally and allow smaller firms to participate in frontier and non-conventional projects. As we said earlier, where the continued development of such projects is deemed to be valuable to Canada, and where international price trends are rendering these projects increasingly unattractive, we believe that taxation and royalty levels should be adjusted downward or that refundable tax credits, royalty or tax holidays, or other forms of subsidy should be made available.

The Regulatory Environment. The petroleum industry operates under a wide variety of regulatory provisions. This plethora of rules was described to Commissioners at our public hearings:

> *The following quotes from the annual report of a very successful small Canadian oil company illustrates the degree of present day frustration with government intervention . . . NEP, FIRA, PIP, APIP, EDIS, DDIS, SOOP, COOP, NORP, IORT, COGLA, PGRT, NGGLT, COSC, and on and on it goes. This list of unintelligible acronyms is only a sample of government taxes/programs presently active in the oil industry. The interference and increased involvement by both levels of government over the past 10 years has been crippling.*
>
> (Formula Growth Limited, Brief, October 24, 1983, p. 3.)

In any sector, the subject of regulation imposes a dilemma. In isolation, each requirement or condition is nearly always eminently justifiable; taken together, however, regulations can become an insurmountable barrier to the progress of a given project. There is no simple solution to this problem. Commissioners can only enter a plea that governments make their regulations as simple and as inexpensive to implement as possible. We provide some suggestions below, in our review of environmental regulation, about the streamlining and co-ordination of regulations.

A final point is in order here. We Canadians must recognize that if a project dies because it fails to meet regulatory procedures (assuming these are properly designed), its death is natural and not to be impeded. Regulations are meant to stop marginal ventures; not every blocked proposal signifies regulatory overload.

Predictability. The best policies in the world can be harmful if the industry cannot assume that they will be in place long enough to allow it to calculate and compare expected returns from particular resource projects. Commissioners were told that:

> *In the oil and gas industry the policy . . . has been very, very unpredictable. The oil and gas industry is one that requires a stable, clear, long-term policy for development.*
>
> (F. Gordon Dixon, Transcript, Calgary, November 7, 1983 [vol. 41], p. 8337.)

Other intervenors addressed the issue of predictability in the following terms:

> *Major energy projects have a long 10–30 year, planning horizon best supported by a fiscal regime of royalty, and other taxes and incentives which [are] relatively predictable but flexible and adaptive to changing business circumstances. Alteration of the "rules of the game" at frequent 2–3 year intervals in response to short term shifts in public policy and cyclical world energy situations only serves to increase uncertainty and add to project development risk.* (Dome Petroleum Limited, Brief, October 25, 1983, p. 5.)

> *What is needed [in the energy sector] is a combination of long-term goals, which enjoy a wide-spread consensus among the key sectors of our community (governments, the petroleum sector and consumers), and short-term adaptability in terms of tactics so that we can respond quickly to a changing energy environment. Short-term pragmatism will allow us to react in a timely manner to changing circumstances while a longer-term strategy will prevent us from over-reacting to new circumstances.*
>
> (Petro-Canada, Brief, November 15, 1983, pp. 9–10.)

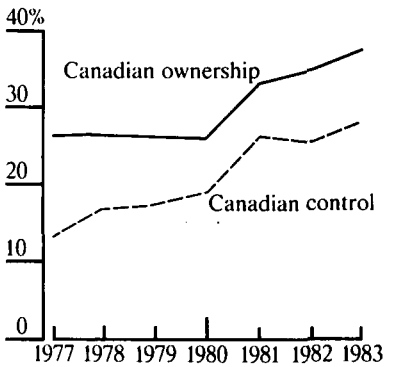
Commissioners can make but one recommendation here, and it is the obvious one: Governments must establish a simplified taxation and regulatory regime and leave it in place. They should alter it only in unusual circumstances, and only after consultation with those affected and with other orders of government.

Canadianization. Another major issue is the extent to which the country wishes to continue to pursue the goal of Canadianization of the oil and gas sector. The NEP set a target of 50 per cent domestic ownership by 1990. In order to achieve this goal, the federal government instituted a special Canadian Ownership Charge and scaled PIP grants in favour of Canadian-owned companies.

The results of the Canadianization measures can be gauged from Figure 12-6. Canadian-owned firms accounted for about 38 per cent of petroleum industry reserves in 1983, compared with about 27 per cent in 1977. Figures on control are lower, but the rate of increase is even higher. The changes reflect the greater participation in the industry of companies that were already locally owned, as well as some high-profile take-overs of foreign companies.

The costs and benefits of foreign ownership are considered in general terms elsewhere in this Report. The question here is whether a special case can be

FIGURE 12-6 Ownership and Control of the Petroleum Industry, Based on Petroleum-Related Revenues, Canada, 1977–83



Source: Based on data from the Petroleum Monitoring Agency. Taken from Economic Council of Canada, *Connections: An Energy Strategy for the Future* (Ottawa: Minister of Supply and Services Canada, 1985), p. 22.

made for encouraging Canadian ownership in the oil and gas sector. We Commissioners think that it can. A secure supply of oil and gas is vital to a country's well-being, yet the international petroleum market-place has been dominated by OPEC, whose interests are often at odds with those of Canada. Furthermore, it would be dangerous to leave our fate entirely in the hands of multi-national oil companies. The actions of Canadian-owned firms – especially public firms – are more likely to be consistent with expressed Canadian goals. In addition, it is a matter of national pride to have a robust domestically-owned presence in this high-profile international sector. For these reasons, this Commission favours tilting both the land-tenure system for Canada Lands and the incentives system in favour of Canadian firms, to the extent that that policy is compatible with our international obligations.

Revenue Sharing

The final major issue is the question of the division of economic rents between the federal government and the provinces. As Commissioners have already indicated in our review of taxation, we recommend that the producing province be given first pass at the economic rents by virtue of its status as landlord. Thereafter the two governments would share taxation revenues as they would share those from any other sector: through the complex of corporate and excise taxes already in place.

The question remaining is how much lower will be the maximum level of royalties to which the federal government and the producing provinces will agree so that royalties may be deductible for federal income-tax purposes. Any recommendation on this score must be tied to federal government responsibilities in the area of equalization payments. If energy revenues are to be more fully equalized than they are now, the federal share must be

increased to reflect this fact. If not, there is a case for letting the provincial share rise instead. We refer the reader to Part VI for further discussion and recommendations.

Conclusions

Canada's oil and gas sector has, not surprisingly, dominated national discussion of resources over the past dozen years. The sector is fundamental to the functioning of any modern economy and so large in Canada as to make a major difference in setting a wide variety of public policies, whether directly related or not. At the time of writing this Report, the sector is once again the focus of major reform, although to date, no legislation has been presented to Parliament or to provincial legislatures.

This Commission has given the oil and gas sector a good deal of attention and has presented for consideration as a long-term policy a new energy framework based on the principles of efficiency, fairness and predictability. This new framework is designed to accomplish two particular objectives: to allow the energy industry to make a full contribution to Canada's economic development; and to put in place a system sufficiently resilient that future shocks, which will invevitably come, will be absorbed more easily than they have been in the past.

Notes

1. In March 1985, the federal government and three Western provinces signed an accord which is to form the basis for a major reform of the National Energy Program. At the time of writing this Report, the accord has not been translated into legislation. Government of Canada, *The Western Accord* (Ottawa, 1985).
2. Economic Council of Canada, *Connections: An Energy Strategy for the Future* (Ottawa: Minister of Supply and Services Canada, 1985), p.103.
3. World Bank, "Price Prospects for Major Primary Commodities" (Washington, D.C.: World Bank, Economies and Research Staff, 1984), vol. 5.
4. National Energy Board, *Canadian Energy: Supply and Demand 1983–2005*, Technical Report (Ottawa: NEB, 1984).
5. David, Slater, "Submission" by the Chairman of the Economic Council of Canada to the Standing Senate Committee on Energy and Natural Resources, Ottawa, May 24, 1984.
6. National Energy Board, *Canadian Energy*, p. 64.
7. *Ibid.*, pp. 62–65.
8. *Ibid.*, p. 67.
9. Shun-Ichi Shimizu, "Characteristics of the Japanese LNG Market and Keys to Success in LNG Projects", in *Proceedings of the International Gas Markets Conference*, edited by Shane S. Streifel (Calgary: Canadian Energy Research Institute, 1983).
10. Economic Council, *Connections*. The Council assumed that world oil prices would remain stable; projections would change slightly under a different world price.
11. Modified PGRT "becomes a tax on production revenues, net of operating costs and of investment expenditures on oil and natural gas exploration, development and production in each year." (Economic Council, *Connections*, p. 182). The 1985 Western Accord specifies removal of the PGRT.

CHAPTER 13

The Environment, Society and the Economy

CHAPTER 13

The Environment, Society and the Economy

The review of global prospects at the beginning of this Report included an agenda of significant environmental issues that the citizens and the policy-makers of the world must confront in the years ahead. The items on that agenda – forest depletion, the greenhouse effect, acid rain, soil degradation, nuclear waste, the extinction of species, water quality – touch, in some way, every aspect of this Commission's mandate. The present section examines the nature of the environmental challenges that Canadians face, the effects of our rising awareness of those challenges, and the institutional means available to us for meeting them.

The Environment: Changing Attitudes and Responses

The International Dimension

Canada's status as a prominent middle power has been sustained in no small measure by our contributions to international initiatives related to the environment, particularly those associated with the United Nations. Canada's participation in the multi-session United Nations Conference on the Law of the Sea (UNCLOS) is one such contribution. The inclusion in the 1972 United Nations Declaration on the Human Environment of two important legal principles put forward by Canada is another:

> *States have . . . the sovereign* right *to exploit their own resources . . . and the* responsibility *to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.*
>
> . . .
>
> *States shall co-operate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such states to areas beyond their jurisdiction.*[1]

Recent developments in multilateral trade negotiations offer another example of the growing importance of environmental concerns in traditional economic areas at the international level. A perception that some environmental protection standards may be disguised attempts to restrict import competition is at least partially responsible for the Code of Conduct for Preventing Technical Barriers to Trade (the Standards Code) that emerged from the Tokyo Round trade negotiations. The code requires its signatories not to use environmental, health, safety and consumer-protection standards to create unnecessary obstacles to international trade. Application of the code will not be easy. The question of whether a given regulation is an "unnecessary" barrier to trade is, of course, a matter of judgement. Moreover, many environmental standards are set, not by national governments, but by provinces (states) or municipalities. For this reason, the code requires central governments to use "such reasonable means which may be available to them"[2] to see that other jurisdictions within their boundaries adhere to its principles.

As a prosperous nation that occupies an extensive portion of the earth's surface, Canada has a major responsibility in many areas of environmental concern. Because the effects of human activity on the global environment are often cumulative and long-term, and because so many causes of environmental damage and degradation operate across national boundaries, this responsibility extends beyond the life of the present generation and beyond the boundaries of our own vast land. The measure of our civilization will be determined in no small part by the extent to which we live up to our responsibility at home and continue to offer assistance and leadership abroad.

The Environment versus Economic Growth

Many observers argue that measures taken to protect the environment often work at the expense of economic performance. According to this view, the competitiveness of Canadian firms is inhibited by the costs of compliance with domestic environmental standards, especially where these standards exceed the requirements that firms face in other countries. Concerns are often raised about the delays associated with obtaining environmental approval for projects, sometimes from several jurisdictions with differing standards. A further common complaint is that environmental controls reduce employment by diverting capital from "productive" investment to non-essentials. Particularly when economic growth is slow, as it has been recently, environmental controls can retard new capital investment, including investment in more environmentally sensitive technology, or discourage it altogether. These criticisms have not gone unremarked; the last few years have seen a decline in real per capita government spending on research and compliance.

In this Commission's view, efforts by industry to improve its short-term competitive position by avoiding or delaying environmental and resource-management costs simply defer these costs or leave them for the public to assume in the form of government expenditure, ecological damage, or forgone earnings and lost options. The lack of attention to reforestation illustrates this

point only too well. Canadians must establish an accounting approach that recognizes all of the costs of economic activity, however difficult it may be to express some of these costs in dollars. As the representative of the Saskatchewan Environmental Society remarked to this Commission:

> *The gross national product is, in a sense, a false measure of how far ahead we have been able to get because it does not take into account such things as depleted soils and the cost of restoring them [or] contaminated food chains and the health effects.* (Saskatchewan Environmental Society, Transcript, Saskatoon, November 21, 1983 [vol. 48], p. 9869.)

It will be essential in the decades ahead to integrate environmental decisions and economic decisions, for there is, in Commissioners' view, no ultimate conflict between economic development and the preservation and enhancement of a healthy environment and a sustainable resource base. We agree with the similar conclusion expressed in the *European Community's Environmental Policy*:

> *The desire to avoid imposing additional costs on industry has led to a reluctance on the part of some Community governments to agree to tougher pollution controls, land-use requirements and curbs on potentially dangerous materials or production processes. The tangible short-term costs to the economy of such measures have all too often outweighed the frequently intangible and longer-term benefits to society of a healthier environment and substantial longer-term economic costs of failure to prevent pollution.*[3]

The Environmental Challenge: Changing Perceptions

Environmental issues first became a matter of general concern, in Canada and elsewhere, in the 1960s. Over the years, the definition of these issues has become increasingly broad and complex. The initial focus of concern was local pollution: that is, site-specific, single-source, environmental problems, the causes and effects of which were relatively easy to identify. The devastation of a stretch of English seashore that resulted from the sinking of the oil tanker *Torrey Canyon* in 1967 is a familiar example of a problem of this type. Such "classic" pollution problems are now widely recognized, and efforts have been made to bring them under control. While disasters of the *Torrey Canyon* variety are still all too possible, we have at least improved our techniques for cleaning up after them. On land, factories that spew out black smoke are less equably tolerated now than they were in the past, and emissions have been made subject to ever-more-careful monitoring. Nevertheless, many factories continue to pollute the air, just as oil spills and deliberate dumping continue to contaminate the oceans.

The 1970s brought growing concern about our capacity to manage the earth's resources on a sustainable basis. The first oil crisis of 1973 and the Club of Rome's study *Limits to Growth*[4] made major contributions to global awareness of potential resource depletion and launched an important continuing debate. If "running out" was the problem – and there was serious dispute on this point – "finding more" or "using less" were the solutions. The

"conserver society" movement, stimulated in Canada by the work of the Science Council of Canada and by energy-conservation projects such as Prince Edward Island's Ark, was one response to the depletion challenge. Renewed alarm about the state of Canada's forests was another.

The 1970s also saw the emergence of a distinction, though by no means an absolute one, between the problems of pollution and the far more complex and difficult problems of long-term hazard which, at their worst, may be both unquantifiable and irreversible. The events at the Three Mile Island nuclear generating station and at the Bhophal chemical plant in India dramatically illustrate problems of the latter kind. Occupational health and safety issues, such as the possibility of detrimental effects of video-display terminals (VDTs) on the unborn, introduce similar concerns into the daily lives of ordinary Canadians.

The problems of long-term environmental hazard are less well understood and more difficult to remedy than the problems of "classic" pollution. The causes and consequences of long-term hazards are less readily linked, and the problems tend to be more serious as the example of chemical contaminants that pose carcinogenic and mutagenic threats demonstrates. Long-term contaminants tend to have a variety of sources and are difficult to identify, partly because they are often present only in trace elements. For this reason, they often accomplish serious damage before their presence is noticed or their effects are determined. Even when their presence has been confirmed, they are more difficult to break down or neutralize than the more familiar pollutants. Indeed, the damage wreaked by many kinds of long-term contaminants is irreversible: as far as human knowledge extends, once done, it cannot be undone. The effects of the long-term hazards tend to be more widely dispersed geographically and are more significant ecologically than the effects of simple pollution. The damage done by an oil spill is primarily local and of relatively short duration; but the destructive effects of acid rain are obviously international and may persist for decades.

Thus, while the environmental issues of the 1960s and early 1970s usually involved the management of non-persistent pollutants from industrial and municipal sources, the focus now is on environmental damage that threatens the long-term sustainability of the planet.

Environmental Values and the Environmental Movement in Canada

Canadians' changing perception of the environmental challenge at once reflects and reinforces changes in our values, aspirations and expectations. Before the 1960s, interest in conservation centred on the efficient management of resources for consumption. While concern about the efficient use of resources persists, the old emphasis on consumption has yielded considerable ground over the past quarter-century to a new emphasis on "the quality of life". According to this new reckoning, the environment is a source, not of wealth alone, but of other, less tangible satisfactions as well. Moreover, abuse of the environment is seen to threaten not only our prosperity, but also our health, our safety and, ultimately, our society.

If the environmental movement of the 1960s was vulnerable to the criticism that it reflected the aesthetic preferences of affluent North Americans whose interest in preserving threatened landscapes and endangered species was not always representative of world public opinion, it is considerably more difficult to dismiss current expressions of concern about the environment, which emphasize health and safety issues and which often arise from a strong sense of obligation to future generations. The importance of these issues is difficult to quantify; it is impossible to disregard. Indeed, some would argue that a firmly entrenched environmental consciousness is becoming a basic characteristic of Canadian society. Certainly, as Canadians' view of the environment changes, opposition to public policies that address the environment declines. It is now more common to hear arguments – even economic arguments – in favour of environmental protection measures than it is to hear arguments against them. From the environmental hearings of the past decade has emerged a sense of the importance of integrating economic and social concerns, of seeking both managed economic development and a high quality of life.

Public participation is increasingly significant at every stage of environmental decision making, from the definition of issues to the selection of policies. The Canadian environmental movement has its roots in the 1960s, when neighbourhood associations, concerned citizens' committees, and individuals began to work actively to identify the environmental consequences of industrial activity. Meanwhile, many communities directed their attention to matters such as municipal waste disposal sites, contaminated swimming beaches, non-returnable containers, and littered campsites and portage trails. With the realization that environmental problems were wide-ranging in their effects, local associations gradually formed larger and more formal groups in order to express their concerns in broader forums. The formation of Pollution Probe at the University of Toronto in 1969 was a particularly significant landmark in the evolution of environmental interest groups in Canada. Many less widely-known organizations came into being in the same period, and some existing organizations, such as camping associations and naturalists' groups, added environmental issues to their traditional concerns. Today, the environmental issues of concern to Canadians are often articulated by "coalitions" and "umbrella" groups that operate at the national and provincial levels, while local associations continue to perform important practical and educational functions.

Government Responses to Environmental Issues

Since the 1960s, Canadian governments have responded to the problems of the environment with both legislative and institutional reforms. Government did not start with a blank slate: remedies to some types of environmental abuse were already available either under common law or under existing resource-related statutes.[5] However, the new response was distinctive both in the prominence it accorded environmental matters and in the form it took. In the period from 1968 to 1972 alone, Parliament enacted several significant pieces of environmental legislation, including the Canada Water Act, the

Clean Air Act, the Arctic Waters Pollution Prevention Act, and the Northern Inland Waters Act. It also added new environmental provisions to the federal Fisheries Act and the Canada Shipping Act. In 1971, the federal government created the Department of the Environment, in order to consolidate in one ministry all agencies responsible for environmental protection, management and research. In most provincial jurisdictions, too, environmental regulation and institutions became matters of increasing priority during this period.

Today, the range of measures employed by governments to discourage or constrain conduct that is harmful to the environment includes educational programs and guidelines, regulations governing standards and licensing, prohibitions and sanctions, financial incentives, and reporting requirements. This Commission's interest here is not in the details of individual environmental programs, but rather in the ability of our system of environmental management to respond to emerging environmental concerns and evolving public values.

The success of educational measures directed at the general population or at particular industries is not easy to assess. By extending awareness of environmental issues and the availability of remedial measures, educational initiatives may contribute indirectly to environmental protection. On the other hand, the educational approach has been criticized because it can be used as a substitute for stricter measures and more practical actions. Exhortations, voluntary guidelines and good behaviour standards do suffer the obvious limitation that compliance places the "responsible" corporate citizen at a disadvantage in relation to competing firms.

Regulation is widely used both by the federal government and by the provinces to modify or control environmentally harmful conduct through standard setting. The federal Fisheries Act, for example, permits the minister to designate substances "deleterious" and to prohibit their discharge either into the sea or into interprovincial inland waters unless the operator has obtained approval. Similarly, the Clean Air Act authorizes the federal government to establish national air-quality objectives and to regulate emission standards at an air-pollution source. Expert sub-committees of the Federal-Provincial Committee on Air Pollution define "desirable", "acceptable" and "tolerable" levels of national air quality and develop objectives for the control of major contaminants such as sulphur dioxide and nitrous oxides.

To set general standards through regulation is often an administratively simple way of dealing with non-persistent pollutants. Nevertheless, this approach has been the subject of considerable criticism. When a single strict standard is applied uniformly over an extensive area, the level of environmental protection provided may be higher in some regions than a site-specific assessment would require.

Non-statutory policy and review procedures are an important part of environmental decision making. The Environmental Assessment and Review Process (EARP), which the federal Cabinet established in 1973, has no statutory basis. Its purpose is to ensure that the likely environmental effects of federal programs and of projects that involve federal money or land are

taken into account in the earliest stages of planning. EARP operates in two phases. First, the agency responsible for the project determines whether the project is likely to have significant environmental consequences. If it is, then a panel of experts appointed by the Federal Environmental Assessment and Review Office (FEARO) and the Department of the Environment undertakes a public review, including hearings, of a detailed impact-assessment document which the proponent agency has prepared in accordance with guidelines specified by the review panel. Since 1974, EARP has reviewed several major federal projects. In the view of some critics, EARP is little more than the voice of the federal government's ecological conscience, since its authority is based on moral suasion rather than on statutory force.

The limitations of the approaches outlined above have stimulated thinking about new methods of environmental decision making and about ways to integrate this process more effectively with the planning activities of public and private actors. Experiments with environmental mediation have been carried out, notably in the United States, with a view to reducing the costs of conflict resolution and facilitating the participation of a wide range of interested individuals and groups. Such "alternative dispute-resolution" techniques do have attractions in some circumstances. Questions persist, however, about the choice of interests that should be involved in the process and the identification of those persons who can most effectively represent them. Moreover, the permanence of mediated environmental agreements may be uncertain, since it depends on the ability of the parties involved to monitor and enforce compliance, through the courts if necessary.

More than one observer has proposed the introduction of an environmental bill of rights for Canada as a means of ensuring for citizens the maintenance of a safe and clean environment in which to live and work. The authors of one work on the environment list a number of principles that might be embodied in such a bill of rights:

- The right to a healthy and attractive environment
- The right to use the law to defend the environment in courts and tribunals
- Environmental impact studies
- Access to information
- Public participation in setting environmental standards
- An environmental ombudsman
- Class actions
- The right to defend the environment at a reasonable cost
- Restrictions on agency decisions
- Judicial review of administrative action
- The burden of proof to be on the pollutor.[6]

Dissatisfaction with the effects of many existing regulatory approaches to pollution has prompted some economists to urge that more market-oriented policies be used to control environmental damage. They suggest that in certain circumstances, options such as fees for the right to discharge effluents would be both more effective and more economically efficient than regulation. An "effluent charge" is basically a payment per unit of pollution

discharged from a designated source. An "effluent-rights" program would involve a distribution of the rights to discharge pollutants, based on an understanding of total allowable pollution emissions from all sources in a particular jurisdiction. The rights could be distributed by means of an auction, or they could be assigned on the basis of emissions from existing sources. Such rights could then be transferred at prices determined by the relationship between the total rights available and the demand for those rights.

The Dynamics of Environmental Policy Making

The multiplicity of forms and agencies of government intervention in environmental management demonstrates the complexity of our Canadian governments' responses to public concern with environmental protection and standards. A brief examination of the dynamics of the policy-formation and implementation processes will reinforce that impression of complexity.

Information, scientific, technological, economic and regulatory, is vital to the environmental-protection process. Obviously, effective pollution control requires a measurement of pollution. For example, an agency responsible for water quality must translate criteria for fishing, recreational use and safety into standards for, say, suspended solids and biochemical oxygen demand. In order to set totals for allowable emissions, the agency must also determine the absorptive capacity of the water. Where there are several sources of emissions, the agency must devise a system for assigning individual quotas, the sum of which will not exceed the allowable total. It may be necessary to adjust totals and quotas as new information becomes available, since many of the effects of pollutants reveal themselves only after a long interval.

The scientific information required for effective environmental control is costly and difficult to accumulate and evaluate. It takes continuous effort simply to gather the base-line data needed to improve our understanding of the interaction of environmental and industrial processes in the circumstances peculiar to Canada. Scientific information must not only be gathered; it must also be made accessible to concerned parties: researchers, industry representatives, environmental groups, and the general public.

Like scientific information, information about the regulatory process and its results is difficult to obtain and to assess. Very little environmental regulation consists of across-the-board rules or standards. For the most part, the regulatory apparatus consists of discrete, and usually confidential, agreements made with individual firms, by federal or provincial departments, at the discretion of the minister. While environmental interest groups have tried to monitor environmental regulation, their resources are far too thin, and the decision-making arenas are far too numerous, to permit them to act as an effective third presence.

Both industry and environmental interest groups are given to deploring the complexity of the environmental-regulation process. This complexity is especially evident in project- and product-approval procedures, which often involve hearings. The time between the initiation of a proposal for a major

resource-development or industrial undertaking and the date the project comes on stream is significant to the proponent, whose expenditures during this period must be financed from other revenue sources. Extended and costly hearings are therefore a source of considerable concern and frustration, particularly when approval must be sought from more than one jurisdiction. Regulatory "lag" is thus often said to deter economic development, particularly where major projects are concerned.

Environmental interest groups, too, derive considerable frustration from the hearings process. The fragmentation of the process among several jurisdictions may deflect attention from major issues by emphasizing technical particulars. Moreover, the burden of participation in the assessment process is often severe, a circumstance that emphasizes a difficulty widely familiar to public interest groups: the "free-rider" problem. Environmental interest groups find it much more difficult to secure permanent membership, and hence resources, than do producer interests and manufacturing associations. The reason is that non-members can obtain the benefits of the environmental groups' activity without having to contribute to it. Consequently, environmental groups, which by definition have a stronger institutional interest in environmental performance than have other kinds of organizations, face extraordinary obstacles in trying to promote and monitor environmental issues. When one adds to this fundamental weakness the fact that there are numerous venues for decision making, the extreme difficulty of the task that such groups undertake becomes apparent. Commissioners do not mean to suggest that none of the other participants in the environmental/economic equation have a serious interest in environmental improvement. Obviously, they do. But the reality is that private companies, and indeed governments, vary widely in their degree of commitment to the environment.

The free-rider problem and the complexity of the regulatory process make it clear that environmental decision making suffers from serious institutional weaknesses that should be addressed. This Commission sees a need for greater public funding of environmental groups so that they can serve as a more continuous presence in environmental hearings and in monitoring and compliance activity.

It will be a delicate undertaking to design a decision-making process that permits a sufficient degree of public participation and yet avoids excessive regulatory "lag". For major projects, which almost always require the approval of more than one government, a key reform would be movement toward a single joint-hearings process. Another important reform would be the establishment of the federal government's environmental assessment process on a statutory basis. Obviously, there would have to be some limit to the applicability of such a statute; otherwise, any project, however minor, that involved federal property or federal financing could not proceed without hearings. The answer to this problem would be to define a threshold: for projects of less than a certain size, assessment would not be compulsory.

While, in some instances, the decision-making process consumes too much time, in others it does not consume enough. Environmental issues often exhibit great technological complexity and provoke considerable scientific

debate. One advantage of consolidating the review procedures of two or more jurisdictions is that more time would be available for the proper exposure of technical and scientific controversy. The assessment process must not only give more time to such controversy; it must also develop better procedures than it now possesses for clarifying and resolving it. In clarifying the scientific debate, such procedures would also expose the economic and political motives that often underlie "scientific" arguments. A more intense and exacting hearings process would probably be more time consuming than the present arrangements, but the decisions it produced would be better informed and therefore less costly, at least in the long run.

Concerns about the complexity and uncertainty of the environmental protection process also arise in connection with day-to-day compliance and enforcement procedures. Governments' failure to develop consistent approaches to compliance, to standards for assessing performance, and to shifting economic conditions contributes to the difficulty of sustaining overall progress in environmental matters.

Critics of the present regulatory system argue that Canadian governments cannot possibly be neutral regulators, considering that their own Crown corporations are often the promoters of projects that are under regulation. Some observers believe that even now the American regulatory regime is superior to the Canadian regime, since the former provides more opportunities for private litigation and involves the possibility of stiffer penalties. Others see the American arrangement as a recipe for costly and excessive procedural wrangling throughout the regulatory and judicial systems.

Many observers also object to government's avoidance of universal compliance and enforcement standards in favour of individual – and generally confidential – agreements with companies. A case could be made that invididual agreements are necessary, since no two industrial projects have precisely the same effect on the environment. Many of the objections to such agreements could be overcome by a system of very stiff penalties that would be known publicly, and that would come into effect automatically if compliance failed to materialize. Alternatively, there could be somewhat milder penalties and a requirement that compliance schedules be made public.

A brief examination of two industries will illustrate the mechanics of regulation under existing formulae. In the pulp and paper industry, the basis of regulation is the determination of an allowable effluent requirement for each mill. The federal government and the provinces share jurisdiction, although their concerns are different: the federal government has authority over fish, the provinces over water.

The federal authorities prescribe allowable levels of effluent for the component processes relevant to each mill, while the provincial guidelines are based on the mill's attributes and the absorptive capacity of the water. In both areas, the guidelines give little, if any, consideration to the costs of compliance. A reasonable degree of co-operation exists between the two levels of government, which generally agree to recognize the more stringent of the two sets of guidelines. For the past two decades, the federal government has granted special capital-cost allowances for pollution-abatement equipment in

existing plants. In 1979, approval of adequate provision for pollution abatement was a condition for receiving special financial assistance under a joint federal-provincial program. Apparently, these have proved to be weak incentives.

Our second example concerns the sulphur dioxide emissions from Inco's smelter at Sudbury, Ontario. After passage of the Ontario Air Pollution Control Act in 1967, Inco was required to build a new taller stack to replace three shorter chimneys. Sulphur dioxide emissions were to be reduced to 4716 tonnes per day by July 1, 1970; to 3991 tonnes per day by December 31, 1974; to 3265 tonnes per day by December 31, 1976; and to 680 tonnes per day by December 31, 1978. Inco could not meet the third target, and extensive negotiations followed. In 1980, the province issued a new directive that imposed an immediate limit of 2267 tonnes per day; emissions were to be reduced to 1769 tonnes per day by 1983. Inco officials asked why the guidelines issued were so optimistic, since performance is bound to be judged with reference to those guidelines. Perhaps, they suggested, the regulators had significantly overestimated the economic prospects of the industry. Then it became clear that strict enforcement of the Air Pollution Control Act might put some pulp and paper mills and smelters out of business.

Obviously, the tailoring of compliance guidelines to fit the economic circumstances of each mill or smelter leads to variations in the quality of air and water at different sites, and to an uneven responsibility for the costs of environmental improvement. In the extreme, marginal mills or smelters are not expected to take any action; profitable operations are. New mills face tougher standards than old ones. Some commentators have even argued that existing producers sought the tailoring of requirements and subsidies through accelerated capital-cost allowances because that approach would give them an advantage over possible entrants.

These examples show that there is considerable "give and take" as the regulator and the regulated enterprise seek to balance environmental and other goals. The complexity of the regulatory task calls upon all of the devices of governing: the carrot, the stick, persuasion and public information. The key to success is to devise a combination of decisions that produces sustained implementation, which is the result of real changes in behaviour. All participants in the environmental issue have now had more than a decade of experience: although there has been progress, we have seen that sometimes both governments and private firms have been able to pull back from earlier levels of commitment. It is for this reason that Commissioners support a movement toward the consolidation and the legal entrenchment of the many forums in which environmental decisions are made.

To attain the goal of sustained implementation also requires that a new political and economic maturity be applied to the use of policy devices such as effluent charges. This is not to argue that the levying of effluent charges is in itself a sufficient solution to the problem of pollution. Rather, this Commission argues that when used with other policy instruments, the levy can contribute to sustained improved behaviour. Effluent charges internalize the costs of pollution to the company involved and give the firm practical incentive to change its economic behaviour.

The interaction of scientific, institutional and economic factors in environmental policy making and implementation subjects these complex processes to many forms of discontinuity. Decisions about investment in environmental research can be influenced by many unrelated factors. Regulatory processes do not operate consistently, or they take place in several forums, taxing the patience of the participants and inhibiting effective exposure to, and analysis of, fundamental issues. Compliance and monitoring efforts are subject to modification in accordance with the shifting budgetary concerns of government and industry. All of these phenomena are natural enough in what is still an early stage of our progress towards proper maintenance of the environment. If it is true, however, as Commissioners believe it is, that there is no long-term conflict between economic growth and environmental concerns, and if it is also true that decisions which affect the environment generally look to the short term, then there must be some permanent arrangement for monitoring decisions of these sorts. Otherwise Canadians cannot be sure that decision makers are, in fact, taking them along a long-term path that they broadly support.

It is in this sense that environmentalists are right in calling for a form of "non-GNP" social accounting that captures some non-economic indicators of well-being. Having made this statement, Commissioners must also acknowledge that agreement on what a system of environmental monitoring should include will not be easy to achieve. The basis for such a system could be an independent national body equipped with the scientific expertise to identify existing and potential hazards and to lay the groundwork for preventive action. The monitoring system could embody national, regional and sectoral environmental criteria: it would monitor pollutants and hazards of high national or regional priority, large bodies of water, and major companies and Crown corporations in each sector.

Notes

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2. Seymour J. Rubin and Thomas R. Graham, eds., *Environment and Trade: The Relation of International Trade and Environmental Policy* (Totowa, N.J.: Allanheld, Osmun for the American Society of International Law, 1982), p. 9.
3. *The European Community's Environmental Policy*, 2d ed. (Luxembourg: Office for Official Publications of the European Communities, 1983), p. 19.
4. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, and William W. Behrens III, *The Limits to Growth*, a report for the Club of Rome's Project on the Predicament of Mankind (New York: Universe Books, 1972).
5. Related issues are surveyed in D. Paul Emond, "Environmental Law and Policy: A Retrospective Examination of the Canadian Experience", in *Consumer Protection, Environmental Law and Corporate Power*, vol. 50, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985).
6. David Estrin and John Swaigen, *Environment on Trial: A Handbook of Ontario Environmental Law*, rev. ed. (Toronto: Canadian Environmental Law Research Foundation, 1978), Chapter 21.

Canada's Environmental Agenda

Several major environmental issues merit special reference here because of their importance, and because a long-term commitment must be made if they are to be resolved. Solutions will require both prompt action and sustained effort, and neither will be easy to achieve. Commissioners set out this agenda as our contribution to increasing Canadians' awareness of the importance of dealing with a series of very large environmental issues on an urgent basis. We have not, however, been able to delve deeply enough into items on this agenda to recommend specific solutions. Such action is beyond the scope of our mandate.

As human capacity to alter the environment has grown, humanity has too often abused the natural world in which we all live. The potential for wide-ranging environmental catastrophes that would seriously harm global habitats is growing. In these circumstances, how much do we wish to gamble? As people usually learn best through experience, convenient ways for us to achieve our immediate economic ends are frequently at odds with nature and natural processes. We must read the preliminary signs of environmental damage quickly and try to take wise action. Sometimes, however, even by the time that the visible signs of environmental deterioration are detected, they may represent processes which are well advanced and almost impossible to reverse.

We have reviewed, in Chapter 2, major problems threatening the earth's ecological systems. Of the problems outlined, we would single out acid rain, other forms of air pollution, hazardous-waste disposal, water quality and forest conservation as areas for immediate attention by Canadian governments, corporations and citizens. Other environmental issues of special significance in Canada include the restoration of the Great Lakes, the export of water, the preservation of Canadian wildlife, and protection of the Arctic.

Acid Rain and Other Forms of Air Pollution

Canadians are experiencing a host of air-pollution problems as a result of the combustion of fossil fuels in power plants, factories and automobiles. Acid rain is causing large-scale destruction of forests, streams and lakes. Levels of ozone in the atmosphere are already high enough to damage valuable crops such as corn, wheat and soybeans. Gaseous sulphur and nitrogen oxides are known to cause serious damage to paint, paper and textiles, and to contribute to the erosion of building stone. Possibly the most serious consequence of fossil-fuel combustion is the long-term accumulation of carbon dioxide (CO_2) in the atmosphere. Scientists expect the build-up of this substance to raise global temperatures significantly by the middle of the next century. These developments pose complex, systemic, environmental threats requiring a co-ordinated institutional response. Canada's experience with acid rain shows how difficult it is to evoke such a response. Because acid rain, ozone and the build-up of carbon dioxide in the atmosphere are problems with a common origin, they are also susceptible to common solutions. Strategies to date most often address issues in isolation. Present control systems for reducing emissions are expensive, but not prohibitively so. If we procrastinate, however, effective action may be beyond the capacity of future generations.

The Great Lakes and Water Management

The Great Lakes provide an unequalled natural endowment for Canada: the largest chain of freshwater lakes in the world, containing 18 per cent of the total amount of fresh water on earth. At present, one in three Canadians and one in seven Americans depend on the Great Lakes for their water supply. Currently, water demand on these lakes amounts to 140 000 litres per second. A Board of the International Joint Commission (IJC) predicted, in a report issued in 1981, that demand could rise to one million litres per second by 2035, an amount that could result in a dramatic drop in the water level of Lakes Michigan, Erie and Huron. This development would occur because most of the renewable supply of fresh water in the Great Lakes – that is, water that falls as rain and snow and passes through the Great Lakes system – is already in full use. A permanent lowering of lake levels would create economic losses amounting to hundreds of millions of dollars annually. In light of predictions of lower demand for water and forecasts of lower growth for the economy generally, the IJC has recently stated that estimates beyond the year 2000 are unreliable. It does, however, believe that water quantity *is* an issue in Canada, and that demand for water should be monitored carefully.

Water quality has, of course, long been a problem for Canada, particularly in the Great Lakes basin. Canadians appear to be firm in their demands for tougher legislative standards to protect the quality of drinking water, yet Quebec is the first province to enact legally-enforceable standards for quality. In the years since Canada and the United States signed the 1972 Great Lakes Water Quality Agreement, significant achievements have been recorded, particularly in the point-source control of phosphorus and a number of other conventional urban and industrial pollutants. Nevertheless, substantial efforts have not eliminated the serious pollution problems in the Great Lakes. Unfortunately, little progress has been made in 18 population centres identified by the IJC in 1981 as exhibiting significant environmental degradation. There has also been limited success in coming to grips with the overall problem of toxic chemicals poisoning the Great Lakes basin. New chemicals are continually being introduced into the water. Even if only a few are harmful, it is becoming more and more apparent that their individual, combined and long-term effects do present serious environmental problems. The International Joint Commission has questioned the adequacy of present environmental risk-assessment techniques and the degree of confidence placed in them. It has also urged both the Canadian and the American governments to increase their efforts to support a co-ordinated and well-researched strategy to reduce the use of toxic substances and to pay serious attention to the development of monitoring methods for groundwater resources in the Great Lakes region.[1]

The Great Lakes Water Quality Agreement (1978) is a milestone document because it was one of the first international statements that promoted the integration of human activity with the realities of the biota, land, water and air phenomena of the environment. The IJC maintains that because, in many jurisdictions, existing environmental and resource programs

are compartmentalized and spread across several departments, a comprehensive approach requires, at the very least, a reorganization of thinking and, perhaps, a reorganization of institutional arrangements.

It is important that Canada increase vigilance over acid rain and the monitoring of the quality of the Great Lakes and other major river basins and lakes. It is equally important that we put in place more comprehensive plans for preserving the ecology of our river basins and coherent regulatory arrangements for water use and management, in particular, for waters north of the sixtieth parallel. The lack of a management framework for water, along with water-pollution and conservation issues, were the dominant concerns in submissions to the Inquiry on Federal Water Policy.[2] To manage water resources is not an easy task. Costly infrastructure generally requires long-term commitments to water availability, and allocations among users involve many trade-offs. To develop a master plan for this handling of a fundamental resource may involve a repetitive and slow consultative process, but it must include consideration of the interests and hopes of the current users of the water systems, as well as attention to the maze of federal, territorial, provincial and state jurisdictions governing them.

Water Export and Diversion

Water export from Canada and the transfer of water between drainage basins within Canada are expected to be major policy issues of the next few decades. These issues sparked considerable interest at the recent hearings of the Inquiry on Federal Water Policy. Pressure is mounting to divert or transfer water from and within Canada – particularly from northern Canada and the Great Lakes – to southern Canadian urban centres and the water-short states of the American southwest. There is evidence, however, that water diversions might be avoided if, for example, residents of Canada and the United States take steps to manage water resources more efficiently. One measure worth consideration would be the establishment of a pricing system for water that more accurately reflects its value.

Two water-diversion projects which have been on the drawing board for many years are the $150-billion North American Water and Power Alliance (NAWAPA) scheme and the $100-billion Grand Canal Company plan. The NAWAPA scheme was to have dammed rivers in Yukon and Alaska and flooded part of the Rocky Mountain Trench. A canal linking Alberta with the Great Lakes was also part of this mammoth plan. The Grand Canal scheme, which has gained more attention recently, would turn James Bay into a freshwater lake, then channel a portion of its water through various Quebec and Ontario river systems and canals down to the Great Lakes; from there further diversion would be engineered to serve other distant regions of Canada and the United States.

Only one in ten intervenors appearing before the Inquiry on Federal Water Quality spoke of water export as an opportunity. The overwhelming majority rejected, out of hand, consideration of export or added conditions so restrictive as to make approval unlikely for many years. Concern about water

transfers centred on three issues: doubts about economic gains generated by such projects, concern about social disruption and, most strongly, concern about environmental effects.[3]

The environmental effects of major water diversions would be felt both during and after the construction phase. Disturbance of rivers and lakes could damage or destroy fish habitats and further harm the fish populations by siltation. Flora and fauna around the sites of construction could also be adversely affected, and the permanent loss of agricultural or forest land is a real possibility. Once construction is completed, permanent environmental effects would ensue: flooding or stream-flow reduction, drying up of marshes and lakes, and the transfer of harmful foreign species into river basins. While some effects are predictable, it is impossible to foresee all the environmental effects of a large project.[4]

In 1982, the eight Great Lakes States, along with Quebec and Ontario, produced a resolution that would prohibit water diversions from the Great Lakes basin before thorough impact studies were made and agreement was obtained from all provincial, state and federal governments concerned. In 1985, a Great Lakes Charter was signed by the same governments. It embodied the intent of the earlier resolution and promised further consultation and co-operation in the use of water in the Great Lakes basin. The Government of Canada has supported fully the efforts of Ontario and Quebec in designing this agreement.

The Arctic Environment

Canadians have a rich and diverse northern heritage, a landscape of incredible beauty, fragility and hostility. The ice-covered ocean is of global importance because of its profound influence on world climate. It is also an essential breeding ground and refuge for marine mammals, migratory birds and other wildlife.

In recent decades, the establishment of defence installations, the discovery of oil near and beneath the Arctic Ocean, and increased exploration for mineral wealth brought about the realization that economic development in these regions can quickly become an engineering and scientific challenge of great proportions. The technical problems are real, and our ability to adjust to them depends on how well we understand the characteristics of the rigorous climate of the Arctic environment. Project development in the North must be guided by the dual criteria of environmental soundness and balanced social and economic development.

Fish and wildlife have long formed the basis of the traditional economy and culture of northern Canada's aboriginal peoples. Failure to protect and manage adequately these renewable resources could lead to the collapse both of the northern environment and of the societies associated with it. Although the Government of Canada has talked of "balanced development", not enough has been done to protect areas of outstanding natural significance. A system of protected conservation areas does not exist in our North, even though the legislative capability to form one has existed for several years. Only a few of the 151 ecological sites identified in the International

Biological Program are protected, and there is only one national wildlife area in the North: Polar Bear Pass, designated in 1982.

Seventy per cent of the Canadian coastline, the longest in the world, borders on the Arctic Ocean. We share this marine territory with five other nations. Except for a number of single-purpose bilateral treaties, there is no international agreement defining states' rights and responsibilities in the Arctic Ocean region. Indeed, there is uncertainty about almost every aspect of national jurisdiction in the Arctic Ocean: the location of marine boundaries; the measurement and extent of territorial waters; the status and control of shipping lanes; the limits of the continental shelf; rights to seabed minerals; protection of the environment; and regulation and conservation of the fisheries. Canada's claims to its Arctic offshore must be affirmed and protected by national legislation.

Hazardous Wastes

The presence and safe handling of hazardous wastes is another important issue on our environmental agenda. In addition to a variety of potentially adverse effects on human health, the consequences of chemical contamination of the environment include a loss of food species, curtailment of important economic activities and a variety of irreversible ecological changes that threaten humanity's future use and enjoyment of the living world.

Although some hazardous substances are found in municipal and domestic waste, the majority are residues from the industrial and nuclear power processes. These wastes contain oil, phenols, arsenic, mercury, lead, radioactive materials and a large number of human-made chemicals. Estimates put Canada's hazardous waste production at about one million dry tonnes per year, nearly half of it produced in Ontario. Polychlorinated Biphenyls (PCBs) provide a good example of the insidious threat of these chemical contaminants, as well as the essentially political nature of the decisions required to control them. Because PCBs are extremely mobile, the point where they are emitted has little relation to their danger. PCB compounds have been found in all the oceans, in Arctic bears, in Great Lakes fish, in rainfall and in human beings. It is estimated that more than half of the PCBs produced have been discarded in landfill sites and dumps, in the form of junked plastics, paints and electrical equipment. Contaminants washed out from such sites can enter groundwater or can be carried by rain and snow into nearby streams and rivers, and so find their way into lakes and oceans. Destruction of PCBs is preferable to long-term storage. Numerous technologies exist to destroy PCBs effectively, and many countries have used them. In Canada, however, no facilities exist to dispose of these contaminants safely. The failure of Canada's governments, industries and citizens to agree on the location of such facilities has contributed to the current stalemate.

Canada is indeed entering a period in which environmental damage caused by toxic wastes, the safe disposal of wastes, and the choice of sites for their disposal will constitute a major divisive force in our society. The problem will never "just go away". Hazardous-waste/treatment facilities will have to be built in or near communities, and public resistance will be high. The problem

is compounded by the fact that traditional landfill sites are no longer considered acceptable disposal dumps for these substances. The result is that untreated wastes, some highly corrosive, are being stored in drums and tanks until treatment becomes available. Wastes are also being stored permanently in deep wells where porous rock layers below the water table absorb liquid contaminants. To ship wastes to Canada's "remote" areas in not a solution. Today, even the least-densely populated areas of Canada are someone's backyard.

The ideal system to work towards is one which minimizes production and use of hazardous substances and tracks any that are produced through all stages of use, transport and disposal. Modern treatment facilities are needed. We must move from the present situation of management-by-crisis to management-by-planning. In the long run, to do nothing about the haphazard handling of chemical wastes is far more dangerous than to resort to controlled transport, treatment and disposal. Hazardous wastes and their elimination or disposal constitutes an area where it is clear that increased regulatory procedures, as well as continuing research, are well warranted.

Wildlife Protection

Wildlife and plant life help to provide us Canadians with our daily requirements of food, fibre, shelter, fuel, chemical and biomedical products. Wildlife species are also important as a recreational attraction, for the general economic benefits they provide and for other contributions they make to the quality of life. Economic activity associated with wildlife has been valued by the Canadian Wildlife Association at over $7 billion in 1977.[5]

The management of wildlife and plant life, and the management of human use of these resources, are complex matters. Because there are a number of different, and sometimes competing, ways in which wildlife is enjoyed and used, the art of management is to provide for the most broadly acceptable mix of activities, taking account of the variety of cultural values and of the paramount need to conserve the resource heritage for future generations.

Guidelines for Wildlife Policy[6] in Canada was developed between 1980 and 1982 by a committee of the Federal-Provincial Wildlife Conference. The *Guidelines* outline three fundamental goals:

- To maintain the ecosystems on which wildlife and people depend
- To preserve the genetic diversity of wildlife
- To ensure that the enjoyment and use of wildlife is sustainable.

Commissioners support these goals, as well as the principles that the cost of management essential to preserving viable populations of wildlife should be borne by all Canadians, and that special management measures required to permit intensive uses should be supported by the users.[7] Wildlife policies, like air pollution policies, must be broadened from the current single-purpose approach to include, for example, habitat protection and management.

Notes

1. International Joint Commission, *Second Biennial Report Under the Great Lakes Water Quality Agreement of 1978 to the Governments of the United States and Canada and the States and Provinces of the Great Lakes Basin* (Ottawa, 1984).
2. Canada, Inquiry on Federal Water Policy, *Hearing About Water: A Synthesis* (Ottawa, 1985).
3. *Ibid.*, pp. 15 and 50.
4. Anthony Scott, "The Economics of Water Export Policy", in *Canada's Resource Industries*, vol. 14 (Toronto: University of Toronto Press, 1985), prepared for this Commission jointly with the Inquiry on Federal Water Policy, 1985.
5. Estimated by the Canadian Wildlife Federation in 1981.
6. Minister of Environment, *Guidelines for Wildlife Policy in Canada* (Ottawa: Minister of Supply and Services Canada, 1982). The *Guidelines* are based upon the World Conservation Strategy, prepared for the International Union for Conservation of Nature and Natural Resources with the support of the United Nations Environment Program and the World Wilfdlife Fund.
7. *Ibid.*

Conclusions and Recommendations

Integrating the Environment and Economic Development

Institutional arrangements that are designed to deal with clear-cut disputes or problems are often unsuited to the resolution of environmental issues. More and more, environmental decisions depend on the application of ambiguous or provisional scientific and technical evidence to very long-term questions that involve, or potentially affect, the interests of many parties, not all of whom are even identifiable. Moreover, environmental policy making must also take into account the personal values and aspirations of Canadians, which are even more difficult to quantify, though not less important, than the scientific issues.

Commissioners perceive a vital need to integrate environmental decisions with decisions about economic development. In the process of industrial adjustment, opportunities should not be lost to introduce environmentally oriented technological advances. Environmental concerns should receive sustained attention despite the obvious desire to enhance short-term/growth prospects, for, as we have argued, there is no long-term conflict between economic development and the preservation of a healthy environment and a sustainable resource base. Our perceptions of wealth and well-being ought to incorporate environmental, health, and safety considerations. In other words, environmental goals should not be treated as incidental to the other goals of resource and industrial policy. Commissioners seek a sustainable form of development that acknowledges the interdependence of society, the economy and the environment at both the national and the international levels.

In light of Canadians' tendency to make decisions on the basis of short-term considerations, it is important that we strengthen our institutional capacity to monitor decisions. We must have grounds for confidence that decision makers are actually taking steps consistent with the long-term goals defined by public opinion.

The environmental decision-making process illustrates the difficulty of combining public participation with technical expertise, and of reconciling long-term imperatives with powerful and immediate pressures for short-term economic gains. As we have seen, the results of our decisions must also coincide with important international obligations.

Taking Preventive Measures

- Commissioners recommend greater use of a preventive approach to environmental decision making, an approach that reflects and reinforces the growth in public support for policies that contribute to the regeneration of ecological systems. The concern for environmental values should be incorporated into a variety of decision-making processes, such as those that affect the work-place, the regulation and approval of large-scale projects, and the introduction of new products into the market-place.
- Greater consideration should be given to the development of a combined social and economic accounting system that covers not only the conventional economic indicators, but also such matters as soil depletion, forest

degeneration, the costs of restoring a damaged environment, and the effects of economic activity on health.

Formalizing the Environmental Framework

Although many of our recommendations elsewhere in this Report call for reductions in government intervention, Commissioners believe that the environmental field is one in which greater government intervention will prove to be necessary. Successful intervention will require a significant degree of federal-provincial co-operation. We anticipate, too, over the long term, a quantum leap in the size of the environmental task facing Canadians. If we are to deal ably with this task, we must make more effective use of the significant legislative framework that is now in place.

We therefore recommend that:

- Efforts be made to establish, on a sustained basis, the institutional arrangements through which environmental decisions are made
- Governments give greater emphasis to the scientific and analytical capacity of their environmental departments and increase the resources available for the enforcement of environmental policy
- A national body with a core of independent scientific expertise be created to identify hazards that are, or are likely to become, seriously injurious. It would be the responsibility of such a body, styled the "Environmental Council of Canada", to provide information and advice about hazards that are of high national or regional priority: those, for example, that involve major water systems, significant industrial groups, and the actions of federal and provincial Crown corporations.
- In recognition of the important role that research and development play in support both of the environmental regulatory function and of self-monitoring by concerned private sector businesses and associations, funding should be made available to permit research to be undertaken on a continuous basis.

Environmental Review and Assessment

This Commission recommends that:

- Project-approval hearings be co-ordinated or consolidated as a remedy for the excessive "regulatory lag" that results from multiple-hearings requirements. Major projects, in particular, almost always require the approval of more than one government and, frequently, more than one agency in the same government. Consequently we urge that efforts be made to harmonize requirements when multiple hearings are unavoidable and to develop common federal-provincial-municipal/review procedures whenever possible.
- The federal environmental-assessment process be placed on a statutory basis, and that threshold sizes be established for compulsory project assessment so that for smaller projects, assessment would not be compulsory

- Hearings procedures give greater attention to the effective analysis of technical and scientific controversy, not only to improve our understanding of complex scientific questions, but also to expose more clearly the underlying economic and political dimensions of what sometimes are cast as purely scientific decisions.

Visibility and Participation

Commissioners recommend that:

- Measures be implemented to ensure a sustained public monitoring of environmental progress involving government-industry negotiations on environmental performance standards. Visibility and accountability should be increased.
- Increased public funding be made available to environmental groups to enable them to provide a more continuous presence in hearings and in monitoring activity.

Conclusions and Recommendations

The natural resource sector's contribution to Canada's economic well-being, cultural life, and political traditions and institutions has been immense. Because natural resources have been so important to Canada's past, however, we tend to exaggerate their importance to our future. In fact, the resource sector has not grown at a rate commensurate with the economic expectations we have developed in the years since the Second World War; nor does its projected growth match our hopes for the decades to come.

It has become clear in recent years—if it was not clear before—that Canada's natural resource endowment is not unlimited. We are losing our agricultural land to suburbs and shopping centres. Our stands of readily accessible, high-quality timber are largely gone, and our richest and most accessible deposits of ore and fossil fuels are already in production. Our mismanagement of the fishery has meant that we have not been able to reap the potential benefits of the designation of the 200-mile offshore zone in 1977. These problems of supply are compounded by prospects of lower demand in world markets for forest products and most non-fuel minerals. Moreover, our forestry and minerals industries can expect increasingly stiff competition from countries with lower production costs, and this competition will be made all the more difficult by the rapid advances in products and process technology.

These problems do not mean that our basic resource industries will disappear. Relative to other nations, Canada remains well endowed with natural resources. The outlook for oil and gas, a few minerals, hydro-electricity, and Western grains is favourable. The dollar value of production in the resource sector will continue to grow. Nevertheless, the share of output in this sector will decline, relative to the share of output in other sectors of our economy, although the decline will not be as rapid as it was in the first two post-war decades. Total exports of resource products will continue to expand, and the terms of trade are unlikely to turn against us in any dramatic fashion. Increasingly, however, we shall have to supplement resource exports with exports of more highly processed products if we are to maintain our capacity to buy the goods and services of other nations. The pattern of relative decline will mean that we can generally expect no net gain in resource-sector employment in the future: a growing proportion of Canadians will find their jobs in factories or offices. Indeed, the decline in the resource sector's share of total employment is the clearest indication that the sector will not be the engine of economic growth that it was in the past.

The prospect of a decline in the relative importance of the resource sector in relation to our national economy is no reason to neglect that sector's problems or its claims. Resource industries are still essential to the economic life of many regions of Canada. Moreover, we have an obligation to pass on to future generations a variety of viable resource industries founded on a natural endowment that is as secure and as healthy as we can make it. Canada's success in resource production owes as much to human ingenuity as it does to the resource endowment itself, and many of the problems of the sector can be overcome, or at least diminished, by appropriate applications of that

ingenuity. We must apply new methods, new processes, new public policies, and new thinking to the problems of maintaining both the competitiveness of the resource industries and the integrity of the natural environment that is their base.

■ Chapter 12 set out this Commission's detailed recommendations for the individual resource sectors. The thrust of our recommendations for dealing with the challenges ahead in each resource sector is as follows:

- For agriculture, we recommend a range of measures, from expansion of foreign markets, to increased R&D, to reform of national supply-management marketing boards, planned to enhance the efficiency of a sector which has great potential over the long term.
- For forestry, we recognize a legacy of mismanagement and recommend significant changes in the way the forest sector operates, as well as a major infusion of public and private investment.
- For the fishery, what has been lacking is political will, and we recommend measures to build on the fundamental reforms of the Kirby and Pearse Reports to shift the balance in public policy toward building a viable economic base in Canada's coastal regions.
- For minerals, we recognize generally the more limited possibilities. We recommend a more realistic approach to adjustment and a movement towards a profit-based tax system.
- For energy, we recommend a new framework based on the principles of efficiency, fairness and predictability, and a complete overhaul of the fiscal regime for oil and gas.
- For the environment, we recognize the growing challenge and the need to integrate decisions related to environment and economic development. We recommend a series of measures to correct the incentives which are aimed at protecting the environment; and, in general, we propose strengthening the regulatory framework.

Commissioners believe that it is important, however difficult, to assess the problems and opportunities of the resource sector in a more comprehensive way, just as, for example, governments focus from time to time on the general issues of the manufacturing sector.

■ The following general principles briefly relate Commissioners' detailed recommendations to the management of the resource sector as a whole:

- We conclude that in Canada, with all its rich resource heritage, there is no conflict, in the long term, between the stewardship, preservation and enhancement of the natural resource base and

growth prospects for the traditional resource industries. Consequently, we perceive a vital need to integrate environmental decisions and decisions related to economic development, and our proposals for action in each of the particular resource sectors reflect this perception. Thus we recommend a study of the loss of prime farm land to non-agricultural uses and emphasize our concern about the problems of soil deterioration and soil salinity. We support the infusion of large sums of both public and private monies into reforestation and silviculture, and we recommend that the duration of leasing agreements between governments and forest companies be increased in order to provide an incentive for long-term management of forest tracts. Finally, in recognition of the fact that natural resources belong to the Canadian people and must be passed on to future generations, we believe that private developers should continue to pay governments a royalty based on production for oil and gas and minerals.

- In many other places in this Report, we call for less government intervention; in the area of environmental regulation, however, we are obliged to call for more. Over the long term, the task of environmental regulation promises to be immense. We shall have to deal with growth in the number and size of projects that may adversely affect the environment, with an increasing number of pollutants and hazards, with the irreversible, and sometimes unquantifiable, effects of a growing range of industrial substances and processes, and with the emerging international aspects of our environmental responsibility. Consequently, we recommend that governments increase their spending to provide the analytical resources needed to support the long-term regulatory task. We further recommend that federal environmental processes be put on a statutory basis, and that federal and provincial review processes be brought into greater harmony.
- Changes in the pattern of world trade have offered new opportunities and new challenges to the Canadian resource sector. Our ability to realize the opportunities – and to survive the challenges – will depend on our ability to design resource strategies suited to a global context. This consideration has led us to recommend that the grains sector and the fishery sector pursue marketing and production strategies that will give them access to the new and rapidly growing markets in the developing countries. Whether it is a question of expanding our markets or of beating the competition, we believe that it is within Canada's interest to work for free trade, both at the multilateral level and at the bilateral level, with the largest purchaser of Canadian resource products, the United States. The adjustment problems that would derive from freer trade and the bargaining tactics

that would be necessary to bring it about would vary with each resource.

- We believe that in many instances a stricter adherence to market principles and an increase in the incentives to the private sector would brighten the prospects of Canada's resource industries. Thus we consider that a commitment to market pricing for both oil and gas would provide the incentive essential to increased exploration and development. For oil and gas and minerals, we believe that the establishment of a taxation scheme based largely on profits rather than on output volumes would both promote the development of marginal supplies and allow the industry to make more rational resource-allocation decisions. Although we do not advocate transferring ownership of forest tracts to private industry, we do suggest that such modifications to the land-tenure system as increasing the duration of leasing agreements would promote more responsible forest management. Finally, we recommend a phasing-out of national agricultural-supply/management marketing boards and their replacement by an income-stabilization scheme designed to moderate large fluctuations in farmers' incomes.
- We believe that there is room for significant improvement in the efficiency of both the regulatory framework and the handling, licensing and transportation infrastructure that supports the resource sector. We underline the important effect of the Crow Rate on the transportation of all bulk commodities, especially Western grains. We support further movement in the direction of market-rate principles when the Western Grains Transportation Act comes up for review, but we leave it to the Committee of Inquiry on Crow Benefit Payment (Hall Committee) to advise on specific adjustments to the payment of the Crow Benefit. In the minerals area, we recognize that the regulatory structure is cumbersome and slow, and we recommend that governments undertake a systematic review of their regulatory processes with a view to streamlining them. We would also draw attention to the fact that fisheries management has all too often led to overcapacity, unnecessary tensions, uneven product quality and, thus, lost opportunity. For oil and gas, we recommend a simpler taxation regime and a simpler pricing formula, both of which would decrease medium- and long-term uncertainty.
- The resource sector has undergone far-reaching adjustments since the Second World War. Further adjustment will be both essential and unavoidable, although perhaps less dramatic than it has been in the past. We believe that if a given operation has failed to realize a profit over a sustained period, adjustment is inevitable and should be allowed to take its course; governments should not intervene to support uneconomic activity. Mines that

can no longer produce an ore competitively should be phased out, and we believe that in general, the same principle holds for the fishery. As we pointed out above, however, government action is necessary in some areas to guard against deterioration in the quality of our renewable resource base. In particular, we recommend a substantial increase in both public and private expenditures for the renewal of the Canadian forest.

There must be and can be a balance in the adjustment process between efficiency and fairness to people whose livelihoods or communities have long depended on traditional resource industries. In the case of the family farm, we recognize the special problems created by farmers' limited access to equity capital, by the volatility of farm prices, and by the principle that the land is to be passed to future generations. We therefore support the retention of special credit schemes for agriculture and, as mentioned above, we urge consideration of an income-stabilization scheme to replace national supply-management boards. By the same token, we support replacement of Unemployment Insurance for fishermen by a new production-bonus and income-stabilization program, a scheme that would promote more efficient behaviour without reducing total benefits. Fishermen would also be eligible for income supplementation under the Universal Income Security Program (UISP) proposed in our recommendations on social security. In the minerals sector, we recommend the provision of adjustment assistance for communities and individuals affected by mine closures.

- Research has a large pay-off, but often the benefits seem too distant to the producer of the resource to justify the expenditure. We recognize that there must be renewed Canadian effort in fundamental research, especially in the traditional resource industries, if Canada is to match progress in competitor countries. Research into soil deterioration and new crop varieties warrants long-term funding by government. So does research related to aquaculture and to maintenance and improvement of the forest base. We have also called for an increase in expenditure on training in forestry. Finally, we support a stepped-up research effort in the field of environmental management, where we believe that the institutional capacity to provide scientific advice on a systematic basis is essential.
- In view of the importance of resources to Canada's future economic prospects and of the need to take a more integrated view of the problems and opportunities in the resource area as a whole, we recommend the establishment of a Council of Resources Ministers to provide leadership for increased federal-provincial co-operation. We recognize that various ministerial groups (for example, on agriculture and mines) now exist, but

we believe that it is important for a co-ordinated strategy across the range of resources to be developed, based on the principles we have outlined above. We also recommend the development within the federal government of a greater capacity to analyse the contributions and problems of the resource sector as a whole. □

PART V

HUMAN RESOURCES AND SOCIAL SUPPORT

PART V

Contents

Introduction

The Goals of Social and Human Resource Policies

Throughout much of this Report, Commissioners have focused on aggregates: on the economy or sectors of it, on corporations, on groups or on the institutions of government. In this part of our Report, we wish to focus on those programs that bear directly on individual Canadians: the programs of our human-resource and social-policies sector. In approaching these topics, we have searched through the records of our hearings and the submissions made to us, in an attempt to identify common goals and values with which Canadians approach these programs. There is no doubt that when Canadians assess social- and human-resource policies, they place a high value on efficiency in the use of scarce resources; in this respect, social policies are no different from others. We have found, however, that Canadians also bring a broader set of values to bear when they consider social programs.

First, we Canadians value equity. To our way of thinking, equity implies that the distribution of rewards in our society should reflect not just the ownership of resources and not merely the operations of chance, but also need, effort, merit and the taking of risk where that risk may lead to benefits for others. To our mind, equity is not identical with equality, and yet it often implies a somewhat greater degree of equality than is to be achieved by market mechanisms alone.

Secondly, we Canadians value security. While different people assign different values to security, we all require assurance that in the face of illness, loss of employment, family breakdown or the sometimes inexorable workings of a complex and dynamic economy, we will receive some protection. Security need not and should not be absolute, and there will naturally be wide debate about what degree is adequate, but it seems unquestionable that we all value it and expect our governments to provide it.

Thirdly, we Canadians seek opportunity. To most of us, opportunity is tied to labour-force participation; for most of us, a job represents our avenue of upward mobility and is often an essential element of our sense of self-identity. We therefore want our human-resource programs to be structured in such a way as to help us to find opportunities, to take advantage of them when they come, and to gain some economic headway when we do so. The other side of

opportunity is responsibility. We have a corresponding responsibility to provide for ourselves whenever we can and to be willing to adjust our behaviour so as to minimize our dependence on government.

Finally, we Canadians believe in sharing. Whether we are sharing risk or reward, adversity or wealth, we believe that it is our responsibility not merely to help ourselves, but also to help those who, through disability or, perhaps, the hand of fate, cannot provide fully for themselves. To this end, we believe that the benefits provided by social programs should be tailored so that those who, through no fault of their own, have profited less fully than others by the many opportunities provided in our economy should receive at least some of the rewards.

Equity, security, opportunity, responsibility and sharing: these concepts are not put forward in any particular order, for different Canadians will attach different weights to each. Commissioners believe, however, that these are the goals and values that Canadians would wish us to use when we examine those programs which bear most directly upon us all as individuals.

The development of major social-security and social-service programs, the rapid expansion of educational and training systems, the augmentation of a framework for labour relations, the assimilation of millions of immigrants into Canadian society, and the improvement of some aspects of our labour markets all stand out as important achievements of the post-Second World War era. Yet despite broad agreement concerning the values and goals outlined above, the basic means by which we should seek to accomplish them have been increasingly debated. The arguments about the universality of our social programs constitute one such debate. Another relates to the adequacy of our educational and training systems and the continual discussions of how best to structure our unemployment insurance plans. Still another revolves around the nature of our immigration policies. Controversy surrounds the entire area of labour relations, and as a nation, we are far from determining how best to provide equal opportunities in the work-place. A careful examination of these areas of interest is essential to determining Canada's future development prospects.

Achieving Our Social Goals

In striving to achieve the best possible combination of equity, sharing, opportunity, responsibility and security, we Canadians must also remain mindful of our need to achieve an appropriate degree of economic efficiency, for this contribution to the well-being of us all is vital in an increasingly competitive world. To improve economic efficiency is, in effect, to increase the output available to meet the needs and wishes of Canadians, including the poorest and most vulnerable groups within our population, as well as the richest and most secure. It is obvious, therefore, that we must pay due regard to the economic efficiency of all our program designs.

This concern for economic efficiency underlies Canadians' general preference to pursue our goals primarily through formal instruments of social insurance and income redistribution, and through governments' provision of essential social services which the market would not adequately provide, rather than by imposing constraints on the functioning of market mechanisms. Thus, for example, the need to develop a more efficient, flexible and

adaptive labour market undergirds Commissioners' analysis of intervention in wage setting, our approach to meeting labour-force requirements, our consideration of existing constraints on part-time work, and our proposals for the reform of aspects of our Unemployment Insurance (UI) system and our major income-transfer programs. We are well aware, of course, that there are many instances of market failure, of situations where the labour market does not operate to ensure efficient allocation of human resources. Where such market failures do exist, we have not hesitated to recommend interventions to correct them.

Just as we Canadians have a range of goals to aim for in considering our human-resource and social-support programs, so also we have a variety of instruments through which to achieve these goals. Broadly speaking, these mechanisms may be divided into two categories: the *direct delivery of services* by government or public institutions such as schools or hospitals and the provision of *transfer payments or the use of tax mechanisms* which redistribute money from one member of society to another. Transfer programs may be further subdivided into those intended to serve primarily as a social-insurance instrument, helping to insulate Canadians from unexpected declines in income, and those which redistribute income on the basis of some definition of need. Unemployment Insurance is the primary example of the former type of program, and social assistance is an example of the latter.

As we assess our current programs, it is important to keep in mind both our multiplicity of goals and the possibility of using various means to achieve them. For example, we may criticize our income-transfer programs for being insufficiently redistributive: that is, for inadequately serving the goals of sharing and security. Equally, however, we must take into account that those programs must fit prevailing concepts of equity, must encourage people to grasp opportunities, and must be delivered in such a way as to maximize the overall efficiency of our economy. We must seek, therefore, to find the best possible balance among those goals.

It is equally important to distinguish among instruments when designing individual programs. For example, attempts to blend the two instruments of insurance and redistribution in a single program may reduce the efficiency of each. Thus Unemployment Insurance is not well suited to serve as an instrument of equitable income redistribution because the program pays benefits on an individual, rather than a family, basis; excludes people who have not paid premiums; fails to test for all sources of income; and applies a very short accounting period to benefits. Yet, intentionally or inadvertently, Canadians use Unemployment Insurance as a redistributive instrument; we do so, for example, by applying a surtax to workers whose annual income is greater than $30 000 and by maintaining a regional benefits structure which is not related directly to individual risk. General acceptance of the desirability of separating insurance and redistribution would therefore provide the basis of important reforms in the UI program, and we Commissioners have based some of our reform proposals on that proposition. Yet, because we are mindful of the multiple goals which the income-security system as a whole should attain, we shall recommend that such an option not be pursued in isolation but, rather, that it be accompanied by a stronger reliance on the tax-transfer system for redistribution of income.

When the focus of the welfare state does shift to these tax-transfer mechanisms, the change also makes major improvements possible. During the decades that immediately followed the Second World War, it was widely assumed that rapid economic growth and the development of social programs had eliminated widespread poverty from modern societies. From the 1960s onward, however, a growing body of evidence and experience has steadily eroded that view. The extent of poverty in Canada continues to stand as a tragic problem, but one which Commissioners believe is susceptible to substantial amelioration through improvements in our income-security programs and tax systems. Moreover, we view the constellation of our tax and transfer programs as seriously flawed with respect to the incentives and opportunities which it provides for low-income Canadians to improve their economic situation. The suggestions we make below are intended, in part, to deal with these problems.

Commissioners believe, too, that the time is opportune to consider major changes in our higher-education and training programs. In some respects, these have served Canadians well, but we are concerned that the programs of financial support now in place will not promote the excellence our nation has every right to demand from publicly financed institutions and the flexibility which those institutions will require to deal with the challenges and opportunities that lie ahead. We therefore canvass a number of reform proposals relating to this part of government activity.

We have already emphasized our conviction that for most Canadians, the primary source of income and opportunity resides and must continue to reside in the labour markets. The efficiency and equity with which those markets operate is therefore vital, not only to our national economic prospects, but also to the prospects of the vast majority of individual Canadians. In many respects, Canadian labour markets deserve a positive evaluation, but there are also many respects in which they can be improved. We devote considerable space in this chapter to an examination of their structure and functioning and to suggestions for their improvement.

We have looked very briefly, too, at a few of our social services, at Canadian immigration policy, and at the role of the voluntary sector in providing services. We have focused less on these issues than on others, not because we consider them less important, but rather because in attempting to narrow slightly what is already an exceedingly broad mandate, we have chosen to concentrate on the economic and income-distribution aspects of the welfare state. For rather similar reasons, we have not attempted to deal with health policy and programs in Canada, although in this case our decision is also based on Canadians' high levels of satisfaction with the health-care system.

Implementing Major Reforms

The reforms proposed in this section are extensive. They will affect the lives and livelihood of virtually every Canadian. They are also both highly complex and closely interrelated. These attributes are particularly important with respect to those proposals dealing with income security, unemployment insurance and transitional adjustment. In those areas particularly, we

Commissioners must emphasize our view that the benefits of reform will be greatly amplified if governments treat our proposals as a single package. We shall be recommending a significant set of changes to our unemployment-insurance system and our income-security system. The UI changes will make our economy more dynamic by encouraging the expansion of more efficient industries and avoiding the payment of inappropriate cross-subsidies to less efficient firms and sectors. These are important changes, well worth considering in themselves, but used alone they would cause substantial hardship to some Canadians. If, however, they are implemented in conjunction with a Universal Income Support Program (UISP), the combination will offer substantial compensation for any negative effects, while most of the desirable effects will be retained. If the net savings generated by our basic changes in unemployment insurance are also redirected into a Transitional Adjustment Assistance Package (TAAP)—a very important step, in this Commission's view—individuals will be even better able to cope with the economic adjustments which we foresee.

The most desirable package, Commissioners believe, would include the following components.

- Personal income tax and transfer programs would:
  - Provide a Universal Income Security Program which would pay a basic income supplement to all Canadians. The supplement would be progressively reduced as income rose.
  - Fund that program by means of eliminating the Guaranteed Income Supplement for the elderly (but not Old Age Security); Family Allowances; Child Tax Credits; Married Exemptions; Child Exemptions; Federal Social Housing Programs; and Federal Contributions to the Canada Assistance Plan.

  If these programs were eliminated, the Universal Income Security Program would be essentially self-funding.
- With respect to unemployment insurance, there would be changes such as the following:
  - Introduction of experience rating introducing a relationship between premiums and the risk of unemployment
  - Reduction of benefit levels from 60 per cent to 50 per cent of insurable earnings
  - Extension of the employment period required to qualify for UI benefits from the present 10–14 weeks
  - Provision of one week of benefits for every two or, possibly, three weeks' labour-force attachment
  - Termination of regional extended benefits.

  These changes will substantially reduce program costs and encourage more efficient allocation of labour resources. The resulting savings could be used to finance the third major component of the package.
- The Transitional Adjustment Assistance Program would provide adjustment assistance for Canadians who have exhausted their UI benefits, or to those for whom no immediate job opportunities can be identified, provided that they are willing to move in order to accept employment or to undertake retraining to improve their labour-market prospects. The program would provide greatly expanded support for:

- Portable wage-subsidy programs
- Mobility grants
- Training programs
- Early retirement
- Compensation for losses in assets (housing) as a result of decline of communities
- Employee purchase of plants which might otherwise close or of other forms of local economic development projects.

- With a Universal Income Security Program in place, it becomes less important, in dealing with poverty, to maintain high levels of minimum wages, since the UISP will provide a wage subsidy for very low-wage workers. This arrangement will allow governments to de-emphasize minimum wages as a policy device, with the consequent possibility of encouraging higher levels of employment for low-skill workers and providing more employer-employee/financed, on-the-job training.

Commissioners recognize the extensive nature of the changes proposed, but consider that Canada must make a very important "package" of integrated changes to our nation's human resource and social support programs. We make this judgement in the belief that this undertaking is essential to Canadian adjustment to the requirements of our advance into the twenty-first century. In this vein, the authors of a recent study of our government and our economy have pointed out that:

> *One of the biggest defects in the present 'industrial policy' of Canadian government is precisely the absence of an adequate system to help, support, induce and (to some extent) force workers to adjust to . . . changing economic circumstances. The failure of our existing enormous transfer system to accomplish this task satisfactorily is indeed a serious condemnation of that system . . .*[1]

Not all of the proposals presented in this section need to be considered as parts of a package approach. Commissioners' recommendations on labour-management relations or occupational health and safety, for example, are only very indirectly related to income-security or UI-program changes, and the same is true of most of our suggestions concerning post-secondary education. We shall, therefore, make it clear as we move through the text which pieces had better be considered the basis of a package approach, and which can be considered alone.

Finally, we wish to emphasize that our proposals would do little to increase the net cost of Canada's social programs. The major elements of our suggested reforms are either self-financing (as with the UISP) or financed by expenditure reductions mentioned elsewhere in the package (as with UI and TAAP programs). We have not proposed reductions in the programs in this sector because it is our view that Canada's expenditures in this area are not excessive. For this reason, our financial objective has been to suggest appropriate reallocations of funding within existing expenditure levels.

Note

1. Richard Bird and Christopher Green, *Government Intervention in the Canadian Economy* (Toronto: University of Toronto, Institute for Policy Analysis, 1985).

CHAPTER 14

The Evolution of Policy: *Major Trends and Issues*

CHAPTER 14

The Evolution of Policy: *Major Trends and Issues*

Before we plunge into a detailed consideration of specific proposals for reform, it is important to examine the broad patterns of development in social policy and labour relations. Accordingly, this section focuses on three dimensions of Canadians' collective experience. We shall examine the historical development of these sectors, assess the current network of policies, and only then attempt to peer into the future and to anticipate the major forces that are likely to shape those policies in the years to come.

The Retrospective View

The transition from the predominantly agrarian community of the nineteenth century to the urban society of contemporary Canada exposed Canadians to a new and unfamiliar social environment. The expansion of industrial production created a large industrial work-force and generated a wide set of enduring tensions between labour and management. The policy issues posed by these sweeping changes in our economy and our society dominated our country's political agenda throughout much of the twentieth century, especially during the pivotal decades of the 1940s, 1950s and 1960s.

The Welfare State

The economic developments of this century have brought a prosperity undreamed of by earlier generations of Canadians, but these same developments also set in motion forces of social change which simply overwhelmed the rudimentary provisions for public relief which prevailed during the nineteenth century. The new economic and industrial order left people particularly vulnerable to the loss of earnings of the primary breadwinner during periods of unemployment, illness, disability and old age. At the same time, traditional social institutions, such as the family, the church and the

local community, were less and less able to cope with Canadians' social needs. The traditions of private charity, which were an important part of the small, stable and closely knit communities in rural areas and small towns, eroded steadily in the face of a mobile and increasingly urban population. The intense economic and social dislocation of the 1930s graphically demonstrated the inadequacies of traditional welfare mechanisms and the need for a more comprehensive system of social security.

The pressures for social reform thus flowed, in the first instance, from economic development. Canadian experience in this regard paralleled that elsewhere: industrial nations, often with widely differing traditions and systems of government, created increasingly elaborate forms of collective provision for their social needs. There was, however, no simple determinism at work, for the social programs of these various nations also showed tremendous diversity. Each Western nation developed its own version of the welfare state in light of its cultural traditions and the balance of political forces within it.

In the context of Canadian culture, the welfare state reflected a broad evolution in the dominant beliefs about the proper role of government and about the rights and duties of citizens. The twentieth century witnessed a growing acceptance of the legitimacy of social security and, more generally, a deepening belief in the importance of a wider set of social rights which would complement the legal and political rights already established. In the period that followed the Second World War, these ideas were reinforced by the spread of economic theories that were much more compatible with significant income redistribution than earlier orthodoxies had been. Yet in Canada, at least, the advance of collectivist views has always been constrained and challenged by the enduring strength of individualist political values, with their emphasis on personal achievement and responsibility. The tension between collectivist and individualist beliefs has continued to fuel welfare politics and to shape our social security system, both in its overall scope and in the design of specific programs.

This battle of ideas was fought out in the political arena. During the first half of the twentieth century, support for the welfare state grew steadily. Intellectuals, social reformers and the developing profession of social work often led the way in documenting the severity of social problems and outlining blueprints for their solution. The emergence of left-wing political protest in the form of the Co-operative Commonwealth Federation (CCF) generated a third force in Canadian politics that was strongly dedicated to social change. Organized labour, which grew rapidly after the mid-1930s, also became a consistent champion of the expansion of the welfare state. In addition to these external pressures, reformist elements developed within the major political parties and in parts of the senior civil service. Moreover, established political leaders were clearly sensitive to the broad current of public support for social spending. When the question of pensions became prominent, for instance, "many M.P.'s in Canada were convinced that the pension issue was a significant, even decisive, factor in electoral choice, especially at certain critical junctures in the development of pension policy."[1]

The actual policy responses to these economic and political changes spanned a 50-year period. Indeed, the welfare state stands as a classic testament to the Canadian preference for incremental, rather than wholesale, reform. In many significant areas, the basic principle of state intervention was actually established during the inter-war period. Workers' Compensation was initiated in Ontario in 1914 and progressively adopted by other provinces; Mothers' Allowances for widowed mothers with dependent children spread quickly after their introduction in Manitoba in 1917; income redistribution in favour of the aged became a fact between 1927 and 1936 as the provinces opted, one by one, into the federal Old Age Pension Act; pensions for blind persons over 40 years of age followed in 1937; and the principle of a federal contribution to support for the unemployed had been acknowledged – albeit grudgingly – in the early 1920s and, again, in the 1930s. All of these benefits were means-tested and were often inadequate. Certainly it was impossible to speak of a "right" to support in that period. Nevertheless, by the time war broke out in 1939, collectivism was already established on firm ground in Canadian welfare politics.

This base grew rapidly in the decades that followed. Firmer political support, economic growth and, after the war, declining defence expenditures provided a favourable context for change. The range of social needs covered was expanded, while demogrants and social insurance reduced reliance on means-tested programs, establishing a clearer right to support. In the income-security field, Unemployment Insurance, introduced in 1941, was followed by Family Allowances in 1944, Old Age Security in 1951, several conditional grant programs in the social assistance area during the 1950s, Youth Allowances in 1964, the Canada and Quebec Pension Plans in 1965, the Canada Assistance Plan and the Guaranteed Income Supplement in 1966, the Spouses Allowance in 1975, and the Child Tax Credit in 1978. In the health field, the National Health Grants, initiated in 1948, supported a major expansion of hospital construction by provincial governments throughout the period, and health insurance was introduced on a nation-wide basis following the introduction of the Hospital Insurance and Diagnostic Services Act of 1957 and the Medical Care Act of 1966.

By the end of the 1960s, then, the main structure of the Canadian model of the welfare state was in place. The 1970s, by contrast, turned out to be a decade of transition. The early years of the period saw the continuation of the reformist momentum, with a significant enrichment of the Unemployment Insurance and Family Allowances programs, and a major debate over the introduction of a guaranteed annual income (GAI) during the sweeping Social Security Review initiated in 1973. The second half of the decade, however, seemed to mark the end of a generation of expansion. Some social programs were cut back, and a whole range of fundamental questions emerged about the future of the welfare state.

Income security, health and education represent central supports of the welfare state, and the expansion of each has been a central feature of Canadian life during the last 40 years. The historic growth of the welfare state throughout the post-war period can be traced in the tables that follow.

The first three tables highlight the expansion and importance of Canada's income-security programs. Table 14-1 demonstrates the relative size of the major components of the system and the way in which each of these components has expanded since 1956. Tables 14-2 and 14-3 illustrate the importance of these programs to Canadians. In many policy areas, government action affects the general public indirectly, by influencing the nature of economic activity or the operations of major institutions in the private sector. Income security, however, represents a direct contact between government and citizen, and for millions of Canadians that contact is central to the maintenance of their standard of living and their general well-being. Table 14-2 documents the large number of recipients of the major national programs. Table 14-3 provides another view of the importance of the transfer system, especially to Canadians in lower-income groups.

These transfer programs represent the most visible component of our redistributive system. Governments also provide assistance to individuals and families through the increasingly elaborate set of exemptions and credits which permeate the income-tax system. The cost of these "tax expenditures" is now sizeable indeed. In 1984–85, for example, the combination of the personal, marriage and age exemptions, the child exemption and the child tax credit, the employment deduction and the tax assistance with pensions and retirement savings cost the federal government approximately $25 billion in revenue forgone. Critics have pointed out that our tax and transfer programs are not well integrated, and that tax exemptions, in particular, provide the greatest benefits to higher-income earners. This Commission agrees that transfer programs and tax expenditures should no longer be treated as conceptually distinct elements of pubic policy, but as integrated components.

The next group of tables illustrates the growing importance of health-care programs in Canadian society. Table 14-4 tracks the dramatic post-war expansion of the health-care sector, as measured by the number of hospital beds, physicians and dentists available to Canadians. The two figures that follow examine the expenditure implications of this growth. Figure 14-1 shows the substantial increase in the role of government in the health-care sector as a whole: the public share of total health expenditures rose steadily from 43 per cent at the beginning of the 1960s to about 75 per cent by the mid-1970s; it has since remained stable at that level. Table 14-5 indicates the expansion of health spending as a proportion of gross national product (GNP). Between 1960 and 1970, the share of health spending in our GNP rose sharply, from 5.6 per cent to 7.3 per cent, coincident with the implementation of the hospital-insurance and medicare programs. Equally remarkable, however, was the relative stability of health spending during the 1970s. Despite all the controversy about rising health costs of that decade, it is now clear that their increase was no greater than the growth in the productive capacity of the economy during ten consecutive years. Since 1980, health costs have begun to rise again, but it is too early to know to what extent this growth represents a new trend, and to what extent it is a result of the recession.

The cycles of educational expansion are represented in Table 14-6, which tracks enrolment patterns at each level of schooling over four decades. In

TABLE 14-1 Expenditure on Major Income Security Programs, 1956–1982

Programs	1956	1960	1964	1968	1972	1976	1980	1982
				($ millions)				
Federal								
OAS-GIS[a]	376	587	871	1 478	2 430	4 305	7 020	9 304
Unemployment Insurance	210	482	344	438	1 869	3 332	4 332	8 454
Family Allowances	394	502	559	615	611	1 942	1 812	2 204
Canada Pension Plan	—	—	—	11	190	775	1 903	2 873
Provincial								
Social Assistance Direct Relief	20	24	59	381	751	1 392	2 414	3 164
Old Age and Blind Pensions	60	80	116	40	23	334	565	681
Mothers and Disabled Allowances	37	73	93	69	41	64	116	171
Workmen's Compensation	70	92	124	177	280	701	1 192	1 726
Quebec Pension Plan	—	—	—	4	58	261	664	1 006
Local								
Direct Relief	24	57	80	131	244	270	394	522
Total	1 191	1 897	2 246	3 344	6 497	13 376	20 412	30 105

Source: Statistics Canada, *National Income and Expenditure Accounts*, Cat. No. 13-201 (Ottawa, various years).

a. Old Age Security-Guaranteed Income Supplement.

TABLE 14-2 Number of Recipients of Major Income Security Programs, 1971–1981

Year	Old Age Security	Guaranteed Income Supplement	Spouses Allowance	CPP/ QPP	Family Allowances[a]	Unemployment Insurance	Social Assistance[b]
				(thousands)			
1971	1 720	860	—	331	3 024	N.A.[c]	1 622
1972	1 763	974	—	449	3 063	1 904	1 533
1973	1 808	1 045	—	564	3 110	2 007	1 370
1974	1 858	1 076	—	690	3 344	2 068	1 347
1975	1 916	1 082	—	822	3 446	2 454	1 436
1976	2 011	1 087	54	1 008	3 510	2 401	1 500
1977	2 086	1 115	72	1 164	3 561	2 479	1 508
1978	2 149	1 136	74	1 304	3 595	2 524	1 502
1979	2 220	1 162	75	1 426	3 611	2 333	1 548
1980	2 317	1 191	81	1 558	3 631	2 274	1 334
1981	2 388	1 245	85	1 680	3 645	2 432	N.A.

Sources: Statistics Canada, *Social Security: National Programs, 1982* (Ottawa, various volumes); *Benefit Periods Established and Terminated Under the Unemployment Insurance Act* (Ottawa, various years), pp. 73–201.

a. Number of families receiving Family Allowances (excluding youth allowances).

b. Number of persons assisted through the Canada Assistance Plan.

c. N.A. = Not available.

TABLE 14-3 Transfer Payments as a Proportion of Income within Income Quintiles, All Units

Quintile	1971	1976	1981	1982
Lowest	53.3	57.7	57.3	61.4
Second	18.2	22.7	22.7	28.0
Third	5.7	8.4	8.8	11.8
Fourth	3.4	5.1	5.0	6.5
Highest	2.0	2.7	2.6	3.3
Total	6.6	8.6	9.0	10.9

Source: Statistics Canada, *Income Distributions by Size in Canada*, Cat. No. 13-207 (Ottawa: Minister of Supply and Services Canada, various years).

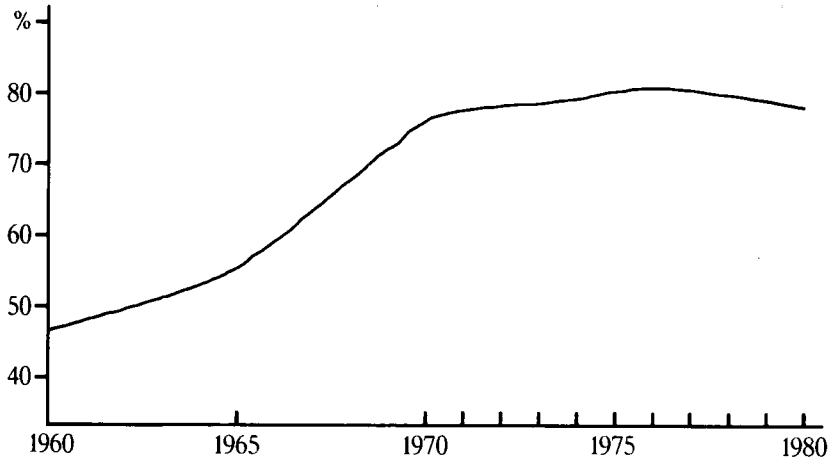
TABLE 14-4 Expansion of the Health-Care System: Hospital Beds, Physicians and Nurses, 1941–1975

Year	Total Hospital Beds	Population per Each	
		Physician	Nurse
1941	103 541	968	441
1951	145 950	976	325
1961	192 939	857	258
1971	210 974	659	146
1975	208 345	585	129

Source: Statistics Canada, *Historical Statistics of Canada*, 2d ed. (Ottawa: Statistics Canada, 1983), pp. B82–92, B177–188.

these figures, we can see the flow of the post-war "baby boom" through the elementary and secondary schools, during the 1950s, 1960s and 1970s, and the decline in student numbers in the 1980s. The figures also follow the expansion of the post-secondary educational institutions, illustrating the creation of a major system of community colleges during the 1960s and the significant expansion of the university sector. The expenditure implications of these changes can be seen in Table 14-7.

FIGURE 14-1 Share of the Public Sector (Federal, Provincial, and Local) in Total Health Expenditures, Canada, 1960–1981



Source: Canada, Health and Welfare Canada, Health Economics and Statistics Division, preliminary unpublished figures.

TABLE 14-5 Health Expenditures, by Category, as a Percentage of the Gross National Product, Canada, 1960–1982

	1960	1965	1970	1975	1980	1981[a]	1982[a]
Total health expenditures	5.67	6.07	7.30	7.49	7.48	7.60	8.44
Personal health care	4.62	5.11	6.36	6.61	6.55	6.65	7.41
Other health costs	1.00	0.96	0.94	0.88	0.85	0.85	1.03

Source: Canada, Health and Welfare Canada, Health Economics and Statistics Division, unpublished figures.

a. Figures are provisional.

TABLE 14-6 Education: Full-Time Enrolment, by Level, Selected Years

	(thousands)				
Enrolment	**1941–42**	**1951–52**	**1961–62**	**1971–72**	**1981–82**
Elementary and secondary school	2 143	2 625	4 413	5 806	5 032
Community college	19	28	53	174	273
University	36	63	129	323	402

Source: Statistics Canada, *Historical Statistical Compendium*, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Ottawa: Statistics Canada, 1985), Table 15.3.

TABLE 14-7 Educational Expenditures as a Proportion of GNP, 1950–1974

Year	Percentage
1950	2.4
1960	4.4
1970	9.0
1974	7.5

Source: Statistics Canada, *Historical Statistics of Canada*, 2d ed. (Ottawa: Statistics Canada, 1983), p. W61–80.

Note

1. Kenneth Bryden, *Old Age Pensions and Policy-Making in Canada* (Montreal: McGill-Queen's University Press, 1974), p. 184.

The Contemporary Pattern

The expansion of the Canadian welfare state constitutes one of the major accomplishments of the post-war generation. Much of the political energy of the last 40 years has been devoted to this task, and Canada has clearly become a fairer society as a result. Nevertheless, now is a time for taking stock, for re-examining the structure which has been put in place, for assessing its adequacy in light of contemporary social needs, and for anticipating its prospects for the future.

In assessing Canada's existing policies, Commissioners have adopted two broad perspectives. The first compares Canadian social policies with those of other Western industrial nations, and the second examines more directly the welfare of Canadians.

Canada in Comparative Perspective

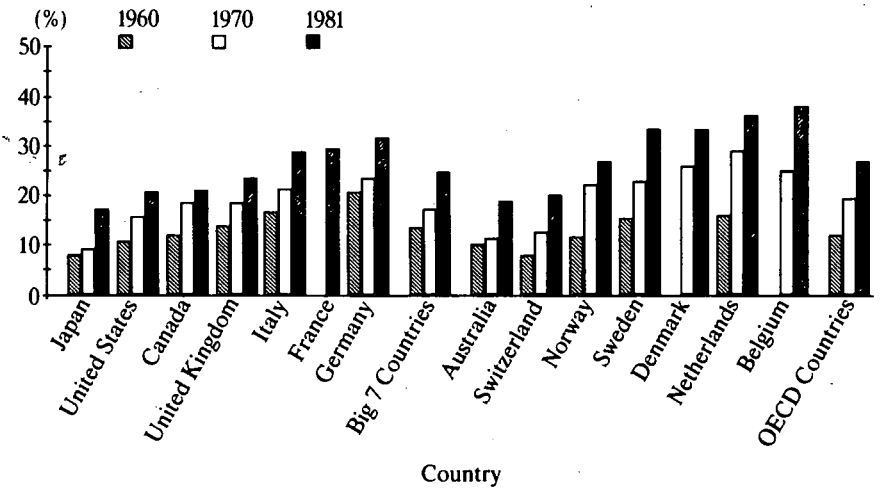
A comparative perspective is of invaluable service in any evaluation of the Canadian welfare state. To concentrate solely on social expenditures in this country might lead to suggestions that Canada's rate of growth has been exceptional and necessitates major economic or social adjustments not faced elsewhere. Even a brief examination of the experience of other countries puts such concerns in a fuller context. In fact, the expansion of the Canadian welfare state – so dramatic when viewed in isolation – seems much more modest by the standards of Western industrial nations generally.

As Figure 14-2 illustrates, a comparison of Canadian expenditures on social programs with those in other countries belonging to the Organisation for Economic Co-operation and Development (OECD) shows Canada ranking in the lower third, with expenditures of 21.7 per cent of gross domestic product (GDP) in 1981, compared to the OECD average of 25.5 per cent of GDP. Expenditures in the United States, standing at 21 per cent, were almost identical to those in Canada. In general, Canada stood ninth out of twelve major OECD countries in 1981. In the same year, the Netherlands and Denmark, with expenditures of 36 per cent of GDP, led all other OECD countries; they were followed by Sweden and Germany. Italy, France, Norway and Britain devoted slightly more of their national resources to social programs than did Canada. Australia and Japan lagged behind Canada, with expenditures of 3 and 4 per cent, in company with such smaller OECD countries as Finland, New Zealand and Greece.

Canada's position relative to this standard has remained fairly constant over time, changing from eighth place in 1960 to ninth in 1975. Between 1960 and 1981, social expenditures in all OECD countries grew from 13.4 per cent of gross domestic product to 25.5 per cent. Canada participated in this surge, with a growth rate almost identical to the OECD average, although our growth did occur later than that of many countries. The Scandinavian countries, for example, as well as France and Japan, experienced above-average growth in the early 1960s, while Canada and the United States made their increases in the mid-1960s. All countries, however, experienced a slowing of the rate of increase in real expenditure between 1975 and 1980.

FIGURE 14-2 Social Expenditure as Percentage of GDP

(in current dollars)



Source: Organisation for Economic Co-operation and Development, *Social Expenditure 1960–1990: Problems of Growth and Control* (Paris: OECD, 1985), Appendix C.

Note: Social expenditures include direct federal, provincial or state, and local costs of health, education, unemployment insurance and income-maintenance programs, but exclude housing and community programs. Tax expenditures are not included. Unless otherwise stated, percentage shares of GDP are based on current dollars. Data for all countries in all years did not appear in source.

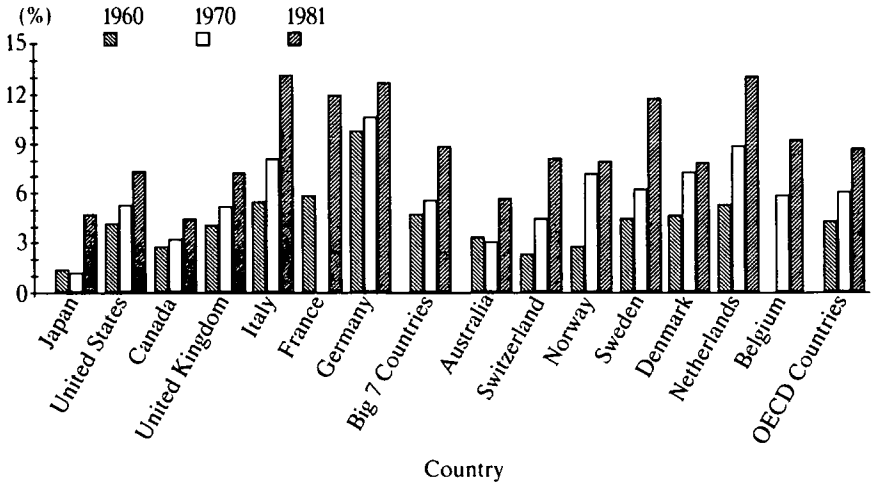
a. Data are for 1981, except: Belgium, 1980; Denmark, 1979; and Switzerland, 1979.

Industrial countries differ, not only in the overall proportion of their national resources that they devote to social spending, but also in selecting their priorities within the social sector. Indeed, relative expenditures in specific policy areas vary widely. By comparison with other OECD nations, Canada spends proportionately less on pensions, about average amounts on education and health, and more on unemployment benefits. In expenditure for pensions, as Figure 14-3 shows, Canada has consistently trailed other countries, standing last of twelve countries in 1981, with direct expenditures of 4.6 per cent of GDP, compared to a twelve-country average of 8.8 per cent.

Part of the explanation for Canada's relatively low expenditures on pensions can be found in the age profile of our population, as the elderly represent a smaller proportion of the total population here than elsewhere. Canada's ratio of pensioners to workers, for example, stood at 21.2 per cent in 1980, as compared to 28.4 per cent in other OECD countries; in fact, our rate was lower than that of every other country except Japan. Demography, however, does not tell the full story. Our expenditures are lower because Canadian benefits, too, are lower. The average OECD expenditure per pensioner is 14.8 per cent of average GDP per worker; Canada, on the other hand, spends only 11.6 per cent; again, this proportion is smaller than that of

FIGURE 14-3 Social Expenditure on Pensions as a a Percentage of GDP

(in current dollars)



Source: Organisation for Economic Co-operation and Development, *Social Expenditure 1960–1990: Problems of Growth and Control* (Paris: OECD, 1985), Appendix C. Data for all countries for all years did not appear in source.

a. Data are for 1981, except: Belgium, 1980; Denmark, 1979; and Switzerland, 1979.

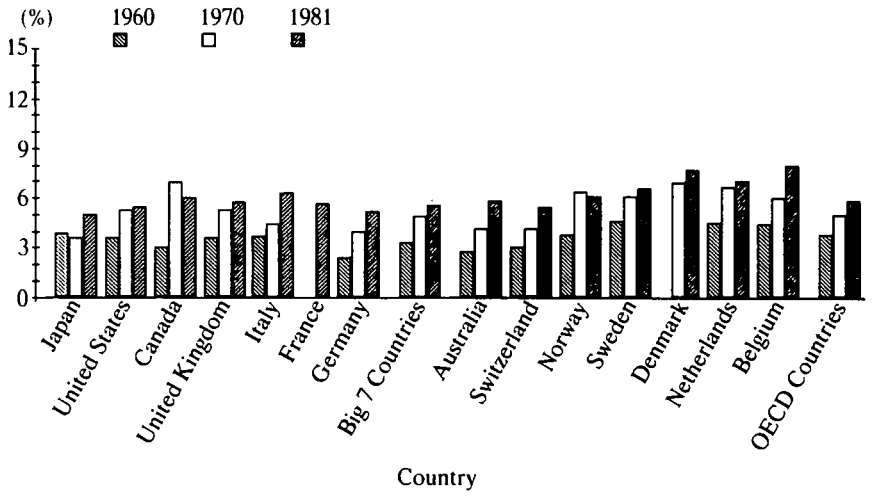
every other OECD country but Japan. Canada did spend an additional $6.6 billion in 1983–84 on tax expenditures, primarily in the form of tax exemptions for contributions to Registered Retirement Savings Plans (RRSPs), the Canada and Quebec Pension Plans (CPP/QPP) and private pension plans. Nevertheless, even if tax expenditures for Canada are included and similar expenditures in other countries disregarded, our nation moves up only to tenth place, still well behind European countries and the United States.

Canadian expenditures on education and health, by comparison, stand much closer to the average level of funding in other OECD countries. In 1981, Canada devoted 6.2 per cent of its GDP to education, compared to the OECD average of 6.1 per cent. In fact, this position reflected a considerable change for Canada. In 1960, our expenditures ranked us eighth out of ten OECD countries, but a rapid increase in the second half of that decade brought Canada's standing to fifth out of 12 in 1975. The Scandinavian countries have consistently ranked as top spenders in these areas, while Germany and Japan have lagged behind. Figure 14-4 also demonstrates another important trend: educational spending dropped in all major OECD countries except Italy, Sweden and Japan, between 1975 and 1981, largely because of declining enrolments in educational institutions.

Health care is another sector in which Canadian spending hovers close to OECD average. Canada ranked seventh of 12 OECD members in 1982, devoting 5.9 per cent of GDP to public health expenditures, compared to the

FIGURE 14-4 Social Expenditure on Education as a Percentage of GDP

(in current dollars)



Source: Organisation for Economic Co-operation and Development, *Social Expenditure 1960–1990: Problems of Growth and Control* (Paris: OECD, 1985), Appendix C. Data for all countries for all years did not appear in source.

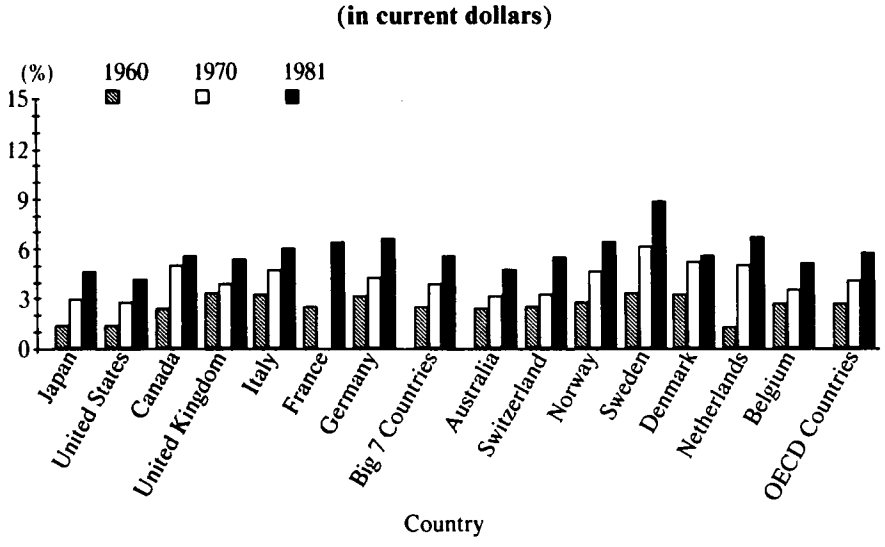
a. Data are for 1981, except: Belgium, 1980; Denmark, 1979; and Switzerland, 1979.

average expenditure of 6.1 per cent. The United States has consistently stood last in *public* health expenditures – spending 4.5 per cent of GDP, for instance, in 1982 – while Sweden ranks first. However, in terms of total share of GNP devoted to public and private health-care expenditures, the United States ranked at or near the top throughout most of the post-war period. Most major OECD countries, including Canada, experienced their greatest growth in health costs during the 1960s, but Canada's growth rate did drop below the average from 1970 to 1981, reflecting the stabilization in health-care expenditures noted earlier. (See Figure 14-5.)

When attention turns to unemployment benefits, Canada's international position changes dramatically, since our spending in this sector, as Figure 14-6 illustrates, has been consistently high compared to that of other OECD countries. In 1981, with expenditures of 2.3 per cent of GDP, Canada stood second only to Denmark, and well above a 12-country average of 1.25 per cent. In comparison, the United States spent only 0.5 per cent on unemployment payments.

Canada's relatively large expenditures on unemployment compensation are not the result of higher benefit levels or of longer average periods of benefit. Indeed, from 1975 to 1980, Canada's benefit levels were almost identical to those in the United States, while benefits in Japan and Germany were 30 to 50 per cent higher. Moreover, the average benefit period in Canada, between 1975 and 1980, was only slightly shorter than that in the United States, while France, Italy and Japan had, on average, significantly longer benefit periods.

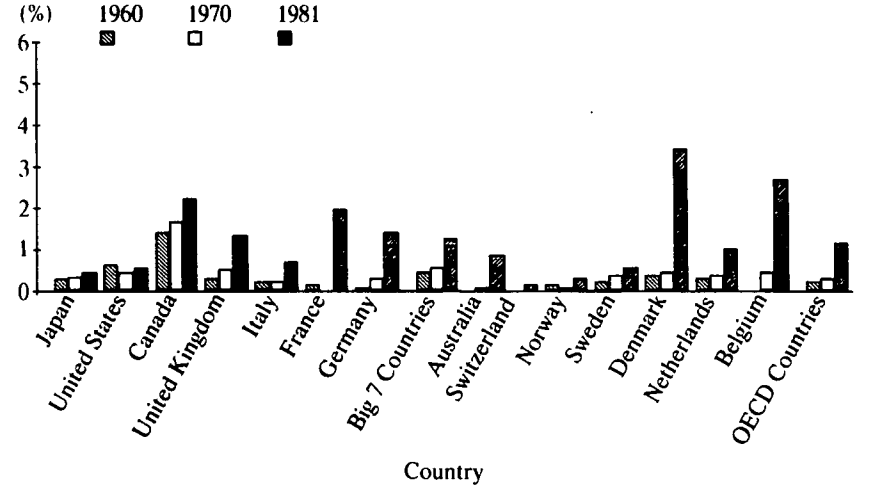
FIGURE 14-5 Social Expenditure on Health as a Percentage of GDP



Source: Organisation for Economic Co-operation and Development, *Social Expenditure 1960–1990: Problems of Growth and Control* (Paris: OECD, 1985), Appendix C. Data for all countries for all years did not appear in source.

a. Data are for 1981, except: Belgium, 1980; Denmark, 1979; and Switzerland, 1979.

FIGURE 14-6 Social Expenditures on Unemployment Compensation as a Percentage of GDP



Source: Organisation for Economic Co-operation and Development, *Social Expenditure 1960–1990: Problems of Growth and Control* (Paris: OECD, 1985), Appendix C. Data for all countries in all years did not appear in source.

a. Data are for 1981, except: Belgium, 1980; Denmark, 1979; and Switzerland, 1979.

The primary explanation of Canadian expenditure levels seems to lie in Canada's higher unemployment rates and its higher percentage of workers covered by unemployment compensation. Between 1975 and 1980, Canada had an average unemployment rate of 7.5 per cent, compared to an OECD average of 5.4 per cent, and 6.7 per cent of our working population received unemployment benefits, compared to only 2.2 per cent in the other major OECD countries.

The Welfare of Canadians

When we focus directly on Canadian experience, two major elements stand out. Plainly, the overall welfare or well-being of Canadians as a whole has risen dramatically over the post-war period. The economic difficulties of recent years should not blind us to the distance we have come as a community since the Second World War. It is equally clear, however, that the distribution of welfare among Canadians has changed much less.

There is no simple standard for measuring the overall level of welfare in a society. People disagree fundamentally, both on the range of social indicators relevant to our well-being and on the relative importance to be attributed to each one. The consideration presented here is therefore confined to three dimensions of welfare which virtually everyone would accept as important: income, health and education. By and large, Canadians have made substantial progress in each of these dimensions during the post-war period. Certainly, our incomes have risen sharply. Table 14-8 presents the basic data from 1951 to 1981: nominal income increased more than nine-fold, while real income rose by almost 175 per cent.

Canada's standard of living remains one of the highest in the world. Table 14-9 measures the gross domestic product on a per capita basis for nine OECD countries. The simple nominal measure shows Canada ranking fifth, in a tie with Austria. Such a nominal measure, however, provides a distorted view of living standards because it does not take into account differences in

TABLE 14-8 Income of Canadians, 1951–1981

	(per capita income)			
	1951	**1961**	**1971[b]**	**1981**
Current	$989[a]	$1 459[a]	$2 891	$9 636
Constant (1951 $)	989[a]	1 281[a]	1 908	2 685

Source: F. Vaillancourt, "Income Distribution and Economic Security in Canada: An Overview", in *Income Distribution and Economic Security in Canada*, vol. 1, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985), Table 2.

a. Non-agricultural population only.

b. The Northwest Territories are excluded in 1961, but included in 1971 and 1981. Income of individuals residing in collective dwellings is excluded in 1981 and included in 1971.

price levels in the countries being compared. Focusing more directly on the "real" GDP per capita requires the use of purchasing-power parities, which measure the cost of a standard basket of goods and services in each of the countries involved. By this measure of real GDP per capita, Canada enjoys the second-highest standard of living among the countries examined.

As well as being generally better off, Canadians are also much healthier today. Table 14-10 reports data on two important indicators, life expectancy and infant mortality, from 1961 to 1976. Both these reflectors of public health have improved steadily, in response to advances in medicine, readier access to health-care services, and better health habits, including life-style changes such as increased physical activity and decreased consumption of cigarettes. Once again, this pattern compares favourably with international standards, as Table 14-11 documents.

Finally, Canadians are more highly educated than ever before. Young people are staying in school longer and, as Table 14-12 shows, the proportion of our population with less than Grade-9 education has fallen sharply since 1941. A more complete breakdown of educational attainment during the past decade is provided in Table 14-13, which demonstrates that over one-third of Canadians have some post-secondary education.

Comparative studies of educational participation rates are particularly difficult to construct because of differences in educational systems across countries. Once again, however, Canada appears to be among the leaders. There is now considerable debate, however, over the degree of success that our educational system is achieving in preparing Canadians to deal with the problems they are likely to confront in the years to come. Even so, it is important to remember that by these measures of welfare Canadians have made considerable progress.

TABLE 14-9 Gross Domestic Product per Capita, 1980

	(in nominal and real terms)			
	Nominal Measure		Real Measure	
Country	GDP per Capita[a]	Rank	GDP per Capita[a]	Rank
Austria	$10 270	6	8 040	7
Canada	10 760	5	11 430	2
France	12 180	2	9 010	4
Germany	13 240	1	9 400	3
Italy	7 000	9	7 180	9
Japan	8 910	8	8 140	6
Netherlands	11 970	3	8 590	5
United Kingdom	9 390	7	7 610	8
United States	11 450	4	11 450	1

Source: Peter Hill, *Real Gross Domestic Product in OECD Countries and Associated Purchasing Power Parities*, Working Paper No. 17 (Paris: OECD, 1984), Table 1.

a. Expressed in U.S. dollars.

TABLE 14-10 Life Expectancy and Infant Mortality in Canada, 1951–1981

Life Expectancy[a] (years)	1951	1961	1971	1981
Men	68.33	69.50	69.76	71.67
Women	72.33	74.98	76.56	78.65
Infant mortality (per 1000)	38.5	27.2	17.5	9.6

Sources: *Canada Year Book 1975* (Ottawa: Ministry of Industry, Trade and Commerce, 1975), pp. 182–83; *Canada Year Book 1980–1981* (Ottawa: Minister of Supply and Services Canada, 1981), pp. 149–50; Statistics Canada, *Life Tables, Canada and Provinces, 1980–82*, Cat. No. 84-532 (Ottawa: Minister of Supply and Services Canada, 1984), pp. 16–18; Statistics Canada, *Vital Statistics III: Mortality 1981*, Cat. No. 84-206 (Ottawa: Mnister of Supply and Services Canada, 1983), p. 11.

a. Life expectancy at one year of age; infants are less than one year old.

When attention turns to the distribution of welfare, however, a different pattern emerges; it is one in which stability, rather than change, is the dominant theme. Health care, indeed, does stand out as one area in which Canadians have come to receive more nearly equal services. Here the

TABLE 14-11 Life Expectancy and Infant Mortality in Selected Industrialized Countries, 1960 and 1981

	Life Expectancy[a]				Infant Mortality (0–1 year)			
	1960		1981		1960		1981	
Country	Level	Rank[b]	Level	Rank[b]	Level[c]	Rank[d]	Level[c]	Rank[d]
Canada	71	2	75	3	27	6	10	4
Australia	71	2	74	4	20	3	10	4
Austria	69	4	73	5	58	10	13	9
France	70	3	76	2	27	6	10	4
Germany (Fed. Rep.)	70	3	73	5	34	9	13	9
Italy	69	4	74	4	44	11	14	11
Japan	68	5	77	1	30	8	7	1
Netherlands	73	1	76	2	18	2	8	3
Sweden	73	1	77	1	17	1	7	1
United Kingdom	71	2	74	4	23	4	12	7
United States	70	3	75	3	26	5	12	7

Source: *World Development Report 1983* (New York: Oxford University Press for The World Bank, 1983), Table 23.

a. Life expectancy at birth.
b. From highest to lowest.
c. Per thousand.
d. From lowest to highest.

TABLE 14-12 **Distribution of the Population 15 Years of Age and Over, by Level of Schooling, 1941–1981**

	(percentage distribution)			
Year	Less than Grade 9	Grades 9–13 and Other post-Secondary	University Degree	Total 15 Years and Over
1941	56.8	42.2	1.0	100.0
1951	51.9	46.2	1.9	100.0
1961	44.1	53.0	2.9	100.0
1971	33.3	61.9	4.8	100.0
1976	26.7	66.9	6.4	100.0
1981	21.9	70.1	8.0	100.0

Source: Statistics Canada, *Historical Statistical Compendium*, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Ottawa: Statistics Canada, 1985), Table 15.1. See original source for notes to this table.

expansion of the welfare state has had a clearly egalitarian effect: Canada's introduction of universal hospital and medical care insurance removed financial barriers to health-care services and increased the share available to low-income earners.[1]

Other elements of the post-war expansion of social spending have not had this equalizing effect. The increased incidence of post-secondary education does not appear to have made that experience more accessible to children of poor families. Indeed, the pattern of educational attainment continues to descend from one generation to another: the higher the education of parents, the more likely their children are to attend university. Table 14-14 reports the relevant data for 1982. Less than 20 per cent of children whose fathers received elementary education or less entered college or university, whereas 68 per cent of children whose fathers were university graduates did so. Unfortunately, there are no national data, compiled over a period of time, on changes in the socio-economic background of university students. It seems unlikely, however, that the proportion of university students from poorer economic backgrounds has increased greatly over the last few decades.

Lack of change appears even more starkly in the distribution of income. As Table 14-15 confirms, the overall distribution of income has changed remarkably little during the past 30 years. The poorest fifth of Canadian families and individuals continues to receive about 4 per cent of all income, while the most affluent fifth receives about 40 per cent. Comparisons among countries are particularly difficult to construct in this area. Nevertheless, studies completed for the OECD and the British Royal Commission on the Distribution of Income and Wealth both agree that Canada ranks approximately midway in terms of degree of inequality in the distribution of income. (See Table 14-16.)

This surface stability, however, masks a wide range of underlying social changes. In the period between 1951 and 1981, for example, the proportion of

TABLE 14-13 **Level of Schooling of Canadians 15 Years of Age and Over, 1971, 1976, 1981**

Year	Level of Schooling			
	Less than Grade 9	Grades 9–13	Some post-Secondary	University Degree
1971	32.3	45.9	17.1	4.8
1976	25.4	44.1	24.1	6.4
1981	20.7	43.6	27.6	8.0

Source: Statistics Canada, *1981 Census of Canada, Population: Historical Tables for Census, Education Data 1971, 1976 and 1981* (Ottawa: Statistics Canada, 1984), Table 1-1.

Canada's farm population fell from 20 per cent to about 4.5 per cent of our entire nation. The family structure has continued to evolve: large numbers of elderly people and young adults now live independently, and single-parent families are increasing in number. In addition, female participation in the labour force has risen from a rate of 17 per cent in 1951 to about 52 per cent in 1981. Given these and other important social trends, it seems surprising that the distribution of income appears so stable, and existing research has not fully discovered the reasons for this phenomenon. Part of the explanation seems to be that the various social changes have offset one another's effects. According to one study, for example, changes in family composition have worked to increase inequality of income, whereas changes in female participation in the labour force have worked to reduce it. Their effect has combined to produce only limited change in the overall distribution of income.[2] Whatever the full explanation may be, the gap between the affluent and the poor in Canadian society remains as wide as ever.

The effect of government activities on the distribution of income is also difficult to measure. To determine precisely who benefits from each expenditure program, and who finally bears the burden of each tax is by no means an exact science, and specialists in the field continue to debate these questions. The best evidence available, however, suggests that government does exercise a mildly redistributive effect that is particularly important to low-income Canadians. The most recent comprehensive analysis concluded that in 1969, there was redistribution from the higher- to the lower-income classes.[3] This redistributive effect was not the product of taxation, since low-income earners appeared to pay a larger proportion of their income in taxes than did high-income earners. The redistributive effect of expenditures, however, was in favour of low-income groups, and it outweighed the tax effects. As a result, the overall effect of taxes and expenditures was progressive.

Tables 14-17, 14-18 and 14-19 provide more recent, but more partial, views. Table 14-17 confirms that transfer payments continue to be important in reducing income inequality, and have become more so since 1971. Table 14-18 indicates the additional effect of personal income taxes, but not

TABLE 14-14 Highest Education Attained relative to Education of Respondent's Father for Canadians Aged 17–64, 1982

Highest Education Attained by Respondent	Education of Father[a]					
	Elementary or less	Some Secondary	Completed Secondary	Some post-Secondary	Completed College	Completed University
No college or university education	80.3	69.2	53.6	49.0	47.3	31.7
College education	12.6	17.9	21.2	27.0	26.8	23.1
University education	7.1	12.8	25.0	23.9	25.8	45.3
Total college and university education	19.7	30.7	46.2	50.9	52.6	68.4

Source: Statistics Canada, *Supplement, Labour Force Survey, 1982* (Ottawa).

Note: Totals may not sum to 100 per cent because of rounding.

a. Figures represent percentage of respondents in each category.

TABLE 14-15 Income Inequality in Canada, 1951–1981

	(pre-tax income, all units) Quintile Shares					
Year	First (lowest)	Second	Third	Fourth	Fifth (highest)	Gini Coefficients[a]
1951	4.4	11.3	18.3	23.3	42.8	0.390
1961	4.2	11.9	18.3	24.5	41.1	0.371
1971	3.6	10.6	17.6	24.9	43.3	0.400
1981	4.6	10.9	17.6	25.2	41.8	0.377

Source: F. Vaillancourt, "Income Distribution and Economic Security in Canada: An Overview", in *Income Distribution and Economic Security in Canada*, vol. 1, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985), Table 7.

Note: Based on the Survey of Consumer Finances.

a. A Gini coefficient is a measure of inequality such that a decline in coefficient signifies a decline in the degree of inequality.

of other taxes. To establish the redistributive impact of health and educational services is a more complex task, and Table 14-19 provides an estimate of the redistributive effects of those services in 1974, the last year for which estimates are now available.

Another negative impression of the distribution of income comes from focusing on the plight of the poorest members of our society. Canadians disagree about the extent to which broad equality of income is a desirable goal. Nevertheless, there is undoubtedly strong social consensus on the need to help the poorest and most vulnerable Canadians. Over the last 15 years, poverty has re-emerged as a fundamental issue on Canada's social policy agenda, and much debate and experimentation has been devoted to this compelling social problem.

To assess the extent of "poverty" in Canada requires the adoption of a working definition of the term, and much depends on the framing of that definition. Considerable attention has been paid to these points in recent years; indeed, the re-emergence of poverty as a social issue depended heavily on advances in the prevailing conceptions of poverty and on the establishment of modern "poverty lines". Despite these initiatives, the definition of poverty remains inherently subjective, and different approaches to dealing with its problems have been proposed.

The "needs" approach to reducing poverty establishes a minimum income to provide basic necessities such as food and shelter. Statistics Canada adopts this approach in developing its "low-income cut-offs". In effect, the agency defines as "poor" a family that spends more than a given percentage of its income on food, shelter and clothing. That figure was originally set at 70 per cent, but it was adjusted to 62 per cent in 1973 and to 58.5 per cent in 1981, in order to reflect changing patterns of consumption. The "relative" approach, on the other hand, defines poverty in relation to the income of

TABLE 14-16 Income Inequality in Canada and Selected Industrialized Countries

	(pre-tax income, various years)								
	OECD Study			Royal Commission Study					
	Economic Families			Economic Families			Individuals		
Country	Year	Rank	Gini	Year	Rank	Gini	Year	Rank	Gini
Canada	1969	4	0.382	1975	2	0.379	1974	3	0.472
Australia	1966–67	10	0.313	—	—	—	1973–74	2	0.477
France	1970	1	0.416	—	—	—	—	—	—
Germany (Fed.)	1973	3	0.396	—	—	—	—	—	—
Japan	1967	9	0.335	—	—	—	—	—	0.0
Netherlands	1970	5	0.385	—	—	—	—	—	—
Norway	1969	6	0.354	—	—	—	—	—	—
Sweden	1972	7	0.346	—	—	—	1974	5	0.434
United Kingdom	1973	8	0.344	1975	3	0.355	1972–73	4	
United States	1972	2	0.404	1975	1	0.423	1974	1	0.501

Sources: Malcolm Sawyer, "Income Distribution in OECD Countries", in *OECD Economic Outlook, Occasional Studies* (Paris: OECD, 1976), Tables 3 and 5; Thomas Stark, *The Distribution of Income in Eight Countries*, Royal Commission on the Distribution of Income and Wealth, Background Paper No. 4 (London: H.M.S.O., 1977), pp. 211, 218.

TABLE 14-17 The Effect of Transfer Programs on the Distribution of Income, 1971–1981: Gini Coefficients

	Income before Transfers		Income including Transfers	
Units	**1971**	**1981**	**1971**	**1981**
All units	0.447	0.439	0.400	0.377
Families	0.386	0.375	0.343	0.320
Unattached individuals	0.558	0.529	0.465	0.405

Source: F. Vaillancourt, "Income Distribution and Economic Security in Canada: An Overview", in *Income Distribution and Economic Security in Canada*, vol. 1, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985), Table 9.

Note: All figures refer to pre-tax income.

TABLE 14-18 Effect of Transfer Programs and Income Tax on the Distribution of Income, 1981

	Quintile Shares					
Income	**First**	**Second**	**Third**	**Fourth**	**Fifth**	**Gini Coefficients**
Income before transfers	1.4	9.6	17.8	26.4	44.9	0.439
Total money income	4.6	10.9	17.6	25.2	41.8	0.377
Total income after income tax	5.3	11.8	18.0	24.9	40.0	0.351

Source: F. Vaillancourt, "Income Distribution and Economic Security in Canada: An Overview", in *Income Distribution and Economic Security in Canada*, vol. 1, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985), Table 5.

society as a whole. The Canadian Council on Social Development, for example, basically defines as "poor" a family of three with an income of less than half of the average Canadian family's income. Table 14-20 presents these two poverty lines for 1983. While there is no consensus on the appropriate poverty line, the Statistics Canada lines are most widely used; Commissioners adopt them in this analysis.

As Table 14-21 shows, the extent of poverty did decline steadily from 1961 to 1981, but it has begun to increase again, as a result of the recession. Canada's social progress clearly depends on its economic strength. As the National Anti-Poverty Organization (NAPO) has emphasized, the increase in family poverty in 1982 and 1983 wiped out the gains that had been registered

TABLE 14-19 The Effect of Transfers and Education/Health Services on the Distribution of Income, 1974

Income	Quintile Shares					Gini Coefficients
	First	Second	Third	Fourth	Fifth	
Income before transfers	1.3	9.8	18.0	25.8	45.2	0.441
Total money income	4.0	10.9	17.7	24.8	42.5	0.389
Total money income plus in kind transfers	4.6	11.7	18.2	24.9	40.6	0.375

Source: Statistics Canada, *Distributional Effects of Health and Education Benefits, Canada, 1974* (Ottawa), Table 1.

TABLE 14-20 Poverty Lines in Canada, 1983

Family of	Statistics Canada[a]	CCSD[b]
One	$ 9 538	$ 8 625
Four	19 397	20 125

Source: Canadian Council on Social Development, Task Force on the Definition and Measurement of Poverty in Canada, *Not Enough: The Meaning and Measurement of Poverty in Canada* (Ottawa: The Council, 1984), p. 25.

a. Urban families.

b. CCSD = Canadian Council on Social Development.

in the previous six years.[4] Large numbers of people stand behind these cold statistics. In 1982, some 2.8 million Canadians fell below the poverty line, leading lives hemmed in on every side by inadequate resources.[5]

A closer look at the profile of poverty in Canada reveals some critical issues. Table 14-22 examines the incidence of poverty among various social groups, highlighting, in particular, the plight of elderly women living on their own and the problems confronting single-parent families with female heads. Poverty is a central fact of life for far too many Canadian women. Table 14-23 broadens the focus by detailing the composition of the "poverty population" as a whole. Clearly, poverty is not simply a problem for the elderly and for single-parent families. Indeed, the largest number of poor people live in families consisting of a couple with children. Poverty is as much a problem of children as of the elderly. Moreover, many of the poor are

TABLE 14-21 Percentage of Canadians with Low Income, 1961–1983

Year	Unattached Individuals	Families	Persons
1961	49.2	27.9	N.A.[a]
1971	43.1	18.3	20.6
1981	37.8	12.0	14.7
1982	37.4	13.2	16.1
1983	41.1	14.6	17.9

Sources: For 1961–1981, F. Vaillancourt, "Income Distribution and Economic Security in Canada: An Overview", in *Income Distribution and Economic Security in Canada*, vol. 1, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985), Table 12. For 1982 and 1983, Statistics Canada, *Income Distribution by Size in Canada, 1982* (Ottawa), *Income Distribution by Size in Canada, Preliminary Estimates 1983* (Ottawa), and *Statistics Canada Daily* (Ottawa, September 14, 1984).

a. N.A. = not available.

TABLE 14-22 The Likelihood of Poverty in Canada, 1981

Characteristics	Percentage of each Category with Incomes below the Low-Income Cut-off	
	Families (Head)	Individuals
Age		
Less than 24	22.7	38.4
25 – 34	12.6	18.2
35 – 44	10.7	22.4
45 – 54	9.0	30.3
55 – 64	10.5	40.9
65 + (Male)	12.9	48.4
65 + (Female)	24.7	62.2
Education		
0 – 8 years	18.9	62.9
High school	11.6	33.3
Post-secondary, no diploma	8.4	34.2
Post-secondary, with diploma	7.0	22.8
University degree	4.7	17.3
Sex/Family Structure Children		
Married couple	8.3	—
Married couple, child	8.9	—
Married couple, children and/or relatives	8.0	—
Male-single/parent family	13.8	—
Female-single/parent family	42.8	—

Source: Canadian Council on Social Development, Task Force on the Definition and Measurement of Poverty in Canada, *Not Enough: The Meaning and Measurement of Poverty in Canada* (Ottawa: The Council, 1984).

TABLE 14-23 Composition of Canada's Poor Population, 1982

Family Type	Percentage of All Poor Persons
Unattached Individuals:	
Over 65	13.9
Under 65	20.1
Families:	
Couples, no children	10.9
Couples, with children	35.3
Single parent, male	3.5
Single parent, female	11.8
Other	4.5
Total:	100.0

Source: Canada Employment and Immigration Commission analysis of data from the Survey of Consumer Finances, 1982 (unpublished).

"working poor", who struggle to meet their needs despite low wages and little help from the social security system. Theirs is a plight too often ignored. The extent of poverty in Canada has been reduced, to be sure, but its persistence stands as a continuing challenge to the welfare state.

Notes

1. For a survey of the evidence on this point, see Gilles Grenier, "Health Care Costs in Canada: Past and Present", in *Income Distribution and Economic Security in Canada*, vol. 1, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985).
2. David P. Ross, *The Canadian Fact Book on Income Distribution* (Ottawa: Canadian Council on Social Development, 1980), chapter 2.
3. W. Irwin Gillespie, *The Redistribution of Income in Canada* (Toronto: Gage, 1980), p. 170.
4. National Anti-Poverty Organization, "Poverty in Canada", statement issued in September 1984.
5. Canada Employment and Immigration Commission analysis of data from the Survey of Consumer Finances, 1982 (unpublished).

The Future: A Crisis of the Welfare State?

Peering into the future is as hazardous a venture as it is important. Canadians' ability to anticipate the developments which will influence the evolution of the welfare state is obviously limited, the more so, the further into the twenty-first century we look. Nevertheless, the future of Canada's social programs will also be affected by the choices that Canadians make now. It is therefore essential that we make the best-informed decisions possible about the major factors likely to affect ourselves and our compatriots in the years to come.

This contention holds true, especially, in light of extensive speculation about a "crisis of the welfare state". A wide variety of observers have argued that the social security systems of Western nations, including Canada, have entered a new and inimical phase and are likely to erode steadily over the decades to come. The prospects for the welfare state, it would seem, can no longer simply be taken for granted.

Can we Canadians continue to count on the full range of social security programs that have become such an integral part of modern society? Recent experience puts the question even more forcefully. The exciting era during which we built our welfare state and rapidly increased our social spending has come to an abrupt end, to be succeeded by a dreary process of restraint and retrenchment. For almost a decade now, the federal government has been struggling to slow the rate of increase in its health and education transfers to the provinces; spending on Unemployment Insurance has been somewhat tightened; and the indexing of major programs such as Family Allowances or Old Age Security has been suspended or capped on several occasions. During the recent recession, in particular, the gap between our social aspirations and our performance has widened as governments have struggled to balance expanding case-loads and declining resources. Social assistance benefits, in particular, have been restrained in virtually every province, sharply in some; and Canadians have witnessed the expansion of food banks and soup kitchens, unwelcome reminders of an earlier era.

Will these pressures ease as Canada and other Western nations recover from the recession? Or are they, in fact, harbingers of an even grimmer future? Those who foresee a deepening crisis of the welfare state point directly to the likelihood of the second possibility and stress trends in Western societies that will last much longer than the current recession.

The "crisis of the welfare state" is a phrase more often used than precisely defined. When people refer to this "crisis", they tend to weave together a variety of concerns about the future. Some see the crisis in terms less of current deprivation than of future difficulties which will steadily worsen over the next decades as the Canadian population ages and makes greater and greater demands on our welfare system. Others fear that modern social spending has become so extensive that it seriously jeopardizes our prospects for investment, productivity and economic growth. The fiscal problems of the welfare state, they insist, will not disappear with the recession. Still others see the crisis in more specifically political terms, suggesting that a growing disenchantment with the changes (or the lack of them) which the welfare

state has brought on Canadian society is undermining the political consensus which sustained its development over the last 50 years. Social spending, they suggest, has once again become the object of ideological controversy, and its future is increasingly in doubt.

Commissioners are far from complacent about either the current performance or the future prospects of our social programs. Although we do not believe that the Canadian welfare state is in danger of collapsing under its own weight, still, the various concerns expressed in crisis scenarios do touch important issues and tensions inherent in modern welfare capitalism. Canadians' capacity to respond effectively to these problems will depend heavily on the performance of Canada's economy. If, over the next decades, Canadians fail to achieve a pattern of at least moderate growth, as envisaged in Part III of this Report, then the tensions that exist between our social commitments and our economic capacity will be exacerbated. In general, however, Commissioners anticipate that governments should be able to maintain their social commitments to the Canadian people.

Let us turn to the first element of the "crisis" concerns: the implications of the aging of the Canadian population. A careful reading of Canada's foreseeable demographic future suggests that Canadians face no inevitable crisis. The changing age structure of our population certainly represents a formidable challenge to which it would richly pay our nation to begin to respond now. The situation, however, does not warrant alarmist visions of an intolerable social burden inevitably growing over the coming years. It is, of course, important to anticipate our demographic future, but our governments now have the unusual luxury of time to plan.

The salient fact which underpins these concerns about the future viability of our welfare state is that the "baby-boom" generation is aging. This large group will enter retirement during the second decade or so of the next century, and it will then depend heavily for its well-being on the productive capacity of the Canadian economy in general and on the redistributive capacity of the welfare state in particular. How large a burden this development will represent for the Canadian people will depend on myriad factors, including our future patterns of productivity growth, immigration, fertility and mortality. We can, however, obtain some initial idea of the extent of the potential problem from looking at population figures tabulated by Statistics Canada.

Table 14-24 presents two projections of the proportion of Canada's population aged 65 and over, at decade intervals, between 1981 and 2030; these projections are based on different assumptions about fertility and immigration. The first is based on expectations of low fertility and low immigration, while the second is based on assumptions of high fertility and high immigration. In effect, the first projection is designed to obtain a reasonable upper estimate of the proportion of old people in our population into the early twenty-first century, while the second is designed to establish a reasonable lower estimate.

A note of caution is in order here: the further into the future we stretch the projections in Table 14-24, the more sensitive to particular assumptions and the more speculative they become. Nevertheless, two particular properties of

TABLE 14-24 Projections of Proportion of Population Aged 65 and Over, 1981–2030

Year	Projection A % of population	Projection B % of population
1981	9.7	9.7
1990	11.7	11.5
2000	13.8	12.7
2010	15.8	13.5
2020	20.5	16.1
2030	26.2	18.8

Sources: Statistics Canada, *Components of Population Growth, 1983–2006* (Ottawa); and Statistics Canada, Demography Division, *Components of Population Growth, 1983–2031* (Ottawa, unpublished).

Note: Projection A is based on assumptions of low fertility and low net immigration. Projection B is based on assumptions of high fertility and high net immigration.

these projections stand out. The first is that regardless of assumptions, the proportion of old people in Canada's population increases very modestly until the turn of the century; the second is that, again regardless of assumptions, this proportion increases rapidly after 2000, reaching a level that is roughly either double or triple the current proportion by 2030. Given the demands that old people inevitably make on pension programs and health services, it does appear, at first sight, that the Canadian welfare state will have to carry a heavy burden indeed 30 to 50 years hence.

Even if we take Table 14-24 at face value, however, it is extremely misleading as a guide to the size of the future burden likely to be imposed by the growing proportion of old people in our population. While the data it presents are based on various assumptions about immigration and fertility, these expectations also have implications for the proportions of young people in the population. The relevant statistics are presented in Table 14-25. As immediately appears, the very assumptions which put an upper limit on the proportion of old people in our population produce a lower limit for the proportion of younger people, and vice versa. Overall, as shown in Table 14-26 the "dependency ratio", that is, the proportion of our population under 15 and over 65, grows between 1985 and 2030 by less than 25 per cent, no matter what assumption we make. Moreover, the proportion of our prime working-age population (Canadians between 25 and 64 years of age) hardly changes, or even rises slightly over the same period. In addition, as projections in Chapter 7 indicated, the proportion in the labour force of 25- to 64-year-olds will likely increase over the period, from 65 to 68 per cent.

Whatever else one might say about these figures, they are hardly the stuff of which crises are made. The dependency ratio will increase by a substantial amount after 2010, if our projections are accurate, but it will hardly move before then. Moreover, even in the year 2030, Canada is unlikely to experience a higher dependency ratio than it did in 1961, when the post-

TABLE 14-25 Projections of Proportion of Population Aged 24 and Younger

Year	Projection A % of population	Projection B % of population
1981	41.6	41.6
1990	34.9	35.6
2000	30.5	34.5
2010	26.4	33.2
2020	23.4	33.5
2030	22.1	33.5

Sources: Statistics Canada, *Components of Population Growth, 1983–2006* (Ottawa); and Statistics Canada, Demography Division, *Components of Population Growth, 1983–2031* (Ottawa, unpublished).

Note: Projection A is based on assumptions of low fertility and low net immigration. Projection B is based on assumptions of high fertility and high net immigration.

TABLE 14-26 Dependency Ratios: Projections of Proportion of Population Aged 0–14 and 65+, 1981–2030

Year	Projection A % of population	Projection B % of population
1981	32.2	32.2
1990	32.1	32.7
2000	30.9	34.5
2010	30.0	34.1
2020	33.9	36.4
2030	38.4	39.5

Sources: Statistics Canada, *Components of Population Growth, 1983–2006* (Ottawa); and Statistics Canada, Demography Division, *Components of Population Growth, 1983–2031* (Ottawa, unpublished).

Note: Projection A is based on assumptions of low fertility and low net immigration. Projection B is based on assumptions of high fertility and high net immigration.

war/baby-boom generation was still young. In that year, our dependency ratio was 41.6, a figure which represents its probable peak for the entire twentieth century.

The implications of demographic change for the overall expenditures of government are less clear, but the basic message is similar. The changing age structure of Canada's population will undoubtedly lead to large increases in the cost of social security and health-care programs, but they should also allow for decreases in educational spending and the cost of other child-related programs such as Family Allowances. Thus, for example, the combination of Family Allowances and Old Age Security accounted for 2.6 per cent of our gross national product in 1950, at the height of the baby boom. That

proportion rose, somewhat erratically, to 3.4 per cent in 1970, but has declined to 3.3 per cent in 1985 and is projected to stand at 3.2 per cent in 1990.

The overall net effect will be an expansion of total spending, since on a per capita basis, expenditures are considerably greater for the elderly than for the young. But present projections of these net increases do not necessarily point to a severe fiscal crisis in the future. Over the next couple of decades, certainly, the expenditures needed to maintain social programs at their current levels should be manageable in the face of population changes. Expenditures will begin to mount more sharply in the third and fourth decades of the twenty-first century, and existing studies differ somewhat on how serious the burden of costs will become. Even the most pessimistic assessments, however, emphasize that the situation then confronting Canada will be comparable to that already in place in many European countries at the beginning of the 1970s; and by the time Canada reaches that point, it is likely to be enjoying a much higher per capita real gross national product. Fundamentally, the degree of strain that a higher proportion of old people in our population will put on the economy 40 years hence will depend a great deal on the extent of economic growth over the intervening period. Given the numbers involved and the time that will elapse before marked changes in the dependency rate set in, even a quite modest, but sustained, rate of increase in our economy's productivity will enable us to accommodate the projected burden.

Accordingly, Commissioners see no reason to conclude, at this stage, that the aging of Canada's population, in itself, represents a crisis of the welfare state. Important decisions about the Canada and Quebec Pension Plans must be made in the next few years, in order to preserve their fiscal integrity, and the adjustments needed will involve significant increases in contribution rates. Indeed, some of the adjustments required in the future will be difficult to implement. To transfer resources between sectors of the social service system is never easy, and the shifts will challenge the adaptability of our institutions. These trends will also have important implications for our federal system, since the balance of federal, provincial and municipal government action in providing services differs as between the young and the old. Education is largely provided by municipalities and provinces. The costs of health care, on the other hand, are shared by the provinces and the federal government, while pensions are mainly a federal responsibility. Thus, as the majority of our dependent population comes to be composed of the old, rather than the young, the costs of supporting the welfare state will be transferred increasingly from municipal and provincial governments to the federal government.

The second element of the "crisis" is the fear that there is a fundamental incompatibility between a mature welfare state and a healthy economy. Throughout the post-war period, the majority of Canadians assumed that social programs would complement the market economy, making it more productive, stable and harmonious. Social spending would be an instrument of automatic, counter-cyclical stabilization; it would contribute to a healthier, better-educated work-force; it would provide the social infrastructure essential to an increasingly urban economy; and it would secure broad social

consensus and stability by integrating poorer groups in the larger national community. During the long period of sustained economic growth that marked the post-war decades, these assumptions seemed plausible, and earlier fears of a basic tension between economic growth and social equity subsided. The economic problems of the 1970s and 1980s, however, have stimulated fresh debate about the fundamental compatibility of the welfare state and the market economy.

In responding to these concerns, it is critical to distinguish between the general question of the overall level of social spending, on the one hand, and the design of specific programs on the other. The broad conclusion of Commissioners is that the overall level of social spending does not constitute a crisis, but that the design of a few of Canada's social programs does create undesirable incentive structures and constrains the productivity of the economy.

At the most general level, Commissioners see no reason to believe that the Canadian welfare state cannot be sustained, or that it creates an unbearable burden for our economy. Comparative evidence suggests that if there is an upper limit to social expenditures in a market economy, Canada has not yet reached it. Other Western nations have managed to combine higher social expenditures as a proportion of GNP with impressive levels of economic performance. Indeed, some observers have argued cogently that social spending has actually made a positive contribution to economic growth.[1] Others have suggested that a well-developed social security system is a precondition of adjustment in the economy: without such protection, workers in declining industries and communities might well redouble their political pressure for subsidies, quotas and other policies designed to prop up their means of livelihood.

Still others have replied, however, that there are clear limits to any positive relationship between economic growth and social spending, and that in certain European countries with very high social expenditures – Belgium and the Netherlands, for example – the welfare state has contributed to difficult economic problems.[2] Commissioners know of no evidence, however, to suggest that such conclusions are justified in relation to Canada, where total social spending represents a much smaller proportion of gross domestic product. Canada's long-term ability to avoid such a painful dilemma certainly depends on at least moderate economic growth in future decades. However, we see no signs of the imminent collapse of the Canadian economy because of the burdens which the welfare states creates. We Canadians might choose to reduce our social spending in order to ease the deficit or to meet other spending priorities, but we are under no compulsion to do so. Economically, we seem free to choose our social future.

This reality does not mean that no tensions exist between the claims of social programs and economic efficiency. In the first place, the income which the welfare state redistributes must be raised by taxation, and it costs society more than a dollar to provide a dollar's worth of income in the form of services or cash to a needy person. Taxation bears certain efficiency costs; these result from the ways in which individuals allocate their time and efforts in order to cut down on their tax obligations. If, in the process, they distort

the pattern of economic activity so that the resources available to society produce less output, the resulting effect on efficiency is negative. It is exceptionally difficult to reckon efficiency costs precisely. In addition, of course, there are the administrative costs imposed on tax payers by the tax system, and the administrative costs to the public sector of collecting revenues and managing the various social programs in which money is actually spent. However, none of these hidden costs means that social programs are so expensive that they should never be expanded. Even with a full understanding of the costs, the Canadian public might well support expansion of important parts of our welfare state. Nevertheless, the costs do reinforce the need to make the most effective use possible of our social expenditures.

In the second place, there are a number of problems inherent in the operation of individual social programs. It is important to recognize the points at which social programs and economic efficiency conflict and to minimize the conflict wherever possible. The tension between efficiency and economic equality, which some observers see as a sharp two-dimensional trade-off, is, in fact, a good deal more subtle than that. It is possible to provide a given amount of insurance or redistribution of income with varying degrees of efficiency. Plainly, there is scope to increase the economic efficiency of particular programs without exposing Canadian society to greater risk and inequality.

The final element in the "crisis" of the Canadian welfare state is fundamentally political. According to some observers, the broad consensus which sustained the steady expansion of social spending throughout the post-war period is disintegrating, and our welfare state is facing a crisis of legitimacy, as the Canadian public becomes increasingly restive about the fiscal burden generated by welfare-related programs. Once again, this contention does capture important strands of contemporary social debate. Nevertheless, the core of public support for our basic social programs seems solid: Commissioners see no convincing evidence of the emergence of new political consensus among Canadians that would mandate a dismantling of the welfare state.

Clearly, however, the post-war consensus on social policy has weakened. Although debate on the specifics of Canada's social policy was occasionally vigorous during the 1950s and 1960s, there was fairly broad agreement on the desirability of expanding the social service sector, and governments of all political persuasions and at both levels of our federation participated in the development of our social security system. The 1970s and 1980s, however, have witnessed considerably stronger debate. Criticisms have come from both ends of the political spectrum: on the right, a resurgent neo-conservatism is challenging the underpinnings of our social welfare system; on the left, a quieter disillusion has diminished faith in social policy as an effective instrument of reform.

Neo-conservative critics weave together a complex set of arguments. In economic terms, they insist that modern welfare and its associated taxes distort incentives, stifle entrepreneurship, hinder the operation of labour markets, and generally undermine economic growth. In social terms, they assert that reliance on social services reflects an exaggerated view of the

capacity of government to engage in social engineering; the unintended consequences, they maintain, include the undermining of the family, the reinforcement of dependency among the population, and the growth of elaborate bureaucracies which, primarily, advance the interests of the professionals who staff them. Generally speaking, neo-conservatives lament the erosion of personal responsibility, which they see as the moral basis of a healthy society.

The criticism from the left is less dramatic, but no less significant. During the post-war years, social reformers placed great faith in the capacity of the welfare state to usher in a fairer society. Indeed, for some social democratic parties in Europe, educational and social policy displaced nationalization of the economy as the key to economic equality. This faith in the potency of the welfare state was shaken, however, by the rediscovery of poverty during the 1960s, as well as by the growing realization that the overall distribution of income had remained remarkably stable, and that many social programs did not confer most benefit on the poorest members of society. For some observers on the left, the welfare state looked less and less like an instrument of social reform, and more and more like a mechanism for preserving the legitimacy of an unequal society. While this criticism seldom generated explicit political attacks on social security, it did sap the enthusiasm of many who had earlier ranked among the welfare state's most stalwart champions.

This revival of ideological dispute came at the time of decreasing enthusiasm among groups holding mildly reformist and centrist opinion in social policy debates. The developments of the 1950s and 1960s largely fulfilled the social policy agenda of the post-war generation, an agenda that had been fashioned during the Depression and its aftermath. With the major elements of the welfare state in place, a loss of momentum and a growing uncertainty about the next steps were perhaps inevitable. But this hesitancy was reinforced by economic difficulties of the last decade and the criticisms from both right and left. As a result, centrist opinion has been more preoccupied with defending the gains of the past than with charting brave new courses.

Clearly, in recent years, political consensus on social policy has given way to more active ideological debate and uncertainty. This change, however, has not, as yet, generated a crisis in the form of a marked erosion of public faith in the welfare state. There is no evidence of a major shift in the broad views of Canadians about the role of social security in modern society. The Canadian public does not support across-the-board cuts in our social services. Its support for the Canadian welfare state has survived the recent recession, and widespread discussion of government deficits is a testament to the basic legitimacy of our social policy framework. While there have been no tax revolts on the order of that initiated by Proposition 13 in California, Canadians polled in 1982 expressed a clear preference for reductions in government services, rather than tax increases, as a means of reducing deficit levels; but social programs did not automatically head the list when respondents were asked where cuts should fall.[3]

To be sure, Canadians do differentiate among social programs. Universal public health insurance already seems to be deeply entrenched in our national

culture, and periodic proposals for limitations on this service have elicited little enthusiasm, to say the least. In 1973, for example, 78 per cent of Canadians polled rejected the idea that routine annual medical examinations should not be covered by medicare,[4] and a decade later, over 80 per cent of those canvassed objected to the practice of extra billing.[5] Support for many other components of our welfare state is equally solid. Pensioners and disabled persons retain a special place in the affections of Canadians, and opinion polls consistently find wide endorsement of the view that benefits for these groups are inadequate, and that more should be done for them.

Conversely, the concept of individual responsibility continues to condition the Canadian public's attitudes towards programs which support employable people. The Unemployment Insurance program vividly illustrates this view. No other income-security program provoked more controversy during the 1970s. Canadians continued to accept the basic legitimacy of the UI program, agreeing overwhelmingly that "Unemployment Insurance is necessary in today's society." They were just as strongly convinced, however, that stricter controls were essential, as Table 14-27 shows. Today the recent recession has softened these feelings somewhat. Canadians' views about the causes of unemployment changed in the 1980s, and the public preference for restrictions in these benefits eased marginally, as Table 14-28 indicates.

Belief in individual responsibility similarly shapes attitudes towards recipients of social assistance. A requirement that employable men receiving welfare accept "any available work" was endorsed by 78 per cent of those polled in 1962 and by 85 per cent in 1976; in 1979, two-thirds of the Canadian public supported a similar requirement for mothers with children 13 years of age or over.[6]

This tough-mindedness about employable UI recipients mingles with a clear concern for the poor and needy generally, and an apparent willingness to reallocate expenditures to make social security more redistributive towards this group. During the past 15 years, polls have consistently found public support, in principle at least, for greater selectivity in administering the Family Allowance program, while the idea of a guaranteed annual income received substantial support even in the midst of a recession. (See Table 14-29.) Whether such generalized support would continue in response to specific proposals is not clear, of course. In 1971–72, the federal government's proposal to base Family Allowances on an income test met substantial opposition from women who stood to lose their monthly benefit if the change were effected. Again, during the federal-provincial Social Security Review, some governments were nervous about the potential public reaction to the actual implementation of a form of guaranteed income. Nevertheless, Canadians would seem open to a discussion of more selectively managed welfare programs.

Yet, when all is said and done, there is little evidence of a serious erosion of public faith in Canada's welfare state. The uneasy amalgam of collectivist and individualist values which has characterized public preferences during recent decades does not seem to have changed dramatically. In an open society, public attitudes evolve in response to ongoing political and social debate, and it remains possible that Canadians will change their opinions

TABLE 14-27 Public Attitudes towards Unemployment Insurance, 1977–1978

	Agree Strongly or Somewhat (%)		Disagree Strongly or Somewhat (%)	
	Sept. 1977	Sept. 1978	Sept. 1977	Sept. 1978
Unemployment Insurance is necessary in today's society.	82	84	11	10
Stricter controls are needed to ensure that Unemployment Insurance benefits do not go to people who will not take a job.	84	88	6	5
Many people take unfair advantage of Unemployment Insurance.	81	87	9	8

Source: Employment and Immigration Canada, *Statistics on Advertising for Unemployment Insurance: Reports of Three Studies* (Ottawa, 1978); and *Fourth Marketing Research Study on Unemployment Insurance* (Ottawa, 1978).

TABLE 14-28 Public Attitudes towards Unemployment and Unemployment Benefits during the 1980s

1. Responsibility for Unemployment: Responses to statement, "People don't have jobs because they don't want to work."

	1980	1981	1982	1983
			(per cent)	
Disagree	28	31	44	53
Depends	19	18	22	21
Agree	51	50	33	26

2. Public Attitudes Towards Eligibility Requirements for Unemployment Insurance

	1981	1982	1983
		(per cent)	
Loosen	20	29	34
Tighten	66	56	55
No Opinion	14	15	11

Sources: 1. *Decima Quarterly Report on Public Affairs Trends*, Quarters 1, 5, 9, 13 and 17. Data apply to the spring of each year.

2. *Decima Quarterly Report on Public Affairs Trends*, Quarters 7, 11, 15. Data apply to the fall of each year.

TABLE 14-29 Public Attitudes toward a Guaranteed Annual Income

		(per cent)	
Attitude	**Summer 1980**	**Spring 1981**	**Fall 1982**
Favour	66	75	67
Oppose	26	21	28
No opinion	7	4	4

Source: Decima Quarterly Report on Public Affairs Trends, Quarters 2, 5, 11.

more decisively in the future. Viewed from the perspective of the mid-1980s, however, the support of Canadians for the broad parameters of the welfare state seems reasonably clear.

Each of three elements of the crisis of the welfare state – demographic, economic and political – raises serious issues or points to enduring tensions in our social security system. In combination, these elements represent a formidable set of challenges. Clearly, difficult choices will have to be made. Moreover, our capacity to respond effectively to them will continue to depend

heavily on the strength of the Canadian economy during the coming decades. None of this means, however, that the Canadian welfare state is entering a terminal phase. Rather, it means that the pressures to use our resources as effectively as possible will be greater than ever.

Notes

1. See for example, John McCallum and André Blais, "Government, Special Interest Groups and Economic Growth", in *Responses to Economic Change*, vol. 27, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985).
2. See Organisation for Economic Co-operation and Development, *Economic Surveys: Belgium/Luxembourg 1982–1983* (Paris: OECD, 1983); and *Economic Surveys: The Netherlands 1983–1984* (Paris: OECD, 1984).
3. Public opinion data on these issues are discussed in Richard B. Johnston, *Public Opinion and Public Policy in Canada*, vol. 35, prepared for the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985), chapter 2, especially Tables II-13 and II-14.
4. Canadian Institute of Public Opinion (July 1973), N = 701.
5. *Decima Quarterly Report on Public Affairs Trends* (Fall 1983), N = 1434.
6. Canadian Institute of Public Opinion (September 1962; June 1976; and March 1979, N = 690, 1060 and 1056).