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The Role of Major Projects in Canadian Economic Development
Myths and Realities

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THE ROLE OF MAJOR PROJECTS IN CANADIAN ECONOMIC DEVELOPMENT:
MYTHS AND REALITIES

What do we mean by a Major Project? One definition is that a project is a Major Project when you win the contract, otherwise it is minor and inconsequential. A somewhat more objective criterion would be some measure of size. For purposes of our Major Projects file, for example, we keep track of those projects with a capital cost of more than \$100 million. Even this of course can be confusing because \$100 million today is a lot more than \$100 million in 1990. But this notion of size is one of the principal characteristics. Is this project large for the region in which it is taking place; for the industry undertaking the activity; or large from the viewpoint of the firm or firms that are involved? For a small business, a \$500,000 investment is often referred to as a major project as it should be if their capital base is only \$100,000. Again, when I use the term "major projects" I mean those in excess of \$100 million, although for some regions of the country a better cut-off point might be \$50 million or even smaller.

A second characteristic that makes a project "major" is the fact that it is reviewed and subject to some form of regulatory approval by one or more levels of government. Alone this criterion would include extensions to houses, minor alterations that require a building permit, and so on. But I have in mind here projects which usually involve a public hearing, require a decision by governments to proceed, and may in fact require substantial commitments by government as regards price, tenureship, financial support, or development of associated infrastructure.

A third characteristic which is frequently present in major projects is what economists call "rent generation". That is, the project, when completed, will produce a stream of benefits in excess of the costs of construction and operation (when discounted back to the present). In some cases, these benefits may not be part of the direct profitability of the operation but rather are "external" to the project in the form of cleaner water, recreational values, or security of supply. It is, in fact, the existence of these economic rents that often is the major reason given for governmental review and/or participation. And this same "honeypot" is the reason for private sector interest - the possibility of a greater return on investment than the next best alternative for the funds, talents, and technology.

Earlier I used the term "rent generation" rather than simply "economic rents". It should be emphasized that there are no economic rents generated if the project does not proceed, a fact that is too often ignored.

all right

What about "mega" projects? In one sense a "mega" project is simply a large major project, or a collection of major projects, with the characteristics of size, government review, and rent generation particularly prominent. But certain other characteristics are likely to be observed as well.

- (1) Long lead time - The time lag from announcement to completion spans many years; usually greater than a "political" cycle and often longer than a typical business cycle. This means that the external environment is likely to change one or more times before completion.

Amplifies the uncertainty

- (2) Interdependent major projects - The mega project consists of several major projects all of which need to be completed before operations can begin. Often these major projects are subject to review by different governmental groups; delays on any one part can hamper the entire project.
- (3) A multiplicity of private and public interests - A number of different groups will be struggling to stake some claim on the economic rents and to pass on costs or risks to other groups.
- (4) Regional impact large - A mega project is likely to require more resources than are available in a particular region. This will require mobility of people into the region during the construction phase, and temporary infrastructure for their accommodation. As well, supplies of material and construction management may be drawn from many different regions.
- (5) Risks tend to compound not offset - Cost overruns, delays, and changes in prices, anywhere in the network tend to increase the risk of all parts of the project. This can lead to increasing financial difficulty.
- (6) "Greenhouse-effect" - A mega project, in turn, leads to increased investments in other sectors of the economy during both the construction and operations phase. The downstream cash flows often spawn other investments. The "psychological" environment of business and consumers is improved by the knowledge that a mega project is underway, which will provide an added stimulus to growth in the region and country.

In what follows, I will state certain "myths" about major projects and then propose "realities". Mega projects will not be distinguished as a separate "animal"; where appropriate some observations will be made. You may not agree with the labels and may have different views about reality. The purpose of this talk is to provoke discussion - what better way than making extreme statements?

Henry Kissinger from Trakman

Myth #1 - Major Projects are a new phenomenon in Canada. We are on new ground and that is why we have such great difficulties.

This is a fallacy. The reality is that Canada's history has been a succession of large major projects starting with the C.P.R. and going on through the decades. The St. Lawrence Seaway, the Kitimat/Kemano Aluminum Smelter, Stelco's major plant developments, the development of the chemical industry in Alberta and Sarnia, the Trans-Canada Pipeline, the original Great Canadian Oil Sands, and more recently Syncrude were all major (mega) projects. The electric utilities have provided us a long, rich history of major developments including the numerous hydro facilities, nuclear plants and the James Bay project. And each of these projects has, in turn, spawned other major projects and thereby changed the structure of the Canadian economy.

You may find interesting our estimates of the costs of several major projects in the past, put on a comparable basis in 1981 dollars. (See Table I.) With increasing environmental regulation, suggested procurement policies, and other legislation, the real costs today of these projects, if done again, might be much more. A counter-influence would be the improvements in construction practices and materials, labour productivity, and management skills for major projects.

TABLE I

CONSTRUCTION COSTS OF SELECTED MAJOR PROJECTS

(millions 1981\$)

	<u>Cumulated Capital Expenditure</u>	<u>As Per Cent of Cumulated Real GNE</u>	<u>As Per Cent of Cumulated Total Investment</u>
Kitimat/Kemano Development (1951-1955)	\$1015	0.22	1.02
TransCanada Pipeline (1956-1958)	\$1762	0.51	2.09
St. Lawrence Seaway (1954-1959)	\$933	0.14	0.60

Myth #2 - Major projects have effects which swamp the economy.

This too is not correct. While the dollar magnitudes of major projects seem large, e.g. \$100 million, \$2 billion, \$10 billion, \$20 billion, an individual project is small relative to the total amount of investment underway at any point in time. It should be recognized that these projects are spread out over a number of years of construction and often staged through several investment cycles of expansion. Concerns, particularly with the Canadian Arctic Gas Pipeline, initially focused on major impacts on the exchange rate. These concerns were allayed by recognition that, while there may be substantial imports of material and equipment, this could be offset by foreign borrowing to sterilize the depreciating effects of the project in the earlier period, and that subsequent debt repayment and interest payments are more than offset by increased exports or import substitution. Thus the exchange rate consequences of any particular project are relatively small and can, in fact, be minimized by proper planning.

This does not mean that major projects cannot have important consequences for the economy, but they are "swallowable". It is unlikely that any one project will create significant bottlenecks for material or manpower. And even if there is a sequence of major projects, again with some proper planning these bottlenecks can be minimized. There is no question that a

significant investment can have extremely large effects on a specific region of the country, e.g. tarsands development on Fort McMurray. But again, recognition of this has allowed for concomitant townsite development and procurement programs that spread the effects around the country.

Myth #3 - All the major projects have been cancelled.

This too is false. At the present time in our list of major projects there are about three hundred expected to begin sometime in the next twenty years. I suggest that this is an underestimate of the total number since many will be announced in later years as new opportunities arise. At the same time, there is an overestimate of the number that will occur in the next few years in that certain projects may be "competing" with others. In Table II, the number of major projects by starting year are shown. Of 266 active projects, over 100 are currently under construction. About 50 projects that were previously announced, are now in the "suspended/cancelled" status.

If we look at the time profile of expected starting dates (see Table III), most identified projects will begin construction in the next few years. (Some, of course, will be delayed or cancelled.) If the Major Projects File is scanned for "mega" projects there are over 20 active projects, of which 13 are in early phases of construction.

TABLE II

MAJOR PROJECTS BY STATUS, 1983-2000

UNDER CONSTRUCTION	106
APPROVED	32
ANNOUNCED/PROPOSED	<u>128</u>
ACTIVE	266
SUSPENDED/CANCELLED	<u>46</u>
	312

Source: Major Projects File (January, 1983),
Informetrica Limited

TABLE III

MAJOR PROJECTS BY START DATE FOR CONSTRUCTION

UNDER CONSTRUCTION	<u>106</u>
STARTING DATE:	
1983	73
1984	15
1985	6
1986-90	17
1991-2000	3
DATE NOT SPECIFIED	53

Source: Major Projects File (January, 1983),
Informetrica Limited

TABLE 4¹

DISTRIBUTION OF MAJOR PROJECTS BY REGION AND STATUS

	Canada	Atlantic	Central Canada	Prairies	British Columbia	Arctic
TOTAL	312	44	96	93	52	27
Announced/Proposed	128	14	42	36	25	11
Approved	32	5	5	13	4	5
Under Construction	106	17	42	29	16	2
Suspended/Cancelled	46	8	7	15	7	9

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DISTRIBUTION OF MAJOR PROJECTS BY REGION AND SECTOR

	Canada	Atlantic	Central Canada	Prairies	British Columbia	Arctic
TOTAL	312	44	96	93	52	27
Mining	75	16	11	18	13	17
Manufacturing	94	8	35	37	11	3
Transportation	38	6	13	2	12	5
Utilities	52	10	16	15	10	1
Other	53	4	21	21	6	1

1 Excluding projects that do not have an estimate of cost.

All regions of Canada have identified major projects. They are not all concentrated in the frontier areas and Alberta. (See Table IV.) The industrial distribution is dominated by mining, utilities, and transportation, but other sectors also have their major projects.

A related myth is that the major projects are no longer viable, with lower world oil prices we should not proceed with such ventures. The truth of the matter is that we face increased uncertainty about future world oil prices, but it is not clear that they will be lower in real terms. What has happened is that the rigid schemes introduced for sharing the economic rents have been thrown into disarray by the inconvenience of OPEC not tracking with the NEP price schedule! What this requires is a re-thinking of these rent-sharing mechanisms, not abandonment of the projects. In a similar vein, if we are moving into an environment with weaker oil prices, and hence lower inflation more generally, we should expect the nominal investment costs of some of these projects to absolutely decline because of less inflation. This will be substantially reinforced by lower interest rates.

Another observation that is worth noting is that not all major projects are energy-related. Of the projects that we expect to proceed, energy-related projects account for \$72 billion of a total \$116 billion in the period 1983-90, or about 60%. And only half of the energy investment is in the "fossil-fuel" area (oil, gas, coal); the balance is in electric utilities. Thus, only about one-third ^{by} of the value of major projects ^{is} directly affected by world oil price influences.

in terms of Revenue Consumption.

Myth #4 - We cannot finance the projected total investment requirements of the Canadian economy.

The reality is that we can, with, in fact, surprisingly low amounts of foreign borrowing. The concerns about "crowding-out" of other private investment or the crowding-out of private investment by government borrowing are not serious issues. In particular, the only kind of crowding-out that can occur - not having the available materials and people - is clearly not a problem in the current Canadian economy, nor is it likely to be for several years to come. The reality is that we have financed in the past a number of major projects along with normal investment activity and we can finance quite a few in the future.

If one examines a specific project and at the margin observes the impact on savings at various stages of the project a very interesting pattern emerges. At the beginning, a heavy reliance is placed on additional savings generated by the personal sector and the nonresident sector to finance the increased business investment. Increased government tax revenues and reduced unemployment insurance also provide an increase in government savings. As the project moves into the operations phase, it either results in an increase in exports or a reduction in imports which actually reduces the net reliance on foreign savings. Increases continue for both personal savings, government savings and business

savings in the form of retained earnings and depreciation (cash flow) during the operations phase. Thus, if you focus on a point in time, you will see a number of projects providing the cash flow and generating savings in other sectors of the economy to finance new investment in a particular project. Downstream, that particular project would make its contribution to the pool of savings for financing investment. As long as we don't try to do all projects at the same time or do nothing for five years and then try to proceed vigorously, there should be a matching of Canadian savings and Canadian investment requirements with only a minor need, if any, for reliance on foreign investment inflows.

It does not mean that we shouldn't consider financing some parts of major projects abroad. For purposes of diversification of portfolio, transfer of technology, minimizing exchange rate influences, and taking advantage of lower financing costs, there may be some decided advantages for a particular project in seeking foreign financing. However, on a net basis, there need not be substantial capital inflows, given a desire to increase Canadian investment activity.

Myth #5 - Even if it is possible from a macroeconomic viewpoint to finance a substantially higher level of investment in Canada, it may be impossible to finance any individual project because of the size and risk involved.

This, too, may not reflect reality. We have in the past financed large projects and I am sure that we will be able to finance them in the future. But it can be difficult. In particular, in the last two or three years with extremely high real interest rates, fluctuating short-term rates, and a desire by governments to restrict economic activity, it has not been a good time for the financing of any individual investment project. It is important to recognize though that this is exactly what the intent was of government policy! Substantial increases in interest rates and the introduction of restrictive tax policies are designed to decrease economic activity and, particularly, in those sectors that are sensitive to financing costs, namely consumer durables, housing and business investment. I think we would all admit that that objective has been met admirably, even though I expect many of us would disagree with the objective. But I believe that this period should be viewed as an aberration, not as the expected milieu in which we are going to operate in the next decade.

Myth #6 - An increase in construction activity on major projects would confer major benefits on the Canadian economy.

This may come as a surprise to you, but the construction of a major project is a cost, not a benefit. The benefits come from the operations phase and net benefits arise if the revenues exceed the costs of operation and construction. The construction of a major project would compare favourably with the construction of a "pyramid" if the downstream benefits of the project exceed those of the pyramid. (I won't digress on the tourist benefits of a pyramid!) It is in this sense of the potential benefits that one might favour public works or other major projects over temporary employment schemes or income maintenance schemes. But, if we compare two projects with the same downstream benefits, it makes sense to do the least costly form of construction, avoiding the use of unnecessary resources in the process.

Other possible benefits - Mungl

Myth #7 - There is a strong case for government intervention for major projects, particularly when exploitation of public resources is involved.

But what form of intervention, and how strong a case? The normal rationalizations are:

- (1) Some involvement has become "traditional" in most sectors: safety standards, environmental rules, and similar areas when externalities exist.

- (2) Government is expected to provide information to consumers, voters, etc., although the assumption of objectivity and knowledge needs to be questioned from time to time.
- (3) The "national interest" requires government intervention because of the effect of such projects on the economy, the involvement of foreign-based companies, and the uncertainty regarding energy matters. One can accept the effects; certainly governments should "watch" what is happening! But should they directly intervene?
- Can they define the "national interest" and if so actually pursue it?
 - Is their forecasting ability better than other participants in a market, such that the effects of their policies are known?
 - Is the intervention superior to the market outcome?
- (4) As the owner of the natural resource (e.g. oil, hydro, minerals) they must intervene in the entire process. This is clearly not the case; either through competitive bids to exploit the resource and/or "so-called" rent taxes it is possible to collect the economic rents and leave the development to the private sector.

As an example of this issue of "level of intervention", let's consider the recent establishment of the "Office of Industrial and Regional Benefits". What role should it play?

- On the information role, there may be some utility in ensuring that major project owners are aware of Canadian sources of supply and vice-versa. But would/does the market provide this information? (In the limited area of lists of major projects I know that there are already available lists in the private sector.)
- Can this group anticipate areas for pro-active development of Canadian suppliers? What about the potential suppliers not picked for aid? And if several projects are cancelled, what "liability" does the government have to the suppliers who responded to their urging to increase capacity?

- If a premium is paid by the project for domestic procurement, this increases the construction cost and dissipates part of the economic rent to the domestic supplier at the expense of the producer and owner of the resource. If a supplier can sell to a major project at \$10.00, will he sell the output to anyone else for less? Thus we should expect higher costs for some products in areas other than the major projects as well. It should be noted that it is also a myth that the only way to obtain economic growth is with major projects. And, since small projects constitute at least three-fourths of the demand for construction, their death from excessive costs can hurt the industry directly. (It is anticipated that there will be some counter-examples in which an efficient Canadian producer emerges. But this will happen if there is no intervention!)
- Are such moves in the national interest? Is the intervention superior to the market outcome? Or will we find a bureaucratic empire acting in its own interests and adding additional costs to projects? Only time will tell; the record of governments is not reassuring!

So what?

We have concluded that we can physically do major projects, that the economy can absorb the impact of the major projects, that the macroeconomic financing of the higher level of investment is feasible, and that, while there may be difficulties in financing specific projects, these too can be overcome. What must we do to realize the benefits of a development of major projects?

There are four areas of uncertainty at the present time. There is an uncertainty regarding inflation. There is uncertainty about relative prices, in particular the future price of oil relative to other commodities and the ancillary question of

economic rent claims by various groups. There also is uncertainty about the respective role of government and the private sector in major project development. Finally, there is uncertainty regarding federal and provincial jurisdiction disputes or rent-sharing arrangements.

On the inflation front, part of the problem is that we continue to use unrealistic or inconsistent inflation estimates for these major projects, roughly 10% per year. Most recently this was reflected in the I.T. & C. investment survey in which for the next five to six years average inflation rates expected were indicated to be around 10%. This is simply not consistent with the growing view that the prices of outputs may be increasing much less rapidly than 10% over the same period. What is important is a consistency between the inflation estimates on the construction side and the inflation estimates or price increase estimates for the project outputs. If the price of outputs and construction costs are inflating at the same rate, whether that is two per cent, five per cent or ten per cent, there is not a major problem. However, if construction costs are accelerating more rapidly than the product prices, this may jeopardize the net benefits of the project. Conversely, if product prices are accelerating more rapidly than construction costs, this enhances the benefits of a particular project. The problem appears to be that there is some mismatching or inconsistency at the moment between construction cost forecasts and project price forecasts. In order to have a better assessment of inflation, some consistency is needed here.

This doesn't mean that we can ignore inflation. Canada's inflation performance relative to that of the United States is a critical determinant of the exchange rate. Substantial movements in the exchange rate can again make a project, that would otherwise be doubtful, better or worse. Nor does it mean that an inflationary environment of high or accelerating inflation is conducive to strong investment. Quite the contrary is the case. The substantial nominal interest rate increases and real increases that might be associated with inflation are an important concern. I would ask each of you in examining major projects, however, to be sure that you are consistent in the assumptions being made about inflation, construction cost and price increases and interest rates. As well, if inflation is going to remain uncertain, with a strong possibility of re-emergence of accelerating inflation, then we may well have to give consideration to financial instruments, contract indexing, etc. as ways of mitigating some of the down-side risks to individual project financing or to the momentum of major project development.

The second area of uncertainty is the area regarding relative price changes and associated changes in economic rents. In a recent paper Ronald Warwick, Professor at the University of Western Ontario, examined several options to deal with uncertainty regarding these economic rents, particularly in the oil development area. Four possible approaches were discussed.

- (1) Rate-of-return regulation for the project where one would not attempt to set in place ahead of time the prices, etc., but rather treat a major project like a public utility. Of course this kind of approach is the current environment for many of the hydro-electric projects, and transportation systems.
- (2) A price-contingent contract in which the relevant split would be defined for a wide variety of actual prices with an explicit formula or procedure to specify the public and private revenue shares for all possible outcomes. This would not of course remove the uncertainty of the actual return but it would identify the explicit possibilities there. The advantage of this kind of approach is that it would focus on revenues, not profit, and would then reward increases in efficiency by a higher profit.
- (3) Public ownership and development of a resource in which case the risks would all be borne by the public sector. Again this pattern would fit some major projects such as a major highway development scheme or a port facility, etc. Its application in the oil and gas industry, however, would no doubt be quite contentious.
- (4) A competitive production contract. With this kind of scheme the public ownership would be in place but the development of the resource would be done by competitive bidding amongst the private sector with the expectation that this would lead to the most efficient, low-cost technology being used. This approach would be similar to that used for major national defence contracts in the U.S. and as one of the approaches used for synthetic oil plants in the United States. The general term for these is COGO, company-operated, government-owned, or POGO, privately-operated, government-owned.

Regardless of the specific form of organization or type of regulation, there is one over-riding concern under all forms. That is the risk that government will ex post revise whatever arrangement has been agreed to previously. Although to date retroactive legislation has not been that common, there are several instances which certainly have raised it as a possibility to be added to the uncertainty faced by any particular major project.

Changes to energy rent-sharing in the U.K., the windfall profit tax in the U.S., and the Petro Canada "back-in" are frequently cited examples.

The projects which are privately proposed, financed, and operated, face the third uncertainty of roles between the two sectors, private and government. One often overlooked characteristic of such projects is that from a social viewpoint it is not sufficient that public benefits exceed public costs but rather to be viable as well private benefits must exceed private costs. Thus the decision to proceed requires both parties to be viable and requires a fair distribution of the economic rents.

This brings us to the fourth area of uncertainty created by both federal and provincial governments being involved. This most often arises where the provincial government owns the resource but the federal government controls its export or pays for development or disputes that ownership. The concern of the federal government is rather straightforward. If the economic rents accrue to the private sector group and produce extraordinary profits, then those are shared by the federal government through the corporate income tax. However, if the provincial government increases severance taxes or royalties to capture some of that economic rent, then the federal government loses the share of the rents that would be obtained from the tax on the private group because of the nontaxability of the economic rents in the hands of the provincial government. This is why the federal government felt forced to disallow royalties as a deduction for the corporate income tax. A better way needs to be found for this type of rent-sharing.

A modest proposal would be for the federal government to recognize provincial ownership of the resources (where appropriate) but require the provincial government to hold these resources in the form of a provincial crown corporation. The revenues of such a provincial crown corporation would then be subject to federal corporate tax, just as a private corporation, with the provision that those expenses appropriate to the husbanding and management of the resource are deductible. In this way the federal government would be indifferent as to whether the economic rent occurred in the private sector or the provincial sector and could withdraw from the direct interventions that are otherwise felt necessary.

This also works in the other direction. There are federal crown corporations operating in some provinces which if they were in private hands would generate provincial revenues through corporate income tax, property taxes, etc. In some cases the provinces now lose that revenue because of the form of organization, e.g. federal vs private corporation.

In addition, I would conjecture that if all federal and provincial crown corporations were subject to the same tax regimes as private corporations, there may be less willingness for governments to embark on creating such corporations in the first place.

Major projects can produce major benefits for all Canadians. The challenge is for the private sector to propose these projects, and to keep the pressure on governments to regulate

and decide on these projects. Governments need to improve the speed of their decision processes and to put in place appropriate structures for their ongoing regulation which reduce the uncertainties. Government also must develop trust with the private sector and in particular avoid the fear of ex post changes to the rules of the game.

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