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COUNCIL OF THE NORTHWEST TERRITORIES  
STANDING COMMITTEE ON DEVELOPMENT AND ECOLOGY

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18-54 (1975)

THE FINAL REPORT OF THE  
STANDING COMMITTEE ON  
DEVELOPMENT AND ECOLOGY

CHAIRMAN - TOM BUTTERS, WESTERN ARCTIC

MEMBERSHIP:

COUNCILLOR JOHN H. PARKER, YELLOWKNIFE  
COUNCILLOR JAMES RABESCA, GREAT SLAVE NORTH  
COUNCILLOR LYLE TRIMBLE, LOWER MACKENZIE  
COUNCILLOR LOUIS EDMOND HAMELIN, QUEBEC CITY

Mr. Commissioner, on January 28, 1972, during the 46th Session of Territorial Council a motion was passed approving the terms of reference for the Standing Committee on Development and Ecology. As this Session will see both the demise of the 7th Council of the Northwest Territories and all Standing Committees of this House, I wish to present to Council a document I have entitled "The Final Report of the Standing Committee on Development and Ecology."

Since the Standing Committee on Development and Ecology was established, Dr. Hamelin before me, and I subsequently, have endeavoured to provide Council with an ongoing summary of the Committee's projects and activities.

Committee members have consistently taken a balanced approach to development in the Northwest Territories, recognizing the special ecological concerns relative to the northern environment and stressing that development occurring in the North must be of demonstrable benefit to northern residents.

In previous reports of the Standing Committee you will recollect that our activities have ranged from support of the International Biological Program's proposal for the establishment, after consultation, of Ecological Sites in the Northwest Territories to an examination of the effects of the Pointed Mountain Gas Pipeline Project on Fort Liard residents. In all matters considered, I believe, we have reflected a strong territorial position predicated on the expectation that our evolution continues toward increased fiscal and political independence from the Federal Government; an evolution that will be especially affected by non-renewable resource development.

A development that could affect both present and future generations of the Northwest Territories is the Mackenzie Valley natural gas pipeline, should it be approved.

The 7th Council of the Northwest Territories has long been aware of the potential importance of this proposed development, especially in the Mackenzie District of the Northwest Territories, and as an expression of this concern, on February 2nd, 1973, adopted the following motion:

WHEREAS there are several proposals for construction of pipelines through the Mackenzie Valley;

AND WHEREAS there can be considerable economic and social benefit to all Mackenzie River and Western Arctic settlements, to the territories as a whole and to Canada resulting from the construction of these pipelines;

AND WHEREAS the present state of northern technology illustrated by the construction of Mackenzie Valley settlements, the Canol pipeline and road, the Dempster highway, the CNT land line and the research done by the Mackenzie Valley Pipeline Research Group, the Northwest Study Group, the Gas Arctic Study Group, and various other governmental and private industry research consultants indicate that pipelines can be built through the Mackenzie Valley with tolerable environmental disturbance;

AND WHEREAS the Federal Government has established guidelines requiring environmental protection, pollution control, Canadian participation and the employment of northern residents of any pipeline or related project;

NOW THEREFORE, I move that the Council of the Northwest Territories formally recommend and support the construction of a pipeline or a systems corridor development through the Mackenzie Valley provided there is:

- (a) optimum participation and involvement of the Government of the Northwest Territories and territorial residents in the planning, route selection, financing and policies pertaining to the construction and operation of the pipelines;
- (b) optimum employment of northerners during the planning, construction and operation of the pipelines;
- (c) provision for just and equitable compensation to any person or persons adversely affected as a direct result of the pipeline construction; and
- (d) adequate provision for the protection of the environment along the pipeline route with minimum disturbance to wildlife and persons living off the land.

The pipeline proposal has received the attention of the Standing Committee on Development and Ecology in previous reports. My report to the 51st Session of Council included a recommendation that material be obtained through the medium of holding hearings along the Mackenzie River System which would enable the Council of the

Northwest Territories to participate in the Mackenzie Valley Pipeline Inquiry being carried out by the Honourable Mr. Justice T. R. Berger. Council by motion on Friday, February 8, 1974, approved the Committee's recommendation. However, since the Berger Inquiry hearings are scheduled for March 3rd, 1975, this Council's participation is excluded. Therefore, Mr. Commissioner, this final report of the Standing Committee on Development and Ecology incorporates many of the objectives and attitudes expressed by members of this Council over the past four years of its life and, hopefully, will be of assistance to Justice Berger in his Inquiry.

If the natural gas pipeline project is approved, the pipeline must be constructed so as to provide maximum benefit to residents of the Northwest Territories. Criteria for such benefits should be defined in people terms; in improvements in the quality of northern life, in increased opportunities for individual achievement and fulfilment, not just in statements of profit and loss.

Furthermore, because of the strong inter-relationship between northern peoples and the land, very high priority should be given to any ongoing program of scientific assessment and research that will ensure the protection of our northern environment and the wildlife resources therein.

Because of the strong demand by native northerners for a settlement of land claims, a just and early settlement must occur and, in fact, should be seen as part of the planned process of northern development which will guarantee the participation of northern native people.

Development planning to be most effective, must include and involve the people most directly affected. Government and industrial planners must recognize this reality and respond positively. The decision-making must occur as close as possible to the point of program delivery.

This report examines some of the specific benefits that could result from the construction and operation of a pipeline in the Northwest Territories. Such benefits might, in fact, be considered as conditions under which territorial residents could whole-heartedly endorse a pipeline proposal; conditions, Mr. Commissioner, which would accelerate our political evolution through diminishing our financial dependence on the federal government.

#### NORTHERN DEVELOPMENT

Few northern voices are raised to condemn development out of hand. No one seriously suggests that any appreciable

number of young people now thronging Northwest Territories' schools will pursue their livelihood in the manner of their forefathers.

Concerns more frequently heard relate to social, economic and environmental impact considerations and take the form of conditions which northern residents would wish to see imposed on planners of large scale projects such as a pipeline. Obviously, few, if any, residents of the Northwest Territories would approve or support an exploitative development activity which returns nothing to the Territories but social dislocation and temporary affluence.

The approach to development, I suggest, welcomed by the majority of northern peoples must be a balanced approach; an approach respecting both the environment and the associated wildlife and one which recognizes, encourages and satisfies the aspirations and needs of residents of the Northwest Territories.

#### DIRECT BENEFITS FROM PIPELINE DEVELOPMENT

I now turn to an examination of the anticipated benefits, both direct and indirect, that could result from the construction and operation of a natural gas pipeline. Such benefits fall generally into the categories which I identify thusly:

- A. Taxation of the pipeline and facilities
- B. Royalties on natural gas



- C. Sale of leases
- D. Pipeline surcharge
- E. Economic rent
- F. Low cost natural gas to communities
- G. Assistance to northern business
- H. Employment preference
- I. Industrial growth

The main fiscal considerations dealt with in this Report relate to anticipated revenues associated with pipeline development that would accrue to the Government of the Northwest Territories, if we enjoyed full provincial status.

In terms of quantifiable increased fiscal autonomy for the Government of the Northwest Territories from the construction of the Mackenzie Valley Pipeline there are many areas to examine. The following analysis does not attempt to identify all revenue streams which will accrue to governments because of oil and gas activity in the Northwest Territories. Not enough is known about the precise nature and magnitude developments will take to be able to predict all revenue streams. For example, we do not know what multiplier effect industry expenditures on goods and services is likely to have on the Northwest Territories economy or how this effect will manifest itself in terms of government revenues.

I will, however, list some directly applicable revenue streams and will attempt to quantify some of them, including taxes on the pipeline and facilities, and royalties on natural gas. First, we will examine the situation as it exists today and then relate it to the situation that would apply if we enjoyed full provincial status.

### TAXATION OF THE PIPELINE AND FACILITIES

Territorial Government participation is identified by P.M. Manders, who while with the University of Toronto did an analysis for the federal government of governmental revenues which could result from a pipeline. He wrote, in part " .... *estimated total territorial revenues from a gas pipeline are roughly 1% of the estimated total federal revenues. This is explained in large part by the present limited taxing power of the northern territories*".<sup>1</sup> These revenues are primarily taxes on the property of the pipeline company and the producer.

Estimates of pipeline and right-of-way taxes can be derived from the Canadian Arctic Gas Pipeline Limited Application<sup>2</sup> and Commissioner's Order 181-74 of the Taxation Ordinance. With the assessment rate for a 48 inch pipeline at \$56,232 per mile and \$30,677 per mile for a 30 inch pipeline, the total assessment on the Northwest Territories' portion of the Mackenzie Valley Gas

Pipeline, based on 998 miles of 48 inch line and 15 miles of 30 inch line would be approximately \$56.5 million. Under existing legislation, with a mill rate established at 25 mills, the pipeline and right-of-way tax payable to the Territorial Government commencing in 1980 (assuming a completed line) would be approximately \$1.4 million per year. I should add that excepting for legislative or regulatory changes this is a constant tax with a built-in depreciation factor.

Pipeline facilities such as compressor stations, metering units, communication towers, together with warehouses, employee accommodations, vehicle shelters, etc., would be assessed at a percentage of their capital construction costs. Without any legislative or regulation changes, the 1980 assessment would be roughly 18.5%<sup>3</sup> of the escalated construction costs. Based on the phased introduction of the various facilities and utilizing a mill rate of 25 mills, the following property taxes would be payable to the Government of the Northwest Territories:

<u>YEAR</u>	<u>APPROXIMATE TAX ON PIPELINE FACILITIES</u>
1980	\$2.5 million
1981	\$4.6 million
1982	\$6.0 million
1983	\$7.5 million
1984	\$7.2 million

In the years following 1984 property taxes on the pipeline facilities will decrease by approximately \$.3 million per year because of re-assessments, but will level off once the assessment decreases to 50% of the original assessment. Coupled with the constant tax from the pipeline and right-of-way we are looking at continued income during the projected 20 year life of the pipeline.

Mackenzie Delta producers, while not in a position to provide actual figures at this time, have indicated that unescalated costs for the plants and gathering systems may be in the area of \$400 million. Applying an escalation factor of 1.4 to place the value in a comparative position to those of Canadian Arctic Gas Pipeline Limited, capital costs would reach \$560 million. If assessed at 18.5% of this value and with a mill rate of 25 mills, property taxes on the completed facilities would be in the area of \$2.5 million per year; all of which would be payable to the Government of the Northwest Territories.

Totalling the preceding figures for the pipeline, the pipeline facilities and plant and gathering systems, we see approximately \$6.7 million in property taxes alone accruing to the Government of the Northwest Territories in 1980, assumed to be the first operational year, and over \$11 million in 1984, the fourth year of operation.

## ROYALTIES ON NATURAL GAS

Under present federal oil and gas regulations for the Northwest Territories, the royalties which would accrue to the Federal Government are calculated at the rate of 5% of the well-head price for the first three years of production and 10% thereafter. Over the first ten year period, according to Manders, at a production rate of 2.25 billion cubic feet per day, these revenues, which would accrue to the Northwest Territories as owner of the resource, if we enjoyed full provincial status, would total over the first ten year period \$248 million assuming a well-head price of \$.32/mcf for the first 2 years, \$.34/mcf for the next 5 years, and \$.39/mcf for the final 3 years.<sup>4</sup>

It is interesting to consider the revenues that other jurisdictions having control over the disposition of their own natural gas resources would receive over a 10 year period for an equivalent volume of gas under the same price assumptions. For example, total royalties to the Government of Alberta, if the gas were being extracted from that province, would be \$605.3 million<sup>5</sup>; if from British Columbia royalties would total \$480.5 million<sup>6</sup>; or if extracted from Alaska, state revenue would amount to \$576.5 million<sup>7</sup>.

For the sake of clarification, let us assume a well-head price of \$.50/mcf. The value of well-head production would then be \$410,625,000 per year.

However, based on current trends even this projection is conservative. Oil companies are now forecasting that the price to the consumer will be higher than first expected. Following Imperial Oil's calculation as developed in their September 1974 submission to the National Energy Board<sup>8</sup> a more realistic well-head price at competitive energy costs might be closer to \$1.00/mcf. Assuming \$1.00/mcf gives a product well-head value of \$821,250,000 per year.

Should the projection be carried one step further as the oil industry has indicated as within reason, to a well-head price of \$1.50/mcf, then the annual well-head value would be \$1,231,875,000.

As suggested earlier, royalty revenue from Mackenzie Delta gas production could be significantly lower under existing rules and regulations than it would be if developed in other jurisdictions. The federal government is at present amending its oil and gas regulations and presumably will develop new royalty rates. Manders<sup>9</sup> estimates that they will be in the range of 12 1/2% to 15%. If the rates were 12 1/2% the ten year royalty figure derived above would increase to \$360.3 million but still remain substantially below the Alberta figure of \$605.3 million.

*addendum* Mr. Commissioner, I am sure my colleagues are even now mentally comparing the foregoing revenue projections with the

## ADDENDUM

However, as previously mentioned, should the well-head price be substantially higher than \$.50/mcf then royalty revenues will increase accordingly.

<u>WELL-HEAD PRICE</u>	<u>ROYALTY</u>	<u>FIRST YEAR REVENUE</u>
\$ .50/mcf	12 1/2%	\$ 51,328,000
\$ .50/mcf	15%	61,594,000
\$1.00/mcf	12 1/2%	102,656,000
\$1.00/mcf	15%	123,188,000
\$1.50/mcf	12 1/2%	153,984,000
\$1.50/mcf	15%	184,781,000

NOTE: All figures are based on a production rate of 2.25 billion cubic feet per day which is the estimated Delta portion of the 4.5 billion cubic feet per day which will move through the line.

1975/76 Budget items we have recently debated and approved, a budget totalling some \$164,000,000. Deducting recoveries and other sources of territorial income from this figure leaves only some \$124,000,000 in deficit financing required from federal sources.

The conclusion, inescapably, is that should the pipeline development proposal presently under consideration be approved, the resulting revenues would assure the Northwest Territories financial independence from Ottawa -- if we enjoyed full provincial status.

#### SALE OF LEASES

The federal government currently offers land in the Northwest Territories to companies wishing to carry on exploration programs for oil and gas through a lease arrangement.

Revenues realized by the federal government through the medium of land permits and leases for 1974-75 approached \$5 million.

I should add that in Canada the terms of our system of disposition are purposely generous in order to encourage exploration. Although this is a laudable objective it is argued by some that the terms are too liberal and result in the granting of rights to oil companies which extend for unreasonably long periods of time, ranging up to 53 years in some cases.



In the United States for example, a substantial amount of revenue is derived from the sale of leases at auction. Perhaps some system will be developed, whereby exploration could still be made attractive, but which would increase the revenue potential from land rights through a mechanism that would promote a turn-over of areas held under lease permit thus enabling government to regain control from time to time<sup>10</sup>. Such an arrangement might be seen as a potential alternative revenue stream for the future.

#### PIPELINE SURCHARGE

Another potential revenue source from petroleum development not currently under consideration is a tax or surcharge on the pipeline throughout. This tax in effect is passed on to consumers in the form of increased gas prices. Economists define such surcharges as a value added taxes and if implemented could result in a significant source of revenue for the owners of the non-renewable resource.

#### ECONOMIC RENT

Another potential source of revenue for the owner of a depleting non-renewable resource such as oil and gas involves the concept of economic rent.

Industry rightly deserves a reasonable rate of return for the capital investment required to develop a resource and the risk incurred in this effort. However, the resource itself is a gift of nature and as such belongs to the public. Since by definition non-renewable resources are finite, their value tends to increase as they are used up. As has been dramatically shown recently, the value of all petroleum resources has increased greatly due to relative scarcity.

To whom then should this additional value accrue? Economists call this value, economic rent, and many feel it should accrue to the public benefit. This principle has been advanced for some time by economic theorists, but few governments have tried to devise a practical way of applying it to increase revenues.

#### INDIRECT BENEFITS FROM PIPELINE DEVELOPMENT

To provide optimum benefits to northerners from pipeline construction and operation, several possibilities other than direct dollar revenue exist.

#### LOW COST GAS TO COMMUNITIES

One of the negotiated benefits to residents of the Mackenzie District of the Northwest Territories or of the Keewatin

District in the case of the proposed Polar Gas Pipeline would be to supply low cost natural gas to Mackenzie Valley and Keewatin communities.

## ASSISTANCE TO NORTHERN BUSINESS

### Goods and Services

The operator, his agent or contractor should also be required to ensure that the local capacity to supply goods and services during construction and operation of the pipeline is utilized to the maximum extent possible. Where a constraint exists preventing local suppliers from participating in pipeline activity, the operator should consider ways and means of alleviating that constraint. For example, where the constraint is lack of finance for extending inventories, the developer or his contractor might prepay part or all of their order to an individual supplier. Where the constraint is lack of logistical planning in comparison to southern suppliers, the developer or his contractor could provide advice and technical assistance to northern suppliers.

### Contracts

The operator should agree, where possible, to contract

the goods and services, necessary in construction and operation of the pipeline, rather than generate them internally and wherever possible break these contracts up into small units which could be more easily managed by northern contractors and suppliers<sup>11</sup>.

#### Technical and Managerial Assistance

The operator should, working with government, undertake to identify opportunities for northerners wishing to become involved in pipeline-related enterprises, and in conjunction with all levels of government encourage the establishment of these enterprises through the provision of technical and managerial assistance and/or minority equity financing, or through guaranteed contracts (competitively determined) for a given period of time.

Some opportunities<sup>12</sup> recently identified in the Territorial Governments report entitled, 'Entrepreneurial Opportunities Study which should be investigated include:

- (i) Establishing a prefabricated housing facility for the production of construction camps;

- (ii) Contracting for operations and maintenance related services;
- (iii) Construction and supply of pre-cast concrete river weights;

At the same time the Federal and Territorial Governments should greatly increase the amount and availability of concessional development financing for residents of the Northwest Territories. Native people should be fully informed of the extent of such assistance available to them and an all-out effort made to supply them with the managerial skills needed to utilize opportunities resulting from development activity. With such considerations operating in conjunction with the early settlement of native land claims, we believe the northern development will take on a new and challenging meaning.

#### EMPLOYMENT PREFERENCE

Mr. Commissioner, with respect to the employment opportunities that will accompany the construction and operation of the Mackenzie Valley Gas Pipeline, we believe that the operator should give residents of the Northwest Territories every opportunity

for employment and right of first refusal of employment before labour is sought outside. You will recall the recommendations regarding employment opportunities contained in the Report of the Board of Inquiry into Labour Standards and Labour Regulations in the Northwest Territories, tabled during the 49th Session of Council and discussed at some length by members of that House on that occasion.

The report was prepared under the Chairmanship of Dr. K.A. Pugh who, along with Mr. Reg Clarke and Mr. Roy Jamha appeared before this Council, at the request of Council members.

#### INDUSTRIAL GROWTH

Many northerners, whether they live in the Territories or in the northern reaches of the provinces, resent and resist any definition of development that suggests the irresponsible exploitation of the North's non-renewable resources by their fellow Canadians to the South.

Northerners, I suggest, would well understand and appreciate the intention of the Alberta government to use a portion of the revenues derived from primary industry, particularly the exploitation of non-renewable resources such as petroleum and natural gas, to encourage the growth of a healthy, self-perpetuating

economy based on thriving secondary and tertiary industries.

Residents of the Northwest Territories should be similarly concerned and give conceptual consideration to the feasibility of developing an industrial base for the Northwest Territories in the southern portion of the Mackenzie District.

This suggestion recognizes the reality of Canada's 21st Century and the fact that we are a Pacific power and as well enjoy a long-standing position in the Atlantic family of nations.

While transportation and communication links between the Mackenzie District and the South are for the most part with Edmonton, we must not lose sight of the fact that the Pacific Coast as the crow flies is only some 700 miles distant. This Council has constantly urged that improved transportation and communication links must be developed between the Yukon, northern British Columbia, and by extension, the Pacific Basin.

Pragmatically speaking, we recognize that Canada's increasingly urgent need for fossil fuels could preclude the setting up of a petro-chemical processing centre in the Northwest Territories. However, I suggest and recommend that this possibility should not be overlooked if approval is given to build a pipeline system that will carry fossil fuel to southern Canada through the Mackenzie River Valley.

Mr. Commissioner, this concludes the final report of the Standing Committee on Development and Ecology. On behalf of the members of this committee, John Parker, Jim Rabesca, Louis Hamelin and Lyle Trimble, and myself, may I say that we are pleased to have served as members of this Council's first Standing Committee on Development and Ecology. On behalf of Committee members and myself, I wish to express our thanks and appreciation to our very able Secretary Larry Elkin and his Research Officer, Bill Carpenter, who provided us with much valuable assistance and information.

During the past few minutes your generous patience and attention have permitted me to outline for you some of the benefits, both real and potential, that could accrue to the Government of the Northwest Territories if we enjoyed full provincial status.

IN SUMMARY, THEN, ANY PIPELINES CONSTRUCTED IN THE NORTHWEST TERRITORIES MUST DEVELOP BENEFITS DEFINED IN TERMS OF NORTHERN PEOPLES AND THEIR ENVIRONMENT, IN THE ENHANCEMENT OF THE QUALITY OF NORTHERN LIFE STYLES, AND IN REAL OPPORTUNITIES FOR INDIVIDUAL ACHIEVEMENT AND GROWTH.

A JUST AND EARLY NATIVE LAND CLAIMS SETTLEMENT MUST OCCUR IN THE NORTHWEST TERRITORIES AND SHOULD BE SEEN AS PART OF THE



PLANNED PROCESS OF NORTHERN DEVELOPMENT WHICH WILL ENSURE AND  
GUARANTEE THE PARTICIPATION OF NATIVE NORTHERNERS.

AND FINALLY, THROUGH UTILIZING REVENUES GENERATED  
FROM THE PROPOSED MACKENZIE VALLEY PIPELINE DEVELOPMENT, THE  
GOVERNMENT OF THE NORTHWEST TERRITORIES, IF WE ENJOYED FULL  
PROVINCIAL STATUS, COULD EXIST FISCALLY INDEPENDENT OF THE  
GOVERNMENT OF CANADA, WITHIN CONFEDERATION.

As Chairman of this Committee, I move receipt of  
this final report by the Commissioner in Council of the Northwest  
Territories.

*Tom Sullivan*

THE STANDING COMMITTEE ON  
DEVELOPMENT AND ECOLOGY.

DATED at YELLOWKNIFE, N.W.T.  
This 21<sup>st</sup> Day of January A.D.,  
1975.

## NOTES

1. P.M. Manders, An Evaluation of Federal and Territorial Revenue Streams Accruing from a Mackenzie Valley Gas Pipeline. Institute of Policy Analysis, University of Toronto, 1973, page 62.
2. Canadian Arctic Gas Pipeline Limited, Exhibits in Support of an Application of the National Energy Board of Canada for Certificate of Public Convenience and Necessity Authorizing the Construction of Pipeline Facilities, 1974, Section 10 and Section 11.
3. This is an approximated figure, but is based on the premise that as construction costs escalate, there will be a corresponding decrease in the percentage used for assessment purposes. CAGPL figures show an escalating factor of 1.4 or 40%. The percentage currently used for assessment is approximately 29% of the construction and therefore will decrease as costs escalate.
4. P.M. Manders quotes probable well-head prices of gas according to a schedule of: \$.32/mcf for first 2 years; \$.34/mcf for next 5 years; \$.39/mcf next 5 years; \$.44/mcf for next 5 years; and \$.49/mcf for next 5 years and claims it is taken from an advance sale agreement between Imperial and some U.S. gas companies for 10 trillion cubic feet of gas.
5. Average Alberta rates are now 21%, Peter H. Pearse, The Mackenzie Pipeline: Arctic Gas and Canadian Energy Policy, McClelland and Stewart, 1974, P. 90.
6. Average B.C. rates were 16-2/3%, Ibid., p. 89.
7. Average Alaska rates are 20%, Ibid., p. 90.
8. Imperial Oil Limited, Submission to the National Energy Board in the Matter of Determining the Supply and Deliverability of Canadian Natural Gas in Relation to Reasonably Forceable Requirements for Use in Canada and Potential for Export, 1974, Appendix I.

9. Manders, Op cit., p. 46.
10. There is a detailed discussion of this issue in the Mackenzie Pipeline Arctic Gas and Canadian Energy Policy, Pp. 91-97.
11. Pipeline Application Assessment Group: Mackenzie Valley Pipeline Assessment DINA, 1974, Pp 87-99.
12. Department of Economic Development, Entrepreneurial Opportunities Study, 1974 (unpublished).

## ACKNOWLEDGEMENTS

As Chairman of the Standing Committee on Development and Ecology, I wish to express my appreciation to Larry Elkin, Gord Rozen, John Munro, and Bill Carpenter for their administrative support and assistance in gathering material and data for use in our final report.

A special thank you is extended to Mr. Carpenter of the Program Policy and Planning Division of the Executive Secretariat, who as Acting Secretary to the Committee, provided the necessary co-ordination and assistance in preparing the various drafts of the final report.

Sincere thanks, also, to the typists who have so patiently assisted during the final stages of completing our report.