

which must be properly used. Water-users in the North must return waste water to the natural system in a satisfactory condition or they will lose their right to use the water. Finally, a year ago, the Territorial Lands Act was amended to give the Government a measure of control over the types and methods of exploration and production activities north of 60. The land-use regulations, which are to be promulgated under this Act, provide basic operating guidelines or stipulations which must be followed by all persons carrying out land-use operations on public lands in the Yukon and the Northwest Territories.

All these are important measures. They are based on the belief that northern development need not be incompatible with a healthy environment and that resource activity in the Arctic need not lead to a fowling of the air, land or waters. They show the Canadian people's determination to protect their northern heritage and to achieve in the future a more reasonable balance between the human and economic factors in the process of development. They denote the Government's conviction that if northern programs and policies are to be successful in the Seventies, they must be worked out in discussion with all interested parties - northern residents, territorial councils, industry, environmentalists and government representatives. This is the process which was followed with some measure of success during the last year in drafting the land-use regulations.

CONSTRUCTION OF PIPELINES

Our concern with the northern land and its values extends naturally into the construction and operation of large diameter pipelines. The land-use regulations, for example, will have an important bearing on any pipeline-construction project. The pipeline route might well be declared a land-management zone which would make it subject to the strictest of controls. The Government recognizes that it must be able to respond intelligently in the event that any proposal is put forward for such a line in the Canadian North. An interdepartmental task force on northern pipelines was established two years ago. This group advises the Government on standards of construction, on possible routes, on ecological impact and on the social and economic implications of any such construction. A gas-line and an oil-line may be much the same during construction, but once built there is a world of difference. A small break in an oil-line could have serious consequences affecting a wide area, but a gas-line carries significantly less risk of this kind.

I recently visited the experimental gas-pipeline station located at Sans Sault, near Norman Wells. I was impressed by the effort which the companies backing this project are making to ensure that they know exactly what they are doing before they submit an application to build a gas-line through the North. Pipeline companies will need all the information they can get because proposals will be vigorously exam-

ined. The guidelines which Mr. Greene and I issued last August, clearly impose an obligation on potential applicants to undertake the research needed to defend their proposals. This means that applicants must satisfy the Government that ecological implications have been fully taken into account and that sufficient consideration has been given to ways of involving northern residents in the building and maintenance of any pipeline.

FEDERAL ENVIRONMENTAL STUDIES

The environmental research being conducted by the Government is designed to assist in asking the right kind of questions and will also provide the Government with a basis for assessing the industry's answers. There are six main thrusts to our current environmental investigations.

(1) An aquatic environmental study to determine the baseline data of the ecological system and balance in the rivers....

(2) Additional hydrometric stations are being installed and will include water-quality and silt-content determinations. Together with the aquatic studies, these data will show where a pipeline might interfere with spawning beds and where it might lead to a breakdown and erosion of the bank of a stream or river....

(3) An extensive program of wildlife studies - in part an inventory to determine species, distribution and number of birds and animals in an area which might be proposed for a pipeline. These studies will attempt to determine what effect a pipeline would have on the wildlife populations....

(4) A detailed terrain-sensitivity study of the northern Yukon and the Mackenzie Valley. The purpose here is to try to determine which are the most sensitive areas and which are the least likely to be disturbed by pipeline construction and operation.... We hope to produce an environmental sensitivity map which companies can use in proposing routes which the Government can then consider in the light of sound data.

(5) Vegetation studies to determine the distribution of flora in the regions so that we can assess the effect of any proposed pipeline.

(6) We are conducting studies to determine the effects of land-use activities on the surface, their effect on the environment in general and the way in which various types of vehicles moving over different types of land affect the natural surface. Other studies include an investigation - on a small scale to begin with - on the manner in which oil-spills will affect vegetation and wildlife and ways of cleaning up spills should they occur.

SOCIAL EFFECTS

We are also deeply concerned with the social implications of pipeline construction. Such major undertakings have important consequences for the communities through which they pass and on the lives of