

The reasons for this situation are profound and deep-seated. I would like to run through a number of them.

First, it is well known that Canada invests only half as much as our major competitors in research and development.

Second, we have fewer than one-half the number of scientists and engineers in our workforce than the average of the industrialized countries.

Third, we have a low prevalence of industrial research and development. Indeed, only about 2 per cent to 3 per cent of firms which depend on technology for their futures actually do any R and D. The officers and senior management of many Canadian companies have no scientific background and lack familiarity with what science and technology can do for their companies.

Fourth, science education in Canadian schools is poor and Canadian students do poorly in international competitions.

Finally, rather than providing adequate vocational training for Canadian workers, we have a history of importing skilled workers.

In order to remedy this situation we require a strategy that is far-reaching and comprehensive. There have been suggestions over the past five or six years that what is required is a cultural change. We have to make the transition from a resource based culture to an R and D culture, a culture which values education and learning.

Obviously a cultural transition is something which cannot be accomplished overnight, but the depth of the transition that is required should not be an excuse for inaction. What is required is a quantum leap in the attitudes and actions of Canadians. It is not sufficient to tinker around with programs and departments. Certainly at the very least we should not be interfering with that which is working well.

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This brings me to the NRC. Government labs such as the NRC have been a sector in which for many decades Canadian investment in R and D has compared favourably with that of other countries. I want to stress "compared favourably". Government performance of R

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and D in Canada is about equal to that which is done in other countries. It is not excessive.

If it is proportionately higher to industry than it is in other countries, it is not because government is doing too much but because Canadian industry is doing too little. We do not get industry to do more by cutting government R and D, by cutting one of the few areas where we hold our own by international standards.

[*Translation*]

Mr. Speaker, since the Conservative government first came to power, government laboratories have been threatened by hasty and circumstantial analyses, budget cuts, uncertainty and red tape. The government now wants to reduce the National Research Council's involvement in basic research.

Mr. Speaker, this shows how deeply ignorant it is of the importance of basic research and of the National Research Council's mandate.

First of all, we know that basic research often leads to unexpected results and, to illustrate this, I would like to quote Professor John Polanyi, Canadian Nobel Prize winner:

Since technology needs science, there is a temptation to ask scientists to justify their projects by taking into account the value of resulting technology. By always looking for short-term benefits, we are dismissing scientific efforts— whose purpose is to answer fundamental questions and then to suggest totally new applications.

Mr. Speaker, when we stop doing basic research, we deny ourselves these new unexpected applications Professor Polanyi was referring to. And the situation is even more dramatic today because the time between a new discovery and its commercial applications is getting shorter.

Basic research is therefore essential if we want to keep up with the latest technological developments.

Mr. Speaker, the mandate of the National Research Council has always been to foster industrial research. This has always been an integral part of its programs. A good example would be the Industrial Research Assistance Program, IRAP for short. It happens to be one of the most important programs of the National Research Council and accounts for a major slice of the NRC budget.

A 1983 study revealed that a government investment of only \$150 million produced an economic fallout in