

April Ottawa announced the cancellation of the submarine programme and a cut of almost three billion dollars in the Defence budget, resources allocated to space research remained untouched.

The White Paper stated that research programmes had been authorized for investigating radar or infrared space systems which would allow the detection and tracking of aircraft and cruise missiles. These space systems would replace, some fifteen years in the future, the land-based radar stations of the North Warning System, which will become obsolete by the end of the century.

But the substantial policy statement regarding the military space programme is to be found in an internal document made public by DND in July 1987, a few weeks after the tabling of the White Paper. Here the military spells out specifically its technical and strategic requirements. It highlights the three main objectives of the programme:

- to allow Canada to meet its defence commitments, by using space technology when it is cost-efficient and appropriate to do so;
- to promote the use of space for peaceful purposes;
- to contribute to the Canadian economy.

The authors wrote that, "DND should realize that insufficient Canadian involvement in space activity might impose severe constraints on the range of future military options, to the possible detriment of Canadian security and sovereignty interests."

DND wants to go beyond its commitments to NATO and NORAD; by acquiring a space infrastructure, it could make the Canadian armed forces totally or partially independent. It is not a matter of having a Canadian armed presence in space, but rather of using space passively. In addition, the research and development branch at DND puts a lot of stock in the government policy which aims at providing Canadian business with economic spin-offs.

DND PLANS ARE VERY AMBITIOUS AND COVER A number of fields: surveillance, communications, navigation, search and rescue, meteorology, oceanography and mapping, and finally, manned space flights. In 1986-1987, the Department of National Defence released \$46 and \$48 million respectively for research related to space radar technology and millimetric rapid circuit technology. Those two research programmes, which will span five to seven years, will provide enough information to make possible a decision on the need to get involved in the areas on a long-term basis.

The purpose of the space radar programme is to develop an air, land, sea and underwater surveillance system. Its principal function will be to detect, track and identify aircraft and cruise missiles approaching North America. It will be linked to a combat management system for the interception and destruction of such intruders - activities which would take place

within the structure of NORAD. The radars will also be used for Arctic surveillance.

DND knows that it will be impossible to develop an independent space radar network, because of the high costs involved. According to the Pentagon, a world network could cost between six and ten billion US dollars. The Canadian military is hoping, therefore, to contribute to the deployment of the segment that will cover North America, by providing ten to fifteen percent of the costs of a US programme.

The millimetric wave communications programme is also of great importance to the military. From DND's point of view, a reliable, efficient and independent communications network is vital, in order to ensure contact between Canadian Forces units around the world, notably in Cyprus, Europe and the Middle East. At present, DND must lease lines going via satellites such as the ANIK C (and soon, E) series. Unlike the US military, it does not have satellites of its own. Finally, the military are involved in many other programmes, such as the complete modernization of the entire Canadian Forces communications network, access to the US network NAVSTAR/GPS (Global Positioning System), the search and rescue SARSAT system, the development of security measures for ANIK E satellites, and so on.

Also unlike its US counterpart, DND does not have a unified space command. The Directorate of Space Doctrine and Operations was disbanded last summer, and there is no equivalent to the civilian Space Agency to coordinate military space policy. DND will no doubt have to adopt such a structure within a few years.

MOST EXPERTS AGREE THAT AT THE PRESENT rate, the military space budget could soon exceed \$150 million per year, even taking into account the fact that Canada does not build its own surveillance, communications, and navigation satellites. If DND gets the go-ahead for its projects, that budget could easily reach \$400 million a year by the turn of the century.

Except for ongoing discussions at the Interministerial Space Committee, where all government participants in space activities get together, there are few links between the civilian programme and its military counterpart. However, two questions come to mind when looking to the future: will we see a militariza-

tion of the civilian programme, as is the case in the United States? Will our cooperation with our powerful neighbour carry us along in that direction? The National Aeronautic and Space Administration (NASA - the US civilian space agency) budget is limited to US \$10 billion, while that for military space activities approaches \$15 billion. The same cannot be said yet for Canada, but ten years or so from now, the slowing down of the civilian programme and the launching of a strong military programme could lead to a Canadian space policy with a similar bias in favour of the military.

The US and Canada are collaborating on

both government and private levels. In the first instance, Canada is bound to the US by a number of military and technical agreements related to NORAD, military communications and navigation systems, and the space station. During

the negotiations on the station, which led to last year's agreement; it was decided that the station would be built for peaceful purposes, despite objections from the Pentagon that it did not want to exclude any military option. The agreement, however, does not specify which military activities are forbidden. Moreover, the American can do as they please in a large part of the station, since they own seventy

percent of it. Some experts maintain that the America's partners could well be presented with a *fait accompli* once the station becomes fully operational and is being used for significant military activities.

As for the private sector, Canada's space industry exports seventy percent of its production which ends up being integrated in a myriad of American products, both civil and military. If Canada launches its military space programme, or, more simply, if cooperation between the United States and Canada intensifies, our country's industries could well find themselves more and more associated with military ventures.

There are still a few years left before Canada is confronted with vital choices related to its space policy. The new Space Agency will, within the next year, define its objectives for the beginning of the next century. This would seem to indicate that an energetic civilian programme will be pursued. The country, however, will not be able to neglect its military requirements for long, and apportioning resources between the two programmes will involve some difficult choices. The time for making decisions is almost at hand. □

