

needed for the IGBP. In its present revised configuration, the radar sensor (SAR) will provide data on ice coverage and dynamics in polar regions; ocean dynamics; geological information; data on soil moisture and changes in water bodies; and vegetation dynamics on land.

Another sensor, which was part of the original RADARSAT design, is an advanced very high resolution radiometer (AVHRR), a multispectral scanner operating in the visible and infrared bands. The AVHRR would provide global information on vegetation dynamics, including data on soil moisture and crop conditions, and sea surface temperatures. Inclusion of this additional sensor would increase the cost of RADARSAT by \$12 million.

The Committee believes that the Global Change Project is an important initiative and Canada's active involvement is both appropriate and desirable.

### Recommendation 11

**The Committee recommends that studies be undertaken, or supported, by the Federal Government to determine how the RADARSAT project, either in its revised form or in an appropriately expanded form, could be used as part of the International Geosphere-Biosphere Programme (the Global Change Project), as adopted by the International Council of Scientific Unions.**

## C. Program Budget

In 1985/86, the estimated expenditures in the Canadian Space Program were \$158 million. Space Program expenditures for the five-year period 1986/87 to 1990/91 are, in \$ million (1986 \$):

<u>1986/87</u>	<u>1987/88</u>	<u>1988/89</u>	<u>1989/90</u>	<u>1990/91</u>
148	160	170	166	180

The Federal Government's annual investment in space activities has been, and is, surprisingly small, but it is an investment that has paid handsome dividends. Space technologies have been successfully transferred to Canadian private industry. Canada is unique in the world in that the value of our industrial exports of space products and services, now some \$200 million per year, exceeds by a large margin the government's total annual expenditures on the Space Program.

It is an acknowledged fact that Canada's total investment in Science and Technology is lower than it should be for this country to remain competitive in the international marketplace and, arguably, to retain our status in the world's science community. The Committee is persuaded, based on the evidence that we have received, that the Federal Government's investment in space is presently too low to achieve an optimal return on those dollars that are committed to the program. Canada presently stands eighth in the world in space expenditures as a percentage of Gross National Product, just behind the Netherlands and just ahead of the United Kingdom. The leading actors in space in the Western World are the United States and France, each of whom spends far more on space, proportional to Gross National Product, than does Canada.