

## 4.0 ASIA/PACIFIC RIM

### 4.1 JAPAN

**J**apan is the world's second largest industrial economy after the United States. Its 1988 GDP was some US \$2,500 billion, and its per capita GDP (population 123 million) exceeded that of the USA. In 1989, Japan's per capita income rose to become the highest in the world. The world's 10 largest banks are now Japanese. ● ●

Japan spends about 2.8% of its GDP on R&D. Some 80% of national R&D expenditures are financed by the private sector, the highest ratio of the industrialized nations.

#### TECHNOLOGY TRENDS

A 1986 Cabinet decision established the General Guidelines for Science and Technology Policy in Japan. These guidelines include the following areas of concentration;

- basic sciences and fundamental technologies which impact progress in other fields (advanced materials, information technologies, life sciences, software, space, ocean and earth sciences)
- science and technology which stimulates economic growth (natural resources, energy, recycling, production and distribution systems, service to society)
- science and technology which improves the quality of life (mental/physical health, culture, human, environment, safety and comfort).

The three major S&T funding agencies of government are the Ministry of Education, Science & Culture (\$6.7 billion), the Science & Technology Agency (STA) (\$3.8 billion) and the Ministry of International Trade and Industry (MITI) (\$1.8 billion), which in general fund basic, respectively applied and product development research.

National technology thrusts are normally promulgated via "National" or "Large-Scale" projects in which the government funds a substantial amount (See "Key Organizations"). The basic thrust of Japan's current strategy in S&T is to move upstream into basic research which will provide the foundation of Japan's future technologies. Basic research accounted for 14% of Japan's R&D expenditures in 1987, while applied research accounted for 24.3%, and experimental development 61.7%.

Internationalization is another pillar of Japan's S&T strategy. In the past few years a number of major programs have been initiated by Japan (see "Key Support Programs").