22. India

India has one of the world's most ambitious space programmes, aiming to develop independent strategic capabilities, high technologies and a skilled Indian workforce. In 2010, the budget estimate of the Indian Space Research Organization (ISRO) reached a high of 57.78 billion Indian rupees (INR) (USD 1.24 billion), a 38% increase over 2009 (Figure 22.1). This rapid progression is in line with the five-year plan for the Indian space programme, which is expected to total INR 220 billion (USD 4.7 billion) over the 2007-12 period (Figure 22.2). ISRO has 14 782 employees (19.34% women) distributed between the different ISRO centres (Figure 22.3). The main Indian launch facility is the Satish Dhawan Space Centre, Sriharikota, which is also a major ISRO centre. Antrix, the commercial division of the Indian space agency, generates an annual turnover of USD 200 million by selling transponder leases on Indian telecommunications satellites, remote sensing data imagery (*i.e.* 20% of the global satellite imaging business), ground station services, satellite launches and exports of satellite components and other products. In July 2010, India launched commercially its 25th foreign satellite into orbit. The rising technological and manufacturing capabilities of the Indian aerospace industry, which now cover all segments in the industry (*e.g.* civil and military aviation, missiles) contribute to a larger share of commercial activities in the Indian space sector. Nearly 500 Indian companies take part in the national space programme, undertaking some 70% of the work on developing current launch vehicles, while in general 25% of the work on satellites is contracted out to industries. Aerospace companies can be found throughout India, with main clusters located in Bangalore, Hyderabad, Thiruvananthapuram and Sriharikota. Some benefit from the Special Economic Zones (SEZs) format with fiscal advantages to facilitate foreign direct investments.The number and diversity of Indian space missions keeps increasing: from 26 missions in 2002-07 to more than 50 in the 2007-12 period. India has one the largest domestic communication satellite systems, with eleven satellites providing a variety of communication services, including television coverage to some 90% of the population, with extensive use of telemedicine and tele-education in rural areas (see Chapter IV for examples). India has one spaceport with two independent launch pads and a fleet of ten optical and radar remote-sensing satellites. After sending a successful space exploration probe to the moon in 2008, India is investing into human spaceflight capabilities to develop its own astronaut programme.

Methodological notes

The budget figures use the Indian rupee (INR) as currency. In official Indian documents, the Rupee amounts are often given in Crores, a unit which corresponds to INR 10 million.

Sources

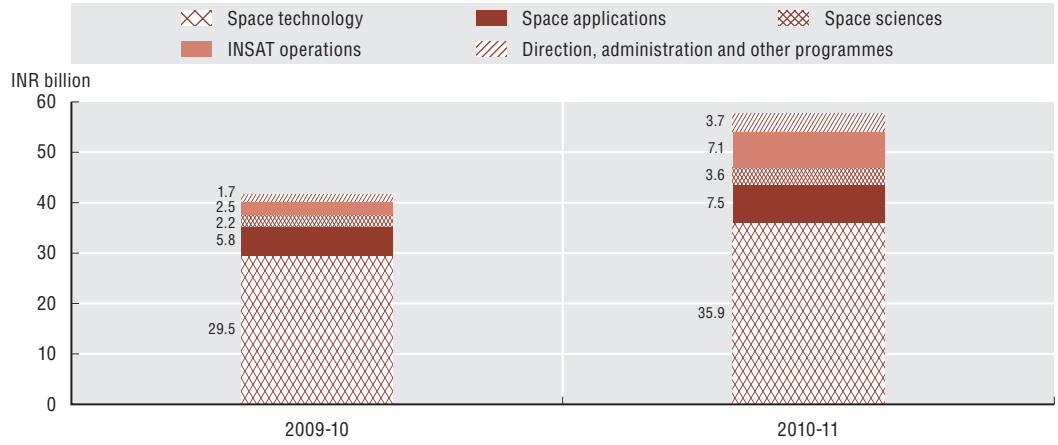
Indian Space Research Organization (ISRO) (2010), *Annual Report 2009-2010*.

Planning Commission of India (2010), *Five Year Plan (2007-2012)*, and previous, *http://planningcommission.gov.in*.

Note

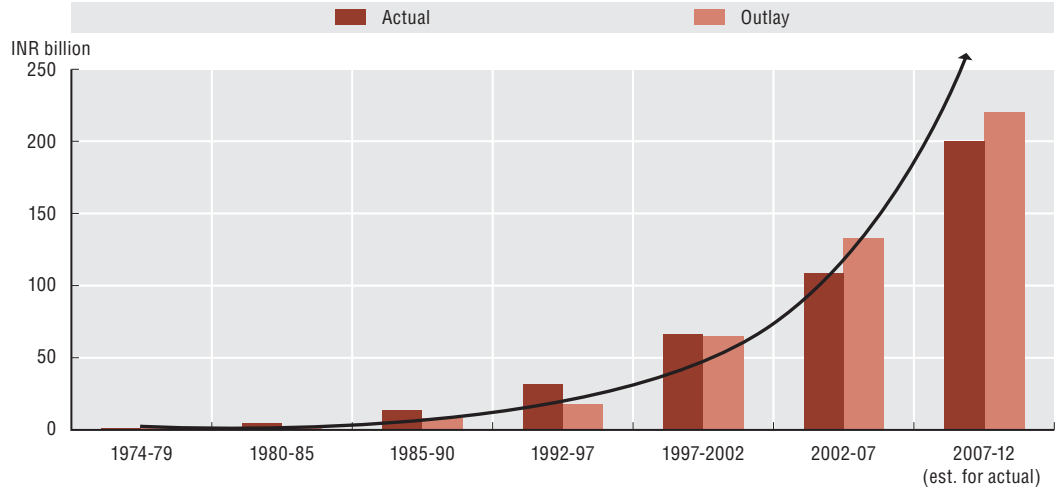
22.1: 2010-11 estimates.

22.1 India's space budget in 2010-11



Source: ISRO (2010).

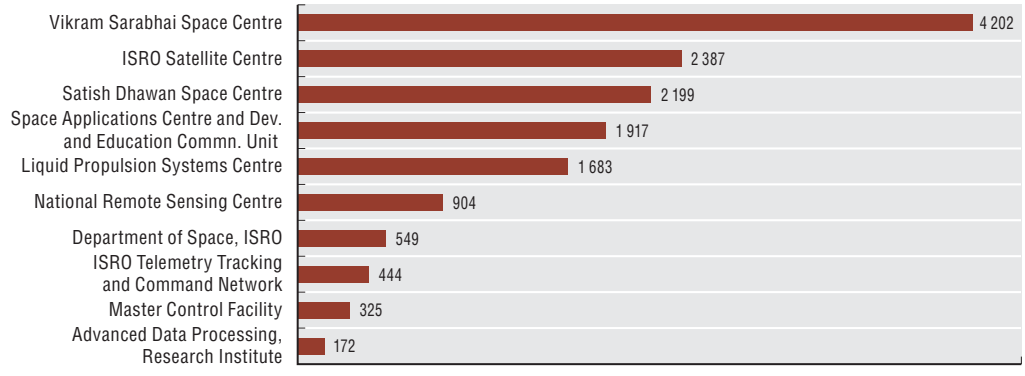
22.2 India's 5-year budget plans for space (from 1974 to 2012)



Source: Planning Commission of India (2010).

22.3 Employment in ISRO in 2010

Number of employees (total: 14 782 employees)



Source: ISRO (2010).