

Benefit of Research

653. SHRI RAHUL BAJAJ:

SHRI RAJKUMAR DHOOT:

Will the Minister of SCIENCE AND TECHNOLOG be pleased to state:

(a) the cost-benefit of Government funded research in our country over the last ten years; and

(b) the benefits in terms of royalty, technology sale, value of production, patents received impact factor of publications etc.?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI PRITHVIRAJ CHAVAN): (a) Over the years, the Government funding has not only helped in building the desired infrastructure and capacity for undertaking cutting edge R&D but also helped in developing several technologies. Many of the technologies developed have been commercially exploited. The effort in totality has made the country self-reliant in several domains of economic importance. Today, Indian S&T prowess is recognized globally. A glimpse of efforts by some of the Government funded R&D agencies is given in the Statement (See below).

(b) Figures on patents (filed and granted), research papers published, royalty received and cumulative value of production by scientific agencies is as below:

Patents		Foreign**		Papers+	
Indian*					
Filed	Granted	Filed	Granted	Number	Impact Factor
28379	8380	4517	1712	639026	1.02 to 2.5
* 1998-99 to 2006-07		** 1997-98 to 2006-07		+ 1996 to 2005	

Estimated cumulative production value

of technologies
(1998-99 to 2007-08) - Rs. 66,600 crore

Royalty earned
(1998-99 to 2007 -08) - Rs. 3,125 crore

Statement

Glimpse of R&D efforts by some of the Government funded S&T Organizations

Department of Scientific and Industrial Research (DSIR)

DSIR has supported over 200 projects of industry and R&D institutions for development of state-of-the-art products/processes, involving a grant of about Rs. 75 crore, which leveraged an equivalent amount of investment by industry.

National Research Development Corporation (NRDC), a public sector enterprise of DSIR licensed 347 technologies developed by public funded institutions to industry, leading to commercialization of products/processes such as Liposomal Amphotericin-B, foot and mouth disease vaccine and organic coated fruits and vegetables for prolonged shelf life.

Council of Scientific and Industrial Research (CSIR)

CSIR, an autonomous organization under DSIR, functions through its 37 state-of-the-art laboratories. The Council is well recognized for its knowledgebase. CSIR has partnered with more than 5000 industries in India and abroad for R&D collaboration and transfer of technologies leading to development of many processes and technologies in the domain of aerospace, agrotechnologies, biological sciences, catalysts, chemicals & petrochemicals, drugs & Pharmaceuticals, ecology & environment, electronics & instrumentation, energy, engineering products, food & food processing, housing, leather, mining, minerals & materials, etc. CSIR maintains an impressive-patent portfolio. The organization among many other contributions made, has prepared a genetic map of disease risk & adverse drug reaction, introducing environmentally friendly technology for bioprocessing of leather and preparing the assessment report of UN Intergovernmental Panel on Climate Change which won the Nobel Prize for Peace.

Indian Council of Agriculture Research (ICAR)

ICAR has developed a number of agriculture related technologies through its institutes.

Indian Council of Medical Research (ICMR)

ICMR promoted biomedical research through its 21 permanent research centres and 6 regional-centres and developed tests for diagnosis of hepatitis A and E and a major vaccine for leprosy among others, besides making significant contributions to strategies for community based mental health care.

Department of Bio-Technology (DBT)

DBT provided support of about Rs. 222 crore for development of 234 technologies. Ninety four technologies have been transferred to industry and 17 have been commercialized.

Department of Science and Technology (DST)

DST through Technology Development Board (TDB) provided a loan (@ 5% interest) of Rs. 225 crore for commercialization of 60 technologies developed through government funding.

Ministry of Earth Sciences (MoES)

MoES provided the nation with best possible services in forecasting the monsoons and other weather/climate parameters, ocean state, earthquakes, tsunamis and other phenomena related to earth systems through its well integrated programmes.

Department of Space

Department of Space through its space research and application programmes benefited the country directly through better water management, issuing advisories on potential fishing zones for fishermen, estimating crop areas and yields, assessing deforestation, mapping urban areas for

planning purposes, identifying wastelands for developments, monitoring natural resources and environment, mapping of cyclone and flood affected areas including cyclone prediction and warning, rural area communication and broadcasting. Around 289 technologies developed for space programmes were licensed to Indian industries for commercial exploitation.

Department of Atomic Energy

Department of Atomic Energy's R&D led to development of technology for three stage nuclear power programme in the country viz., pressurized heavy water reactors, fast breeder reactors and thorium based reactors, besides other large scale benefits to society in the areas of agriculture (oil seeds and pulses), health (cancer) and water (desalination).

Defence Research and Development Organization (DRDO)

DRDO developed a number of systems and technologies for missiles, aeronautics, radars, communication, electronic warfare, armaments and combat vehicles, which have not only made the country self reliant in the area of military technology, but have also yielded spin offs in the civilian sector.

Ministry of Communication and Information Technology

Department of Telecommunication developed indigenous technologies like fixed line switching, intelligent network and asynchronous transfer mode satellite communication for the benefit of nation in rural, strategic and security sectors.

Ministry of New and Renewable Energy (MNRE)

MNRE's R&D efforts resulted in development of solar concentrator technologies for steam generation and national standards for testing of solar flat plate collectors and SPV systems.

Ministry of Environment and Forests (MoEF)

MoEF is the Nodal agency in the country for the United Nations Environment Programme (UNEP). It was engaged in conservation & survey of flora, fauna, forests and wildlife, prevention & control of pollution, afforestation & regeneration of degraded areas besides protection of environment.

Science Parks

654. SHRI N.R. GOVINDARAJAR: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether Government is providing central assistance to State Governments for setting up of science parks in the States;

(b) if so, the details thereof, park-wise and State-wise; and

(c) whether new science parks are also proposed to be set up during the current year including Tamil Nadu?

THE MINISTER OF STATE OF THE MINISTRY OF SCIENCE AND TECHNOLOGY (PRITHVIRAJ CHAVAN): (a) No, Sir.

(b) and (c) Do not arise.