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DEPARTMENT OF SCIENCE AND TECHNOLOGY
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FOREWORD

Financial and human resources directed towards Research and Development (R&D) represent principal "Inputs" to R&D and are used as indicators of the status of R&D effort in any country. The Department of Science & Technology (DST) has been undertaking biennial National Surveys since 1973-74 to collect valuable statistics on these resources deployed on R&D activities in India. Based on the data thus collected, a number of analytical reports are being published by the Department. While collecting the data, the UNESCO recommendations on science and technology are adopted so that the data are comparable with other countries.

The present report is based on the survey conducted during 2005-06. DST has strived to gather data from a large number of scientific agencies, research laboratories, socio-economic ministries/ departments, public and private sector industries including multi-national companies. The report presents analysis on a number of parameters based on data drawn both from primary and secondary sources. It includes several cross tabulations on financial and manpower resources deployed for R&D by sector/ objectives/fields of science/industry groups/qualification/nature of activity/gender/emoluments, etc. Data mining and data reduction have considerable challenges. There are some inescapable situations in which data estimations are unavoidable. Under such circumstances proven statistical methods of estimations have been used to bridge the gap.

The planning and execution of the National Survey, data compilation, data analysis and preparation of this exhaustive publication has been completely done in-house by the team comprising Dr. Laxman Prasad, Shri Rakesh Chetal, Shri Parveen Arora, Mrs. Namita Gupta, Dr. A.N. Rai and others.

The Department is thankful to all the scientific agencies/departments and in-house R&D labs for their cooperation in providing valuable data without which this publication would not have been possible at all. We would welcome constructive suggestions/comments for enrichment of this publication.

T. Ramasami

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HIGHLIGHTS

- The national investment on R&D activities attained a level of Rs. 28776.65 crores in 2005-06. The same is estimated to be Rs. 32941.64 crores in 2006-07 and Rs. 37777.90 crores in 2007-08.
- 0.89% of Gross National Product was devoted to R&D during 2005-06.
- Sector-wise percentage share of national expenditure during 2005-06 was Central Government 57.5%, State Governments 7.7%. Higher Education 4.4%, Public Sector Industries 4.5% and Private Sector Industries 25.9%.
- In the Institutional Sector, excluding Higher Education Sector, about 26.0% of the total expenditure was spent on basic research, 36.3% on applied research, 31.8% on experimental development and rest 5.9% on supporting activities.
- 74.1% of the total R&D expenditure was met from government sources and 25.9% came from private sources.
- 86.0% of the R&D expenditure incurred by Central Government sources came from 12 major scientific agencies - CSIR, DRDO, DAE, DBT, DST, DOS, MES, ICAR, ICMR, MCIT, MREs, MOEn and the rest came from other Central Ministries/Departments/Public Sector Industries. Amongst the major scientific agencies, DRDO accounted for 34.4% of the expenditure.
- State Sector spent Rs. 2227.42 crores on R&D activities during 2005-06. About 91.5% of the total investment on R&D activities by State Sector was on development of agriculture and allied areas. R&D institutions located in the States of Maharashtra, Karnataka, Gujarat and Punjab incurred more than one third of total State Sector R&D expenditure.
- Industrial Sector spent Rs. 8748.47 crores on R&D activities during 2005-06. The number of R&D units involved was 1293 in Private Sector and 112 in the Public/Joint Sector besides 350 Scientific and Industrial Research Organisations (SIRO).
- Industrial Sector devoted 0.55% of their sales turnover on R&D in 2005-06.
- The extramural R&D support increased from Rs. 447.62 crores in 2003.04 to Rs. 570.50 crores in 2004-05 and further to Rs. 1163.80 crores during 2005-06. The Department of Science & Technology (DST) has played a major role in extramural R&D funding.
- Academic Sector received 50.0% of the total extramural R&D support during 2005-06.
- The Plan outlay of six scientific agencies has tripled from Rs. 25301.35 crores in Tenth Plan to Rs. 75304.00 crores in Eleventh Plan.
- India's per capita R&D expenditure was Rs. 260.20 (US$ 5.90) during 2005-06.
- As on 1st April, 2005, nearly 3.91 lakhs personnel were employed in the R&D establishments in the country including in-house R&D units of Public and Private Sector industries. 39.6% were performing R&D activities, 27.0% were performing auxiliary activities and rest 33.4% were providing administrative and non-technical support.
- There were 19707 women directly engaged in R&D activities.
- India had 140 researchers per million population during 2005.
- Doctorates in science form 66.8% of the total 8420 S&T doctorates produced by the educational system in the country during 2005-06.
- 7539 patents were sealed in the year 2006-07. Out of which 1907 patents were sealed by Indians. The maximum numbers of patents filed by Indians were from the State of Delhi & Maharashtra with a percentage share of 54.9%. United States of America topped the list of applications for patents filed in India by foreign countries with a share of 35.5%.
- There were 358 Universities/Deemed Universities, 13 institutes of national importance and 20677 colleges during 2006-07 imparting higher education in the country.

CONTENTS

Government of India
Department of Science & Technology
(National Science & Technology Management Information System Division)

Call for Research Proposals under the NSTMIS Programme

Introduction: The National Science & Technology Management Information System (NSTMIS) division of the Department of Science & Technology (DST) is the nodal agency for collection, analysis and dissemination of vital S&T information at the national level.

The Scheme: The division sponsors research projects/studies to interested investigators/organizations under the NSTMIS Scheme. The broader areas where studies could be taken up in the sponsored mode are **S&T manpower, S&T investment, S&T infrastructure, S&T output, S&T databases, R&D productivity/efficiency** etc.

Some of the sub-areas in which the research proposal/studies could be submitted are given as below:

1. Quantification of resources devoted for R&D activities in the Higher Education sector.
2. Barriers to generation, diffusion and commercialization of R&D.
3. Impact studies in the field of S&T.
4. Manpower studies in the emerging S&T areas.
5. Development of Innovation Indicators.
6. Classification of R&D Institutions by Broad Research areas.
7. Classification of Extramural R&D projects by sub-areas.
8. Gender related studies in the field of S&T.
9. Industry, Academic and Institution Linkages.
10. R&D Manpower Profile.
11. Scientometric studies in S&T areas.
12. R&D Output Indicators
13. Quantification of R&D in Social Sciences
14. Measuring S&T input and output
15. Utilization pattern of Govt. Patents
16. Studies on growth of various S&T areas and need assessment of future professions
17. Linkages between Industry, Technology and S&T policies
18. Out-turn of S&T personnel
19. Development of Science Citation Index data base for India
20. Success Stories of Indian Industries

Who can Apply: Scientists, Technologists, Statisticians, Economists, Sociologists, Development/Planning/Policy Experts, Management Specialists etc. from academic/research institutions, registered societies, and consultants may submit their proposals in a prescribed format.

Approval Mechanism: Proposals are screened first by NSTMIS and then referred to the Programme Advisory Committee for technical evaluation before final approval.

The guidelines for formulating/submission of projects can be downloaded from the NSTMIS website www.nstmis-dst.org. The proposals may be sent to:

Head (NSTMIS)
Department of Science and Technology
Technology Bhawan, New Mehrauli Road
New Delhi-110 016

For any other clarification, please contact
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