

## Funding Agencies

Various national and international agencies have identified priority areas for funding of collaborative research. The proposals submitted to the funding agencies need to be original and address the research areas prioritized by an agency. There are certain important considerations which need to be followed by a researcher for successful international collaboration viz. presentation of the proposal, justification for foreign collaboration, technology transfer, capacity building, ethical and IPR issues, transfer of human biological material, etc. As a condition of grant support, institutions in receipt of funds are responsible for ensuring that the investigator fully complies with the requirements for the storage, use and transfer of biological materials and any additional provisions to safeguard security that are specified in regulations. Parent institutions of the investigators are also required to accept responsibility for the management, monitoring and control of research work funded by international grants and for ensuring that permanent/temporary staff and students employed to undertake such work receive appropriate training. Some of the leading Indian funding agencies are as mentioned below.

### 3.1 Department of Biotechnology (DBT)

The setting up of a separate Department of Biotechnology (DBT), under the Ministry of Science and Technology in 1986 gave a new impetus to the development of the field of modern biology and biotechnology in India. Since its inception, the Department has promoted and accelerated the pace of development of biotechnology in the country through several R&D projects, demonstrations and creation of infrastructural facilities, a clearly visible impact in this field has been seen. The Department has made significant achievements in the growth and application of biotechnology in the broad areas of agriculture, health care, animal sciences, environment and industry.

There has been close interaction with the State Governments particularly through State S&T Councils for developing biotechnology application projects, demonstration of proven technologies, and training of human resource in States and Union Territories. A unique feature of the Department has been the deep involvement of the scientific community of the country through a number of technical task forces, advisory committees and individual experts in identification, formulation, implementation and monitoring of various programmes and activities.

In India, years of concerted effort in research and development in identified areas of modern biology and biotechnology have given rich dividends. The proven technologies at the laboratory level have been scaled up and demonstrated in field. Patenting of innovations, technology transfer to industries and close interaction with them have given a new direction to biotechnology

research. Initiatives have been taken to promote transgenic research in plants with emphasis on pest and disease resistance, nutritional quality, silk-worm genome analysis, molecular biology of human genetic disorders, brain research, plant genome research, development, validation and commercialization of diagnostic kits and vaccines for communicable diseases, food biotechnology, biodiversity conservation and bio-prospecting, setting up of micro-propagation parks and biotechnology based development for SC/ST, rural areas, women and for different States.

Necessary guidelines for transgenic plants, recombinant vaccines and drugs have also been evolved. A strong base of indigenous capabilities has been created. The field of biotechnology both for new innovations and applications would form a major research and commercial endeavor for socio-economic development in the next millennium.

### **3.2 Department of Science and Technology (DST)**

The Department of Science & Technology (DST) was established in May 1971, with the objective of promoting new areas of Science & Technology and to play the role of a nodal department for organising, coordinating and promoting S&T activities in the country under the Ministry of Science & Technology. The Department has major responsibilities for specific projects and programmes such as formulation of policies relating to science and technology; matters relating to Scientific Advisory Committee of Cabinet (SACC) and promotion of new areas of S&T with special emphasis on emerging areas; coordination and integration of areas of Science and Technology having cross -sectoral linkages in which a number of institutions and departments that have interests and capabilities. It undertakes or financially sponsors scientific and technological surveys, research design and development; wherever necessary, while providing support and grants-in-aid to the scientific research institutions, scientific association or bodies. It plays a key role in matters regarding the interagency/ interdepartmental coordination for evolving science and technology missions, matters concerning domestic technology particularly the promotion of ventures involving the commercialization of such technology other than Council of Scientific and Industrial Research (CSIR).

It also adapts measures for promotion of science and technology and their application to the development and security of the nation as also capacity building including establishment of new institutions/ infrastructure. It assists in harnessing and application of science and technology for weaker sections, women and other disadvantaged sections of the society.

The DST supports Science & Technology entrepreneurship development for promotion of knowledge based technology driven entrepreneurs, management of information systems for Science & Technology, scientific surveys and services through Survey of India and National Atlas and Thematic Mapping Organisation (NATMO) and provides meteorological services through India Meteorological Department (IMD) and National Centre for Medium Range Weather Forecasting.

The Department has wide ranging activities ranging from promoting high end basic research and development of cutting edge technologies on one hand to service the technological requirements of the common man through development of appropriate skills and technologies on the other. The Department supports research through a wide variety of schemes specifically carved out to meet the requirements of different sections of the scientific and engineering community.

### **3.3 Defence Research and Development Organisation (DRDO)**

The Defence Research and Development Organisation under the Ministry of Defence is dedicatedly engaged in the formulation and execution of programmes of scientific research, design and development, testing and evaluation leading to induction of state-of-art weapons and equipment which would compete and compare favorably with its contemporary systems available elsewhere in the world. It consists of a chain of laboratories/establishments situated all over the country, pursuing assigned scientific goals with delegated powers under the policy direction provided by the headquarters in New Delhi. The DRDO also supports a substantial amount of extramural research in academic institutions and other laboratories on defence related problems through various grants-in-aid schemes and other sponsored projects. The organization encourages and supports basic research in academic institutions through a scheme of extramural research and four Research Boards devoted to Aeronautics, Naval Research, Life Sciences, and Armaments.

The purpose of Life Sciences Research Board (LSRB) is to expand and deepen the knowledge-base of life sciences in the country through strengthening and use of national resources of knowledge, know-how, experience, facilities and infrastructure. The research supported by the LSRB is to enhance the core competence in the fields of knowledge (and their application) germane to development, manufacture and use of biomedical and biotechnological products as also preventive and curative procedures. The LSRB endeavors to create conditions suitable for attracting talent and experience from overseas locations through research collaborations and other academic exchanges. Accordingly LSRB supports research proposals in broad topic areas in Life Sciences viz., biological and biomedical sciences, psychology and physiology, bio-engineering, specialized high altitude agriculture, food science & technology etc. Innovative ideas and proposals from young scientists are encouraged.

### **3.4 Council of Scientific and Industrial Research (CSIR)**

The major functions of Council of Scientific and Industrial Research include promotion, guidance and coordination of scientific and industrial research in India; establishment or development of and assistance to existing special institutions or departments for scientific study of problems affecting particular industries and trades; award of fellowship; utilization of Council's R&D results for industrial development; collection and dissemination of Science & Technology information

and technology generation, absorption and transfer.

The Council provides financial assistance to promote research work in the fields of Science & Technology, including agriculture, engineering and medicine. The assistance is provided by way of grants to Professors/Experts in regular employment, in the universities, IITs, post-graduate institutions, recognized R&D laboratories both in public and private sectors. Research proposals of applied nature as well as those falling under basic sciences which attempt to solve specific problems being pursued by CSIR laboratories, or in newer and complementary fields, are considered for CSIR support. Priority is given to multi-disciplinary projects, which involve inter-organizational co-operation (including that of CSIR laboratories). Preference is given to schemes, which have relevance to research programmes of CSIR laboratories. The CSIR provides essential financial inputs for viable research schemes so as to obtain definite advancements in specific fields and areas.

### **3.5 Indian National Science Academy (INSA)**

The Indian National Science Academy encompasses promotion of science in India including its application to national welfare, safeguarding the interests of the scientists, establishing linkages with international bodies to foster collaboration and expressing considered opinion on national issues. The Academy also felicitates through properly constituted National Committees, in which other learned academics and societies may be associated, for undertaking scientific work of national and international importance which the Academy may be called upon to perform by the public and by the Government.

The main objectives of the Indian National Science Academy are promotion of scientific knowledge in India including its practical application to problems of national welfare. It also aims to coordinate among Scientific Academies, Societies, Institutions, Government Scientific Departments and Services. It also acts as a body of scientists of eminence for the promotion and safeguarding of the interests of scientists in India through properly constituted National Committees, for undertaking scientific work of national and international importance.

It seeks to promote and maintain liaison between Science and Humanities, while attempting resource mobilization for the promotion of Science. The Academy also dons advisory role to the government on critical issues in science and technology. Importantly, it serves as a forum for interaction among scientists within and outside the country.

- **National Funding Agencies: The details of some of the national funding agencies are available on their websites as listed at Annexure 3.**
- **International Funding Agencies: List of some of the leading international funding agencies is compiled at Annexure 4.**

## Activities related to the Project

### Development of database and software

A computerized database on all international collaborative projects considered by Health Ministry's Screening Committee (HMSC) during the year 2000 to 2007 has been developed. An entry form for entering the data on international collaborative projects has also been prepared. An online interactive system has been generated to give the latest status of the projects submitted by the investigators to ICMR for consideration of HMSC.

### Interactive Sessions

One of the aims of the present project was to monitor the progress made and the outcome under various international projects duly approved by HMSC. To achieve this, interactive sessions were organized during which various Principal Investigators were requested to present their findings to assess whether any of their research results had the potential to be included in the national health programmes. Accordingly, two workshops/interactive sessions were organized by the International Health Division at ICMR.

**The first interactive session** was organized in the area of HIV/ AIDS on October 21, 2004 to review the progress made under the ongoing international projects and / or the research goals achieved upon the completion of certain projects. Recommendations made during the session were as follows:

- The Secretary, Health & Chairman HMSC suggested that the NGOs should be encouraged for studies on HIV/AIDS and they should also work in collaboration with the National AIDS Control Organization (NACO); MOH&FW, Govt. of India.
- The extensive data available on the sexual behaviour of 'Men having Sex with Men' (MSM) and Female Sex Workers (FSW) could be included in the formulation of national health programmes and policies.
- The Project Director, NACO; a member of HMSC was of the view that since a large amount of research data was available with Indian scientists, it could be constructively used in the national health programmes.
- Transfer of technology as an outcome of the international collaboration should be emphasized upon.
- It was also suggested that the HMSC Secretariat should organize such Interactive Sessions in other fields of medical research also.

**The second interactive session** on Malaria, Filariasis & Leishmaniasis was organized during January 30 – 31, 2006 at ICMR Hqrs, New Delhi wherein several Principal Investigators presented the progress made under their international collaborative projects. Recommendations made during the second interactive session were as follows:

- A copy of the grant letter along with approved budget and conditions, if any, whenever received from the funding agency by the Principal Investigator, should be submitted to the HMSC Secretariat.
- The research projects should be classified/ categorized as under to facilitate processing at ICMR:
  1. Commissioned projects.
  2. Projects without technical collaboration.
  3. Projects with technical collaboration and transfer of biological materials.

The experts felt that the projects under categories 1 & 2 require fast track clearances.

- The HMSC Secretariat should circulate the guidelines on the international collaboration to various Investigators/ Institutions. The information should also be made available on the ICMR website.

## Glimpses of the Interactive Sessions organised during 2004-2006



