

How to get a research grant

N. R. Kalla

Career as a research scientist requires intellect, imagination, skill and great deal of persistence. Research is, of course, a costly endeavour, no less valuable to society than any other business or trade. Scientists have long had to generate money for their research. Perhaps there could be some examples where the personal wealth has allowed for free expression and pursuit of their ideas, but these could be exceptions rather than the rule. Thus if you wish to develop a career as an independent scientist you must also be able to successfully compete for these funds that would allow you to fulfill your objectives. These come primarily in the form of grants, either from private foundations or from government funding agencies. Grants are available from international agencies also. Winning a grant means that you, your department and your institute are benefited.

It is widely acknowledged that many a budding scientists find the task of writing a research grant proposal more difficult than executing the project once the funding has been obtained. It is quite surprising that those bright ideas just do not seem to come off the end of the pen, or the keyboard in a well-organized and systematic way. The same hardworking young investigators write confidently research papers for the journals which have high impact factors.

In India, the main government agency responsible for funding in science is Department of Science and Technology (DST), Government of India and the unit of the DST at the state level. In addition, there are other agencies giving grants in specified areas, e.g. in agriculture by the Indian Council of Agriculture Research, in health by the Indian Council of Medical Research/Ministry of Health, etc.. While application forms and processes may be different for these agencies, the concepts are all similar in that you must compete for funds before peer review panels. Regardless of the source of funding, the successful grant application is characterized by: (1) clearly stated and novel hypothesis, (2) the presentation of a strong rationale in support of this hypothesis, (3) compelling data providing evidence for the feasibility of the study, (4) development of a logical, well-conceived experimental plan that will unequivocally test the hypothesis, and (5) a realistic budget to complete the project in a specified time frame.

There are two kinds of grant applications: by an individual scientist and by an organization. The grant applications by individuals are more in number. Prasad, a

former officer of World Health Organization rightly said. 'Out of all the countries perhaps it is easiest to get a grant support in India'. As a matter of fact, plenty of money is available but there are not sufficient grant applications. Grant support is an important component of scientific manpower training. In USA hardly 10 to 15% of the scientists end up in getting a grant support. Although the National Institute of Health (NIH), the largest research funding agency in USA in bio-medical sciences, approves many grant applications on scientific merit but it does not provide funds in many cases due to lack of money.

University Grants Commission (UGC) provides grant support for college lecturers, university teachers and retired teachers up to the age of 70 years with a honorarium of Rs 6000/month. In addition bulk money is provided by the UGC to the universities for grant support to young teachers. To get more teachers into research, UGC provides small amounts of money to young teachers in the form of minor projects.

In India the organizations do not have a system to maintain the list of funding agencies and/or availability of funds under different programmes. It is difficult to find a directory giving information about the availability of research grants under different programmes. I once asked Gumman, Assistant Registrar, (Academics) of my University to provide me a list of agencies providing grant support. To my great disappointment, he not only showed his total ignorance about what I was asking but said emphatically that there is no section in the University which keeps this information. I must admit, he was right. I presume this is true, by and large, for most of the universities. I made an abortive attempt to get this information from the Dean's office who in turn asked me to contact Dean, Science Faculty. His reply was 'it does not fall in my preview. You have to find out yourself'.

Although there are no rules to get a research grant, a granting agency develops a set of criteria to be used by the reviewers as they evaluate the merit of the grant. With minor modifications, the same principle applies across all levels of grant review. One should be aware of these criteria, since the way in which one addresses them will be a part of the assessment of merit of the grant. During the course of the review, the following questions are to be asked as part of the evaluation.

Significance: (i) Does the study address an important problem? (ii) How will the study advance scientific knowledge? and (iii) Will the expected outcome further improve the field?

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GENERAL ARTICLES

Table 1. Agencies providing grant support in science and technology

Agency	Contact address	Agency	Contact address
Department of Atomic Energy (DAE)	The Scientific Secretary (BRNS), Department of Atomic Energy, Director's Office, 1st Floor, Central Complex, BARC, Trombay, Bombay 400 085	Department of Health and Family Welfare (i) Voluntary Organization for Health & Family Welfare	The Under-Secretary (VOP), Ministry of Health & Family Nirman Bhavan, New Delhi 110 011
Department of Biotechnology (DBT)	Director (R&D), Department of Biotechnology, CGO Complex, Lodhi Road, Block No. 2, Floor 7, Room No. 12, New Delhi 110 003	(ii) Family Welfare	Dr Vikram Behal, Assistant Commissioner, Department of Family Welfare Nirman Bhavan, New Delhi 110 011
Department of Chemicals and Petroleum	The Secretary, Ministry of Chemicals & Petroleum, Sastri Bhavan, New Delhi 110 001	Department of Ocean Development (DOD)	The Secretary, Department of Ocean Develo Mahasagar Bhavan, CGO Co Lodi Road, New Delhi 110 003
Department of Coal (DOC)	Director (Research, Development & Technology), Central Mine Planning & Design Institute, Gondwana Place, Kanke Road, Ranchi 834 008	Department of Science and Technology (DST) (i) Science and Engineering Research Council Scheme (SERC)	The Head, SERC Secretariat, Department of Science and T Technology Bhavan, New Mehrauli Road, New Delhi 110 016
Department of Education (DOEd)	Deputy Education Adviser (T), Division TD. VI, Department of Education, Ministry of Human Resource and Development, Shastri Bhavan, New Delhi 110 001	(ii) Intensification of Research in High Priority Areas (IRHPA)	The Adviser, STP, Department of Science and T Technology Bhavan, New Mehrauli Road, New Delhi 110 016
Department of Electronics (DOE)	The Member Secretary, Technology Development Council, Department of Electronics, 'A' Block, CGO Complex, Lodi Road, New Delhi 110 003	(iii) R&D Programmes under Engineering Science	The Adviser, ET Division, Department of Science and T Technology Bhavan, New Mehrauli Road, New Delhi 110 016
National Radar Council (NRC)	The Member Secretary, National Radar Council, Department of Electronics, Lok Nayak Bhavan, New Delhi 110 003	(iv) Science and Society Related Programmes	The Head, Science and Society Divisio Department of Science and Te Technology Bhavan, New Mehrauli Road, New Delhi 110 016
Electronics Materials Development Council (EMDC)	The Member Secretary, Electronics Materials Development Council, Department of Electronics, Lok Nayak Bhavan, New Delhi 110 003	(v) Science and Technology Application for Rural Development (STARD)	
National Microelectronics Council (NMC)	The Member Secretary, National Microelectronics Council, Department of Electronics, 1, Eastern Avenue, Maharani Bagh, New Delhi 110 065	(vi) Science and Technology for Weaker Sections (STAWS)	
Department of Environment (DOEN)	The Secretary, Department of Environment, Paryavaran Bhavan, Block No. 2, CGO Complex, Lodi Road, New Delhi 110 003	(vii) Scheme for Young Scientific Professionals	
Department of Non-conventional Energy Sources (DNES)	The Secretary, Department of Non-conventional Energy Sources, Block No. 14, CGO Complex, Lodi Road, New Delhi 110 003	(viii) Science and Technology for Women	
		(ix) Utilisation of Scientific Expertise of Retired Scientists (USERS)	
		(x) Special Component Plan	
		(xi) Science and Technology Communication and Popularisation Programme	

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Table 1. (Contd)

Agency	Contact address	Agency	Contact address
(xii) Natural Resources Data Management System (NRDMS)	The Director (NRDMS), Department of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi 110 016	Department of Space (DOS)	The Scientific Secretary, ISRO Headquarters, F-Block, Cauvery Bhavan, District Office Road, Bangalore 560 009
(xiii) Instrument Development Programme (IDP)	The Adviser, Instrument Development Division, Department of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi 110 016	Ministry of Welfare (MOW)	The Director (NI), Ministry of Welfare, Shastri Bhavan, New Delhi 110 001
(xiv) R&D Medium Range Weather Forecasting (NCMRWF) and Crop-Weather Relationships	Project Coordinator (NCMRWF), Department of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi 110 016	Ministry of Urban Development (URBD)	The Adviser (PHEE), Ministry of Urban Development, Nirman Bhavan, New Delhi 110 001
(xv) Opportunities for Young Scientists	The Head, SERC Secretariat, Department of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi 110 016	Central Board of Irrigation and Power (i) Research Scheme Applied to River Valley Projects (RSRVP) (ii) Research Scheme on Flood Control (RSFC) (iii) Research Scheme on Plasticulture Development (RSPD) (iv) Research Scheme on Power (RSOP)	The Member Secretary, Central Board of Irrigation and Power, Malcha Marg, Chanakyapuri, New Delhi 110 021
(xvi) Science & Technology indicator and Manpower Studies	The Joint Adviser, National Science and Technology Management Information System (NSTMIS), Department of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi 110 016	Council for Advancement of People's Action and Rural Technology (CAPART)	
(xvii) Consumer Protection through Science and Technology	The Joint Adviser, Technology Systems Division, Department of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi 110 016		
India Meteorological Department (IMD)	The Director General of Meteorology, India Meteorological Department (IMD), Mausam Bhavan, New Delhi 110 003	Council of Scientific and Industrial Research (CSIR), (a) Research Scheme, (b) Research Fellowship and Associateship, (c) Emeritus Scientistship, (d) Person/Institute based Centre of Excellence., (e) Otter Science and Technology Promotion Programmes	
Department of Scientific & Industrial Research (i) National Information System for Science & Technology (NISSAT)	The Joint Adviser, National Information System for Science and Technology, Department of Scientific & Industrial Research, Technology Bhavan, New Mehrauli Road, New Delhi 110 016	Defence Research and Development Organization (DRDO) (i) General Science Scheme Life Sciences Research Board (ii) Research and Training (Electronics) Scheme of DRDO	The Director of Training & Sponsored Research, Defence R & D Organisation, Ministry of Defence, 'B' Wing, Sena Bhavan, New Delhi 110 011
(ii) Technology Absorption and Adaptation Scheme (TAAS)	The Joint Adviser (TAAS), Department of Scientific & Industrial Research, Technology Bhavan, New Mehrauli Road, New Delhi 110 016	Aeronautics Research and Development Board (ARDB)	The Secretary, Aeronautics R&D Board, Directorate of Aeronautics (R&D), Ministry of Defence, 'B' Wing, Room No. 328, Sena Bhavan, New Delhi 110 011
(iii) Details of other schemes	The Adviser, Department of Scientific & Industrial Research, Technology Bhavan, New Mehrauli Road, New Delhi 110 016		

Table 1 contd.

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Agency	Contact address
Indian Council of Agricultural Research (ICAR)	Officer on Special Duty (PI & M), Indian Council of Agricultural Research, Krishi Bhavan, Dr Rajendra Prasad Road, New Delhi 110 001
Indian Council of Medical Research (ICMR)	The Director General, Indian Council of Medical Research, Ansari Nagar, New Delhi 110 029
Oil India Limited (OIL)	The General Manager, (Research & Development), Oil India Limited, Duliajan 786 602
Oil and Natural Gas Commission (ONGC)	The Director – IEOT, Oil & National Gas Commission (ONGC), Post Box 123, Dist. Raigad, Panvel 410 221
Steel Authority of India	Steel Authority of India Ltd, Research and Development Centre for Iron & Steel, Inspat Bhavan, Lodi Road, New Delhi 110 003
University Grants Commission (UGC)	University Grants Commission, Selection and Award Bureau, South Campus, Delhi University, New Delhi 110 021

Approach: (i) Are the conceptual framework, design, methods and analyses adequately developed, well integrated and appropriate to the aims of the project? and (ii) Does the applicant acknowledge potential problem areas and consider an alternate approach?

Innovation: (i) Does the project employ novel concepts or methods? (ii) Are the aims original and innovative? and (iii) Does the project challenge existing paradigms or develop new methodologies/technologies?

Investigator: (i) Is the investigator appropriately trained and well suited to carry out this work? and (ii) Is the work proposed appropriate to the experience level of the investigators?

Environment: (i) Does the scientific environment in which the work will be done, contribute to the probability of the success? (ii) Do the proposed experiments take advantage of unique features of the scientific environment or employ useful collaborative arrangements? and (iii) Is there evidence of institutional support?

Do not hesitate to take the help of professional grant writers to apply for a grant. If you cannot hire a person to do so, encourage people in your organization who can keep an eye on what programme money is available. Availability of the right information at the right time is important. One has to burn the midnight oil in writing a grant proposal. The key to winning grants is read the rules carefully; what the term means and how to use them. A friend of mine doing research at Indian Institute of Science, Bangalore submitted a grant proposal for support in biomedical research. It took more than two years to settle a minor administrative point. After the dispute was settled and when the application came for scientific evaluation, the proposal was turned down because the project had lost its importance. Try to find out what the granting agency wants and not what you have. There is no harm in modifying your plans according to their requirements. If you are asking for a big developmental grant, do not hesitate to take the help of the elected members of your area/organization whenever necessary.

Table 1 gives a list of agencies providing grant support in S&T. For more details about the granting agencies in India, please write to the author at the following address: Secretary, Northern Indian Science Association, P.B. 1204, Sector 14, Chandigarh 160 014, India.

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