DBT/PCAH/Gen/2015-16
DEPARTMENT OF BIOTECHNOLOGY
MINISTRY OF SCIENCE & TECHNOLOGY

SUB: Revised Guidelines for 'Research Resources, Service Facilities and Platforms' Programme

Background

The capacity and quality S&T in general and biological sciences and biotechnology in particular of any country depends on level of shared research infrastructure and facilities with sophisticated and high-end equipment, skilled scientific human resource for operations and related professional services. They are essential for generating new knowledge and new technologies in all areas of science and ultimately constitute the basis for excellent basic and translation R&D and product development and validation besides quality publications and generating valuable IPR. Since 1986, the Department of Biotechnology (DBT) has been supporting the development of research infrastructure at Institution/University level. Initially, the Biotech facilities are supported under the 'Task Force on Infrastructure' to meet individual researchers and labs and departments similar to FIST programme. The advent of omics, advanced imaging technologies, requirement for GLP standards in experimental animal faciltities, synchrotron for crystallography and group of large scale continuous translational and product development platforms in agriculture and medicine etc since beginning of 12th plan the strategy of the scheme was shifted to funding of shared facilities with sustainability catering to the needs of several stakeholders such as academia, agriculture and medical service sector, bio-industry and product developers. Therefore, in 2012 the 'Task Force on Research Resources, Service Facilities and Platforms' consisting of multidisciplinary team representing stakeholders was started.

Definitions

A. **Research Resources** - Research resources are major equipemnts/instruments or facilities that will potentially benefit a community of researchers and/or educators or for public services with a possibility of transformative knowledge generation and the potential to shift existing paradigms in scientific understanding, engineering processes and/or product development technology. It includes major scientific equipment (or sets of series of instruments); knowledge-based resources such as collections, archives or scientific data; e-infrastructures, such as data and computing systems and communication networks; and any other infrastructure of a unique nature essential to achieve excellence in research and innovation of high impact and quality. It also incorporates the estabslihment of premises/institutions/civil works required for upgradation or estabslihment of new facilties.

B. **Service Facilties -** The primary goal of service facilties is to provide access to resources that could not be provided by any single researcher's laboratory or scientific department but require for data acquisition, analysis and providing the

proof of concept to cater the needs of a larger community. The service facilties are the research resources including the scientific and technical support, which are established to provide comprehensive services to users for creating efficient research and innovation environment. The main emphasis is to foster the long-term sustainability of research infrastructures through providing services to the scientific/industrial community on cost recovery and fee for service basis. The service facilities of GLP/non-GLP standards and up to the highest biosafety level may be supported.

C. **Platforms** - A platform is a group of technologies that are used as a base upon which other applications, processes or technologies are developed. These platforms range from vast chemical libraries, ultra-high throughput screening and huge genetic databases in discovery, to predictive toxicology platforms, cutting-edge 'omics' and even deep-seated knowledge of particular therapeutic areas in development. Technolgical platforms are very expensive. Technology platforms follow a three-stage process. First, stakeholders forge a common vision. Secondly, they define a Strategic Research Agenda (SRA) setting out the necessary medium- to long-term objectives. Finally, they implement the SRA by facilitating the mobilization of the necessary human, financial and technological resources. In a Platform, all relevant stakeholders come together to address and resolve the challenges that lie ahead through a concerted and dedicated approach.

Purpose

The overall aim of this programme is to establish the new or up-gradation of existing research resources/service facilities and platforms in Indian Institutions/Universities engaged in cutting edge research in frontier areas of life sciences/Biotechnology and also to establish the infrastructure for various services in agriculture, medicine , environment and industry in public interest. The major objectives of this programme are -

- Quantitative and qualitative expansion of existing or establishing of new research infrastructure
- Providing access to world class and state of the art facilities
- Technology driven capacity building
- Human resource development through training
- Improvement of institutional/university biotech infrastructure for educational and quality research leading to high impacct publications and IPR
- Encouraging the long term operational sustainability
- Fostering academic and industry interactions
- Information management towards evidence-based decision making
- Fostering partnerships to maximise opportunities
- Encouraging the purchase of Indian made equipments/instruments, wherever possible
- Clustering and linking of different R&D players
- Strengthening international visibility and competitiveness

- Promote transaltional research leading products testing , validation and development
- Provide services for food and environmental biosafety assessment, diagnostic and detection services related trade,medicine and agriculture and environment

Eligibility

Research Resource Grant - Public institution/University or private UGC recognized institution/University (including deemed universities) or having certified for doing R&D activities by Department of Scientific and Industrial Research (DSIR).

Service Facilities – Public institution/university or private UGC recognized institution/University (including deemed universities) or any Private Indian industry with NO foreign stake having certified for doing R&D activities by Department of Scientific and Industrial Research.

Platform - Public institution/university or private UGC recognized institution/university (including deemed universities) or having certified for doing R&D activities by Department of Scientific and Industrial Research (DSIR).

Terms and Conditions of Support

A. Research Resource

1. Proposals proposed to establish shared resources will be preferred
2. Individual centric propsoals will be considered on the basis of merit or advantage(s) to an Institution/University
3. The minor equipements costing less than Rs.1.0 Crore will NOT be considered as part of the proposal except when they are part of major equipment required for operations
4. Proposals proposing civil works needs to certify either the space availability or submit the registration document of land along with a proper floor plan duly approved by a Instituional or private certified Architect. The floor plan must be based on CPWD/state PWD specifications.

B. **Service Facilities**

1. Proposal need to propose a suitable reveune business model preferably seperate fee for service categories for academic Industrial purpose
2. Proposal need to certify the space availability or submit the registration document of land along with a proper floor plan duly approved by a Instituional or private certified Architect. The floor plan must be based on CPWD/state PWD specifications.
3. Private industries will NOT be supported for civil/building construction work.
4. Proposal must involve a strong training opportunity for development of skilled and quality manpower

C. **Platform**

1. Proposal need to certify the space availability or submit the registration document of land along with a proper floor plan duly approved by a Instituional or private certified Architect. The floor plan must be based on CPWD/state PWD specifications.
2. Proposal must incorporate a suitable revenue model for sustaining the facility

In general, for all proposals involving major civil/construction work, only one fourth of recurring expenditure will be provided in the first year of grant. The research infrastructure including the equipments/instruments must be acquired according to the sanction order and the research programme must be implemented by appropriate research activities. In addition, new specialized and customized support services and use models must be developed for intensified joint utilization of the research infrastructure, in particular by private business entities.

The abovementioned terms & conditions are flexible and may be relaxed or tightened on case to case basis with appropriate justification and with the approval of competent authority

Duration

The projects under each category will be supported for a maximum duration of FIVE years. The extension may be considered on the basis of performance, monitoring and deliverables of the project.

Justification of the instrumentation

The equipment/instruments proposed under this programme required to be justified as follows -

1. Necessity of the instrument/equipment in term of scientific and technical merits of a proposal and expected advancement of a knowledge
2. Justification of the necessity of the procurement of the instrumentation, its performance class and equipment with accessories (usage load of the existing instrumentation, provision of additional measurement methods, testing of new measurement methods; other reasons).
3. Selection criteria for a proposed equipment/instrument – Specifications, price, compatibility, maintenance and operational cost, quotations from at least three vendors
4. Tabular list of previous funding of third-party-funded projects in the last five years (funding body, reference number, title, funding amount)
5. Information on the direct and indirect users of the equipment/facility along with the usage time
6. Use of the instrumentation in joint research projects with other institutions or industrial enterprises.
7. Existing major instrumentation - tabular list of the instrumentation: type and function, year of commissioning, type of purchase, usage duration in hrs/month, technical staff responsible, funding source
8. For a replacement instrument/equipment – justification/reason for replacement, utility of existing instrument at present and in future

9. Additional information such room conditions, availability of electricity etc.
10. Instruments involves x-ray/strong magnetic field – Access norms, safety training and trained staff

Revenue Model

A suitable revenue model has to submit by the applicant especially for Service Facilities or research resources/platforms where providing a service is proposed. The revenue model may be decided on case to case basis; however, the model must envisage the sustainability of the proposed facility at least after three years of Governmental support.

For establishing a service facility, a private industry must follow the following revenue model to meet the total cost of the project -

Year	Percentage of Fund contribution	
	DBT	Private Industry
I	20	80
II	30	70
III	40	60
IV	50	50
V	60	40

Private industry has to bear the cost of the land as well as any civil works involved and required for establishing a service facility.

Manpower

For all the categories, the manpower may be either fully supported by DBT or on shared basis, which will be decided on the basis of a revenue model or the proposed budget. The DBT support to manpower will be as per the GoI rules.

Process and Criteria for Evaluation

The proposals could be generated by DBT as per national priorities and emerging requirements or received from institutions/universities. All applications shall be evaluated based on the following criteria by concerned Division of DBT:

1. Fund availability
2. National priroites
3. Building Scale and Focus,
4. Emerging Areas,
5. External leveraging and co-investment,
6. Users (number, shared and scale),
7. Lack of access and maximizing open access,

8. Research quality and probable impact,
9. Operational cost,
10. Need and cost of maintenance,
11. Technical services
12. Non-Duplication and integration of facilities

Based on internal assessment, an onsite assessment will be carried out with the approval of Secretary, DBT for appraisal on need, technical, financial and expertise at host institute/ university. Such site visit may be undertaken either before or after the project has been evaluated by the "Task Force on Research Resources, Service Facilities and Platforms'. In case the site visit is performed after the proposals considered by the respective Task Force, the recommendations of the site visit committee will be considered final for funding the proposal. However, the special cases may be considered on case by case basis.

International cooperation

International research facilities is essential for strategic development of Indian science through exploitation and management of access to highly acclaimed and huge world class facilities, which require tremendous investment to build/replicate. Access to such high tech facilities may be provided to Indian scientists to meet the demands of trans-disciplinary areas of Life science and Biotechnology. Proposals for such facilities should be submitted in consortium mode with nodal institutions/ university coordinating. The access to such facilities should be provided to all deserving stakeholders through inclusive and transparent process.

Support Termination

A project supported under this programme may be terminated under conditions of excessive and unjustified delays, administrative lapses, non-availability of coordinator, unjustified cost overrun, misappropriation of funds, non-achievement of project objectives, loss of opportunities, legal issues and direction of court, recommendations of the expert committee and the request of a coordinator.

Data submission

The coordinators are required to submit the desired data relevant to the project from time to time or whenever desired.

Monitoring and Compliance

The progress of the project may be monitored by Department of Biotechnology regularly or whenever desired and project is required to comply with all the regulations/procedures as notified by this Department and other Departments/Ministries of India.

Access to Resources/ Facilities/Platforms

All Indian Researchers, Academicians and Industrialist must have open access to the resources/facilities/platforms or as per the norms of the institution.

Assets Rights

The resources/ facilities/platforms established through this programme will be treated as Government of India assets/property. The rights may be transferred to a private institution/industry in proportion to the initial investment and after recovery of the cost contribution.

Conflict of interest and confidentiality

For discussion or evaluation of proposals, members of committee must declare a conflict of interest if they or close professional associates will or might benefit, directly or indirectly, from any support. The potential Conflict of Interest will be discussed and rated as high, medium or low and the member(s) will be either asked to leave the meeting for the duration of Committee's deliberations regarding the relevant proposal, or to refrain from any discussion and participation in decisions related to the proposal(s).

Members of Committee should observe the confidentiality of proposals and other applications for support, especially for proposals received from the private industries. However, Department of Biotechnology reserves the right to send the application to third parties for comment, advice or other action.

Note

For this programme, preference will be given to applicants proposing the establishment of either service facilities or shared research resources and platforms on fee for service basis excluding the exceptional cases in public interest.

These guidelines will be effective from 7th October'2015. This issue with approval of a competent authority.

BT/IPLS/02/2010
DEPARTMENT OF BIOTECHNOLOGY
MINISTRY OF SCIENCE AND TECHNOLOGY
GOVERNMENT OF INDIA

SUB: Revised Guidelines for Up gradation/ Reengineering/ Remodeling/Creation of Boost to University Interdisciplinary Life science Departments for Education and Research programme (DBT-BUILDER) [Formerly as 'Interdisciplinary Programme in Life Sciences' (IPLS) for advanced research and education in Central/State universities]

1. PURPOSE

Department of Biotechnology (DBT) provides support to establish interdisciplinary School of Life Sciences for advanced research and education in universities known as "DBT-Boost to University Interdisciplinary Life science Departments for Education and Research (BUILDER)" Programme for advanced research and education. The overall aim of this programme is to foster interaction of existing departments of universities invigorating interdisciplinary modern bioscience research through creation of new research agenda aiming to develop world-class school of life science in universities doing both advanced research and education.

The financial support if provided to augment and strengthen existing capacity of research and education in life science departments through Upgradation/Reengineering/Remodeling/Creation of interdisciplinary school of life sciences for advanced research and education along with re-grouping research activities as per the current requirements and priorities.

2. OBJECTIVES

The specific objective is to upgrade the post-graduate teaching and training laboratories in terms of infrastructure and equipment, appoint new faculty, provide fellowships for students, introduce training programmes regroup research activities along the biotechnology innovation chain (from discovery to market), promote academia-industry interaction depending upon the strengths and weaknesses of specific universities. DBT-BUILDER programme created to fulfill the following objectives:

a. Establishing and strengthening the Post-Graduate educational and research related infrastructure in Indian universities and making them globally competitive
b. Enhancing the interdisciplinary research opportunities among various Indian university departments/universities
c. Developing and strengthening the scientific and technical skills of students in life science/biotechnology sector in Indian Universities
d. Motivating the faculties to take innovative solutions for challenges in life science/biotechnology at university level
e. Promotion of academic-industrial collaborations

f. Regrouping research activities in emerging areas along the biotechnology innovation chain (from discovery to market)

3. THEMATIC FOCUS

The thematic focus for the scheme is to provide enabling interdisciplinary advanced research and teaching capacity emphasizing discovery and innovation in proposed research areas of each university. Addressing emerging technologies with inter-disciplinary cross talk to realize their full potential would be a priority. Increasing number of postgraduate students at M.Sc. , Ph. D, and postdoctoral levels with quality education, skills and research temperament is envisaged. Openness to collaborate and invoke industry through public-private partnership in advanced research and education would be viewing very positively.

4. CHARACTERISTICS

- *Acknowledged Leadership*: The research groups will be built around acknowledged leaders in their respective areas, as evidenced by their scientific track record.
- *Administrative independence*: The universities are to be guided by an independent Joint Advisory Committee to be established through consultation between DBT and the university. This is to ensure speed long-term efficiency and sustainability. Besides, an university in house monitoring committee consisting of faculty related to the field of research/teaching/training consisting of scientists from reputed institution/universities/industries in the locality, representatives of M.Sc./Ph.D and Post Doctoral students would be constituted to constantly obtain feedback from students, faculty and industry who interact with the interdisciplinary life science departments.
- *Financial flexibility*: The DBT Builder Programme established will have the financial flexibility to operate. The University and DBT would be guided by the decision of the Joint Advisory Committee. A process for rapid procurement of reagents, supplies and hiring of staff would have to be assured. The DBT and the university will sign a MOA elaborating the details.
- *Performance Assessment*: This will be particularly applicable while considering support from 2nd year onwards:

a) Time taken for setting up of state-of-art post graduate laboratories.
b) Time taken for procurement, installation and commissioning of sophisticated instruments provided for use as common facility; a detailed user registry is to be maintained to provide number of users and purposes at regular interval.
c) Current number of students admitted to M.Sc., Ph. D and postdoctoral programmes from year to year against the proposed increase in the number of five years of DBT support.
d) Training programmes conducted for Ph. Ds in handling, care and use of sophisticated instruments and number of technician trained.
e) Number of workshops held for college teachers in teaching and research of life sciences and the feedback of the participants.

f) Number of research projects funded from different funding agencies and implemented during the period under review.
g) The research publications with impact factor and citation index as a spinoff of the support provided by the DBT
h) Patents filed/granted, technology developed/transferred as a spinoff of the support provided by the DBT.
i) Number of fellowships for students and R&D projects sponsored by private industries.
j) Freedom of access with time-flexibility for use of equipment and research laboratories.

5. WHO IS ELIGIBLE TO APPLY?

(a) UGC recognized Central and State universities registered under Central Universities Act 2009 and section 2(f) and 12B of the UGC Act, 1956(http://www.ugc.ac.in/) with proven track record in life sciences research and education are ONLY eligible to apply. The universities of agriculture, veterinary sciences, medical sciences and engineering need not apply under this scheme.
(b) The university should have proven track record of performance in the following:
- Current status of Ph.D. students;
- Size of faculty;
- Infrastructure available;
- Working culture and atmosphere;
- Readiness for administrative reforms;
- Areas of expertise;
- Ideas of innovation from discovery to market;
- Teaching activities;
- Linkages with industry;
- Team spirit in collaborative research;
- Publications in high impact journals;
- Patents, technologies developed/transferred etc.

6. RESEARCH GROUPNGS

The interdisciplinary nature of the research activity must involve a clear research plan involving the expertise of the existing faculties e.g. cloning in one lab, then taking the same molecule for up scaling in another lab and testing in some other lab of the different departments of a university. The faculty members should be regrouped into different interdisciplinary, emerging and contemporary areas of modern biological research with overall broad research goals and thematic multi-disciplinary programmes. Each group is to be headed by a Research Group Leader with proven track record. In addition, there will be a Programme Coordinator for DBT-BUILDER to coordinate among the Research Group Leaders.

In addition to research groups, a multi-disciplinary group specially addressing overall human resource development activity may be formed for addressing the contemporary needs of training and education in emerging areas of life sciences.
The institutional environment and resources that are available to faculty must be clearly described. Available resources (e.g. laboratory facilities, details of space and personnel) and collaborative resources should be described. If sophisticated facilities are included for support, the relationship of each with the component of the research groups should be described.

7. NATURE OF SUPPORT

The grant would be provided for

i. Establishing state-of-art laboratories consisting of the following:

State-of-art labs for teaching, demonstration and R&D: Each postgraduate laboratory that may accommodate 24 students may consist the following (listed below for guidance):

(A) **Civil Works and Interior Infrastructure:** Proposals involving the civil works must possess the approved floor plan, necessary clearances such as environment, state Govt. clearances and budget proposed on CPWD or State PWD rates (including the budget for interiors e.g. cooling etc.), which may be certified by a registered architect.

(B) **Equipments** suggested for upgradation, reengineering, establishment of new laboratories for R&D and teaching purpose (only be provided if not existing). A list of existing facilities and equipments needs to be provided by an Institution.

(C) **Sophisticated common facilities** (Only those which are related to the area of research and if not available are to be asked): e.g. Animal House Facility, Proteomics facility (TOF-TOF & Q-TOF), 2-D electrophoresis systems and protein image analysis system, Genomics (RNA/DNA Work station, PCR machines, Hybridization, RT-PCR system), Microarray Facility (Spotter, Scanner and Image Analysis), High Speed Centrifuge and Ultracentrifuge & Rotors, Biological Containment (P3) lab, Green House Facility, Large scale protein purification system (Octa-explorer), Cell Culture (Animal, Plant and Microbial) Facility, including scale-up bioreactors

(D) **Operational cost** like consumables and contingencies for different thematic research groups.

(E) **Salaries of the additional faculty and fellowships** for increased number of students associated with the DBT-BUILDER would be defrayed for the project duration only. These faculty positions would be regular/contract appointments made by the university and they would devote 100% time to the DBT-BUILDER. The university must give a written commitment to this effect. A letter of undertaking stating that the financial liability for these new faculty positions would be borne by the university at the end of the project support is essential. Such commitment would be given by the Vice-chancellor of the university.

8. DURATION OF SUPPORT

Project will be supported for a maximum period of five years and subsequent year grants will be released only after submission of the necessary documents. In General, NO extension will be provided beyond five years though project duration may be extended as follows

a. Maximum of one year with in the approved budget of the project
b. Maximum of two years for projects shown exceptionally outstanding performance with additional budget. During extension period, ONLY the manpower and consumables will be provided.

9. CRITERIA FOR ELIGIBILITY AS PROGRAMME COORDINATOR AND RESEARCH GROUP LEADER

The Programme coordinator could be Vice-chancellor or Dean, Life Sciences/Biological Sciences or senior most Professor with proven track record in life science research and education as evidenced by publications, patents, technology developed/transferred, research projects implemented, awards and fellowships etc.

Research Group Leader must be an established research scientist/faculty member, who has the experience to effectively administer and integrate all components of the research group to ensure that high-quality research is performed. The Research Group Leader must have an active research programme that receives support in the scientific area of the centre and should also have the requisite administrative experience to direct the programme. A minimum research time commitment of 50-percent is required from the Research Group Leader for research including the effort put in for monitoring and administrative oversight of the programme. The Research Group Leader should be a competent scientist in the relevant area, as evident from publications in world class referral journals and patents held/applied in the last five years. The Research Group Leader's biodata should also include details of research projects handled; number of Ph.D. students registered and produced, number of patents filed/granted, technologies transferred etc. The Research Group Leader will give an undertaking to commit at least 50% of his time to the DBT BUILDER and to continue to be involved in the programme for the entire duration. **Postdoctoral fellows and other positions that do not carry independent faculty status are not eligible to become Research Group Leader.**

10. SUGGESTED PROPOSAL CONTENT

Proposals may have the following:

- Name of the university with address
- Status of the university (Central or state and whether UGC recognized)
- Title of the proposed centre: DBT-University of ……School of the Life Sciences for advanced research and education.
- Details of existing departments related to life sciences.
    i. Name of the existing department(s)

ii. Existing facilities/infrastructure/equipments
iii. Number and level of faculty and students
iv. Areas of research being pursued with details of projects

- Proposed research groups in emerging areas of life sciences
  i. Title of the proposed research groups
  ii. Research Group Leaders along with his biodata
  iii. The name of the participating department(s) in each research group.
  iv. Technical programme of the research group including increase in number of M. Sc., Ph. Ds and postdoctoral proposed over the existing numbers each year for five years.
- Financial requirements for achieving the objectives:
  i. Equipment and infrastructure support for state-of-art postgraduate laboratories along with numbers of M. Sc./Ph.D. to be accommodated (space to be provided by the university for each laboratory).
  ii. Requirement of new faculty and fellowships (position and number to be specified).
  iii. Sophisticated instruments proposed for use as centralized facility.
  iv. Consumables, contingencies, books and periodicals
  v. Workshops and training programmes for technicians and college teachers of the locality.
  vi. Contribution of university in terms of building, infrastructure and equipments.
  vii. Details of public-private partnerships envisaged.

Ten copies of the complete proposal along with enclosures duly signed and forwarded by the institute may be submitted.

11. **PROCESSING OF A PROPOSAL**

Upon receipt of the detailed proposal, the same will be reviewed for completeness by the Internal Screening Committee. Incomplete applications and those which do not fulfill eligibility criteria will not be considered. Applications that are complete and responsive will be evaluated for scientific and technical merit by a high-powered committee. The programme coordinator may be invited to make a detailed presentation before the committee. The decision of the committee on a proposal will be final and communicated to the coordinator.

12. Since the scheme is to provide necessary enabling research and education competence through up gradation of the existing strengths, the research groups/individual researchers may apply for research project grants to different funding agencies to pursue their areas of interest.

The revised guidelines for DBT-BUILDER Programme will be effective from 8th November'2015. This issue with the approval of competent authority.