Government of India
Ministry of Science and Technology
Department of Science and Technology

TECHNOLOGY INTERVENTIONS FOR DISABLED AND ELDERLY (TIDE)

CALL FOR PROPOSALS 2019

1. Preamble

The Science for Equity, Empowerment & Development Division (SEED), Department of Science and Technology (DST) is implementing a programme "**Technology Interventions for Disabled and Elderly (TIDE)**" to promote applied research and development of assistive technologies for empowerment of Elderly population and Divyangjan in the country. TIDE Programme provides Grant-in-Aid support to Knowledge Institutions, Recognized R&D Labs and S&T based Voluntary Organizations for design and development of Assistive Devices, Processes and Protocols for improved Autonomy, Quality of Life and Social Inclusion of target beneficiaries (Elderly and Divyangjan)

2. Objectives of the call

The objective of the call is to invite and support

- o R&D proposals to promote translational research with multidisciplinary approach to deliver potential technological solutions for identified problems of elderly and Divyangjan through application of Science and Technology (S&T) Inputs.
- o Proposals on utilising available lab scale know-hows to consolidate research outputs in the field of assistive technologies
- o Proposals to upgrade the Technology Readiness Level (TRL) of existing assistive devices.
- o Proposals on import substitutes

3. Thematic Areas under the Call

Proposals are invited under six (6) different broad thematic areas as mentioned below.

- o Elderly/Geriatric Sector
- o Visual Disability (including low vision)
- o Intellectual Disabilities (including Learning Disabilities)
- o Hearing & Speech Disabilities
- o Locomotor Disability
- o Multiple Disabilities

An applicant can apply in any of the above themes as Principal Investigator. Applications of an individual would be summarily rejected if he/she applies in more than two thematic areas or submit more than two proposals in a specific theme as a Principal Investigator under this call.

4. Problems Identified under Thematic Areas

The investigators may submit project proposals on any of the following identified problem statements for finding scalable solutions for improved autonomy, quality of life and social inclusion of elderly and disabled population

I. Elderly/Geriatric Sector

Activities of Daily Living (ADLs)

a. Hygiene

- o Enable Safe and Regular Bathing/Showering.
- o Oral Health (Cost effective dentures/dental implants, low cost materials etc.)
- o Prevent, Monitor, and Proper Care for Wounds

b. Nutrition

- o Daily Nutritional Requirements & Independent Eating
- o Geriatric Foods

c. Medication

- o Maintenance of Therapeutic Medication Levels
- o Indian Systems of Medicine

- o   Integration of Allopathy and Indian Systems of Medicine
- o   Prevention of Non Communicable Diseases and application of assistive devices
- o   Non-invasive devices for health care

Cognition

a. Cognitive Diagnosis and Monitoring

- o   Tools and Technologies for Assessment of Reasoning, Memory, and Communication Abilities

b. Cognitive Training

- o   Enhance Baseline Ability
- o   Improve cognitive functions
- o   Provide Cognitive Rehabilitation

c. Assistive Devices/Technologies for improving cognitive functionalities

Communication and Social Connectivity

a. Hearing

- o   Diagnostic tools for assessing the levels of hearing impairment
- o   Technologies and Tools to enhance the hearing capabilities

b. Social Communication Technologies

Personal Mobility

a. Assisted Movement

- o   Provide Assistance with Navigating the Home and Neighborhood.
- o   Aids to compensate Reduced Strength and Mobility.

b. Monitoring and Safety

- o   Monitor Movement and Activity.
- o   Prediction and preventions of Falls.

Rehabilitation

a. Enable In-Home Rehabilitation.

b. Devices/programmes for fitness of elderly

c. Low power/Low cost assistive devices for rehabilitation

d. Assistive Technologies for Rehabilitation of persons with Non Communicable Diseases

Built Environment/Smart Homes

a. Safe kitchens and bathrooms

b. Elderly friendly homes/designs

Transportation

a. Driving

- o Navigation tools

b. Public Transportation

- o Navigation and Scheduling.
- o Facilitate Access to Public Transportation.

Games and Entertainment

a. App based games

b. Software/tools for improving cognitive functions

Access to Healthcare {Application of Artificial Intelligence (AI) and Internet of Things(IoT)}

a. Telehealth and Remote monitoring of physical activities

b. Improve Healthcare Access and Quality.

c. Self-Management Support.

II. Visual Disabilities

Independent Living

- o Identification of medicines, knowing expiry dates on packages including medicines, identification and use of ATM machines.
- o Identification of personal products in public spaces (luggage at airports/shoes at temples etc)
- o Identification of hazardous products that should not be touched
- o Reading of medical reports and inaccessible medical devices like blood glucose monitor, BP machine, weighing scales etc.
- o Menu cards at restaurants are not accessible as wells as apps on zomato etc
- o It is difficult to know how much petrol is added in cars at petrol pumps.

- o Inaccessible fitness equipment
- o Home appliances more inaccessible (water & electricity meters, air conditioners etc).
- o Mobility
    - Finding right coach in trains, identifying the number plates, arrival of buses, independent crossing of roads including detection of obstacles)
    - Indoor Navigation System (for reaching the right rooms).
    - Detection of lifts.

Education

- o Accessibility of videos and images with written content
- o Greying and whitening of blackboards – in inclusive school person with low vision will be unable to see the blackboard
- o Education in Maths and Science: Maths is an optional subject (Technology has to intervene for making Maths accessible)
- o Science experiments are not accessible (eg: Chemistry labs don't have accessible labelling, it is difficult to measure the colour changes, and difficult to operate in the lab in general)
- o Tactile Graphics and Tactile diagrams.
- o There is no or limited text to speech tools in Vernacular languages, making regional reading material inaccessible.
- o Unicode for constant font sizes - software should change the earlier code to Unicode
- o Notice boards in the schools (especially in inclusive institutes) are not readable
- o Tools for independent learning and training at early ages, Accessible and comprehensible toys and tools for independent learning
- o For visually impaired teachers it is very difficult to communicate, teach and maintain discipline in the classroom

Livelihood

- o Reading LED and LCD screens.
- o Offline OCR is required for local/regional languages

- Hand written documentation in government bodies makes jobs difficult.
- Object identifier and finder inside shops, homes, pharmacies, etc.
- Solutions to improve operations in factories, e.g., tactile safety lines on the ground are not enough, we need solutions for identifying safety zones at different heights.
- Currency counter at retail points
  - Point of sales machine are not accessible
  - Billing machines are not accessible
  - Forged currency tackling is difficult
- While networking in conferences, it is very difficult to reach out to individuals without accessible name cards.
- Job application sites: AI/ML auto segregation may automatically exclude the people with visually impaired going forward.
- Create accessible attendance machine in offices and institutes.
- Training programmes not accessible to a visually impaired person (NSDC has made it compulsory to make all training programmes accessible)

III. Intellectual Disabilities (including learning disabilities)

Early screening and education of persons with intellectual disabilities

- Development of a unified process/protocol for assessment of cognitive disabilities.
- Technology development for education should include special education, inclusive education and home based education
- Different stages of learning – specific technologies for early intervention, middle, primary education and vocational education should be in place
- Development of technologies to learn with enjoyment
- Games/App based learning, project based learning tools
- Pedagogical research and their impact on users.
- Projects related with revision of Curriculum to include Individualized Education Program (IEP).
- Technologies for tracking of child's milestones (developmental tracking) for early screening and individualized educational plan (IEP).
- Technologies for skill assessment.
- Development of multi-sensory games transcending to life skills

- Development of audio-visual tools for training of trainers.
- Indigenous tools for assessment of cognitive disabilities.
- STEM Kits for different ways/stages of learning.
- Technology to support the teaching of sexuality issues and sex education.

Vocational training, independent living and employment of persons with intellectual disabilities

- Technology based assessment for vocational skills for employment of persons with disabilities (in collaboration with NIEPMD, NSDC etc).
- Functional assessment for learning and targeted training for employments including government jobs.
- Technologies/Tools for safety related solutions, adaptive machinery, cognition based solutions.
- Development of programs for different jobs based on the abilities.
- Development of self-advocacy solutions for vocational engagement and tools to handle social situations.
- Audio visual tools to assist in vocational training and production.
- Audio visual tools to assist in supporting skills like banking habits.
- Development of develop low tech and low skills vocational solutions for persons with severe intellectual disabilities.
- Audio-visual tools for training and awareness related to legal guardianship, financial planning and management of community living of older adults.

Aging and healthcare of persons with intellectual disabilities

- Prevention of complexities and deterioration of health in older age.
- Sustenance of life skills by use of technologies.
- Assisted living solutions by use of technologies for dignified quality of living.
- Technology assisted living in rural areas.
- Universal Design and Assisted services.
- Develop toolkit for screening of mental and physical health.
- Monitoring sleep related issues and other health issues through technologies.

IV. Speech & Hearing Impairment

Speech Impairment

o Develop biomarkers (e.g., genetic, imaging) to support diagnosis, improve accuracy of prognosis, improve treatments, or monitor response to treatment of voice, speech, and language impairments.

o Develop models of intervention informed by cognitive, linguistic, biological, or neurophysiological processes, accounting for cultural and linguistic variation.

o Outcomes-based clinical studies and randomized clinical trials to determine the efficacy of proposed interventions for the prevention and treatment of voice, speech, and language impairments.

o Develop programs that prevent the onset or limit the severity of voice, speech, and language impairments for people with genetic, occupational, environmental, or other risks.

o Develop new interventions or approaches for understudied populations (e.g., school-aged, minimally-verbal children with ASD) or conditions (e.g., stuttering and apraxia of speech in children and adults).

o Development of novel augmentative and alternative communication (AAC) approaches and to enhance BCI technologies for communication.

o Graphical representation of announcements in public places like Railways, Airports, metro etc.

o sign language which can understand facial expression, body language, understanding of gestures, colour/culture signs etc.

o Videos with subtitles in sign language

o FAQs of all public utilities places should be translated in sign language and made available in their websites

o Technology Products to switch speech to text and text to speech between mother tongue to English – bilingual

o Devices/Technologies for elderly with voice problem due to Parkinson 's disease

o Voice Prosthesis

o Neuro Prosthesis

Hearing Impairment

- Develop methods that promote the acquisition of literacy skills during childhood and improve the reading and writing abilities of people who are deaf and have limited literacy.
- Hearing aids that provide noise reduction, directional hearing, and feedback suppression. Binaural hearing aids for improving sound source localization and spatial separation.
- Cochlear Implants
- Combined use of a hearing aid and a cochlear implant (in opposite ears or the same ear) Pediatric cochlear implants
- Auditory aids for hearing loss due to neurofibromatosis
- Tinnitus
- Auditory Processing
- Technology products for recognizing the normal daily sounds like doorbell, calling name, pressure cooker, etc.
- Tools/technologies to convert recorded audio (including in videos) into text.
- systems to share audio channels between hearing aids, smartphones, remote microphones, and other consumer electronic devices through a non-proprietary, wireless link with the short latency
- Open protocols for wireless communication of the audio input of hearing aids with other systems, including smartphones, microphones, and other wearable electronics
- Technologies for improved performance in noisy environments, noise-source identification and cancellation, speech localization and recognition, and auditory (or visual closed-caption) reconstruction.
- Technologies to check hearing levels using automated hearing tests online or through common smart devices.
- Develop standard, open remote protocols that can be used to adjust and tune hearing assistive devices.
- Design and Development of Low cost hearing aids/implants/algorithms
- Development of low cost sensors/chips

V. Locomotor Disabilities

- Wheel Chairs (including standardization and maintenance)
- Motorized Wheel Chairs (Customized and context based, impact analysis of existing wheel chairs) including motors and spare parts
- Devices/Technologies for turning in bed
- Medical equipment for doing tests for persons with physical disabilities (ex: Mammography)
- Weighing Scales for wheel chair users
- Prosthetics & Orthotics
  - Smart Prosthetics and Orthotics Devices
  - Multiaxial levers/joints
  - Sockets and Suspensions
  - Pylons
  - Knee joints
  - Materials
  - Control Systems
    - ❖ Computer-vision enhanced control
    - ❖ Peripheral nervous system interface (PNS) control
    - ❖ Kinematic/kinetic control
    - ❖ Sensors, Actuators and Embedded Electronics
    - ❖ Energy harvesting
- Knee-ankle-foot orthosis
- Devices for Diabetic Foot and Leprosy
- Devices for sensory impairment (Diabetic foot/Leprosy)
- Balancing equipment and Lifting devices
- Myoelectric Arms, Transradial Prosthetic Arm, Automatic Leg, E-leg
- Terminal Devices
- FES (Functional Electric Stimulation) Devices
- Robotic exoskeletons
- Devices for Independent Living (Ex: Toiletries)
- Sports and Fitness Equipment for physically challenged
- Equipment for physiotherapy (ex: pressure relieving cushions/resistance bands etc)
- WHO List of assistive devices for physically challenged persons

VI. Multiple Disabilities

- Low cost tools/methods for functional assessment
- Affordable (low cost) Arc Light (combination of otoscope and flash light) meant for assessing functional assessment of deaf-blind
- Tactile gloves
- Tactile phones with braille output + data card making it a complete communication device – for speech, vision and hearing impaired
- Expert systems for assessing intellectual ability of children
- Sign language interpreter and tactile interpreter
- Vibration bands for two-way communication
- Technologies for concept development about knowledge (science, maths) such as water cycle, anatomy, rotations and revolutions
- Models for science practical's
- Tactopus or similar device for map reading
- Games and Entertainment
- Tools for accessing webinars
- Switches/Microswitches
- Haptic exploratory strategies in children who have visual impairment and intellectual disabilities
- Microswitches in habilitation programs.
- Speech-generating devices for communication and social development.
- Instructional technology for promoting academic, work, and leisure skills.
- Orientation systems for promoting indoor movement.
- Assistive Technologies for reducing behavioural problems.

Disclaimer: The problems (project topics) given above are not prioritized and are the suggestions received from various stakeholders (User Groups, Knowledge Institutions, R&D Institutions, Industry, Voluntary Organizations etc, Practioners and Government) during the National Consultative Brainstorming Workshops on Technology Interventions for Disabled and Elderly conducted by DST. Submission of the project proposals on these topics do not indicate preferential treatment or otherwise. The onus of establishing need and demand of the research convincingly rest on proposal through supportive facts and data. Proposals on fundamental research would not be accepted under the call. The

scientific outcome of the proposal should have clear end user application and should be scalable.

The given thrust areas are indicative and the investigators, however may also choose any other topic related to the disabilities listed in the RPWD Act 2016.

5. Who Can Apply

1. Universities and other higher educational institutions recognized or regulated by UGC/ AICTE and/or MHRD/ State Education Department
2. Private Academic Universities/ Colleges/ Institutions and Government Aided Colleges recognized or regulated by UGC/ AICTE
3. S&T based voluntary organizations, which are working in the rural areas with legal status or as a society registered under the Societies Registration Act 1860 or a trust registered under the Indian Trusts Act 1982 or Charitable or Religious Act 1920
4. R&D Labs/Centres recognized by Government

6. Call Dates

Opening Date: **16th September 2019**
Closing Date: **31st October 2019**

The last date for submission of online proposals is **31st October 2019**, after which the link for submission of online proposals will automatically become inactive.

7. Project Formulation Guidelines

The proposals should clearly define the need identification/problem statement (identification of S&T gaps), importance of the proposed project in the context of current status, details of existing technologies (literature surveys/patent search), clear cut objectives, expected deliverables, field trails, collaboration, suggested plan of action for utilization of the outcome expected from the project (for scaling up commercialization/ dissemination etc) should be clearly specified. The biodata of the project investigators should highlight their competence and experience related to the proposed project area.

Consortia may be formed wherever required by clearly mentioning the roles and responsibilities of each partner. The industry partner may be involved wherever possible and contribution of the industry partner should be clearly defined. Participating Industry would be required to invest within its own system i.e. production/ test lines and/or develop required infrastructure to adopt research leads and is expected to bring design and engineering capability for the benefit of the project. Contribution in cash, though welcome, is not mandatory for the projects submitted under this call.

8. Online Submission of the Proposal

1. The Principal Investigator should submit the project proposal online through DST's Electronic Project Management System (e-PMS) on portal www.onlinedst.gov.in the given format along with necessary documents.

2. Proposal format can be downloaded from Website https://onlinedst.gov.in/Login.aspx. Go to: Schemes and Formats: SEED Division: Technology Interventions for Disabled and Elderly: Download Call format. Kindly comply to the instructions mentioned during online submission of proposal.

3. For detailed guidelines and application format, applicants may go through the link https://onlinedst.gov.in/Projectproposalformat.aspx at Science for Equity Empowerment and Development (SEED) Division. The details of the programme, guidelines and format for submission of project proposal are also given under call for proposals on the web site of DST.

3. Private Academic Universities/ Colleges/ Institutions and Government Aided Colleges recognized or regulated by UGC/ AICTE – would be considered as Non-Government Organization (NGO) and shall use 'NGO/ VO' option during the process of online submission of proposal.

4. After submitting the proposal online, Investigators are required to **submit three hard copies** (print out of their online submitted application along with two copies) with the signatures in ink and rubber stamps of the concerned persons/ officials in an envelope super scribed as "Proposal for TIDE 2019" along with the TPN No. The hard copies of the proposals may be sent to the Officer-in-Charge of TIDE Programme.

5. The last date for submission of online proposals is **31st October 2019**, after which the link for submission of online proposals will automatically become inactive.

6. In case of any problems regarding online submission of proposals, Portal Help Desk Executive may be contacted at 011-26590545.

7. Refer to: https://onlinedst.gov.in/Documents/UserGuideDocs/epms_FAQ.pdf for frequently asked questions.

9. Evaluation of Proposals

The Proposals received under the call will be initially screened by the Internal Screening Committee/Secretariat of the TIDE Programme. The investigators of the shortlisted proposals will be called for a presentation before the Programme Advisory and Monitoring Committee (PA&MC) of TIDE Programme by the end of December 2019.

10. Contact Details

The Officer-in-Charge of TIDE Programme may be contacted for any queries relating to the technical aspects of proposals under the call.

Dr. Konga Gopikrishna, Scientist 'E'
Science for Equity Empowerment and Development Division
Hall I, Room No. 4, Technology Bhavan
Department of Science and Technology
New Mehrauli Road, New Delhi – 110016
E-Mail: k.gopikrishna@nic.in; Phone: 011 26590298

NOTE:
- o Please read all the instructions carefully.
- o Kindly go through the entire document.
- o Proposal should be neatly typed and all the relevant columns should be filled.
- o Upload only the proposal and not the entire call
- o Hard copies (only 3) of the proposals should be sent to the above address
- o Contact Times: 14:00 – 17:00 Hrs on all working days

FORMAT FOR SUBMISSION OF PROJECT PROPOSALS UNDER TECHNOLOGY INTERVENTIONS FOR DISABLED ELDERLY (TIDE) PROGRAMME

PART I. GENERAL INFORMATION

1. Project Title:

2. Nature of the Project:

Technology Development	Yes/No
Technology Development and Transfer	
Technology Dissemination	
Technology adaptation/optimization, demo, training, field trials etc	
Others (Please Specify)	

2.   a. Name of Principal Investigator   :

       b. Name of Co- Investigator (s)   :

3. Name of the Organization and Place   :

4. Type of Organization   :

(Tick the relevant – as many as applicable)

Academic institution	
Research organization	
S&T Council	
Voluntary Organization	
Other (please specify)	

* Joint proposals with academic and/or research institutions will be encouraged.

5. Collaboration if any, give details of institution(s)

Sl. No.	Name of the Collaborator	Purpose
1.		
2.		

6. Whether your Organization has been sanctioned projects by DST (including SEED Division) or by any other central / State Government departments or from foreign funding agencies in the past five years? If yes, provide details as mentioned below
(Enclose copies of sanction orders)

Sl. No	Title of the Project	File No.	Funding Agency	Status (whether ongoing/completed)	Amount (in Rs)
1					
2					

7. Whether project activities require any clearance from relevant authorities with respect of any environmental/legal/ethical issues:
(If yes, the particulars thereof and details of clearances obtained)

8. Duration of the project:

9. Total Cost (Rs):
a. Recurring Cost (Rs):
b. Non Recurring (Rs):

10. Whether any of the investigators belong to SC/ST Category:

CHECK LIST

1.	Duly filled in application form (complete with all annexure) – 03 hard copies plus 1 soft copy on CD	Yes/No
2.	Bio Data of Principal Investigator and Co Investigator	Yes/No
3.	Annual Reports & Audited Accounts of the Organization for previous 3 years – 1 set only (in case of NGO's and Private Institutions)	Yes/No
4.	Copy of valid Registration Certificate/Trust Deed, Article & MOA with bye laws – 1 set only (in case of NGO's and Private Institutions)	Yes/No

PART II. EXECUTIVE SUMMARY
(should not exceed more than eight pages)

1. Title of the Project:

2. Brief Description of the Project (in not more than 3-4 lines)

3. Category of the Project (please tick the relevant category – multiple categories may be ticked if applicable)
Study/Documentation
Research & Development
Design of a Process
Development of a protocol
Development of a Software
Development of prototype
Upgradation of Technology Readiness Level (TRL)
Product Development/Testing
Manufacturing of product
Field/User Trials/Evaluation of Product

4. Objectives (should be crisp and clear – not more than 3-4, this should not contain the processes involved in the project)

5. Importance of the proposed project in the context of current status

6. Science &Technology component/Innovativeness/Novelty of the project.

7. Methodology and Work plan

8. Artistic Impression and/or Diagrammatic Representation of the prototype/ product/ process/ protocol

9. Expected Deliverables (3 -4 clear cut deliverables)

10. Expected benefits to the target groups/population (please list 3 -4 benefits)

11. Suggested plan of action of utilization of the outcome expected from the project (please give the exit plan – commercialisation aspects, dissemination to users etc)

12. Project Duration:

13. Budget Summary:

        Recurring Cost   :

        Non-Recurring cost :

Sl. No.	Items	Budget (in Rs.)			
		1st Year	2nd year	3rd year	Total
A.	*Recurring*				
1.	Manpower				
2.	Consumables				
3.	Travel				
4.	Training Programme				
4.	Contingency				
5.	Overheads				
	Total (A)				
B.	*Non Recurring*				
1.	Equipment				
2.	Fabrication Costs				
	Total (B)				
	Grand Total (A+B)				

14. Short Bio-data of PI & Co-PI (With Educational Qualifications):

i. Principal Investigator	
Name	
Sex and Date of Birth	
Highest Qualification	

Designation	
Department	
Institute/University	
Expertise in the proposed area	
E-Mail & Mobile Number	
ii. Co-Investigator	
Name	
Sex and Date of Birth	
Highest Qualification	
Designation	
Department	
Institute/University	
Expertise in the proposed area	
E-Mail & Mobile Number	

15. Project Area (Districts, Blocks & Villages to be covered in case of field/user trials):

Project Area   :   Rural/Urban/Peri Urban

Village (s)   :

Block/Taluka :

District   :

State   :

% of SC/ST   :

PART III. TECHNICAL DETAILS

1. Title of the Project.

2. Problem Identification and Definition (State the main problem you seek to address and why is it important to solve this?)

3. Suggested solution(s) and alternatives – Outline your idea or solution you plan to develop.

4. Objectives of the project (should be brief, specific and quantifiable).

5. Review of status of Research and Development in the subject/ Summary of earlier efforts made to address the problem and existing technological gaps etc.
a. International Status
b. National Status

6. Expertise available with the proposed investigating group/institution in the subject of the project.

7. Methodology and Work Plan.
a. State the methodology in a sequence of clearly defined steps leading to achievement of the project objectives
b. Phase wise plan of action with time lines and deliverables in tabular form or pert diagram

8. Science &Technology component/Innovativeness/Novelty of the project.

9. Indicative techno-economic viability/cost benefits analysis of the project/product developed.

10. Comment on the likely impact of the project on target groups.

11. Suggested parameters (5-6) for monitoring effectiveness of intervention during and after the completion of the project (Should be Qualitative & Quantitative and specific to project work).

13. List of Deliverables

14. Artistic Impression and/or Diagrammatic Representation of the prototype/product

15. Expected Technology Readiness Level at the end of the project and detailed plan for commercialisation/dissemination.

PART IV: BUDGET ESTIMATE

(In case of collaboration with different institutions, separate budget requirements should be furnished. Adequate justification need to be provided for all the budget heads)

BUDGET ESTIMATES – SUMMARY*

Sl. No	Item	Budget			
		1st Year	2nd Year	3rd Year	Total
A	RECURRING				
1	Manpower				
2	Consumables				
3	Travel				
4	Training Programs/Field Testing				
5	Contingencies				
6	Institutional Overheads				
B	NON RECURRING				
1	Permanent Equipment				
2	Fabrication of Equipment				
	TOTAL				

A. RECURRING

1. BUDGET FOR MANPOWER

Sl. No.	Designation	Budget (Rs)			
		1st Year	2nd Year	3rd Year	Total
1.					
2.					
	TOTAL				

2. BUDGET FOR CONSUMABLES

Sl. No	Consumables	Budget (Rs)			
		1st Year	2nd Year	3rd Year	Total
1.					
	TOTAL				

3. BUDGET FOR TRAVEL

Sl. No	Purpose	Budget			
		1st Year	*2nd Year*	*3rd Year*	*Total*
1.					
	TOTAL				

4. BUDGET FOR TRAININGS

Sl. No	Description of Trainings User/Field Trials	Budget			
		1st Year	*2nd Year*	*3rd Year*	*Total*
1.					
	TOTAL				

5. BUDGET FOR CONTINGENCIES

Sl. No	Item	Budget			
		1st Year	*2nd Year*	*3rd Year*	*Total*
1.					
	TOTAL				

6. BUDGET FOR OVER HEADS

Sl. No	Item	Budget			
		1st Year	*2nd Year*	*3rd Year*	*Total*
1.					
	TOTAL				

B. NON RECURRING

BUDGET FOR PERMANENT EQUIPMENT/STRUCTURES

Sl. No.	Item	Budget			
		1st Year	*2nd Year*	*3rd Year*	*Total*
1.	Permanent Equipment				
2.	Fabrication Costs				
	TOTAL				

For Fabrication Costs, bill of materials should be given

PART V. CERTIFICATE FROM THE INVESTIGATOR (S)

Project Title:

It is certified that

1. I/We have carefully read the terms and conditions of the TIDE Programme and DST and I/We agree to abide by them.

2. I/We have not submitted this or a similar Project proposal elsewhere for financial support.

3. I/We declare that equipment asked in the project is not available in the Institute or had been sanctioned in any other ongoing projects. I/We shall not request financial support for the similar equipment under other projects.

4. I/We undertake that spare or idle capacity of the permanent equipment procured under the project will be made available to other legitimate users from parent and other organizations.

5. I/We have enclosed the following (strike whichever is not applicable):

a. Endorsement from the Heads of the Institution *(on letter head)*

b. Undertaking from the Collaborator(s) *(on letter head)*

c. Complete Biodata of all the investigators

Name (s) and Signature (s) of the Investigator (s)*

Date:

Place:

(* To be signed by PI and Co-PI of each Participating Institution)

PART VI. ENDORSEMENT FROM THE HEAD OF THE INSTITUTE

It is certified that the project proposal titled "title of the project"

1. The institute welcomes participation of Dr/Shri/Smt/Km……………………………..
as the Principal Investigator and Dr/Shri/Smt/Km………………………………….... as
the Co-Investigator for the project and that in the unforeseen event of discontinuance by
the Principal Investigator, the Co-Investigator will assume responsibility of the fruitful
completion of the project (with due intimation to DST).

2. Certified that the equipment, other basic facilities and other administrative facilities as
per the terms and conditions of the award of the Project, will be extended to the
investigator(s) throughout the duration of the project

3. The Organization shall ensure that financial and purchase procedures are followed as
per the prevailing norms of the Government from time to time, within the allocated
budget.

4. It is agreed that any research outcome or intellectual property right(s) on the
invention(s) arising out of the project shall be taken in accordance with the instructions
issued with the approval of the DST.

5. The Organisation shall provide timely the Statement of Expenditure and the Utilisation
Certificate of the grant as required by the DST in the prescribed format.

6. The organisation is registered under NGO Darpan Portal of NITI Ayog and the Unique
ID is: _____ (not applicable for Government Organisations/Institutes).

7. The organisation is registered under Public Financial Management System of CGA and
the Unique Code is: _____

Signature of Executive Authority
of Institute/ University with Seal with date

Place:
Date:

PART VII. BIODATA OF PRINCIPAL INVESTIGATOR

1. Personal Details

Name	
Sex and Date of Birth	
Highest Qualification	
Designation	
Department	
Institute/University	
Complete Address with Pin Code	
Telephone and Fax Numbers	
Mobile Number	
E – Mail	

2. Academic and professional career

a. Academic career (From Graduation to highest qualification level indicating subject and area of specialization – Enclose copy of certificate of highest qualification):

b. Professional career:

3. Award/Prize/Certificate etc. won by the investigator:

4. Publications (Details of Papers, Books, General Articles, Patents if any)

5. List of Completed and Ongoing Projects

Sl. No	Title of the Project	File No.	Funding Agency	Status (whether ongoing/completed)	Amount (in Rs)
1					
2					

6. Expertise available for executing the proposed project

PART VIII. BIODATA OF CO-INVESTIGATOR

(Biodata of all the co investigators should be given)

1. Personal Details

Name	
Sex and Date of Birth	
Highest Qualification	
Designation	
Department	
Institute/University	
Complete Address with Pin Code	
Telephone and Fax Numbers	
Mobile Number	
E – Mail	

2. Academic and professional career

a. Academic career (From Graduation to highest qualification level indicating subject and area of specialization – Enclose copy of certificate of highest qualification):

b. Professional career:

3. Award/Prize/Certificate etc. won by the investigator:

4. Publications (Details of Papers, Books, General Articles, Patents if any)

5. List of Completed and Ongoing Projects

Sl. No	Title of the Project	File No.	Funding Agency	Status (whether ongoing/completed)	Amount (in Rs)
1					
2					

6. Expertise available for executing the proposed project

PART IX. DETAILS OF IMPLEMENTING ORGANIZATION

in case of private organization/institutes (including deemed universities/NGOs, Trusts etc)

Name of the Organization		
Address		
Telephone with STD code	Phone:	Fax:
E - mail		
Website		
Year of Establishment		
Registration No & Date		
FCRA Registration No & Date (if applicable)		
Annual Budget in last Financial Year		
Operational Area (State & Districts)		
NGO Darpan Id		
Unique Code under PFMS		

X. POLICY ON CONFLICT OF INTEREST

DEPARTMENT OF SCIENCE AND TECHNOLOGY
FOR APPLICANT

Issues of Conflicts of Interest and ethics in scientific research and research management have assumed greater prominence, given the larger share of Government funding in the country's R & D scenario. The following policy pertaining to general aspects of Conflicts of Interest and code of ethics, are objective measures that is intended to protect the integrity of the decision making processes and minimize biasness. The policy aims to sustain transparency, increase accountability in funding mechanisms and provide assurance to the general public that processes followed in award of grants are fair and non-discriminatory. The Policy aims to avoid all forms of bias by following a system that is fair, transparent and free from all influence/ unprejudiced dealings, prior to, during and subsequent to the currency of the programme to be entered into with a view to enable public to abstain from bribing or any corrupt practice in order to secure the award by providing assurance to them that their competitors will also refrain from bribing and other corrupt practice and the decision makers will commit to prevent corruption, in any form, by their officials by following transparent procedures. This will also ensure a global acceptance of the decision making process adopted by DST.

Definition of Conflict of Interest:

Conflict of Interest means "any interest which could significantly prejudice an individual's objectivity in the decision making process, thereby creating an unfair competitive advantage for the individual or to the organization which he/she represents". The Conflict of Interest also encompasses situations where an individual, in contravention to the accepted norms and ethics, could exploit his/her obligatory duties for personal benefits.

1. Coverage of the Policy:

(a) The provisions of the policy shall be followed by persons applying for and receiving funding from DST, Reviewers of the proposal and Members of Expert Committees and Programme Advisory Committees. The provisions of the policy will also be applicable on all individuals including Officers of DST connected directly or indirectly or through

intermediaries and Committees involved in evaluation of proposals and subsequent decision making process.

(b) This policy aims to minimize aspects that may constitute actual Conflict of Interests, apparent Conflict of Interests and potential Conflict of Interests in the funding mechanisms that are presently being operated by DST. The policy also aims to cover, although not limited to, Conflict of interests that are Financial (gains from the outcomes of the proposal or award), Personal (association of relative / Family members) and Institutional (Colleagues, Collaborators, Employer, persons associated in a professional career of an individual such as Ph.D. supervisor etc.)

2. Specifications as to what constitutes Conflict of Interest.

Any of the following specifications (non-exhaustive list) imply Conflict of Interest if,

(i) Due to any reason by which the Reviewer/Committee Member cannot deliver fair and objective assessment of the proposal.

(ii) The applicant is a directly relative# or family member (including but not limited to spouse, child, sibling, parent) or personal friend of the individual involved in the decision making process or alternatively, if any relative of an Officer directly involved in any decision making process / has influenced interest/ stake in the applicant's form etc.

(iii) The applicant for the grant/award is an employee or employer of an individual involved in the process as a Reviewer or Committee Member; or if the applicant to the grant/award has had an employer-employee relationship in the past three years with that individual.

(iv) The applicant to the grant/award belongs to the same Department as that of the Reviewer/Committee Member.

(v) The Reviewer/Committee Member is a Head of an Organization from where the applicant is employed.

(vi) The Reviewer /Committee Member is or was, associated in the professional career of the applicant (such as Ph.D. supervisor, Mentor, present Collaborator etc.)

(vii) The Reviewer/Committee Member is involved in the preparation of the research proposal submitted by the applicant.

(viii) The applicant has joint research publications with the Reviewer/Committee Member in the last three years.

(ix) The applicant/Reviewer/Committee Member, in contravention to the accepted norms and ethics followed in scientific research has a direct/indirect financial interest in the outcomes of the proposal.

(x) The Reviewer/Committee Member stands to gain personally should the submitted proposal be accepted or rejected.

_____

\# The Term "Relative" for this purpose would be referred in section 6 of Companies Act, 1956.

1. Regulation:

The DST shall strive to avoid conflict of interest in its funding mechanisms to the maximum extent possible. Self-regulatory mode is however recommended for stake holders involved in scientific research and research management, on issues pertaining to Conflict of Interest and scientific ethics. Any disclosure pertaining to the same must be made voluntarily by the applicant/Reviewer/Committee Member.

2. Confidentiality:

The Reviewers and the Members of the Committee shall safeguard the confidentiality of all discussions and decisions taken during the process and shall refrain from discussing the same with any applicant or a third party, unless the Committee recommends otherwise and records for doing so.

3. Code of Conduct

(a) The applicant must refrain from suggesting referees with potential Conflict of Interest that may arise due to the factors mentioned in the specifications described above in Point No. 2.

(b) The applicant may mention the names of individuals to whom the submitted proposal should not be sent for refereeing, clearly indicating the reasons for the same.

4. Final Appellate authority:

Secretary, DST shall be the appellate authority in issues pertaining to conflict of interest and issues concerning the decision making process. The decision of Secretary, DST in these issues shall be final and binding.

DECLARATION

I have read the above "Policy on Conflict of Interest" of the DST applicable to Applicant and agree to abide by provisions thereof.

I hereby declare that I have no conflict of interest of any form pertaining to the proposed grant *

I hereby declare that I have conflict of interest of any form pertaining to the proposed grant*

* (Tick whichever is applicable)

(Name /Signature with date)

TERMS & CONDITIONS OF THE GRANT

1. The grant released is for the specific project sanctioned and the released grant should be exclusively spent on the project within the stipulated period. Any unspent balance out of the amount sanctioned must be surrendered to the Government of India by remitting to Consolidated Fund of India through bharatkosh (www.bharatkosh.gov.in).

2. The Institute will maintain separate audited accounts for the project and keep whole of the grant in a bank account earning interest.

3. All interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India, immediately after finalization of accounts, **at the end of each financial year**, as the interest accrued shall not be adjusted towards future release of grant

4. EAT module should be employed under PFMS

5. Procurement of equipment shall be as per General Financial Rules 2017.

6. The amount sanctioned under equipment should be utilized in the first year itself. Carry forward of unspent balance if any under equipment beyond the 2nd financial year need approval of Secretary, DST. Such carry forward of unspent balance shall be accorded only in extraordinary circumstances with proper justification from Principal Investigator (PI).

7. The permanent assets/equipment procured if any, in the project should be used by the intended beneficiaries even after completion of project tenure. A documentary proof to this effect should be submitted to DST. In case the investigators wish to retain the equipment procured under R&D projects for further research, prior approval should be obtained from DST for retaining the equipment in the Institute.

8. The Institution/ PI will furnish Yearly Progress Report. In addition, the DST may designate a Scientist/ Specialist or an Expert Panel to visit the Institution periodically to review the progress of the work being carried out and to suggest suitable measures to ensure realization of the objectives of the Project.

9. During the implementation of the Project the Institution will provide all facilities to the visiting scientist/ specialist or the Expert Panel by way of accommodation, etc. at the time of their visit.

10. In case of exceptional circumstances/unforeseen delays, request for extension for time period must be submitted to DST six months prior to the approved date of completion of the project.

11. At the time of seeking subsequent instalment of the grant, The Institution/ PI has to furnish the following documents:

   a) Utilization Certificate (UC) and Statement of Expenditure (SE) for financial year up to 31st March (in original or copy if sent earlier) in the prescribed format

   b) Request for approval of the DST to carry forward the unutilized grant to the next financial year for utilization, should be sent along with UC & SE, after completion of the financial year.

12. The Comptroller & Auditor General of India, at his discretion, shall have the right of access to the books and accounts of the Institution maintained in respect of the grant received from the Government of India.

13. All the personnel (including JRF/SRF/RA) appointed under the project, for the full/ part duration of the project, are to be treated as temporary employees and will be governed by the administrative rules/ service conditions (for leave, TA/DA etc) of the implementing Institute. They are not to be treated as employees of the Government of India and <u>DST will have no liability, whatsoever, for the project staff after the completion of the Project duration</u>. For the expeditious implementation of the research Project, the PI will take the assistance of the Institution in the process of selection and appointment of staff and payment to them.

14. Emoluments for the posts not covered under DST's norms are governed by the norms prevalent in the implementing Institution (only for central and state government institutes) or as agreed upon in consultation with the DST. For private institutions and NGOs, the emoluments for manpower will be as per the norms of DST.

15. DST reserves the right to terminate the project at any stage if it is convinced that the grant has not been properly utilized or satisfactory progress is not being made.

16. The Project becomes operative with effect from the date on which the amount is received by the implementing Institution through RTGS.

17. If the Principal Investigator (PI) to whom a grant for a project has been sanctioned wishes to leave the Institution where the project is based, the PI/Institution will inform the DST of the same at least 3 months in advance with suitable justification and reasons and in consultation with the DST, evolve steps to ensure successful completion of the Project.

18. The data pertaining to the project should be systematically collected, scientifically documented and submitted to DST which later would be placed in public domain. This clause would not be applicable for the projects where legal protection of the know–how generated is felt necessary.

19. Investigators wishing to publish technical/ scientific papers based on the research work done under the project should acknowledge the assistance received from the DST, indicating the scheme.

20. If the results of research are to be legally protected, the results should not be published without securing legal protection for the research results. For projects identified to have a distinct potential for generating know-how, in the form of product/ process, that could be protected through patenting, copyrights etc., the PI should follow the "Guidelines/ Instructions for Technology Transfer and Intellectual Property Rights" provided in the Guidelines for Implementing Research Projects booklet issued by the DST. [http://www.tifac.org.in] For further information/ clarification on this subject- The Director, Technology Information, Forecasting and Assessment Centre (TIFAC), Patent Facilitating Cell, Vishwakarma Bhawan, Shaheed Jeet Singh Marg, New Mehrauli Road, New Delhi- 110016, E-mail: tifac@nda.vsnl.net.in, may be contacted.