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

सत्यमेव जयते

Scheme for Young Scientists & Technologist (SYST)

CALL FOR PROPOSALS 2021

Engaging Young Researchers towards Socio-economic Development and Sustainable Development Goals (SDGs)

The Department of Science and Technology (DST) is encouraging young scientists and technologists towards delivery of science and technology (S&T) led solutions for identified socio-economic challenges through Scheme for Young Scientists and Technologists (SYST). Innovative S&T ideas in the form of proposal are invited under following identified themes:

A. Artificial Intelligence, Robotics and IoT for Societal Application in
- **Agriculture**
- **Rural Development**
- **Disaster Management**
- **Health**

B. Nutritional Supplements and Value-added Food Products for Human and Animals
C. Plant Based Health Products, Scientific Validation and Upscaling of Traditional Knowledge Systems
D. Cost Effective Health and Hygiene Aids
E. Effective Indigenous Methods of Disease Identifications and Monitoring
F. Natural Resource Based Livelihood Systems
G. Agricultural Tools and Agriculture Produce
H. Income Augmenting Agricultural Practices
I. Environment Sustainability & Renewable Energy
J. Additive Manufacturing

ELIGIBILITY

Qualification: Master's degree in any S&T stream. Those having PhD will be given preference.

Age: Less than 35 years on the last date of submission of the application. Age relaxation of 5 years for Women/ Differently-abled (Divyangjan) /SC/ST/OBC/EWS.

Institution: Applicant not in regular position should align himself/herself with an Academic or R&D Institution/ S&T based Voluntary Organization with minimum 5 years in existence for implementation of S&T based projects. The organization must agree to facilitate smooth execution of the project and provide necessary infrastructure/ facilities for this purpose.

Mentor: Mentor should hold a Permanent/Regular position and possess expertise in proposed discipline.

APPLICATION PROCESS

Applicants are required to submit a soft copy of the proposal through **http://onlinedst.gov.in** before or on **November 30, 2021**, in prescribed format available at DST website **www.dst.gov.in**. Project tenure proposed should not be more than three years. A hard copy of the full proposal in the prescribed format should be sent through post to the address given below (mentioning the TPN No.).

For any questions/queries relating to submission of proposal under this Call, Officer-in-charge or Coordinator SYST-DST may be contacted. A Screening Committee constituted by DST will screen the proposals received and only selected candidates may be called for presentation.

Officer-in Charge

Dr. Rashmi Sharma, Scientist 'F'
Science for Equity, Empowerment & Development (SEED) Division, Department of Science & Technology, Technology Bhavan, New Mehrauli Road, New Delhi-110016; Phone: **+91-11-26590541**; E-mail: **coordinatorsystdst@gmail.com**
Any queries call Coordination SYST at Phone: **0522-2297829; 8081700850; 9453210901**

NOTE

~ DST will not entertain Basic Research Proposal and incomplete applications.
~ Organizations/ Principal Investigator whose project proposal was not recommended by DST under the previous calls under SYST need not submit the same proposal again.
~ Candidates are requested to submit single proposal only.
~ Organizations/ Institutions/ Universities are requested not to submit more than 3 proposals under the Call. They may evaluate the proposal internally and send the best proposal(s) to DST. DST will consider only first three proposals and the rest may be rejected.
~ Project if recommended, will not be transferred to any other Scientist/ Researcher.

Scheme for Young Scientists and Technologists

Application Format

GOVERNMENT OF INDIA
DEPARTMENT OF SCIENCE AND TECHNOLOGY
MINISTRY OF SCIENCE AND TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI-110016

(For Official Use) Ref. No.-SYST-...../2021

FORMAT-1

Segment A (Personal Information)

1. **Name of the Young Scientist:**
2. **Address of the Host/Parent Institute:**
3. **Date of Birth:**
4. **Sex:**
5. **Category (please specify SC/ST/PH/OBC/General):**
6. **Telephone No.:**
7. **Mobile No.:**
8. **E. mail Address:**
9. **Present Position:**
10. **Please indicate the broad area of application:**
    Engineering/Health and Nutrition/Agriculture and related activities/Any other
11. Please specify the theme mentioned in Call for proposals 2021:
12. **Qualifications:**

S. No	Degree	Institute/University	Year of Graduating	Subject	Percentage
1.	Graduation				
2.	Post Graduation				
3.	PhD				
4.	Any Other				

13. **Professional Achievements Briefly:**
14. **Total Publications:**
15. **Five best publications in the proposed area of work:**

Segment B: General Information

1. Project Title (should be focused not exceeding 15 words):

2. i. Name of the Young Scientist:

   ii. Name of the Mentor:

3. Name of Organization & Address:

4. a. Type of Organization:
   Academic institution:
   Research organization:
   S&T Council:
   Other (please specify):

5. In case of Voluntary Organization/NGO kindly provide the details of projects that has been sanctioned by DST or by other central/state govt. deptt. or from foreign funding agencies in the past (up to 5 years)? If yes, provide details of completed and ongoing projects:

SN	Title of the project	File No.	Name of Division and funding agency (DST/DBT…..)	Date of completion/ status	Amount (Rs lakh)	Whether final UC/SE & project completion report has been submitted (if yes, mention date)

6. a. Whether, your organization is receiving any budgetary support from SEED, DST? *Yes/No*
   b. If yes, indicate whether activities of the present proposal are covered under the approved activities of project support provided to your organization by SEED, DST?

i.
ii.
iii.

7. Whether project activities require any clearance from relevant authorities in respect of any environmental/legal/ethical issues? Yes/No

8. Duration (months):

9. Cost (Rs. in Lakhs): Recurring _____ ; Non-recurring _____

10. Whether the Organization has been registered under PFMS? Yes/No

11. Whether the Organization is implementing EAT module? Yes/No

12. Please provide the unique identification code under PFMS:
    (i) UNIQUE Identification Code Under DARPAN Portal of Niti Aayog (For Voluntary Organization):
    (ii) Name of Account Holder:
    (iii) Name of the Bank:
    (iv) Saving Account No.
    (v) IFSC Code:
    (vi) MICR Code:

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Segment C- Technical Details

1. **Title** (Short & Focused not exceeding 15 words) :

2. I. **Statement of the problem** (200 words)
   i. State the main problem you seek to address:
   ii. Who has this problem, where does it occur?
   iii. How did you come to know of this, did the people who have problem approach you or you visualized it yourself?
   iv. Why is it important to solve it?

   II. **Baseline Data of the Identified location/Beneficiary**

   III. **Proof of concept/prototype devised (if any):**

   IV. **Technology gaps & Suggested solution** (150 words):
   (Describe how the proposal will lead to a novel and effective solution, **based on a scientifically and technically sound concept** and keeping in view the user needs and local availability of resources)
   i. Outline your idea or solution you plan to develop:
   ii Did you think up the technological solution within your team or was it thought up in consultation with others (who):

3. **Review of Status -** (100 words): Are you aware of any other initiative related to proposed activities to solve this problem? What were the outcomes?

4. **References**:

5. **Proposed Objectives** (Only 4-5 focused that can be observed, measured or clearly assessable**):**

i.
ii.
iii.

5. **Methodology** (100 words):
(Describe how the project will address the societal challenges in a sustainable way. Also explain how, and in what way, the project will contribute to the advancement of knowledge in the subject/topic. Support with defined steps/relevant process details, e.g. flow chart, model, survey procedures, protocols, engineering design/schematic/layout plan - as applicable to achieve the stated objectives)

6. **Work Plan** (150 words - Please also provide activities schedule – Pert Diagram):

   i. **Phase wise work plan of action with time line and deliverables in tabular form (**Describe how the proposal includes a plan for pilot application or trial in a realistic user environment of the technology/product, where the expected impacts to meet end user needs may be demonstrated to the fullest feasible extent).

   ii. **Technology Selection** (State the criteria used for selection of technology for addressing key problem(s) and the assessment of available technologies related to the project)

   iii. **Technology Development/Adoption/Modification/Capacity Buiding** – as applicable
   (Provide information on the new R&D/adapted R & D to be carried out for technology development/adoption/ modification and brief description of the technology or training package(s) to be used. Information should be provided on the scale of operation, minimum economic viable scale, estimated cost and likely benefits of the proposed technological intervention):

iv. Institutions/places where detailed lab/field testing or experiments will be carried out:

v. **Source of Technology**:

Source	Name of agency/institution/individual expert
Generated in-house by staff	
Generated in-house by employing outside experts	
Borrowed from an outside institution/expert	
Modification of technology/know-how being used by the beneficiaries	
Any other (please specify):	

vi. **Mechanisms for Beneficiaries mobilization & Involvement:**

(Please indicate how mobilization & participation of beneficiaries in the project work will be ensured)

Formation of new SHGs/technology user group or beneficiaries' group for project implementation
Involvement of existing SHGs
Through demonstration of usefulness of technology or training package
Involvement of beneficiaries through formation of enterprises Provision of certificates for participation/proficiency for beneficiaries Involvement of the beneficiaries as trainers and/or trainees
Financial contribution by beneficiaries in project execution
Material contribution (tools/raw material, labour, etc.) by beneficiaries in project execution
handholding through local panchayats/welfare organizations
Any others (please specify):_____

7. **Environmental, Legal and Ethical Issues:**

(Explain any environmental, legal and ethical compliance issues. Please mention how these will be addressed & enclose clearance certificate from concerned authorities if required)

8. **Deliverables** (the list below must correspond with and be derived from # 4, # 5 & # 6. Please also indicate affordability of deliverables to the target beneficiaries):

Deliverable	Mark √	Brief description
Product development/adaptation		
Process development/adaptation		
Technology package for development of the project area		
Technology capability development, training & documentation (e.g. reports, papers, articles, technology manuals, patents)		
Scientific knowledge and/or data generation leading to technology development in future		
Other (Please specify)		

9. **Estimated Benefits** (100 words):

Benefit	Mark √	Brief description
Economic (Cost-benefit analysis)		
Employment generation		
Social		
Environmental including potential for CDM benefits		
Others (Please specify)		

Note: Please also comments on the possible benefit sharing mechanism of project outcome by different stakeholders.

10. Self- sustainability of the project after SEED's project support is over (30 words):

11. Possibility of replication of project in similar areas (after the proposed technological solution is proven, how it will be distributed? Involving state govt. for large scale technology dissemination or via market or any other means - any entrepreneur or business person involved in the work in any manner?):

12. Suggest measurable indicators (**10-12 tangible as well as non-tangible along with means of verification)** for monitoring effectiveness of project interventions in respect to the stated objectives and deliverables. The indices you choose must permit objective measurement and determination *vis-à-vis* time line during project cycle comparing with base line data/control-list in the table is only indicative:

S. No.	Indicators (as applicable)
1	Increase in crop production
2	Increase in land productivity
3	Change in land use pattern
4	Increase in irrigated area and/or drinking water coverage
5	Increase in family income
6	Increased availability of resources (natural and/or physical) and assets
7	No. of beneficiaries using facilities created under the project
8	Increase in livelihood/ employment opportunities
9	Diversification of livelihood activities with description
10	Improved linkages with banking/ financing institutions
11	Improved linkages with Distt. authorities/State Govt/ PRIs
12	No. of SHGs/technology user groups/cooperatives and/or enterprises formed
13	Improved linkages with market/ enterprises
14	Improved health of beneficiaries/ sanitation/ Less drudgery in work
15	Improved access to energy sources
16	No. of skilled/non skilled workers trained
17	No. of new technologies/products/processes/ services developed/adapted
18	Adoption of newly developed product indicated by number of adopters
19	No. of organizations motivated and mobilized for replication of project achievements
20	No. of publications produced (Title, Journal, issue, yr.)

Segment D: Budget Details

BUDGET ESTIMATES: SUMMARY

(Rs. in lakhs)

Sl.No.	Item	Budget			
		1st Yr	2nd Yr	3rd Yr	Total
A	**Recurring** 1. Manpower 2. Consumables 3. Travel 4. Demo/Training programmes (if applicable) 5. Contingencies/Other costs 6. Institutional Overheads*				
B	**Non-Recurring** Permanent equipment Construction of work shed/structures Fabrication of prototype equipment				
	Grand Total (A+B)				

2. Financial Year : April to March
3. It is essential to provide brief & adequate justification for each item of expenditure.

A. Recurring:

1. BUDGET FOR MANPOWER

S.No.	Designation	No.	Qualification & experience	Monthly emolument (Rs)	Budget (Rs. in lakhs)			
					1st Yr	2nd Yr	3rd Yr	Total

2. BUDGET FOR CONSUMABLES*

S.No.	Description of consumable	Qty./Yr	Budget (Rs. in lakhs)			
			1st Yr	2nd Yr	3rd Yr	Total

* Includes items like chemicals, glasswares, supplies, seed, pesticides, fertilizers, raw materials for fabrication, stationery, etc.

3. BUDGET FOR TRAVEL

S.No.	Purpose	Budget (Rs. in lakhs)			
		1st Yr	2nd Yr	3rd Yr	Total
1	Project logistics				
2	Field activities				
3	DST review meetings				

i. International travel is not permitted from travel budget.
ii. The project personnel shall exercise utmost austerity while traveling.
iii. Please provide detailed justification for budget proposed under first two headings.

4. FIELD TESTING/DEMO/TRAININGS*

S.No.	Description of field testing/demos /trainings	No/Yr	Budget (Rs. in lakhs)			
			1st Yr	2nd Yr	3rd Yr	Total

* Include material for technology field testing/demo, training manuals, training expenses for beneficiaries. **Note:** For training give details about the subject of training(s), no. of beneficiaries/training, duration of training days, cost /training).

5. BUDGET FOR CONTINGENCIES*

S.No.	Item	Qty./Yr	Budget (Rs. in lakhs)			
			1st Yr	2nd Yr	3rd Yr	Total

* Includes items like computer time, secretarial assistance, documentation, cost of technology transfers/acquisitions (intellectual fees), lab/field trials, maintenance/servicing of equipment, incidental expenses, etc.

B. Non-Recurring:

BUDGET FOR PERMANENT EQUIPMENT/WORKSHED/STRUCTURES

S.No.	Equipment/Item details	Qty	Budget (Rs. in lakhs)
1			
2			
3			
4			

i. Include installation charges, transport, taxes/duties/levies, etc. Please try to avail tax/duty exemptions as applicable to your institution/organization.
ii. Budgetary quotations will be required for permanent equipment (estimates, if the equipment is to be fabricated locally for prototype testing etc) and other items under non-recurring head, once project is approved for financial support.
iii. Drawings/layouts, etc. prepared by authorized professionals/agencies should be submitted for proposed work shed/structures, if applicable, and supported by documents showing availability of required land along with consent letter from the owner (Panchayat/individual/Govt./etc.).
iv. Proper record should be maintained for the items procured under this Head.

Annexure-I

ENDORSEMENT FROM THE HEAD OF INSTITUTION
(TO BE GIVEN ON LETTER HEAD)

PROJECT TITLE: _____
_____

1. Certified that the Institute welcomes participation of Dr./Shri/Smt./Km. _____ as the Investigator and Dr./Shri/Smt./Km. _____ as the Mentor for the project and that in the unforeseen event, the Mentor will assume the responsibility for the fruitful completion of the project (after obtaining consent in advance from DST).

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

3. Institute assures financial and other managerial responsibilities of the project.

4. Certified that the organization has never been blacklisted by any department of the State Government or Central Government.

Name and Signature of Head of Institution

Date: ……

Place:……

REMARKS

In regard to research proposals emanating from scientific institutions/laboratories under various scientific departments the Head of the institution is required to provide a justification indicating clearly whether the research proposals fall in line with the normal research activities of the institution or not and if not, the scientific reasons which merit its consideration by DST.

Annexure-II

CERTIFICATE FROM THE YOUNG SCIENTIST

PROJECT TITLE: _____
_____
_____

1. We agree to abide by the terms and conditions of the DST grant.

2. We did not submit this or a similar project proposal elsewhere for financial support.

3. We have explored and ensured that equipment and basic facilities will actually be available as and when required for the purpose of the project. We shall not request financial support under this project, for procurement of these items.

4. We undertake that spare time on permanent equipment will be made available to other users.

5. We understand that this is PI centric project aimed to encourage young researchers towards societal research and it will not be transferred to any other researcher/scientist.

6. We have enclosed the following materials:

	ITEMS	NUMBER OF COPIES
(a)	Endorsement from the Head of the Institution (on letter head)	One
(b)	Copies of the proposals	3
(c)	Registration certificate, Memorandum of association, rules and regulations of the institution, Audited Balance Sheet and annual report of previous three years (in case of Voluntary Organization).	One

Date : ……

Place:……..

Name & Signature of Young Scientist

Name & Signature of Mentor

Annexure-III

PROFORMA FOR BIODATA OF INVESTIGATOR (Young Scientist & Mentor)

A. Name

B. Date of Birth

C. Institution

D. Whether belongs to SC/ST

E. Academic and professional career:

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

Professional career:

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

G. Five best publications in the proposed area of work:

H. Publication (Numbers only)

Books	Research Papers, reports	General articles
Patents	Others (please specify)	

H. (1) List of completed and ongoing projects

Sl. No.	Title of Project	Duration From to	Total Cost	Funding Agency

(2) List of projects submitted

Sl. No.	Title of the project	Name of Organization	Status

ANNEXURE IV

GUIDELINES FOR THE ACTION RESEARCH PROJECTS

1. Identify the project area and project site based on a preliminary assessment of the areas as well as the people, using the following criteria:

(i) Minimum level of infrastructural facilities particularly roads, electricity and potential for irrigation.
(ii) Presence of local organizations like Panchayats or cooperative or voluntary groups.
(iii) Certain numbers of homogenous villages are preferable in terms of their social structure.
(iv) Consultation with the concerned official in the area is desirable.

2. Identify the common resources in the village and the way the people utilize them or envisage utilizing them and the type of supervisory function exercised by the village community on these resources. If available, use remote sensing data for resource mapping.

3. (i) Identify any of the regular development programmes being implemented in the project area, agencies involved and beneficiaries covered. Identify sources of funds for these schemes in operation by Government sponsored programmes so that where possible, their efforts could be integrated into the experimental projects.
   (ii) Assess the impact of the ongoing programmes.

4. Building up rapport with the identified people at project sites by frequent informal visits, meeting with all sections of the people, discussion with leaders culminating in organizing gram sabha meetings.

5. Involve the local panchayat /organization in

(i) Identification of the beneficiaries
(ii) Identification of technology intervention need and schemes for the beneficiaries in consultation with them
(iii) Providing local supervision in the implementation of the programme

Attempt should be made to develop the project management of the local panchayat/ organization and they should be educated to handle the project on a continuous basis. This will be one of the measures of the success of the action research project.

ANNEXURE V

UNDERTAKING FROM YOUNG SCIENTIST

As this is a young scientist-oriented project, I will undertake all the approved activities under the project till the completion of the project tenure. Failure to complete the project objectives (without any justified reason) or leaving in midterm of the project would make me liable for returning the fund completely including manpower component.

(Name of the PI)
Signature with date

(Name of the Mentor)
Signature with date