

**BIRAC announces**  
**7th Call for Proposals under SPARSH**  
**On**

**Soil & Plant Health**

(Sensors & Diagnostics, Remote Sensing & Automation, Big Data Analysis & Web Based Platform)

*and*

**Human Health**

(Food & Nutrition, Ageing and Maternal & Child Health)

**About SPARSH.....**

SPARSH (Social Innovation Programme for Products: Affordable and Relevant to Societal Health) is the Social Innovation Programme of BIRAC aimed at promoting the development of innovative solutions to society's most pressing social problems through biotechnological approaches. Since its inception, the program has been investing in high impact ideas and innovations that could address unmet needs and challenges that are neglected.

Till date, six calls for proposals have been launched under the program. The first two calls of SPARSH were aligned with UN Millennium Development Goals 4 and 5 i.e., "*Reducing child mortality and improving maternal health*". The third and the fourth call for proposals were on "*Waste to Value*", and "*Ageing and Health*", respectively. A dedicated call on "*Waste to Value*" also reflects the mandate of Swachh Bharat Mission which aims at elimination of open defecation, conversion of unsanitary toilets to pour flush toilets, etc. The Fifth call on "*Innovative Diagnostic tools for Soil and Plant Health*" was launched on 26<sup>th</sup> January, 2017 for entrepreneurs and startups in the field of soil and plant health assessment. The theme of the Sixth call was "*Waste to Value*".

**Objectives of the Program**

1. To identify and provide support to cutting edge innovations towards affordable product development that can bring significant social impact and address challenges of inclusive growth.
2. To provide support in form of impact funding of biotech product innovations (with social goals) that can be scaled.

Under the Scheme funding is provided to support innovations towards affordable product development that can bring significant social impact and address challenges of inclusive growth. 46 projects have so far been supported and 13 products/prototypes/technologies have been developed.

## **ADDRESSING THE CHALLENGE**

### **Soil & Plant Health**

**(Sensors & Diagnostics, Remote Sensing & Automation, Big Data Analysis & Web Based Platform)**

India is an agrarian country where agriculture accounts for almost 23% of GDP and employs 59% of the population (<http://www.fao.org/india/fao-in-india/india-at-a-glance/en/>). Although important, it remains an underperforming sector. To meet the forthcoming demand and challenges with regard to increasing our crop productivity, there is an urgent need to develop and adopt new ecofriendly technologies. Over the last decade, various technical methods have been developed utilizing modern electronics to respond to field variability. This includes geographic positioning system (GPS)-based agriculture, site specific and precision farming which involves computer-oriented technologies, agricultural decision support software, Sensors, Diagnostics, Remote Sensing & Automation, Big Data Analysis, Web Based Platform, GPS and mapping systems, predictive modelling technologies, and unmanned aerial surveillance (UAS) and imaging, etc. It allows management decisions to be made and quickly implemented in the fields.

The Government of India has also launched a number of Initiatives in this direction. The Soil Health Card Scheme is one such major initiative under which soil samples of individual farmers are tested and analyzed in various soil testing labs to determine nutritional status and make crop-wise recommendations of fertilizers for higher productivity. While government is doing its utmost to assist the farmers in improving farm productivity through efficient use of agricultural inputs, young entrepreneur and start-ups too can play a pivotal role in this national endeavor by developing and commercializing low cost, easy to use devices and diagnostics linked to Smartphone apps for on the spot soil and plant health assessment. Increasing productivity and sustainability of agriculture depends, to a very large extent, on engaging young people in the sector, drawing on their energy and innovations. In order to engage, encourage and facilitate efforts of young educated minds, BIRAC is inviting proposals in the field of Soil and Plant health.

### **Human Health**

Food & Nutrition, Ageing and Maternal & Child Health are important aspects of human health which BIRAC proposes to address through their current (7<sup>th</sup>) Call for proposals under SPARSH program.

#### **a) Food & Nutrition**

Inadequate intake of food results in deterioration of physical growth and health and can lead to several public health problems like Protein Energy Malnutrition (PEM), iron (and other nutrient) deficiency anemia, stunting, low quality pregnancy leading to low birth weight, and vitamin A, folate, vitamin B12, zinc, omega-3 PUFA and vitamin D deficiency. Even if people are getting enough to eat, but not eating a balanced diet, they may still be at risk for nutritional deficiencies. With nearly 195 million undernourished people, India shares a quarter of the global hunger burden. Nearly 47 million or 4 out of 10 children in India are not meeting their

full human potential because of chronic undernutrition or stunting. Stunting has consequences such as diminished learning capacity, poor school performance, reduced earnings and increased risks of chronic diseases. The impacts are multi-generational as malnourished girls and women often give birth to low birth-weight infants. India has produced about 285 million tonnes of food grain in 2017-18 crop year (July-June) which was 9.72 million tonnes higher than the country's previous record during 2016-17 (<https://timesofindia.indiatimes.com/business/india-business/indias-foodgrain-production-touched-new-high-in-2017-18>). India has moved away from dependence on food aid to become a net food exporter. The government has launched a number of programs which include: the National Food Security Mission, Rashtriya Krishi Vikas Yojana (RKVY), the Integrated Schemes on Oilseeds, Pulses, Palm oil and Maize (ISOPOM), Pradhan Mantri Fasal Bima Yojana, the e-marketplace etc. The government has also taken significant steps to combat under- and malnutrition over the past two decades, such as through the introduction of mid-day meals at schools, *anganwadi* systems to provide rations to pregnant and lactating mothers, and subsidized grain for those living below the poverty line through a public distribution system. The National Food Security Act (NFSA), 2013, aims to ensure food and nutrition security for the most vulnerable through its associated schemes and programs, making access to food a legal right. The effective management of food intake and nutrition are key to good health. Smart nutrition and food choices can help prevent disease. Eating the right foods can help your body cope more successfully with an ongoing illness. The nutritional status of a population is critical to the development and well-being of a nation. The need of the hour is to have innovative technologies, products and processes to devise interventions for healthy eating. The aim of the seventh call is to address the issues related to Malnutrition and improve the nutritional status of the society.

#### **b) Ageing & Health**

Global population ageing is a challenge which needs to be addressed. Especially in developing countries population ageing changes the nature of demands on healthcare systems. In 2017, there were an estimated 962 million people aged 60 or over in the world, comprising 13 per cent of the global population. The population aged 60 or above is growing at a rate of about 3 per cent per year (<http://www.un.org/en/sections/issues-depth/ageing/>). There were nearly 79 million elderly persons (aged 65 years or above) in India; 42 million females and 37 million males ([https://www.indexmundi.com/india/demographics\\_profile.html](https://www.indexmundi.com/india/demographics_profile.html)). Both the share and size of elderly population is increasing with the passage of time. Common conditions in older age include hearing loss, cataracts and refractive errors, back and neck pain and osteoarthritis, chronic obstructive pulmonary disease, diabetes, depression, and dementia. Rising numbers of older people will put new and increasing demands on the healthcare system. The healthcare services will need to shift resources and services to respond to an aging population. The public healthcare system has to accommodate the needs of the older population and needs a revamping to address the associated challenges. The aim of the call is to work towards adding life to the ageing population.

#### **c) Maternal & Child Health**

Maternal & Child Health (MCH) remains one of the key determinants of health of a society. India shows poor MCH indicators especially infant mortality rate (IMR) and maternal mortality ratio (MMR). The theme aims to foster biotechnology in national priority area of MCH. The theme is aligned with the Millennium Development Goal 4 and 5 of WHO i.e. Reducing Child mortality and improving Maternal Health. MCH remains one of the key determinants of health of a society. India shows poor MCH indicators especially with regard

to IMR and MMR. The MCH area needs products and services that can alleviate the current situation that India and several developing countries face.

## **SCOPE OF THE CALL**

Under the present call, proposals are invited in the area of:

### **1) Soil & Plant Health**

- Sensors & Diagnostics
- Remote Sensing & Automation
- Big Data Analysis & Web Based Platform
- Other related areas

### **2) Human Health**

- Food & Nutrition
- Ageing & Health
- Maternal & Child Health

Products, Processes and Technologies with well-established Proof of Concept (PoC) that can be developed to a commercial product will only be considered.

## **AREAS FOR SUPPORT**

### **Soil & Plant Health**

- Development of efficient, low cost, easy to use sensors for estimation of pH, moisture, macro and micronutrients, organic matter, etc. for on the spot soil fertility analysis
- Development of software, and mobile app to analyze test results for appropriate soil amendments
- Use of GIS, GPS, and Remote Sensing techniques for capturing variability in soil fertility
- Big data analytics tools and techniques, IOT, etc.
- Tools/techniques for estimation of both pathogenic (fungi, nematodes, etc.) as well as beneficial organisms (rhizobia, mycorrhizae, etc.) in the soil
- Development of sensors/simple tools for estimation of nutritional status in plant tissue to determine nutrient deficiency and plan proper fertilizer application
- Rapid, specific and low cost diagnostic kits for on-site detection of various plant diseases caused by bacteria, viruses, fungi, etc. to minimize production losses
- Other related activities

## **Human Health**

### **Food & Nutrition**

- Projects that propose a process/product innovation in Food Processing using biotech interventions
- Public health problem linked to a nutrient or combined nutrient deficiencies (example: Anemia linked to iron/folate/B12; stunting linked to zinc/quality of protein intake; bone density linked to vitamin D and calcium intake)
- Development of high nutrient value food that complements the identified specific nutrient deficient diet (example: high iron content/bioavailability foods – processed millets or green leafy vegetables or fruit or herbs or their extracts; high quality proteins)
- Solutions to problems of overweight and obesity
- Proposals with efforts to produce low cost nutritious foods from indigenous and locally available raw material
- Addressal of micro and macro nutrient deficiencies through development of fortified foods with generation of clinical evidence
- Food safety and allergenicity
- Shelf life extension of perishable foods
- Health care products/ Nutraceuticals/ Dietary food supplements
- Probiotics for holistic health

### **Ageing & Health**

- Assistive Products and Technologies which can help in daily functioning and operations of aged. The technologies may include devices for helping mobility, hearing aids, Vision, Incontinence, Therapeutic foot wares, Orthoses, etc.
- Technologies for managing emergency conditions: Devices or products which can be used during emergency situation or can be used in improving Personal Emergency Response Systems (PERSs).
- Home-based Personalized Products: Products or technologies custom designed for aged and elderly. The products to assist home based services like assistance with essential, routine activities such as eating, bathing, dressing, and tasks required to maintain independence.
- Management of Age related diseases: It includes products, technologies or molecules targeting treatment or prevention of ageing diseases. Treatment options for aging diseases like Alzheimer's, Stroke, Neurological disorders, asthma, angina, arthritis, depression etc.
- Fortified food for Senior Citizen: New formulations or Composition which are prepared as per the requirements of senior citizens. Development of Therapeutic Nutritional products, Micronutrient rich products or supplements are included.
- Techniques for Life Style alternatives like pill organizers, Medication dispensers with alarms, Software for better medication adherence, Apps for management of diseases associated with life styles like hypertension, diabetes etc.
- Affordable and Innovative Diagnostic Tests: Development of efficacious screening or Diagnostic tests for diseases associated with ageing. Point of Care diagnostics devices, Telemedicine and Tele-consultation, Real time monitoring of specific diseases.

## **Maternal & Child Health**

- Prognosis of treatment of post-partum hemorrhage
- Neonatal and maternal screening for metabolic disorders, infections such as Sepsis, infectious diseases such as HPV, HIV, Hepatitis, Malaria
- Monitoring of physiological parameters such as Hb count, ECG, blood pressure, neonatal and infant care and child birth
- Monitoring and treatment of fetal growth and restrictions
- Food & Nutrition: Innovative projects in food & nutrition that could make an impact in nutritional intake of expectant mothers and children especially those that incorporate bio-fortification (including micronutrient enhancement)
- Deriving valuable secondary products such as nutrients from primary agricultural products (nutrients from rice bran for example) could be supported under MCH theme.
- Delivery models using approved commercialized MCH products including telemedicine initiatives for mother & child

## **TYPES OF PROJECTS SUPPORTED**

### **What is supported?**

- Proposals with well-established Proof-of-Concept
- Projects that propose a process/product innovation with significant potential impact or commercial potential
- Developed process should be sustainable from an economic and environmental point of view
- Should require only short term development (less than 24 months)
- Should be scalable
- The Technology Readiness Level (TRL) at the end of the project should be 6-7 (Pilot Scale Demonstration of the technology).

### **What is not supported?**

- Concepts/exploratory research ideas without proper Proof-of-Concept
- Projects with no or low element of novelty
- Solutions that require long term development
- Proposals without preliminary data and technology commercialization objectives
- Projects with no plan towards saleable (implementable) technology/ products/services
- Funding cannot be used to support PhD student research or any other academic research. The grant is not a research fellowship

## WHO CAN APPLY?

**Eligibility:** Proposals are invited from-

- Companies/Start-ups/Limited Liability Partnerships - LLP (*with minimum 51% Indian ownership*) are eligible to apply either alone, or in collaboration with another Company/Academic Institution
- Academic Institute, University, NGO, or Research Foundation, having proper registration/ accreditation from a government body are eligible to apply with one or more partners of which at least one is a Company

### ***Eligibility criteria for academic institutions***

- For Public or Private Institute, University, NGO or Research Foundation proper registration/ accreditation from a government body is mandatory

### ***Eligibility criteria for companies/LLP***

- Participating company should be registered under the Indian Companies Act, 2013 with at least 51% Indian shareholding i.e., shares of the Company should be held by Indian Citizens holding Indian passport
- Limited liability Partnership (LLP) incorporated under the Limited Liability Partnership Act, 2008 having a minimum half of the persons who have subscribed their names to the LLP document as its Partners should be Indian citizens
- Participating company/LLP should either have:
  - i. Adequate in-house facility for project implementation (which shall be evaluated during the site visit)
  - or
  - ii. Incubated with any of the recognized incubation centers at the time of proposal submission
- The Applicant should own the background Intellectual Property based on which the proposal is made.

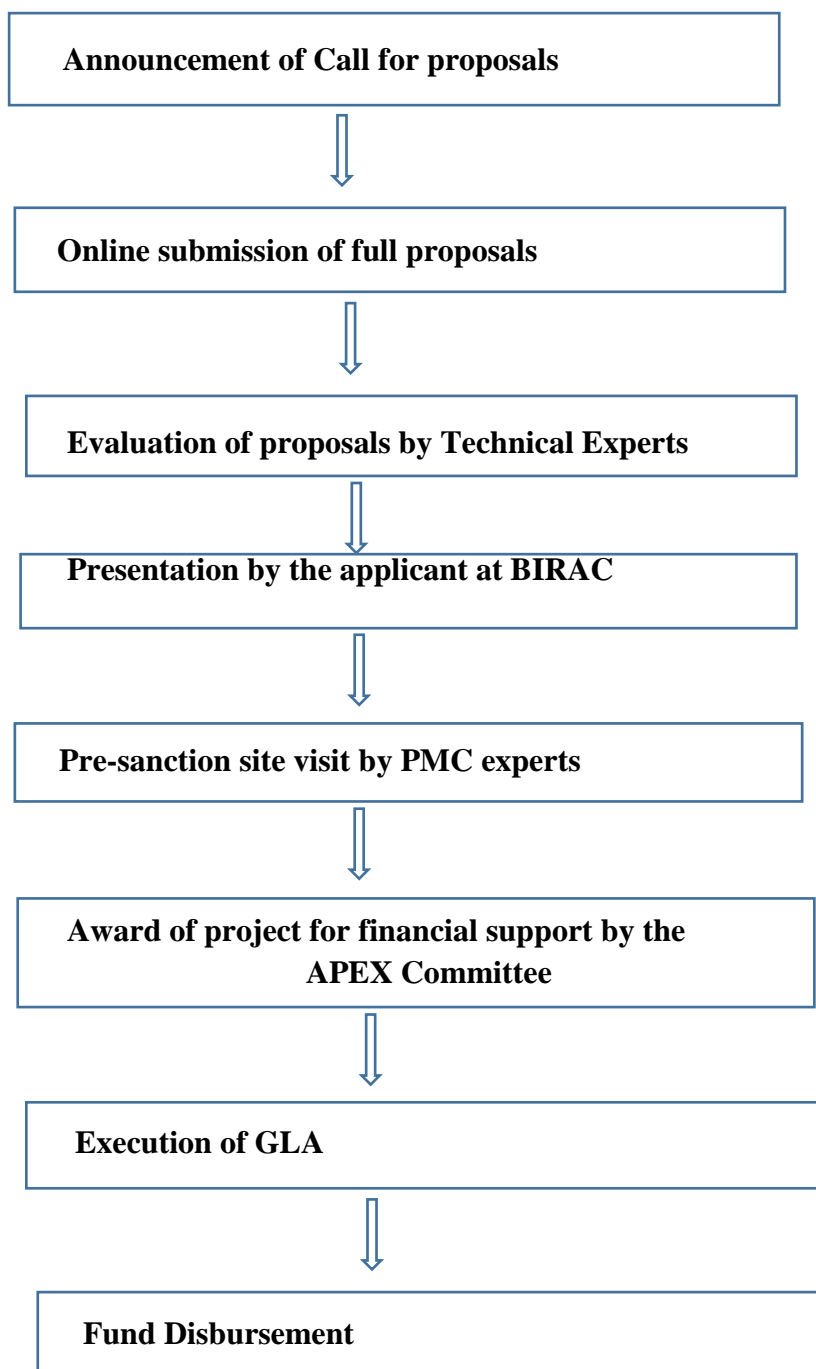
### **Note:**

- a)** *Any Company/LLP which is having two ongoing projects (as primary applicant or collaborator) in any BIRAC scheme that are scheduled to continue beyond 6 months from the closing date of the Call for Proposals shall not be considered for financial support*
- b)** *Applicants and Co- applicants should not have any other legal disqualification that will prohibit them from participating in the scheme process and execution of necessary agreements thereafter.*

## DURATION OF PROJECT

Up to a maximum of 24 months

## EVALUATION PROCESS



## FUNDING

Funding support will be in the form of Grant-in-Aid. The maximum cap is pre-determined and is as mentioned below:

- For proposals submitted by academia, 100% grant-in –aid to academia as well as its collaborator with a capping of Rs. 50 Lakhs per project
- For proposals submitted by Companies/LLP, there would be a capping of Rs. 100 lakhs per project (primary applicant + collaborator). The funding support from BIRAC under this category would be as follows:

★ Projects upto 50 lakhs : 100% grant from BIRAC

- ★ *Projects more than 50 lakhs but less than Rs. 100 lakhs:* BIRAC grant would be Rs. 50 lakhs + 50% of the cost over and above Rs. 50 lakhs. Remaining cost would be borne by the company

### **Fund Disbursement Policy**

The fund disbursement is milestone based and will be released in 4-5 instalments as per the timeline of the project.

| <b>Instalment No.</b> | <b>When</b>  | <b>Amount</b> (for proposal more than 12 month) | <b>Amount</b> (for proposal less than 12 month) |
|-----------------------|--|---|---|
| 1                     | Signing of Contract                                  | 30% of project cost                             | 30% of project cost                             |
| 2                     | Completion of 1st Milestone                          | 20% of project cost                             | 30% of project cost                             |
| 3                     | Completion of 2nd Milestone                          | 20% of project cost                             | 30% of project cost                             |
| 4                     | Completion of 3rd Milestone                          | 20% of project cost                             | NA  |
| 5<br>(Final) *        | Completion of project and submission of final report | 10% of project cost                             | 10% of project cost                             |

*\*Since the last instalment is released after conclusion of the project, its nature would be reimbursement.*

### **INTELLECTUAL PROPERTY RIGHTS**

IPR will belong to the applicant

### **DATE OF CALL FOR PROPOSALS**

The call would open on 2<sup>nd</sup> October, 2018 and shall close on 17<sup>th</sup> November 2018

### **CONTACT**

For scheme, please log on to <http://www.birac.nic.in> or

Contact **Head-Investment:** [investment.birac@gov.in](mailto:investment.birac@gov.in) or

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