Technical Eligibility criteria introduced for AIR and CRS applicants. For details kindly refer to page no. 4 - 5

REQUEST FOR PROPOSALS

for supporting

Development, validation & pre-commercialization of products/technologies

under

i4 (BIPP & SBIRI) and PACE (AIR & CRS)

from

Academia and Industry

Under the present call, proposals are invited ONLY in the following PRIORITY AREAS:

A. IMPORT SUBSTITUTES

BIRAC through its programmes has been playing a pivotal role in strengthening the biotech sector across the entire product development chain. BIRAC through its flagship schemes has been supporting projects from industries and academia across various field of biotechnology such as devices, diagnostics, drug, drug delivery, biotherapeutics, stem cells and regenerative medicine, vaccines, industrial biotechnology, veterinary sciences, aquaculture, agriculture and secondary agriculture.

Efforts were concentrated towards enabling the industry and academia to develop and validate the products/technologies to reach pre-commercialization stage. Recent pandemic has further pushed the ever rising need for self-reliance and self-sustainability in the field of biotechnology to meet the country specific needs and fill the gaps. The same has been emphasized by the Hon'ble Prime Minister of India.

In order to boost the Indian Biotechnology sector and promote the research and development in key areas of biotechnology, through this call, emphasis is being laid on development of indigenous technologies and products. Keeping up with the mandate of "Atmanirbhar Bharat" and realizing the potential of Indian Biotech Ecosystem in making India self-reliant and self-sustainable, proposals are invited from eligible companies, LLPs and academia in the following areas:

1. Components of diagnostic kits including reagents, probes, primers and other components needed for diagnostics
2. Development of novel technologies for production of monoclonal antibodies for therapeutic applications and diagnostics
3. New methods/technologies for Vaccine delivery and Cold chain distribution of Vaccines

4. Cost effective production technologies for Industrially relevant bio-based import substitutes
5. NGS based workflows for high volume screening including mutation detection
6. Technologies to enhance shelf life of packaged foods
7. Field usable diagnostic kits for disease and algal toxins relevant to aquaculture
8. Microfluidics based diagnostics relevant to Veterinary Sciences
9. Cost effective production technologies for APIs, intermediates, high value products, polymers, surfactants, fine chemicals, dyes, pigments, flavors and fragrances
10. Repurposing of Drugs

B. PLANT AND SOIL HEALTH MANAGEMENT

Agriculture plays a vital role in the Indian economy with over 70 per cent of the rural households depending on agriculture for their livelihoods. Agriculture contributes to around 17-18% of the country's GDP and provides employment to around 60% of the population. Though important, the sector hasn't been able to perform to its potential. To meet the forthcoming demand and challenges, there is an urgent need to develop and adopt new eco-friendly technologies for increasing our crop productivity.

Since long, it has been recognized that crops and soils are not uniform within a given field. 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 (precision agriculture) which includes computer-oriented technologies, agricultural decision support software, sensors and monitoring systems, GPS and mapping systems, predictive modelling technologies, and unmanned aerial surveillance (UAS) and imaging, etc. Application of these modern technologies would not only bring about considerable reduction in use of agricultural inputs such as water, fertilizers, herbicides, pesticides, etc. but would also provide opportunity to automate and simplify the collection and analysis of information. This in turn is expected to help the farmers to take more informed and precise decisions for judicious use of various agricultural inputs.

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 analysed in various soil testing labs to determine nutritional status and make crop-wise recommendations of fertilisers to enable them to achieve higher productivity. While government is doing it's utmost to assist the farmers to improve farm productivity through efficient use of agricultural inputs, academia 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 for on the spot soil and plant health assessment. It is in this background that the present Call for Proposals has been announced in the field of Plant diagnostics and Soil Health Management. The specific topics covered under the call are as below:

(i) *Soil Health Appraisal*

- Development of efficient and low cost sensors for estimation of moisture, macro and micronutrients, organic matter, etc. for assessing and analyzing soil fertility at farmers' field to decide on soil amendments and suitability of crops for that particular site
- Use of Geographic Information Systems (GIS), Global Positioning System (GPS), and Remote Sensing (RS) techniques for capturing variability in physical properties and soil fertility in specific fields
- Application of Big data analytics tools and techniques, IOT, etc. for soil health monitoring.
- Tools/techniques for estimation and diagnostics of both pathogenic as well as beneficial organisms in the soil

(ii) *Plant Health Assessment & Monitoring*

- Development of sensors/simple tools for assessing nutritional status/ deficiencies in plants for proper fertilizer application
- Rapid, specific and low cost diagnostic kits for on-site detection of various plant diseases caused by bacteria, fungi, viruses, nematodes, etc. to minimize production losses
- Use of remote sensing, AI, Drones, etc. for Real-time monitoring and forecasting of crop-specific pests and diseases
- Use and development of DNA probes/DNA chips/Nano sensors and other plant diagnostics methods for detection of diseases in the field
- Development of Tools and Technologies for preventing Post Harvest Losses
- Other related activities

Types of Projects to be supported:

- Products/Technologies with established Proof of Principle for AIR and Proof of Concept for CRS and i4.
- 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 and should be scalable
- The Technology Readiness Level (TRL) at the end of the project should be:
  - ✓ TRL 3 (Proof of concept established): AIR
  - ✓ TRL 6 (Early stage validation): SBIRI
  - ✓ TRL 7 and above (Late stage validation up to pre commercialization): BIPP & CRS

What is not supported?

- Exploratory research ideas with no commercialization potential.
- Proposals without preliminary data and potential for product/technology development
- Funding cannot be used to support PhD student research or any other academic research.
- **Proposals not falling under the above mentioned priority areas**

Who Can Apply?

Eligibility:

PACE:

Academic Institute, University, NGO or Research Foundation, registered/ accredited by a government body can apply either alone, or in partnership with academia or industry (while involvement of industry is optional for AIR Scheme, it is mandatory to have an industrial partner for CRS)

Under the scheme, academia (Public or Private Institute, University, NGO, Research Foundation or trust/society), National research laboratories having a well-established support system for research shall be the primary applicant. The PI has to be a permanent facility of the applicant entity. The applicant can apply either:

1. Individually, or
2. Jointly with academic and/or industrial partner which can be either a Company or LLP (please refer to eligibility criteria under PACE-CRS)

PACE-AIR:

Eligibility Criteria for academia:

For Public or Private Institute, University, NGO, or Research Foundation, proper registration/ accreditation from a government body is mandatory like UGC affiliation certification, AICTE, CSIR /DSIR/SIRO certificate etc.

Eligibility criteria (Technical) for applicants under AIR

- Applicant must have completed at least one extramural funded project in India (with minimum project duration of 3 years & in the same research area of the project proposed), project must have been funded by Govt. funding agencies or Industry. Related Sanction order or funding note to be uploaded as a proof.
- Applicant must have authored one publication (indexed in Scopus/web of science) as first or lead author, or patents (filed) in the same research area of the project proposed for AIR. Applicant must upload the published paper or filing documents related to IP at the time of submission of application
- Evidence of proof of principle (POP) and preliminary data, already gathered by the applicant, supporting the proposal is compulsory and must be submitted in the AIR application. Absence of which can result in disqualification of the proposal.

- A justification on how the project on completion would be CRS ready must be included. Therefore, the proposal should include the strategy for taking forward the outcomes and results towards product development with an industrial partner *(CRS scheme guidelines may be referred for further particulars)*

- Proposals involving agriculture should have viable product/technology as an outcome that can be considered for advanced trials by the industry/authorized national agencies.

- If the AIR proposal has industry participation, then the partnering/collaborating company/LLP should be more than 5 year after incorporation. Applicants are encouraged to have industry partners in order to demonstrate translational strategy.

- The final technical objective/milestone of the AIR proposal should reflect technology/ result that is near to industry readiness.

PACE-CRS:

1. Academia* has to be the Primary Applicant with one or more partners of which at least one is a company/LLP**

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

   ***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 (Indian citizens do not include Person of Indian Origin (PIO) and Overseas Citizenship of India (OCI) holders).*

   Participating Limited Liability Partnership (LLP) should be incorporated under the Limited Liability Partnership Act, 2008. Minimum half of the persons who subscribed their names to the LLP document as its Partners should be Indian citizens.

2. The applicant Company/LLP should have adequate in-house facility to address the project implementation (which shall be evaluated during the site visit) or incubated with any of the recognized incubation facility.

Eligibility criteria (Technical) for applicants under CRS

- Evidence of proof of Concept (minimum TRL – 3) and validation ready data supporting the proposal is compulsory and must be submitted in the CRS application. Absence of which can result in disqualification of the proposal
- Proposals that have received AIR funding should have the same industrial partner who collaborated for AIR project. Any deviation must be duly justified with clarity on IP governance.
- The CRS proposal should be accompanied by the Commitment Letter by the industrial partner to exercise the first right for monetizing the product/technology

SBIRI and BIPP:

1. The proposals can be submitted

   a) solely by a Company* incorporated under the Companies Act, 2013 or Limited Liability Partnership (LLP)** incorporated under the Limited Liability Partnership Act, 2008 or Joint Ventures either in the form of Company/ LLP

   b) by any of the above entities jointly with other private or public partner(s) (Universities or Institutes).

**Minimum 51% of the shares of the Company should be held by Indian Citizens holding Indian passport (Indian Citizens do not include Person of Indian Origin (PIO) and Overseas Citizenship of India (OCI) holders)*

***Minimum half of the persons who subscribed their names to the LLP document as its Partners should be Indian citizens.*

2. ***The Applicant Company/LLP should either:***

   a) Have adequate in-house facility to address the project implementation (which shall be evaluated during the site visit) or

   b) Incubated with any of the recognized Incubation Facility

3. ***For Academic collaborator:***

   ✓ Eligible Academia shall mean an entity which is having proper establishment documents:

   ✓ For Public or Private Institute, University, NGO, or Research Foundation, proper registration/ accreditation from a government body is mandatory like UGC affiliation certification, AICTE, CSIR /DSIR/SIRO certificate etc.

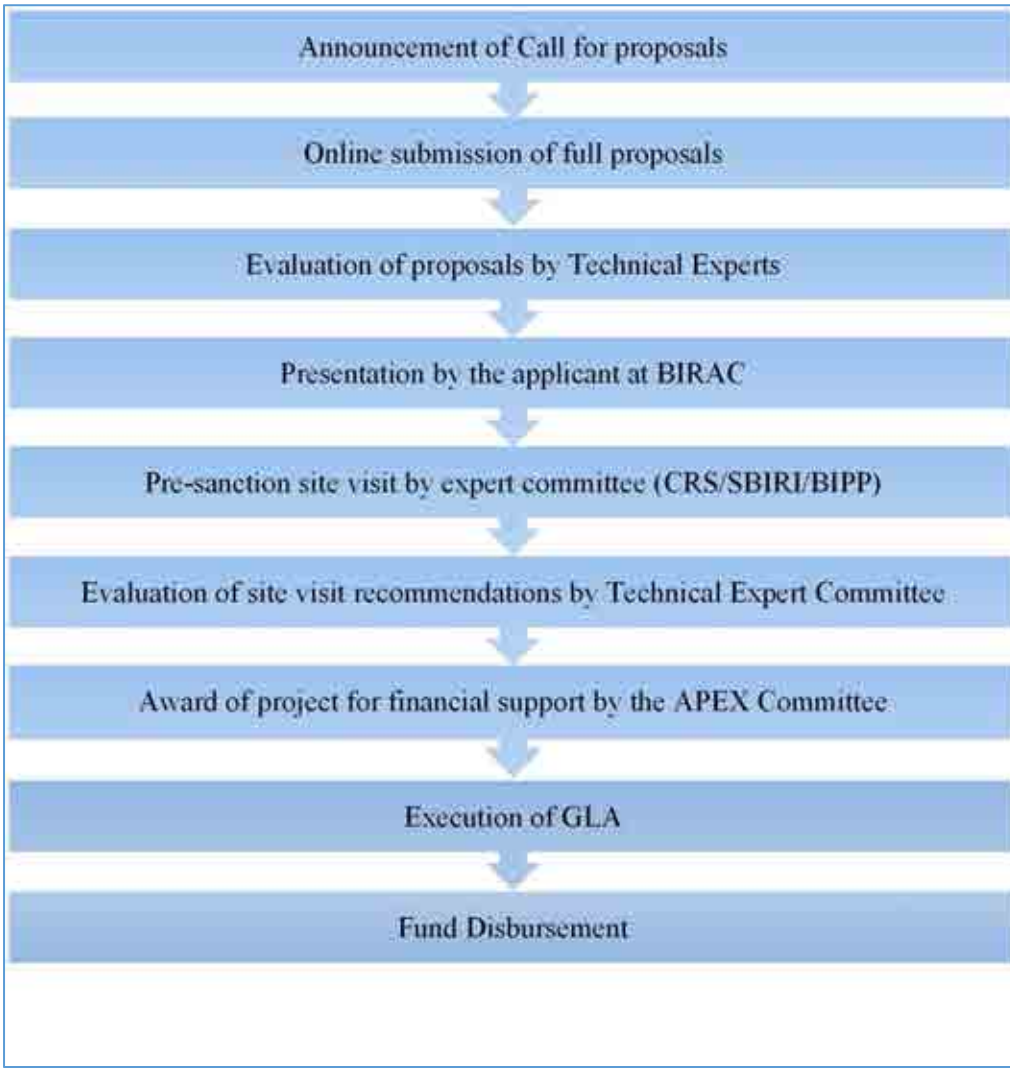
Ineligibility:

- Applicant who had withdrawn their proposal after approval from Apex committee or whose project was foreclosed due to inadequate funds or any other irregularity would be debarred from submitting fresh proposals for next 3 calls (1 year) unless the withdrawal was due to papers not being ready.
- Proposals submitted in collaboration with companies defaulting on repayment of loan or are irregular with regard to repayment of instalments to BIRAC would be considered ineligible.

Duration of Project

Up to 24 months for proposal submitted under PACE-AIR. No specific duration has been fixed for PACE-CRS, SBIRI and BIPP schemes.

Evaluation Process



**Please note that the decision of the committee at any stage of the evaluation would be final and reconsideration requests would not be entertained. The applicant may reapply in the next call providing clarifications to the committee's comments/recommendations.*

Funding

Funding support will be in the form of Grant-in-Aid and is **scheme specific.** Kindly refer to the guidelines of respective schemes for more details by visiting http://www.birac.nic.in

Fund Disbursement Policy

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

1	Signing of Contract	30% of project cost	30% of project cost
3	Completion of 2nd Mileston	20% of project cost	30% of project cost
(Final) *	submission of final report		

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

Duration of Call for Proposals

The call would open on 15th February, 2021 and shall close on **31st March, 2021** at **5:30 p.m.**

Additional information

For details related to TRL definitions, schemes and submission of proposals, please log on to http://www.birac.nic.in

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