CALL FOR PROPOSALS

ADVANCED RESEARCH GRANT

The Anusandhan National Research Foundation (ANRF)

ANRF has been established through an Act of Parliament (ANRF Act, 2023), to promote Research and Development (R&D) and foster a robust culture of research and innovation throughout India's Universities, Colleges, and National Research Laboratories, and other recognized research institutions. ANRF acts as an apex body to provide high-level strategic direction to scientific research in the country in alignment with the recommendations of the National Education Policy. ANRF supports collaborations among academia, government departments, research institutions, and the industry to propel the nation towards excellence in science and technology

(A) Introduction to the ARG Program: Advanced Research Grant (ARG) is a competitive program providing financial assistance to researchers and scientists in academic institutions, National Research Laboratories, and other DSIR-SIRO recognised research organisations eligible to receive grants-in-aid from Government of India (GoI) to carry out high-impact fundamental or basic research (Technology Readiness Level (TRL) 1-3) and use-inspired applied research (TRL 1 – 6) in frontier areas of science and technology. This program encourages participation from emerging, mid-career, as well as established researchers, offering funding opportunities for individual and collaborative projects The proposals are expected to develop innovative approaches to advance knowledge in their respective fields with potential for transformative impact In addition to supporting individual, curiosity-driven fundamental, and use-inspired applied research initiatives that explore bold, contemporary ideas, the ARG Program particularly encourages the following types of research inspired by potential for transformative impact:

- Collaborative Research involving multiple investigators across institutions or disciplines (in small collaborations or larger collaborations).
- Interdisciplinary Research that bridges diverse fields to address complex scientific questions and pressing societal challenges of India or the world.

- (B) Objectives and Scope of the Program: The ARG Program supports research and development in frontier areas of natural sciences including mathematical sciences; engineering & technology; environmental sciences; earth & atmospheric sciences; and scientific & technological interfaces of humanities & social sciences. It aims to harness the collective potential of the Indian R&D ecosystem and ensure the nation's future preparedness, in line with the Viksit Bharat initiative of the Government of India and has the following objectives:
- To provide robust and timely research support to researchers in recognised academic institutions, National Research Laboratories, and other recognised research organisations in India.
- To support original, novel, and scientifically ambitious research that has the potential to significantly advance knowledge and practice in its field.
- To promote collaboration among researchers, leading to high impact interdisciplinary projects to tackle complex scientific and societal challenges.
- To encourage collaboration between researchers in recognised academic institutions/ National Research Laboratories/ other research organisations and industry partners and researchers.
- To encourage bold, innovative approaches that address contemporary and future challenges and opportunities at both the national and global levels.

(C) Eligibility Criteria:

1. Nationality of the Principal Investigator (PI) and Co-Principal Investigator(s) (Co-PI(s)) (1) Indian citizens, (2) Foreign nationals (including OCI and PIO) employed in an eligible institution (see paragraph C 2) in India (as a PI with an Indian Co-PI, or as a co-PI with an Indian PI), provided they have sufficient residual official service

- in India (project duration+1 year) and fulfil the eligibility criteria notified by ANRF (Norms for OCI and PIO to apply for grant in ANRF).
- 2. The applicant(s) (PIs and Co-PIs) must hold a regular academic, research or Professor of Practice position in a recognized academic institution or National Research Laboratory or in any other recognized research organisation in India. In respect of cases that are not mentioned above, ANRF reserves the right to determine the eligibility.
- 3. The applicant(s) must hold a Ph.D. degree in Sciences, Mathematics, Engineering, Medicine, Social Sciences or must hold Master's Degree in medicine, surgery, or dental sciences (M.D. / M.S. / M.D.S.) with two years research experience at the time of applying for grant. Researchers pursuing Ph.D. (Full-Time/Part-Time) are not eligible to apply.
- 4. The term "Regular" in the context of ARG refers to applicants who are appointed against a sanctioned post or on a tenure-track post of an Institute/University, and are likely to be renewed after the end of the tenure. Research Associates, Post-doctoral fellows, Ad-hoc faculties, Guest Faculties, Visiting Scientists, Consultants, Project Fellows, Faculty members/researchers whose contract is renewed every year are not eligible to apply. In respect of cases that are not mentioned above, ANRF reserves the right to determine the eligibility.
- 5. Faculty members recruited through, INSPIRE Faculty Fellowship, Ramanujan Fellowship, and Ramalingaswamy Fellowship Programs are also eligible to apply. Pls or Co-Pls in these fellowships may also study section H (Transfers), about transferring their project to a new institution or regularizing in the same institution.

6. Service Duration:

(a) In general, PI and Co-PIs should have at least "the duration of the proposed project **plus** one year" of official service remaining at the time of submission of

proposals (for purposes of computation, the last date for submission of proposals will be taken).

- (b) Notwithstanding the above, for faculty or researchers who will be of age 65 during the period of the project or individuals who super-annuated during the period of the project, and who are officially re-appointed by the host institution and allowed to be PIs, ANRF permits such individuals to submit to and/or participate in ARG as a PI (or Co-PI), but there must be another Co-PI (or PI respectively) on the proposal who satisfies Section C 6 (a).
- (c) Under no condition will ANRF projects be allowed to continue with a PI or Co-PI aged 70. Such individual's host institution should ensure the transfer of PI responsibilities to Co-PI who satisfies Section C 6 (a), and undertake that all other terms and conditions of the grant are met.
- 7. Private Academic institutions with valid UGC / AICTE / PCI approval, private R&D Institutions with valid DSIR-SIRO recognition, and voluntary and non-governmental organizations (NGOs) registered under NITI-AAYOG Darpan portal are eligible to host a project.
- 8. Overlap of Proposals: The proposals submitted to different funding organizations or programs within Government of India (GoI) must not have scope overlap of the specific work for which funding is sought. In their proposal, PIs are encouraged to mention other projects/proposals ongoing with GoI and articulate the differences of the submitted proposal proactively.
- 9. The role and technical contribution, and accountability of each PI or Co-PI must be clearly articulated in the pre-proposal and full proposal. Co-PIs cannot be added in name only, or with a weak contribution or accountability. This can be ground for rejection at the pre-proposal review stage (see section G).

(D) Evaluation Criteria:

- Scientific quality and novelty. Breakthrough thinking, disruptive innovations or leapfrog ideas in all projects, and radically lowered costs or value in applied projects are encouraged.
- Potential for advancing the state-of-the-art in scientific or technological baselines (for fundamental/basic research), or economic baselines (for applied projects).
 Significant advances will be prioritized over incremental advances.
- Clarity of deliverables and outcomes. The proposals are expected to articulate
 clearly the deliverables and expected impact, at the commencement and at the
 conclusion of the project. Bold high risk / high reward ideas are encouraged, with
 an articulation of the asymmetric upside on a positive outcome, and elaboration of
 a risk mitigation strategy including fail fast, and iterated learning.
- Feasibility and innovation in research methodology
- Potential for high impact in the advancement of knowledge in the field or applied outcomes beyond publications and patents. Impact articulation is critically important for 4 and 5 year proposals (with concrete interim impact after 3 years), and larger budget collaborative proposals (exceeding ₹ 1 CR).
- Interdisciplinary proposals should clearly bring out the integration of subject disciplines with a compelling rationale, as well as cohesiveness and complementary expertise in the team.
- The content of the submitted proposal (and presentations in the review process)
 will be the primary source of evaluation. As an additional, or secondary source,
 evidence of relevant expertise in the proposed area, and performance in past
 projects, by the team of investigators may be considered in the evaluation.

(E) Guidelines:

- Only one researcher will lead the project as a Principal investigator (PI) with full
 ownership of the project. A proposal may include Co-PIs, either from the same
 host institute or other institutions. ANRF encourages PIs or co-PIs from emerging
 academic institutions with well-defined roles to promote research and innovation
 capacity development across the country.
- 2. A proposal can be submitted by a team comprising the PI and up to two Co-PIs. Multidisciplinary proposals may have a larger team comprising the PI and up to 5 Co-PIs. Researchers who wish to contribute scientifically to the project without any need for funding may be included as "Honorary Investigators." ANRF further encourages participation of researchers from the industry/private research labs as Investigators, without funding support to them.
- 3. The PI and host institution will be the point of contact with ANRF. In the case multiple institutions participate in a project, the PI and host institution shall take full responsibility for coordinating with all the investigators of the project to ensure the successful completion of the project objectives, including financial closure. ANRF is moving towards a principle of administrative responsibility to be held by the host institution, and technical responsibility by the PI. Till this is not fully implemented, the PI and host institution will hold joint responsibility. PIs are advised to inform their host institutions' administration and ensure an administrative nodal point of contact is also provided to ANRF for the administrative responsibility.
- 4. It may be noted that financial support for an ARG project will be provided to at most three institutions: the institution of the PI, and up to two additional institutions, each represented by at least one Co-PI.
- 5. For collaborative projects, it is mandatory to have a Co-PI from the lead host institution, with the required number of years of official service remaining (project duration plus one year), to enable the Co-PI to take up the responsibility of successful completion of the project (with the approval of ANRF) in the absence of or discontinuance of the PI. This consideration should be incorporated during the formation of the project team, consistent with eligibility outlined in Section C. For individual projects it is sufficient to have just the PI alone.

6. In the case of proposals that essentially need certain additional domain expertise and where neither the PIs nor the Co-PI(s) can provide that specific expertise, it is imperative that a domain expert be included as an Honorary Investigator.

[The Advanced Research Grant (ARG) subsumes the Core Research Grant (CRG) of the erstwhile SERB]

(F) Nature & Duration of Support :

- 1. The ARG Program offers funding for projects for a maximum period of five years. For a project beyond three three-year duration, while the sanction order will be for the longer duration, funding is normally provided for a duration of three years. Extensions to four or five years may be considered; however, extended support beyond the initial three-year period will be provided in a phased manner (i.e. 3+1 for 4 years and 3+1+1 for five years), contingent upon demonstrated research progress, impact and outcomes, in addition to publications and patents.
- 2. Budget: The research grant will be provided under two budget heads: (A) Recurring [Research personnel, Consumables, Travel, Field Work Costs, Contingencies and other costs (to cover Cloud Compute Credits, Software Licenses, Publication Costs, Annual Maintenance Charges, Short-term Facility Access)] and (B) Non-Recurring (Equipment, Software Purchased, Long-term purchase of cloud or remote facility access). An indicative breakup is to be provided under each head. Once the funds are sanctioned, flexibility is provided to move the funds, with proper documented justification, across different items within (A) (Recurring Head), or across different items within (B). However no reallocation of funds will be permissible from (A) to (B) or vice-versa. "Overheads" will also be provided to the host institution, over and above the total project cost, as per prevailing norms of ANRF. Operational flexibility is provided to utilize funds under Recurring head subject to the following conditions:
 - (a) Research Personnel. Operational flexibility is provided for engaging research personnel in the project. The norms for emoluments, and general terms and conditions of research personnel engaged in the project will be as per ANRF

- norms, informed through Office Memoranda viz., ANRF/OM/N/01/2024 and SB/S9/Z-06/2019 and updated from time to time.
- (b) All personnel, including Research personnel engaged 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 host institute. They shall not to be treated as employees of the ANRF or Government of India nor permanent employees of the host institute.
- (c) *Travel:* Budget of up to Rs. 5 Lakhs will be provided for a project to undertake travel related to the project. International travel for project-related work is also permitted within this travel head.
- (d) *Contingency:* Contingency funds of up to Rs. 5 Lakhs will be provided for a project. They can be also utilized for registration charges for international conferences.
- (e) The PI shall ensure that the total funds sanctioned under the recurring head is not exceeded in any case.
- (f) Publication and patent filing charges: Expenditure towards open access publications in top journals of any discipline is permitted. However, the PI must obtain prior approval from ANRF to utilize the project funds for publication related expenditures, through the ANRF online portal. Funds under the recurring head can also be utilized for patent filing charges.
- (g) Equipment: The change of approved or sanctioned equipment is generally not permitted and may only be considered on a case-by-case basis, provided it is within the sanctioned budget for equipment/s. The PI must obtain prior approval from ANRF to change the approved or sanctioned equipment.

[Refer ANRF OM ANRF/OM/N-01/2024 for details on overheads, travel and contingency]

3. In the case of proposals from National Research Laboratories and other recognised research organisations, it is mandatory to have at least one Co-PI from an academic institution. While the Co-PI can be from any academic institution, considering Co-PIs from emerging or less endowed institutions will be encouraged. This facilitates synergistic collaborations among the entities involved.

- 4. National Research Laboratories (NRLs) and other recognized research organisations shall contribute 50% of the non-recurring cost only of the portion of the budget for their institutions. For projects with total outlay exceeding ₹ 1 Crore, 50% of the non-recurring expenses only in the portion of the budget for those institutions shall be contributed by the National Research Laboratory or recognized research organisation of the PI/Co-PI.
- 5. Applicants are encouraged to consult the **Annexure** for the list of Verticals for the ARG Program. Applicants are welcome to submit proposals that align with the objectives of the ARG Program and map it to the best Vertical. In the case of inter-disciplinary proposals, the proposal may be submitted to the vertical covering the primary discipline.
- 6. The upper limit for project funding under the ARG Program is ₹ 5 Crores for maximum period of 5 years.

(G) Application, Evaluation, and Selection:

- 1. For this particular ARG Program CFP (Call for Proposals), due to the anticipation of a very high number of submissions, a researcher is eligible to apply for at most one proposal as a PI and at most one proposal as a Co-PI. This condition is expected to be relaxed in future calls.
- 2. No technically rejected proposal should be resubmitted without substantial revision to any program under ANRF.
- 3. An investigator in a PI or Co-PI role is allowed to hold at most four (4) ANRF-funded or erstwhile SERB-funded individual-centric projects at any given time. Note this condition does not apply for the investigator's participation in ANRF mission mode programs (eg: the investigator may be a PI or Co-PI in ANRF MAHA missions, ANRF PAIR program etc. in addition to this limit).
- 4. The CFP for the ARG Program will be notified through the website "www.anrfonline.in". The research proposal should be submitted only through the website "www.anrfonline.in." Proposals submitted through any other mode will not be considered.

- 5. A compact pre-proposal (as per a prescribed format) needs to be submitted in addition to the full proposal (along with all requisite documents) by the deadline. Pre-proposals will be screened at level 1, and only the full proposals of the short-listed pre-proposals will be reviewed further. The shortlisted full proposals will be subjected to a rigorous assessment with the help of subject matter experts at level 2. Applicant(s) of the full proposals that clear the review process may be invited for a discussion/presentation.
- 6. Selection for funding will solely be on the basis of scientific merit of the proposal and the evaluation criteria detailed out in section D. Larger value proposals (exceeding ₹1 CR) will undergo another round of evaluation at level 3. In larger collaborations or larger proposals, an even sharper focus will be placed on evaluating quality, impact, potential outcomes, and quality, coherence and integration of the collaboration team and interdisciplinary components.

(H) Transfer or Termination:

- 1. A PI who resigns from his/her host institution and wishes to terminate the project or have the project transferred to a different institution shall inform ANRF immediately, with a detailed appropriate justification, for favour of consideration. ANRF will not consider requests for change of institution of the PI if less than six months are remaining in the project. The host institution shall not incur any expenditure from the date of resignation of the PI. The host institution shall arrange for the submission of all relevant documents.
- 2. ANRF reserves the right to terminate the project at any stage if it is convinced that (i) inadequate progress is being made in the project; or (ii) the grant has not been appropriately utilized; or (iii) false information has been furnished to ANRF.
- 3. During the execution of the project, requests from a PI to transfer the project from one institution to another institution within India, on account of career growth will be favorably considered by ANRF, provided the intimation is obtained well in advance, prior to moving from one institution to another. However, investigators mentioned in point no. (5) of the eligibility criteria can apply for transfer in the event of a shift from (a) Private/public/government institution to any other private/public/government

- institution; or (ii) contingent on general administrative transfers in government or public-funded institutions. In respect of cases that are not mentioned above, ANRF reserves the right to allow or deny the transfer of the project.
- 4. During the tenure of a sanctioned project, if the PI leaves the host institution due to medical reasons, moves to another institution on lien, or superannuates and is not officially appointed for an extended period and allowed to be a PI by the host institution, the project may be transferred to a Co-PI from the same host institution, provided that all other terms and conditions of the grant are met. In respect of cases that are not mentioned above, ANRF reserves the right to allow or deny the transfer of the project.
- (I) Plagiarism: Proposals submitted must be original in ideation and content. ANRF follows zero tolerance for plagiarism in any form. All submissions will undergo a third-party plagiarism check and any proposal found to contain plagiarised content will be rejected. Any form of text included verbatim from another source must be identified using quotation marks, with an appropriate citation (including use of Al tools). Applicants are strongly encouraged to pre-check their proposals for plagiarism prior to submission in order to avoid rejections.

(J) Online Application:

For online submission of the research proposal, the following points may be noted:

- 1. Applicant should first register on the online website www.anrfonline.in <u>click here to</u> <u>register</u>. Applicants who are registered with the SERBONLINE portal(www.serbonline.in) may log in to anrfonline.in using the same credentials.
- After the log-in, the applicant is required to fill-in all the mandatory fields in Profile
 Detail section under User Profile which includes Bio-data, Photo, Institution address, etc.

- 3. In respect of proposals having Co-PIs, it must be ensured that all the Co-PIs are also registered in the ANRF system following steps 1 and 2 above.
- 4. Pre-proposal Submission: Pre-proposals and full proposals must be submitted together on the same deadline. Pre-proposals are required to be submitted following a standard web-based template on the portal.

Full Proposal Submission: Leading details of the full proposal such as Title; Summary; Keywords; Objectives; Expected Outputs and Outcome; and Proposed Budget have to be provided in the online web based template. Please read the ANRF OM No. ANRF/OM/N-01/2024 dated 01.10.2024 before filling in the details. The scientific part of the full proposal is to be uploaded as a single PDF file with a limit of up to 15 pages (in 11 pt font), excluding references A standard template and guidelines for preparation of the full proposals is available for download from www.anrfonline.in.

(K) Frequently Asked Questions (FAQs)

1. I wish to apply for an extramural research grant under the ARG Program.

What is the maximum amount of the grant that will be funded?

The PI is expected to propose a realistic budget for the proposal as needed for its successful implementation. The upper limit for project funding under the ARG Program is ₹ 5 Crores for maximum period of 5 years. Proposals larger than ₹ 1 crore will undergo another round of evaluation, and will undergo deeper impact, technical and team scrutiny.

2. In how many project proposals can a researcher get involved as a PI, Co-PI, or as an Honorary Investigator under the ARG Program?

For the current ARG call, a researcher can be concurrently involved in at most one project proposal as a PI and at most one project as a Co-PI. There is no limit on number of proposals where they are an Honorary Investigator (subject to the time they need to devote to their primary PI or Co-PI commitments). This condition on PIs and Co-PIs is imposed for this particular call in anticipation of a large number of proposal submissions, and will be relaxed in future calls.

3. Can the PI and Co-PIs belong to different institutions?

ANRF encourages multi-institutional participation and therefore the PIs and Co-PIs can be from different institutions. The host institution of the PI should make contingency arrangements for changeover of PI in case of unforeseen event of discontinuance of PI.

4. Can a budget be provided separately to PI and Co-PIs in case of different institutions?

Certainly. A separate budget can be provided to the institutions of the Co-Pls (with a limit of up to two other institutions) if the work proposed requires complementary expertise for its implementation.

5. Are there any priority research areas for support under the ARG Program?

ARG is a broad-based funding program, where applicants are encouraged to submit high quality proposals based upon their best ideas, rather than ANRF directing them to priority research topics. The world's major scientific advances have often come from PIs proposing amazing ideas that change the world. Applicants are welcome to submit proposals in related or emerging topics that align with the objectives of the ARG Program.

6. Can a Co-PI be included after the Project has been launched?

It may be possible, under compelling reasons, to add a Co-PI after the project has already been launched. This will be on the condition that no separate budget allocation will be provided to the Co-PI being included. An Honorary Investigator (eg: industry collaborator) may also be similarly added.

7. Can investigators from private institutions or NGOs submit proposals under this Program?

Yes. As per Section C (7), Private Academic institutions with valid UGC / AICTE / PCI approval, private R&D Institutions with valid DSIR-SIRO recognition, and voluntary and non-governmental organizations (NGOs) registered under NITI-AAYOG Darpan portal are eligible to host a project, i.e. investigators (PIs or Co-PIs) can submit proposals from these institutions. They could also participate as Honorary Investigators without funding, provided all the eligibility criteria specified by ANRF are fulfilled.

8. In the case of a multi-institution project, what is the role of the PI?

In the case of multiple institutions participating in a project, the PI and host institution should take full technical and financial responsibility for completing the project successfully in all respects including financial closure. The PI and the administration of the host institution will be the point of contact with ANRF.

ANRF is in the process of Ease of Doing Research (EoDR) transformations to reduce the administrative and financial burden on PIs and Co-PIs; and moving this responsibility operationally to the administration of the host institution. This will allow PIs and Co-PIs to focus on technical responsibility, impact, quality and outcomes. Till this transition is complete, the responsibility is joint between the PI and the administration.

9. Can a topic other than those mentioned by ANRF under this program be proposed?

Yes, a PI can submit proposals in topics other than those mentioned by ANRF as per their field of expertise. The topics mentioned are suggestive and not exhaustive. The proposal must be mapped to the Vertical that is a best fit as the primary discipline.

10. Can a researcher, superannuating in three years, submit a project of 3 years duration?

Yes. As per Section C 6 (b), such an individual can submit a proposal either as a PI along with a co-PI who satisfies Section C 6 (a), or as a Co-PI, along with a Co-PI who satisfies Section C 6 (a). The second individual meeting Section C 6 (a) must have sufficient years of official service remaining (at least 4 years for a 3-year proposal; and at least 6 years for a 5-year proposal). If the superannuating researcher is not appointed in a role with the privilege to be a PI, then the responsibility of the project transitions to the Co-PI (who becomes the PI).

11. I am 61 years old at the time of submitting a 3 year ARG proposal. Can the project be given extension without additional funds, when I attain the age of 65 years and superannuate?

No. Since the ARG program normally invites proposals for up to a maximum of five years duration and up to 65 years of age (whichever is earlier). Hence the PI should plan to conclude the project within the sanctioned time limit. ANRF reserves the right of decision in any other exceptional situation.

12. Is there any minimum number of disciplines required for the proposal to be considered as interdisciplinary?

No. There is no such requirement of a minimum number of disciplines in an interdisciplinary proposal. However, the proposal should address a research question which requires a multidisciplinary team of researchers. The proposal may be submitted to the Vertical that is the best fit as the primary discipline.

13. Can researchers belonging to Industry, Start-ups, NGOs, and medical hospitals be included as technical collaborators without any financial obligation?

Certainly. Accomplished researchers from the above list of organisations re welcome to be included as "Honorary Investigators" in the proposal, without any budget allocation.

14. Will international collaborators be encouraged to contribute without any financial obligations from either end?

Certainly. If accomplished international researchers wish to collaborate with the PI/Co-PIs to contribute to the project, they are welcome, without any financial obligation from ANRF.

15. Is a prior clearance (Ethical, biosafety, animal, humans, etc) required at the time of submission of proposals?

It is encouraged that the needed ethical clearances for the proposal are included at the time of submission of proposals. In case not, the needed clearances must be submitted before the first budget is released to the project.

Annexure: Advanced Research Grant (ARG) Verticals

| SI. No. | Vertical under ARG |
|---------|---|
| 1. | Chemical Sciences – I (Inorganic and Physical Chemistry) |
| 2. | Chemical Sciences – II (Organic Chemistry) |
| 3. | Animal Sciences |
| 4. | Plant Sciences |
| 5. | Biomedical and Health Sciences |
| 6. | Interdisciplinary Biological Sciences |
| 7. | Mathematical Sciences |
| 8. | Earth and Atmospheric Sciences |
| 9. | Physical Sciences – I (CMP and MS) |
| 10. | Physical Sciences – II (PHENNA – LOAMP) |
| 11. | Chemical & Environmental Engineering |
| 12. | Civil, Infrastructure and Transportation Engineering |
| 13. | Materials, Mining and Minerals Engineering |
| 14. | Mechanical, Manufacturing, Aerospace Engineering and Robotics |
| 15. | Electrical, Electronics and Computer Engineering |
| 16. | Quantitative Social Sciences |