GUIDELINES

for

Funding, Review and Monitoring of Competitive Grant Projects

under
Corpus Fund-Indian Council of Agricultural Research (CF-ICAR)

Indian Council of Agricultural Research
New Delhi 110012

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Corpus Fund-Indian Council of Agricultural Research (CF-ICAR)

1.   Introduction

The Indian National Agricultural Research System (NARS) has to find solutions to the immediate problems of farming as well as keep its competence in technology development in the forefront to meet all continuously emerging anticipated and unanticipated problems. The Indian Council of Agricultural Research (ICAR), New Delhi strives to support the research ideas which are of problem solving in nature and address the issues of regional and national importance. Researches are also supported to generate new dimensions of science and knowledge which have future potential applications in agriculture and its allied areas including animal husbandry, fishery, social science and other relevant fields. The Council is putting its efforts to motivate scientists to enable them with scientific aptitude and influence their ultimate impacts on Indian agriculture/agricultural science. Competitive Grant Projects under Corpus Fund is one the new initiatives of ICAR to enable scientists financially for excelling in their research projects. The research proposals for funding under Corpus Fund shall be invited by the Council in competitive mode. The vision, mission and objectives of Competitive Grant Projects under Corpus Fund are as follows:

2.   Vision

Science and technology led growth towards attaining sustainable food, nutritional, environmental towards and livelihood security through agricultural research, education and extension.

3.   Mission

Harness the power of science and innovation for food security, food safety, farmer prosperity and enhance natural resources base to promote inclusive growth and sustainable development.

4.   Objectives

  i.   To support inter-institutional/intra-institutional multi-disciplinary research projects in agriculture and allied sciences

 ii.   To encourage the talented scientists working in different fields of agriculture for pursuing their research in frontier areas.

iii.   To build the capacity of the National Agricultural Research System (NARS) through development of wide partnerships in research.

 iv.   To create a storehouse of advancement of knowledge in science through promotion of basic and strategic research in agriculture.

  v.   To provide need-based funding to the ICAR Research Institutes for refinement and development of minimum viable products (MVP) to market ready products, data generation

to meet regulatory requirement and relevant idea to product projects.

vi.   To promote research projects with novel concepts/ideas/little explored concepts, and futuristic technologies that are expected to have significant impact in future.

5.   Advisory Committee

i.   Advisory Committee will be constituted in each SMD and approved by the Director General, ICAR and Secretary, DARE.

ii.   Advisory Committee shall screen/evaluate the full proposals and shortlist the projects. Shortlisted proposals to be presented to the committee consisting all DDGs and chaired by DG, ICAR to ensure multi-disciplinarity, avoid duplication and final approval.

iii. Advisory Committee will be Chaired by the concerned DDG and will consist of 2-3 Subject Matter Specialists (external) and one ADG (from concerned SMD) as Member Secretary (to be decided by the concerned DDG); one ADG from related discipline as Member.

iv.   Annual presentations of the projects will be made before the Advisory Committee for mentoring, monitoring, and review of physical and financial progress.

v.   Advisory committee may recommend need based additional fund for projects during the review meeting.

vi.   Advisory Committee may also recommend extension or termination of projects depending upon the performance

6.   Submission of Proposal

The project proposals will be invited and screened at the level of Subject Matter Division (SMD). Thereafter, shortlisted project proposals will be screened by the committee at SMD level through online presentation.

7.   Project Funding/ Review/ Monitoring

i.   Funding limit of the project proposals under Corpus Fund (CF) will depend on the type of research project as mentioned in the respective project guidelines.

ii.   The projects after their approval and implementation will be reviewed twice a year. The Council through the concerned SMD's Committee will closely monitor the progress. All the SMDs will regularly monitor and review the projects. The NASF will also facilitate SMDs in monitoring and review.

iii. Complete records (physical/electronic) related to invitation, screening, evaluation, selection and award of pre-proposals/project proposals; and monitoring and review, project report etc. of the funded projects under CF will be maintained by the respective SMDs.

iv.   The sanctioned projects, if found un-satisfactory for their mandated performance on the aim of project, will liable to be terminated by the committee at any time. The progress and

achievement of the project will be annually reviewed by the same committee that approved the proposal and based on the satisfactorily progress of the project, the funds for next year will be released

v. After approval of a new project by SMD and DG, ICAR and its acceptance by the PI, the first release for six months will be made within 15 days from the date of issue of the authorization by the concerned SMDs. Release of funds will not follow financial year, but from date of sanction/release of funds to the next year. Revalidation of the unspent balance at the end of financial year will not be required. The unspent fund at the end of financial year will be carried forward and the same will be communicated to all grantee institutions. The grantee Institution will be expected to submit the Statement of Expenditure with Utilization Certificate of the preceding year within three months for enabling release for the second year. The release of funds for subsequent year will also be subject to deposition of data along with report and UC as mentioned in Clause 12.

vi. After completion of each year of sanction, a provisional UC shall have to be submitted to the concerned SMD by the Head/Comptroller/SFAO for further release in the next year.

vii. Performance of the project will be reviewed online after every six months and next installment will be released only after satisfactory performance of project.

8. Modes of funding

Corpus Fund (CF) projects will be in Competitive mode. Competitive funding of research projects with a focus on problem solving for agriculture will be awarded in the priority areas identified by the respective SMDs. Research related to proof of principle and integration of results obtained from basic & strategic research for providing innovative and advanced technology solutions (not routine ones) with relevance cutting across sectors and locations or difficult sectorial problems begging solutions for long will also be supported.

Scientists from all ICAR research institutions with proven capabilities and Agricultural Universities located in India will be eligible to participate.

For the project proposals approved by the Council, the concerned SMD will issue the sanction letters in a prescribed format after receiving the duly signed full project documents and the project proposals from their competent authorities. A 'Letter of Agreement' (MOU wherever applicable) will be signed between the concerned SMD and the funded centres before the sanction letter is issued. The sanction letter and 'Letter of Agreement' will also have clear-cut provisions of sharing IP on the basis of IPR Policy/ guidelines of ICAR.

9. Project implementation

9.1 Definition:

The institution to which the lead scientist of the whole project belongs will be known as the Lead Centre and the other institutions which participate in the project will be known as Cooperating

Centers. Collectively all these centers will be called as the Implementing Centers. The lead scientist of the Lead Centre of the project will be designated as the Principal Investigator (PI) of the project and the lead scientist of each of the Cooperating Centers will be designated as the Cooperating Centre Principal investigator (CCPI). Other scientists participating in the project whether in the lead center or the cooperating center will be designated as the Co-Principal Investigators (Co-PI).

9.2   Responsibilities:

The Lead Centre and the Principal Investigator (PI) will have the overall responsibility of implementing the project. Each Cooperating Centre Principal Investigator (CCPI) and the Cooperating Centre will have the responsibility for the work assigned to the Centre under the project by the competent authority of the SMD. It is expected that the Lead and the Cooperating Centers will own the project in its true sense, during the duration of the project and after the closure of the project so that they uptake the results of the projects and ensure continuity.

The Heads of the Lead Centre and the Cooperating Centre(s) will ensure that the project runs in an efficient manner, provide laboratory space, salary, logistic facilities and services required for the same and monitor its progress on a regular basis.

Under no circumstances except in cases of career advancement or unforeseen reasons like ill health, will the PI or the CCPI of a project will be changed by the implementing center concerned. In the exceptional circumstances as mentioned above change in the PI/ CCPI will be made with the due approval of the concerned SMD.

The PI or any CCPI will not be absent during the duration of the project from his/her project site for more than three months in a single stretch without the prior approval of the Council. Any violation of this requirement will lead to the removal of the PI or the CCPI concerned from the project if a proper substitute is available or closure of the project/ project component. In the later case the funds received by the institution of the PI or CCPI has to be refunded to ICAR with any interest to be determined by ICAR.

9.3   Reporting:

The PIs and CCPIs will timely fulfil all reporting requirements rules and procedures. They will participate in meetings and workshops whenever they are called upon to do so by the SMDs.

9.4   Extension:

Time extension of the project will be highly discouraged except in circumstances the Council may consider extension of the projects to be essential.

9.5   Rules:

All the Centers and the scientists will follow the rules and regulations of the ICAR/GFR/Govt. of India set for the operation of the projects sanctioned under Corpus Fund (CF).

9.6   Non-completion:

The Lead or any Cooperating Centre shall be responsible in case the project is not completed at all or partially completed within the stipulated time (including any extension approved by the Council). The Council will fix the responsibility and will decide on any action to be taken which include the full recall of funds accepted by the responsible institution(s).

10.   Financial and Procurement System

i.   The funds for a new project will be released after the sanction letter is issued.

ii. Funds will be released by the concerned SMD directly to the project implementing institutions (Lead Centre and Cooperating Centres).

iii. For facilitating smooth and speedy implementation of the activities envisaged under the sanctioned project, the PI and, the CCPI from each Cooperating Centre will exercise powers for executing the project to the extent of sanctioned funds of his/her respective component of the project. The PI/CCPI will exercise powers at par with those extended in NASF

iv. The expenditure will be made only on the approved items. The amount sanctioned under each head/ subhead is the maximum budgetary limit for that item but the actual expenditure will not exceed the amount actually sanctioned/ released by the Council under the head for the period concerned. The expenditure under any head shall be made by the lead or cooperating institution in accordance with their own institutional prescribed rules/ norms. However, in cases of conducting workshops, meetings, and cost of Advisory Committee meetings norms and rules set by the Council as conveyed in the sanction letter should be followed. Any re-appropriation from one head to another is not permissible. All institutions including those belonging to the ICAR will maintain a separate ledger for the project.

v.   Revalidation of the unspent balance at the end of financial year will not be required. The unspent balance will be carried forward to the next financial year. Intimation will be sent by the respective SMDs.

vi. Accrual accounting system has to be followed for the funds of the project without any exception. The reporting of annual accounts will also be in accordance with the accrual accounting system.

vii. At the end of each year from the date of sanction of the projects, a Utilization Certificate will be submitted by the designated Finance Officer/F&AO/Comptroller of the Lead and each Cooperating Centre within 15 days indicating the head wise expenditure incurred in the previous year and resultant unspent balances/savings. Only on the receipt of UC, any funds will be released for the next year, after adjusting for the savings from the previous year. Each of the Lead and the Cooperating Centre will submit the 'Utilization Certificate' (UC) for the previous financial year within three months after completion of each year of the sanction of the projects in the prescribed proforma. The Central Government/ State

Government Institutes will get the certificate from the CAG/ State AG/ CAs. The Agricultural Universities will have the option to get the certificate from their statutory auditors or from a Chartered Accountant empaneled by the AG Accounts/ Audit of state governments. The cost of hiring the Chartered Accountants will be met out of the project budget.

viii. Funds for every year will be released after the submission of UC and on the basis of demands for funds submitted by the PI and recommendations of the SMD regarding the satisfactory achievement of research targets set for the period. The UC should be submitted head-wise duly verified by competent finance officer of the institution concerned indicating head wise closing/unspent balances.

ix. The public institutions, state or Central, will follow their respective procurement procedures and rules.

x. The salaries of the SRFs/Young Professionals will be according to ICAR norms prevalent during the period of appointment. Adequate transparent and competitive procedure should be adopted for the selection of the contractual staff.

xi. The ICAR will have no liability, whatsoever, for the YPs/SRFs or any other staff employed under the Project on contractual basis during and after expiry of the project term.

11. Intellectual Property Rights with respect to the project participants:

i. The rights on any intellectual property shall be vested in the ICAR, who shall be the absolute and full owner.

ii. The sharing of income from Intellectual Property Rights (IPR) from the project would be in accordance with the proportion/percentage given below:

(a) Share of ICAR: 60%

(b) Share of Project Participating Institutions: 40%. Out of this 40%, the share of major/ inventing partner(s) will be 50% and the rest 50% shall be shared equally among other partner(s) if any.

iii. The intellectual properties may be licensed against a fee (premium) which may be in a lump sum or with royalty for a fixed/defined period of time.

iv. The intellectual properties to be licensed on exclusive basis or non-exclusive basis will be decided by the ICAR depending upon the welfare/ gains considerations or public consideration or public welfare embedded in the intellectual properties.

v. Whereas a minimum price for the intellectual properties is to be evaluated, it may not be rigidly adhered to; and the offers made by different parties shall be given due consideration in consultation with the SMD on the basis of recommendations of ICAR. The spirit behind this should be to commercialize the intellectual properties in the best interest of the

investment.

vi. If one or more of the partners (i.e., the Lead or Cooperating Centre) of the Project is (are) interested to commercialize the intellectual properties, it may be given preference over other parties at mutually agreed terms and conditions between the interested partner and the ICAR.

vii. The ICAR will hold the right to use the intellectual property for non-commercial purposes in public interest.

viii. The services of the inventor(s) rendered subsequent to the transfer of intellectual property may entail earning of charges/fees etc., distribution of which will be as per the clause stated in Para 4(ii) above.

ix. It will not be incumbent upon the ICAR to protect every Intellectual Property (IP) generated from the Project. On refusal by the ICAR to own the IP, the inventor(s) shall be free to protect it at their own cost provided ICAR has no objection to it in public interest.

12. Data Management

The raw data, meta-data and all other forms of data generated during the project period will be submitted to ICAR-IASRI for documentation, along with the reports. The release of fund is subjected to deposition of the data along with the reports and UC/AUCs. The data will be kept in safe custody following ICAR rules.

A. GUIDELINES FOR ICAR NATIONAL PRIORITY PROJECT (NPP)

The Indian Council of Agricultural Research (ICAR), New Delhi strives to support the research and ideas which are of problem solving in nature and address the issues of regional and national importance. Such researches are also supported to generate new dimensions of science and knowledge which have potential future application in agriculture and its allied areas including animal husbandry, fishery, social science and other relevant fields. Recently, ICAR has been able to secure the support from Government of India in terms of *Corpus Fund*, earmarked for supporting science and innovations in agriculture. The purpose of this allocated corpus fund under NPP is to support scientists interested in inter-institutional/intra-institutional multi-disciplinary research projects. Such research proposals are to be invited by the Council on time-to-time in the competitive mode, identify and support research projects for advancing science and knowledge in agriculture. In order to pursue this programme, the following guidelines will be followed for its smooth implementation:

1. **Name of the programme:** ICAR-National Priority Project (NPP)
2. **Sponsor of the programme:** Indian Council of Agricultural Research, New Delhi
3. **Aim of the programme:** To support inter-institutional/intra-institutional multi-disciplinary research projects in agriculture and allied sciences.
4. **Inviting proposals:** Time-to-time the Council will make announcement/notify to invite the proposals from the ICAR scientists.
5. **Eligibility Criteria for Considering the Proposal**
    i. Only the ICAR Scientists can apply for this project (as Project Investigator), although they can establish the collaboration with CAUs/SAUs on some certain activities/components.
    ii. The proposal submitted needs to fall under a specific national agriculture priority research area(s) (As given at the end as **Annexure-7**).
    iii. The proposed project needs to be under the mandate of ICAR-Research Institute(s) where scientist(s) is/are working.
    iv. The period of the project should be of maximum 3 years duration. Only in exceptional cases (to be decided by the SMD level Committee), the proposal for extension of project duration (beyond 3 years) will be reviewed.
    v. The proposal should demonstrate novelty in its approaches/methodologies to tackle the prioritized issue(s)/problem(s) and suggesting solutions for them.
    vi. Proposal should be submitted in the prescribed proforma and not in any other format.
    vii. No proposal will be considered in absentia of the scientist(s) who is proposing the proposal.
    viii. Each discipline in an Institute will have the equal opportunity to apply for the project proposal in this programme.
    ix. The aim of this programme is to promote the multi-disciplinary and inter-institutional research in view of achieving several recent thrust area and emphasis of ICAR (e.g., One ICAR Vision).

x. Only the minor equipment/implements should be proposed on requirement basis. Availability of equipment/implements available at the Institute or approved in EFC are to be clearly mentioned in the project proposal. For the field and lab support, however, laborers and YPs can be engaged.

xi. One scientist can apply for one project as PI only.

xii. Age limit: Minimum of 03 years of active regular service will be considered.

xiii. Maximum Budget of the project is Rs. 75 Lakhs.

6. Objective of Project

i. Finding the solutions for the issues in agriculture of national importance.

ii. Creating environment to inculcate the spirit of team work (Inter-institutional programmes) for quality research among the scientists.

iii. Enhancing exchange of resources and convergence among the institutes for their better utilization in improving quality of research works.

iv. Promoting quality products, processes, protocols, models, publications, policy inputs, etc.

Title of the Project

Name of Lead Institution

and

Name (s) of Cooperating Institution(s)

Funded by
Corpus Fund Head (CFH)

Indian Council of Agricultural Research, New Delhi

Detailed Project Proposal for National Priority Project (NPP)

1. **Title of the project:**

2. **Priority area (As given in Annexure 7):**

3. **Participating Institutes:**

    3.1 Name of the Lead Institution (in case of single-institution project proposal):

    3.2 Name(s) of the Cooperating Institution (s)

4. Lead and Participating Scientists.

    4.1   Name and designation of the Principal Investigator (PI) i.e., the Lead Scientist from the Lead Institution and the Cooperating Investigators (CIs) from the lead Institute

    4.2 Name(s) and designation(s) of the Principal Investigator (s) CCPI) i.e., the Lead Scientist (s) from the Cooperating Institution(s)

    (Please give a brief CV of the PI and each CCPI and the area of specialization of each CIs as Annexure 1 in the prescribed format: *please mention the page number of the first page of the CV against each name*)

5. Objectives of the project (not more than Four)

6. How the achievements of these objectives will add to scientific advancement and/or technological advancement in the national priority area(s) under which the project is being proposed? (Not more than 1 page)

7. Please give in brief, the status of research related to the objectives of the proposed project. (Not more than a page). Please quote only the significant references. The details of the references that you quote may please be given as Annexure at the end.

8. The knowledge and research gaps identified on analysis of the status of research in achieving the objectives (give in brief as bullet points).

9. State your working hypothesis of your project based on the analysis of gaps.

10. Give the major activities under each Objective (not more than four in any objective).

11. Give the major expected outputs of the project.

12. Give activity against year-wise deliverables, outputs and outcomes in the proforma table given as **Annexure 2.** The relationships among activities, deliverables, outputs and outcomes are given as Appendix 1 of the proforma.

13 a. Total budget: (**Rs. in lakhs):**
    b. Summary budget tables:

    13.1 Breakup of budget for each of lead/cooperating institutions year-wise (in the format given in **Annexure 3**)
    13.2 Consolidated project budget year wise (in the format given in **Annexure 4**)
    13.3 Consolidated project budget partner wise (in the format given in **Annexure 5**)

14. Number of YPs required for the lead and each participating institution.

Sl No.	Institution	YPs	Nos.	Remarks
1.				
2.				
3.				

15. Institute-wise list of equipment. Please give detailed justification for any equipment costing more than 1 lakh mentioning. *Please note that in the list of equipment only the generic name of the equipment is allowed and no brand name or name given by any company will be accepted.* **It will be the sole responsibility of the PI to ensure that this directive is followed.**

Lead Institution

Sl. No.	Name of the Equipment	Cost in INR		Justification
1.				
2.				
3.				

Partner 1

Sl. No.	Name of the Equipment	Cost in INR		Justification
1.				
2.				
3.				

Partner 2

Sl. No.	Name of the Equipment	Cost in INR		Justification
1.				
2.				
3.				

16. Please describe if any IPR issues are involved in using a technology/methodology/product/knowledge/software/equipment used for research under the proposed project. Please certify that the ICAR will be free from any IPR related encumbrances if the proposed project is approved and funded under the CFH.

Signature with date of the PI and the CCPI(S)

PI,   CCPIs (1),   CCPIs(2),   CCPIs(3)   CCPIs (5)

Signature and seal with date of the Heads of institutions/organizations involved in the Project as Lead and Partner institutions

Name of Institution (1)

Name of Institution (2)

Head of Institute

Head of Institute

Signature with seal

Signature with seal

Name of Institution (3)

Head of Institute

Signature with seal

Curriculum Vitae (CV) of the PI/CCPIs

1. Name   :

2. Designation   :

3. Address   :

4. Tel / Fax No.   :

5. E-mail   :

6. Date of Birth   :

7. Name of Institute / Centre   :
    Postal Address of the Institution with
    Tel/ Fax No. and E-mail

8. Highest Qualification   :

9. List not more than 5 major achievements in the past five years

    -
    -
    -
    -

10. List not more than 5 best publications in the past five years

    1.

    2.

    3.

    4.

    5.

    a. List the 10 best publications in the whole career

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11. List not more than two best multi-disciplinary/multi-institution projects in which the scientist has worked as PI and as partners

- Name of the Project :
  - Partner Institutions :

- Name of the Project :
  - Partner Institutions :

12. List of projects in which the PI/CCPI has been working right now. Give for each the following information.

   a) Name of the project:

   b) Objectives:

   c) Working as PI/CCPI/CoPI:

   d) The objectives/activities that you are handling (in not more than 5 bullet points):

   e) Source of funding and total budget:

Year-wise Activities, Deliverables and Outcomes
(Please give only two years in one page)

Objective	Activity	Year 1		Year 2		Year 3	
		Deliverable	Outcome	Deliverable	Outcome	Deliverable	Outcome

Year-wise breakup of budget

S.No.	Head of project cost	Year-1	Year-2	Year-3	Total
A.	NON RECURRING COST				
B.	RECURRENING COSTS				
	Sub-Total (A+B)				

Annexure 4

Consolidated year-wise breakup of budget

S.No.	Head of project cost	Year-1	Year-2	Year-3	Total
A.	NON RECURRING COST				
B.	RECURRENING COSTS				
	Sub-Total (A+B)				

Consolidated Partner-wise breakup of budget

S.No.	Head of project cost	Partner-1	Partner-2	Partner-3	Total
A.	NON RECURRING COST				
B.	RECURRENING COSTS				
(A+B)	Sub-Total				

Annexure 6

(Please give detailed technical programme here)

National Agriculture Priority Areas of Research

Note: The priority areas for social science are given in final form (with some scope to further improvise), while other SMDs have to finalize their priority areas and place in a respective head

1. **Crop Science**

   a) Discovery of new pathways and physiological processes, cloning and functional characterization of novel genes for traits of economic importance to bridge genotype-to-phenotype gap.
   b) Genetic improvement in yield per unit input and unit time, and breaking yield barriers in cereals, oilseeds and pulses using pre-breeding, de novo domestication, phenomics, genomics and AI-assisted breeding, genome editing and speed breeding.
   c) Precision breeding for tolerance to high temperature, drought and submergence.
   d) Development of crop varieties for biotic stress resistance against potential and emerging diseases and insect -pests and understanding molecular basis of host-pathogen interactions.
   e) Development of nutrient use efficient and water-use-efficient designer crops.
   f) Metagenomics of rhizosphere, rhizoplanes and phyllosphere of different crops and in different environments.
   g) Biofortification of crops for enriching with micronutrients, proteins and antioxidants.
   h) Alternate crops and genetic improvement of xerophytes and extremophiles in to crops for cultivation in extreme environment and climate resilience.
   i) Genome engineering, systems and synthetic biology approaches for introducing novel pathways and physiological process in to crops
   j) Targeted genetic improvement for end product quality and export traits
   k) Develop new concepts and improve existing methods with potential applications in crop improvement
   l) Translation from model plants to crop plants
   m) Development of crops with minimum carbon food prints
   n) Genetic modification of crops to Trailor them for non-traditional area mechanised harvesting

2. **NRM**

   a) Development of protection and production technologies using AI, IoT, Sensor and drones etc.
   b) Geo-informatics in micro level land resources management
   c) Sensor based smart and precision soil health & water management
   d) Climate resilient agriculture
   e) Development of smart farm model using Precision Agriculture Aviation (PAA) technologies
   f) Evaluation and validation of Natural Farming
   g) Natural farming system models

3. **Animal Science**

   a) Development of New generation Diagnostics and long acting DIVA enabled Vaccines
   b) Strengthening Animal disease monitoring and surveillance system through AI tools for better preparedness to tackle endemic, emerging and re-emerging diseases.
   c) Combating AMR through technological interventions, development of alternatives to antimicrobials and community connect
   d) Climate smart animal production
   e) Genomic selection for genetic improvement in indigenous livestock breeds
   f) Precision livestock farming
   g) Anti-microbial resistance
   h) Vaccines and diagnostics against emerging and re-emerging diseases

4. **Fishery**

   a) Sustainable fisheries resource Management and Conservation.
   b) Aquaculture diversification.
   c) Climate resilient fisheries & aquaculture systems
   d) Fish nutrition, health management.
   e) Fish genetic resource management and improvement.
   f) Post-harvest and value-addition of fishes.
   g) Mechanization, precision farming in fisheries and aquaculture.
   h) Fish-based circular economy.
   i) Socio-economics in fisheries and aquaculture.
   j) Biotechnological & omics in fisheries
   k) Cutting-edge science in fisheries and aquaculture
   l) Development of breeding and seed production technologies of new candidate fish/shellfish species of food & ornamental value, sea-weed, improved strains and new aquaculture species.
   m) Formulation of feed and aquaculture products for food and ornamental fishes, value addition and waste utilization
   n) Genetic improvement of native seaweed species and promotion of integrated aquaculture involving seaweeds and finfish species.

5. **Agricultural Engineering**

   a) Precision farming technologies/machines for production and post production agriculture
   b) Application of sensors and robotics for automation of farm mechanization and post-harvest technologies
   c) Application of cutting-edge technologies in post-harvest sector (innovative storage solutions, secondary agriculture)
   d) Mechanization of fibre extraction and quality testing of fibre and fibre based products
   e) Improved ginning and cleaning systems and value-addition to cotton and its by-products.
   f) Development of agri-robots and machineries for farm automation and mechanization
   g) Post-harvest technologies to reduce losses and to add value.

6. Horticulture (Fruits, vegetables and flowers)

a) Rootstock breeding for mitigating the biotic and abiotic stresses
b) Gene pyramiding for development of multiple disease resistant varieties in short duration horticultural crops
c) Cost effective customized nutrients and bio- formulations for production of quality safe produce of horticultural crops
d) Targeted breeding for enhancing processing quality and post-harvest shelf life
e) Bioprospecting of horticultural crops for human wellness
f) Mainstreaming of Minor Horticultural crops with nutritional and economic values for commercial production

7. Agricultural Education

a) Addressing emerging challenges in agriculture through policy research and capacity building.
b) Artificial intelligence-based research and application in agriculture.
c) Digital innovations in Agricultural Research, Education and Extension.
d) Advanced analytical methods for various aspects related to agriculture and allied fields
e) Strengthening the agri-preneurship and start-up ecosystem through academic, research and capacity building activities.

8. Research in Social Sciences (extension, economics, statistics, home science, etc.)
a) Research in agricultural extension & economics for strategies, models, methodologies & frameworks; knowledge co-production for inclusive and sustainable adaptation;
b) Research on social-ecological resilience/livelihood resilience; multiple stressors, vulnerability and adaptation for resilient agriculture;
c) Interventions and institutional arrangements on green credits; ecological footprint and biocapacity for sustainable livelihoods;
d) Institutional innovations (e.g. FPOs, Seed hub/Seed bank, etc.) and convergence, partnerships approach for improving agricultural extension systems,
e) Agri-entrepreneurship research; return to investment, promotion of value chains in agriculture,
f) Gender dimensions of agriculture;
g) Meta-data research/and or policy research in agriculture for issue-centric solutions and informed decision making.
h) Skill development and vocational programmes for rural youth and women

B. GUIDELINES FOR ICAR YOUNG SCIENTIST PROJECT (YSP)

The Indian Council of Agricultural Research strives to encourage young scientists through different modes and means. Considering the potential of capacity building of scientists through research and science, recently ICAR has been able to secure the support from Government of India under which a dedicated fund i.e. Corpus Fund has been earmarked for encouraging young scientists. The purpose of this allocated corpus fund is to help scientists financially for excelling their research projects. Such research proposals are to be invited by the Council in competitive mode and Council is putting its efforts to motivate young scientists to enable them with scientific aptitude and influence their ultimate impacts on Indian agriculture/agricultural science. In order to pursue this programme, the following guidelines will be followed for its smooth implementation:

1. **Name of the programme:** ICAR-Young Scientist Project (YSP)
2. **Sponsor of the Award:** Indian Council of Agricultural Research, New Delhi
3. **Aim of the programme:** To encourage the talented young scientists (below 40 years) working in different fields of agriculture by providing them with financial support for their research and science.
4. **Inviting proposals:** Time to time the Council will make announcement/notify to invite the proposals from the ICAR scientists.
5. **Eligibility Criteria for Considering the Proposal**
   i. The scientist should be less than 40 years of age (at the time of submission of final proposal)
   ii. Only ICAR Scientists can apply for this project (as Project Investigator), although they can establish the collaboration with CAUs/SAUs on some certain activities/components.
   iii. The proposed project should be under priority research areas as mentioned in Annexure and the mandate of ICAR-Research Institute(s) where scientist(s) is/are working.
   iv. All the young scientists with MSc plus 3 years research experience/PhD plus 2 years research experience and possessing regular positions in ICAR Institutes are eligible for grant under this scheme/project.
   v. The period of the project should be of maximum 3 years duration. Only in exceptional cases (to be decided by the SMD level Committee), the proposal for extension of project duration (beyond 3 years) will be reviewed.
   vi. The proposal should demonstrate for using novel and frontier areas to tackle the issue(s)/problem(s) and drawing conclusions/obtaining solutions.
   vii. Proposal should be submitted in the prescribed proforma along with 2 pages CV of PI and 1 page CV of CoPI and not in any other format.
   viii. No proposal will be considered in absentia of scientist(s) who is proposing the proposal.
   ix. Scientists working in remote areas may be encouraged for participating in this programme.
   x. The multi-disciplinary approach (intra ICAR Institutes level) in the proposal will be appreciated.

xi. Scientists should be interested to put his/her hands on research/science and minimal financial support from the Council will be provided. For example, engaging large number of contractual man power (such as SRF/RA/YP) and equipment will be discouraged. However, for the field and lab support, contractual staff (semi-skilled labour) may be engaged on requirement basis.

xii. Only the minor equipment/implements should be proposed on requirement basis. Availability of equipment/implements available at the Institute or approved in EFC are to be clearly mentioned in the project proposal. For the field and lab support, however, laborers and YPs can be engaged.

xiii. Maximum budget limit is Rs. 50 Lakhs for three years duration.

6. Objective of Project/Scheme

i. Creating environment for innovative research among the young scientists in frontier areas

ii. Developing the base for targeting high end agricultural research by the young scientists.

iii. Promoting impactful publications, processes, protocols, products, methods, models, etc.

iv. Finding solutions for the issues in agriculture of regional/national importance.

v. Creating a good environment among the young scientists on innovative research and science in a respective subject.

vi. Developing good evidence incrementally for the science and insights for policies.

Format for Inviting Project Proposal from Young Scientist Project (YSP)

1. **Title of the project:**

2. Specific priority/problems to be addressed (as mentioned in **Annexure 5**):

   Sub-priority area:

3. Participating Institutes:

   3.1 Name of the Lead Institution (in case of single-institution project proposal):

   3.2 Name(s) of the Cooperating Institution (s)

4. Participating Scientists.

   4.1   Name and designation of the Principal Investigator (PI)

   4.2   Name(s) and designation(s) of the Co-Principal Investigator (s)

   (Please give a brief CV of the PI and each Co-PI and their area of specialization as **Annexure 1** in the prescribed format: *please mention the page number of the first page of the CV against each name*)

5. Objectives of the project (not more than three)

6. How the achievements of these objectives will add to scientific advancement and/or technological advancement in agricultural research and development under which the project is being proposed? (**Not more than 1 page**)

7. Please give in brief, the status of research related to the objectives of the proposed project. (**Not more than a page**. Please quote only the land-mark references)

8. The knowledge and gaps identified on analysis of state of art on related research area in achieving the objectives (give in brief as bullet points).

9. Propose your working hypothesis for the project based on the analysis of gaps.

10. Give the major activities under each Objective (not more than three under each objective).

11. Give the major expected outputs from the project.

12. Provide list of deliverables year-wise against each activity, outputs and outcomes in the

proforma table given as **Annexure 2**.

13 a. Total budget   **(Rs. in lakhs):**
    b. Summary budget tables:

14. Breakup of budget for each year (in the format given in **Annexure 3**)

15. The detail proposal of the project may be provided in **Annexure-4**

16. Please   indicate   if   any   IPR   issues   are   involved   in   using   a
    technology/methodology/product/knowledge /equipment used for research under the
    proposed project. Please certify that the ICAR will be free from any IPR related encumbrances
    if the proposed project is approved and funded under the Corpus Fund.

17. Name and Signatures with date of the PI and Co-PIs

    PI   Co-PI (1)   Co-PI (2)   Co-PI(3)   Co-PI (4)

Signature and seal with date of the Heads of institutions/Organizations involved in the Project

Curriculum Vitae (CV) of the PI & Co-PIs
(A separate sheet may be used by Co-PIs)

1.   Name   :

2.   Designation   :

3.   Address   :

4.   Tel / Fax No.   :

5.   E-mail   :

6.   Date of Birth   :

7.   Name of Institute / Centre   :
Postal Address of the Institution with
Tel/ Fax No. and E-mail

8.   Highest Qualification   :

9.   List not more than 5 major achievements in the past five years

-
-
-
-

10.   List not more than 5 best publications in the past five years

1.

2.

3.

4.

5.

11. List not more than three best research projects in which the scientist has worked as PI and as partners

- Name of the Projects:

12. Name list of awards received during the career

13. Name list of fellowships received during the career

14 Name the institutions you collaborated nationally and internationally

List of Expected Deliverables from the Project

Objective	Activity	Year 1		Year 2		Year 3	
		Deliverable	Outcome	Deliverable	Outcome	Deliverable	Outcome

Annexure-3

Year-wise Breakup of Budget

S.No.	Head of project cost	Year-1	Year-2	Year-3	Total
A.	NON RECURRING COST				
B.	RECURRENING COSTS				
	Sub-Total (A+B)				

Please Give the Detailed Technical Programme of Proposal

1. **Objectives**

2. **Work done/Research in the relevant areas**

3. **Methodology**

4. **Work plan**

Priority Areas of Research

Note: The priority areas for social science are given in final form (with some scope to further improvise), while other SMDs have to finalize their priority areas and place in a respective head

1. **Crop Science**

   o) Discovery of new pathways and physiological processes, cloning and functional characterization of novel genes for traits of economic importance to bridge genotype-to-phenotype gap.
   p) Genetic improvement in yield per unit input and unit time, and breaking yield barriers in cereals, oilseeds and pulses using pre-breeding, de novo domestication, phenomics, genomics and AI-assisted breeding, genome editing and speed breeding.
   q) Precision breeding for tolerance to high temperature, drought and submergence.
   r) Development of crop varieties for biotic stress resistance against potential and emerging diseases and insect -pests and understanding molecular basis of host-pathogen interactions.
   s) Development of Nutrient use efficient and water-use-efficient designer crops.
   t) Metagenomics of rhizosphere, rhizoplanes and phyllosphere of different crops and in different environments.
   u) Biofortification of crops for enriching with micronutrients, proteins and antioxidants.
   v) Alternate crops and genetic improvement of xerophytes and extremophiles in to crops for cultivation in extreme environment and climate resilience.
   w) Genome engineering, systems and synthetic biology approaches for introducing novel pathways and physiological process in to crops
   x) Targeted genetic improvement for end product quality and export traits
   y) Develop new concepts and improve existing methods with potential applications in crop improvement
   z) Translation from model plants to crop plants
   aa) Development of crops with minimum carbon food prints
   bb) Genetic modification of crops to Trailor them for non-traditional area mechanised harvesting

2. **NRM**

   h) Development of protection and production technologies using AI, IoT, Sensor and drones etc.
   i) Geo-informatics in micro level land resources management
   j) Sensor based smart and precision soil health & water management
   k) Climate resilient agriculture
   l) Development of smart farm model using Precision Agriculture Aviation (PAA) technologies
   m) Evaluation and validation of Natural Farming
   n) Natural farming system models

3. Animal Science

i) Development of New generation Diagnostics and long acting DIVA enabled Vaccines
j) Strengthening Animal disease monitoring and surveillance system through AI tools for better preparedness to tackle endemic, emerging and re-emerging diseases.
k) Combating AMR through technological interventions, development of alternatives to antimicrobials and community connect
l) Climate smart animal production
m) Genomic selection for genetic improvement in indigenous livestock breeds
n) Precision livestock farming
o) Anti-microbial resistance
p) Vaccines and diagnostics against emerging and re-emerging diseases

4. Fishery

o) Sustainable fisheries resource Management and Conservation.
p) Aquaculture diversification.
q) Climate resilient fisheries & aquaculture systems
r) Fish nutrition, health management.
s) Fish genetic resource management and improvement.
t) Post-harvest and value-addition of fishes.
u) Mechanization, precision farming in fisheries and aquaculture.
v) Fish-based circular economy.
w) Socio-economics in fisheries and aquaculture.
x) Biotechnological & omics in fisheries
y) Cutting-edge science in fisheries and aquaculture
z) Development of breeding and seed production technologies of new candidate fish/shellfish species of food & ornamental value, sea-weed, improved strains and new aquaculture species.
aa) Formulation of feed and aquaculture products for food and ornamental fishes, value addition and waste utilization
bb) Genetic improvement of native seaweed species and promotion of integrated aquaculture involving seaweeds and finfish species.

5. Agricultural Engineering

h) Precision farming technologies/machines for production and post production agriculture
i) Application of sensors and robotics for automation of farm mechanization and post-harvest technologies
j) Application of cutting-edge technologies in post-harvest sector (innovative storage solutions, secondary agriculture)
k) Mechanization of fibre extraction and quality testing of fibre and fibre based products
l) Improved ginning and cleaning systems and value-addition to cotton and its by-products.
m) Development of agri-robots and machineries for farm automation and mechanization

n) Post-harvest technologies to reduce losses and to add value.

6. **Horticulture (Fruits, vegetables and flowers)**

g) Rootstock breeding for mitigating the biotic and abiotic stresses
h) Gene pyramiding for development of multiple disease resistant varieties in short duration horticultural crops
i) Cost effective customized nutrients and bio- formulations for production of quality safe produce of horticultural crops
j) Targeted breeding for enhancing processing quality and post-harvest shelf life
k) Bioprospecting of horticultural crops for human wellness
l) Mainstreaming of Minor Horticultural crops with nutritional and economic values for commercial production

7. **Agricultural Education**

f) Addressing emerging challenges in agriculture through policy research and capacity building.
g) Artificial intelligence-based research and application in agriculture.
h) Digital innovations in Agricultural Research, Education and Extension.
i) Advanced analytical methods for various aspects related to agriculture and allied fields
j) Strengthening the agri-preneurship and start-up ecosystem through academic, research and capacity building activities.

8. **Research in Social Sciences (extension, economics, statistics, home science, etc.)**
i) Research in agricultural extension & economics for strategies, models, methodologies & frameworks; knowledge co-production for inclusive and sustainable adaptation;
j) Research on social-ecological resilience/livelihood resilience; multiple stressors, vulnerability and adaptation for resilient agriculture;
k) Interventions and institutional arrangements on green credits; ecological footprint and biocapacity for sustainable livelihoods;
l) Institutional innovations (e.g. FPOs, Seed hub/Seed bank, etc.) and convergence, partnerships approach for improving agricultural extension systems,
m) Agri-entrepreneurship research; return to investment, promotion of value chains in agriculture,
n) Gender dimensions of agriculture;
o) Meta-data research/and or policy research in agriculture for issue-centric solutions and informed decision making.
p) Skill development and vocational programmes for rural youth and women

C. GUIDELINES NATIONAL AGRI-EDUCATION PROJECT (NAP)

The Agricultural Education under the aegis of the Indian Council of Agricultural Research undertakes planning, development, coordination, and quality assurance in higher agricultural education in India and, thus, strives for strengthening and development of the higher agricultural education system through partnership and efforts of the components of the ICAR-Agricultural Universities System comprising State Agricultural Universities (SAUs), Deemed to be universities (DUs), Central Agricultural Universities (CAUs) and Central Universities (CUs) with Agriculture Faculty.

Recently in the process of upgradation of the IARI-deemed university into a global university 16 ICAR Institutes (IARI Hubs) are associated with ICAR-IARI in its Academic Programs (UG, PG, and PhD) and these hubs admitted students for the 2023-24 session (Table 1). So there is an urgent need to develop the basic infrastructures like girls' hostels, boy's hostels, and other new civil works related to student amenities, including, educational museums, examination halls and Experiential Learning Units, repair/ refurbishing/ renovation and modernization of educational structures, etc. This also includes personality development, faculty development, strengthening of sports and games facilities, placement cells, and other student amenities, equipment/ computers/ implements for higher education; strengthening of library, ICT facilities, etc. Support also includes preparation of quality instructional material, writing university-level textbooks, manuals, etc. for effective teaching and learning process. Apart from this financial support also required for the deemed universities of ICAR to upgrade their facilities with increase in the enrolment of students.

Table: 1 to IARI-Hubs (ICAR Institutes) and DUs of ICAR for which Financial support from Corpus Funds is being proposed					
Existing IARI Hubs: 16					
S.No	Institute (IARI -Hub)	S.No.	Institute (IARI -Hub)	S.No	Institute (IARI -Hub)
1.	ICAR-NRRI Cuttack	2.	ICAR-IIAB , Ranchi	3.	ICAR-NIBSM, Raipur
4.	ICAR-RCER, Patna	5.	ICAR-CRIJAF,Kolkata,	6.	ICAR-NIASM,Baramati,
7.	ICAR-IISR, Lucknow	8.	ICAR-CIAE, Bhopal	9.	ICAR-IIHR, Bengaluru,
10.	ICAR-IIWBR, Karnal	11.	ICAR-CRIDA, Hyderabad	12.	ICAR-CICR, Nagpur
13.	ICAR-CAZRI, Jodhpur	14.	IARI-Jharkhand	15.	IARI-Assam
16.	ICAR-RCNEH, Shillong				
New Hubs being planned by IARI: 9					
ICAR deemed Universities: 4					
1.	ICAR-IARI	2.	ICAR-IVRI	3.	ICAR-NDRI
4.	ICAR-CIFE				

1. Nature and Quantum of Grant

Proposals will be invited in competitive mode exclusively to develop the basic infrastructures related to student amenities, faculty development, strengthening of sports and games facilities, placement cells, equipment/ computers/ implements for higher education, strengthening of library, ICT facilities, etc. Support also includes preparation of quality instructional material, writing university-level textbooks, manuals, etc. for effective teaching and learning process.

The details are given as below:

(i) Civil Works:

All institutes as given in Table 1 seeking support under this head need to get prior approval from the Council with regard to the designs and estimates of the civil works as per ICAR guidelines. As far as possible, the construction of environmentally friendly buildings (green buildings) should be preferred.

(a) Hostels:

For the construction of girls' and boys' hostels, a maximum of Rs.300.00 lakh for each hostel shall be provided. Priority is given to the construction of the Girl's Hostel as per the actual need of the institute.

(b) Educational Museum:

Need-based support for Theme-based Educational Museums shall be provided subject to a maximum of Rs.100.00 lakh per museum/institute.

(c) Sports Facilities and other student/ faculty Amenities:

Need-based support for strengthening existing sports and other recreational facilities shall be provided subject to a maximum of Rs.50.00 lakh per institute.

(d) Examination Hall:

Support for the development of the Examination Hall subject to a maximum of Rs.50 lakhs per examination hall will be provided.

(e) Repairs and Renovation:

Limited need-based support subject to a maximum ceiling of Rs. 50.00 lahks per institute will be provided for refurbishing, renovation, repair, and maintenance of existing structures viz. Hostels and Academic Blocks, International Hostel, Museum, Sports Complex, Examination Hall, and other structures related to teaching and learning activities. However, estimates exceeding Rs.10.00 lakh per single work need to be vetted by the Council.

(f) Experiential Learning Units (ELUs)

A special grant up to a maximum of Rs. 100.0 lakhs/ for the establishment of **Experiential**

Learning Units (3-5 Nos of ELU) by up-gradation & strengthening of facilities and purchase of equipments & machinery in the following broad subject groups/themes are suggested: (A) Agricultural Production Technologies (B) Value Addition Technologies (C) Engineering Technologies (D) Technical Support Services (E) Integrated Technologies.

Prior approval of the Council is required in case of purchase of an item costing over Rs. 5.0 lakh.

(g) Establishment of Smart Class Rooms:

A special grant up to a maximum of Rs. 20.0 lakh (2 classrooms) will be considered per institute for the establishment of Smart Class Rooms consisting of interactive board, touch screen, bio-matrix, visualized, e-kiosks and Artificial Intelligence (AI) based course modules, etc.

(h) Up-gradation/Replacement of Facilities, including Equipment and their Annual Maintenance Contracts (AMCs):

Need-based support will be provided with the following conditions for replacement/ up-gradation of facilities/equipment for teaching and practicals, which are either outdated or have lived their life and are required to be urgently replaced to impart quality education.

i. To seek prior approval of the Council, particularly with reference to equipment costing Rs. 5 lakhs and above.
ii. The Institute must avoid duplication of major equipment and need to submit an undertaking in this regard.
iii. Support for the purchase of state-of-the-art equipment may be provided. The equipment must be installed in the Common Instrumentation Laboratory (CIL) and the institute may submit an undertaking in this regard. The institute needs to submit the demand for the purchase of such equipment for the CIL.
iv. The grant to a maximum ceiling of Rs. 20.0 lakh per laboratory will be provided exclusively for strengthening the laboratories including the computer lab for the smooth conduct of practicals. Prior approval of the Council is required in case of purchase of an item costing over Rs. 5.0 lakh.

(i) Allocation Criteria under Library Strengthening

Financial support may be considered for the strengthening and modernization of libraries including networking for online access to literature for ensuring equity and availability of quality learning resources for the benefit of students and teachers, e-learning tools, modules, and networking and overall library strengthening along with the promotion of ICT connectivity, video conferencing and Technology Enhanced Learning (TEL).

A sum of a maximum Rs. 20.00 lakh per Institute library may be provided for strengthening of existing library. The fund is allocated under the following head under the subcomponents "Library Strengthening". The institute may incur the expenditure on the above items after completing all the codal formalities of the procurement procedures.

(j) Furniture and Fixtures: Need-based support for furniture and fixtures for Hostels, classrooms, examination hall, etc. shall be provided subject to a maximum of Rs.100.00 lakh per institute.

(k) Curriculum Development and Delivery:

- Preparation of Quality Instructional Material, Practical Manuals, and e-resources: support of Rs. 5.0 lakh per institute will be provided for the preparation of practical manuals, and computer-led instructional material.
- Contingency Grants for UG/PG Practicals: In order to meet day-to-day needs for the conduct of practicals including consumables, glassware experimental material etc., a grant of Rs. 5.0 lakh will be provided.

(l) Students Study & Educational Tours:

Support of Rs. 5000/- may be provided to each student once in a degree course for educational tours considering the fact that such tours to well-known institutions and organizations and interactions with their faculty will help students broaden their knowledge and skills. A maximum support of Rs. 5.0 lakh per institute will be provided for this purpose.

(m) Student and /Faculty Amenities:

i. Students Counselling and Placement Cell including Health Facilities: Support will be provided for managing campus interviews and other related welfare activities in the colleges and hostels including games, sports & and cultural activities, and health-care facilities with a maximum limit of Rs. 5.00 lakh per institute.

ii. Faculty Amenities: Funds are also provided based on the merit of the case for faculty-related activities such as games, cultural, literary activities, and special lectures of common interest with a maximum limit of Rs. 5.0 lakh per institute.

(n) Support to Coordinator/Dean:

Support to a maximum ceiling of Rs. 5.0 lakh per institute will be provided for carrying out the following activities:

i. Development & Strengthening of Facilities: The Dean's office is envisaged to be strengthened to facilitate interactive teaching and learning. Need-based support in order to introduce innovative teaching techniques and carry out creative activities in the institute for the overall welfare of staff and students.

ii. Support for Examination Cell: Need-based funds will be provided for meeting part of the expenditure for conducting examinations and strengthening of examination cell.

iii. Faculty Specific Requirements for Improving Education: Need-based financial support will be provided with prior approval of the Council for assisting faculty with special grants to strengthen learning, particularly in the conduct of practicals or research by the students.

Proforma for Proposals under National Agriculture Education Project

1. Name of DUs/ Hubs of DUs:
2. Title of the Project:
3. Objectives:
4. Justification (200 words):
5. Academic Programmes and No. of students (Programmes wise):

S. No.	Name of the Program	Year of start	Intake	Total No. of students (At Present)	
				Boys	Girls
	UG				
A1					
A2					
	PG				
B1					
B2					
	Ph.D				
C1					
C2					

6. Future plans regarding the academic program and intake of the students
7. Existing Infrastructure/ Equipments/facilities in the DUs/ Hubs of DUs.
    A- List of Equipments and their Number (central facilities/ individual lab/Teaching Lab) (more than 5 lakhs) (Annexure: 1)
    B- List of Infrastructures for the students (Annexure: 2)
8. Proposed infrastructure/equipments/other facilities (please give list of proposed facilities along with due justification

S.No.	Infrastructure/Equipments/Other facilities	Justified	Funds Proposed
1.			
2.			

9. Expected outcome (150 words):
10. Proposed Budget:
    a. Summary

S.No	Head of project cost	Year1	Year 2	Year 3	Total
	Non recurring cost				

	Recurring costs				
	Total				

b. Component wise Details (As per Annexure 3)

11. Project invigilator (should of Principal Scientist level)
   Name:
   Designation:
   Telephone:
   Email:

   (Signature PI)   (Director of the Institute)

Annexure: 1   List of existing Equipments (central facilities/ individual lab/Teaching Lab) (more than 5 lakhs
Annexure: 2   List of Existing Infrastructures for the students
Annexure: 3   Component wise Details of Proposed Budget (in the Performa as given below)

S.No.	Component	Year 1	Year 2	Year 3	Total
A	**Grant-in-Aid CAPITAL**				
1	**Works**				
1.1	a. Building				
1.1.1	Girls Hostel				
1.1.2	Boys' Hostel				
1.1.3	Examination Hall				
1.1.4	Educational Museum				
1.2	b. Works				
1.2.1	Repair/Renovation of Hostel				
1.2.2	Repair/Renovation of Examination/ Laboratories/ Sports Facility/ Green Initiatives (specify)				
1.2.3	Refurbishing of Smart Class Rooms				
2	**Equipment**				
2.1	Equipment for Central Instrumentation Facility				
2.2	Equipment for UG & PG Laboratories/ Sports Facility/ Green Initiatives excluding computer & its peripherals				
3	**Information Technology (Computer Hardware/Software)**				
3.1	Computer Hardware				
3.2	Computer Software				

4	**Library**				
4.1	Print Book				
4.2	Digitization of Resources and others				
5	**Furniture and Fixture for**				
5.1	Hostel				
5.2	Examinational Hall				
5.3	Laboratory				
5.4	Class Room				
5.5	Library				
B	**Grant-in-Aid General(REVENUE)**				
6	**Research & Operational Expenses**				
6.1	Research Expenses				
6.1.1	Curriculum Development and Delivery: Contingency grants for UG/PG Practical and preparation of quality Instructional Manuals				
6.1.2	Strengthening of UG/PG Teaching: Participation of Faculty/ Ph.D. students in Seminars/ Conferences/ Trainings including Educational Tour within the country. In no case funding for foreign travel will be allowed				
6.2	Operational Expenses				
6.2.1	Student and Faculty Amenities: Tutorials for SC/ST students; Students Counselling, Placement Cell; Health Facilities; Personality Development; Recreation facilities				
6.2.2	Support to Dean/JD Academic/coordinator				
7	Miscellaneous Expenses (not more than 5% of total Revenue budget)				
	Total Grant in Aid-Capital				
	Total Grant in Aid-Revenue				
	Grand Total : Grant in Aid (CAPITAL +REVENUE)				

D. GUIDELINES FOR PRODUCT DEVELOPMENT PROJECT (PDP)

The Indian Council of Agricultural Research (ICAR), New Delhi strives to support the research and ideas which are of problem solving in nature and address the issues of regional and national importance. Recently, ICAR has been able to secure the support from Government of India in terms of *Corpus Fund*, earmarked for supporting science and innovations in agriculture. The purpose of this allocated corpus fund under PDP is to support the Institutes for idea to minimum viable product (MVP), MVP to market ready product, data generation to regulatory requirements. Such research proposals are to be invited by the Council in the competitive mode identify and support for advancing science and developing products for agricultural development. In order to pursue this programme, The following guidelines will be followed for its smooth implementation:

1. **Name of the programme:** ICAR-Product Development Project (PDP)
2. **Sponsor of the programme:** Indian Council of Agricultural Research, New Delhi
3. **Aim of the programme:** To support ICAR Research Institutes who have already worked some preliminary research and needs further support for development of product by providing them financial support.
4. **Inviting proposals:** Time-to-time the Council will make announcement/notify to invite the proposals from the ICAR Institutes.
5. **Eligibility Criteria for Considering the Proposal**
    i.   Only the ICAR Institutes not any individual scientist can apply for this project.
    ii.   The proposal submitted needs to fall under specific priority research area(s) (As given at the end as **Annexure-1**).
    iii. The proposed project needs to be under the mandate of ICAR-Research Institute(s).
    iv.   The period of the project should be of maximum 3 years duration. Only in exceptional cases (to be decided by the SMD level Committee), the proposal for extension of project duration (beyond 3 years) will be reviewed.
    v.   Proposal should be submitted in the prescribed proforma and not in any other format.
    vi.   No proposal will be considered in absentia of the proposer who is proposing the proposal.
    vii. Need based equipment also can be proposed. Contractual manpower can be proposed.
    viii. Maximum Budget of the project is Rs. 1 crore for 3 years. The Budget will be allocated to the Institute after the approval of the project.
6. **Objective of Project/Scheme**
    i.   To provide partial financial support to produce technology products in agriculture, horticulture, animal and fisheries sectors.
    ii.   To provide partial financial support to manufacture new plant and machinery for crop production, fruits and vegetables, plantation crops, and animal and fishery products.
    iii. To facilitate value addition of farmer's produce through cleaning, grading, processing, packaging and marketing of agriculture, horticulture, animal and fisheries sectors
    iv.   To facilitate the generation of internal resources for meeting non-plan expenditure

Proforma of Application for Product Development Project (PDP)

1. Title of the Scheme:

2. Institute's Name:

Place:
District:
State:
Dept./Division:
Head of the Dept/Division of the Institute

3. Name:

4. Address:

5. Actual location:
(where the funds will be used)
Information regarding Nodal Officer or Principal Investigator
a. Name:
b. Designation:
c. Brief Blo-data:

d. List of important publications/assignments in this or related field.

e. List of other Res/Dev/Extn/schemes being handled

6. Objectives (precise and result oriented):

7. Practical/Commercial Utility of Operation:

8. State of Art of Technology of Transfer:

9. Feasibility Study and Operational Methodology (feasibility report with economic analysis, commercialization and PERT chart financing):

10. Infrastructural Facilities
a. Already available and can be provided free of charges
   i. List of equipment and apparatus:
   ii. Area of land/number of livestock:
   iii. Laboratory:
   iv. Office facilities etc.:

b. Additional facilities required which are chargeable to the scheme
i. Equipment and apparatus:
ii.. Land/Livestock:

11. Duration: _____ Yrs _____ months _____ days

12. Contractual manpower Requirements

Category	Pay	Qualification prescribed (for Technical posts only)

13. Estimates of Costs (Year-wise)
a. Recurring:
b. Non-recurring:

14. Receipts and Expenditure Anticipated (approximate time for rolling of funds) (Year-wise)

15. Repayment schedule (Year-wise)

UNDERTAKING

Certified that,
  i. The project proposed will be a step forward in commercializing the technology.
 ii. The consolidated pay proposed above are those admissible to the persons of corresponding status and qualifications
iii. The present scheme cannot be combined with any other scheme financed by the Council, Central and State Governments.
 iv. Necessary provision for the scheme will be made in the Institute for maintaining its accounts separately.
  v. The Revolving Fund will be reimbursed to the Head Quarter unless otherwise so decided.
 vi. We have read the Memorandum of Understanding (MoU) between the Indian Council of Agricultural Research and the sponsoring institution. We undertake to abide by the guidelines provided by the Council for the implementation of the revolving funds.

Signature
Name & Designation
Principal Investigator
Date.

Executive Authority of the
Institute

Priority Areas of Research

Note: The priority areas for social science are given in final form (with some scope to further improvise), while other SMDs have to finalize their priority areas and place in a respective head

1. **Crop Science**

   a) Discovery of new pathways and physiological processes, cloning and functional characterization of novel genes for traits of economic importance to bridge genotype-to-phenotype gap.
   b) Genetic improvement in yield per unit input and unit time, and breaking yield barriers in cereals, oilseeds and pulses using pre-breeding, de novo domestication, phenomics, genomics and AI-assisted breeding, genome editing and speed breeding.
   c) Precision breeding for tolerance to high temperature, drought and submergence.
   d) Development of crop varieties for biotic stress resistance against potential and emerging diseases and insect -pests and understanding molecular basis of host-pathogen interactions.
   e) Development of Nutrient use efficient and water-use-efficient designer crops.
   f) Metagenomics of rhizosphere, rhizoplanes and phyllosphere of different crops and in different environments.
   g) Biofortification of crops for enriching with micronutrients, proteins and antioxidants.
   h) Alternate crops and genetic improvement of xerophytes and extremophiles in to crops for cultivation in extreme environment and climate resilience.
   i) Genome engineering, systems and synthetic biology approaches for introducing novel pathways and physiological process in to crops
   j) Targeted genetic improvement for end product quality and export traits
   k) Develop new concepts and improve existing methods with potential applications in crop improvement
   l) Translation from model plants to crop plants
   m) Development of crops with minimum carbon food prints
   n) Genetic modification of crops to Trailor them for non-traditional area mechanised harvesting

2. **NRM**

   a) Development of protection and production technologies using AI, IoT, Sensor and drones etc.
   b) Geo-informatics in micro level land resources management
   c) Sensor based smart and precision soil health & water management
   d) Climate resilient agriculture
   e) Development of smart farm model using Precision Agriculture Aviation (PAA) technologies
   f) Evaluation and validation of Natural Farming
   g) Natural farming system models

3. Animal Science

a) Development of New generation Diagnostics and long acting DIVA enabled Vaccines
b) Strengthening Animal disease monitoring and surveillance system through AI tools for better preparedness to tackle endemic, emerging and re-emerging diseases.
c) Combating AMR through technological interventions, development of alternatives to antimicrobials and community connect
d) Climate smart animal production
e) Genomic selection for genetic improvement in indigenous livestock breeds
f) Precision livestock farming
g) Anti-microbial resistance
h) Vaccines and diagnostics against emerging and re-emerging diseases

4. Fishery

a) Sustainable fisheries resource Management and Conservation.
b) Aquaculture diversification.
c) Climate resilient fisheries & aquaculture systems
d) Fish nutrition, health management.
e) Fish genetic resource management and improvement.
f) Post-harvest and value-addition of fishes.
g) Mechanization, precision farming in fisheries and aquaculture.
h) Fish-based circular economy.
i) Socio-economics in fisheries and aquaculture.
j) Biotechnological & omics in fisheries
k) Cutting-edge science in fisheries and aquaculture.
l) Development of breeding and seed production technologies of new candidate fish/shellfish species of food & ornamental value, sea-weed, improved strains and new aquaculture species.
m) Formulation of feed and aquaculture products for food and ornamental fishes, value addition and waste utilization
n) Genetic improvement of native seaweed species and promotion of integrated aquaculture involving seaweeds and finfish species.

5. Agricultural Engineering

a) Precision farming technologies/machines for production and post production agriculture
b) Application of sensors and robotics for automation of farm mechanization and post-harvest technologies
c) Application of cutting-edge technologies in post-harvest sector (innovative storage solutions, secondary agriculture)
d) Mechanization of fibre extraction and quality testing of fibre and fibre based products
e) Improved ginning and cleaning systems and value-addition to cotton and its by-products.
f) Development of agri-robots and machineries for farm automation and mechanization
g) Post-harvest technologies to reduce losses and to add value

6. Horticulture (Fruits, vegetables and flowers)

a) Rootstock breeding for mitigating the biotic and abiotic stresses
b) Gene pyramiding for development of multiple disease resistant varieties in short duration horticultural crops
c) Cost effective customized nutrients and bio- formulations for production of quality safe produce of horticultural crops
d) Targeted breeding for enhancing processing quality and post-harvest shelf life
e) Bioprospecting of horticultural crops for human wellness
f) Mainstreaming of Minor Horticultural crops with nutritional and economic values for commercial production

7. Agricultural Education

a) Addressing emerging challenges in agriculture through policy research and capacity building.
b) Artificial intelligence-based research and application in agriculture.
c) Digital innovations in Agricultural Research, Education and Extension.
d) Advanced analytical methods for various aspects related to agriculture and allied fields
e) Strengthening the agri-preneurship and start-up ecosystem through academic, research and capacity building activities.

8. Research in Social Sciences (extension, economics, statistics, home science, etc.)
a) Research in agricultural extension & economics for strategies, models, methodologies & frameworks; knowledge co-production for inclusive and sustainable adaptation;
b) Research on social-ecological resilience/livelihood resilience; multiple stressors, vulnerability and adaptation for resilient agriculture;
c) Interventions and institutional arrangements on green credits; ecological footprint and biocapacity for sustainable livelihoods;
d) Institutional innovations (e.g. FPOs, Seed hub/Seed bank, etc.) and convergence, partnerships approach for improving agricultural extension systems,
e) Agri-entrepreneurship research; return to investment, promotion of value chains in agriculture,
f) Gender dimensions of agriculture;
g) Meta-data research/and or policy research in agriculture for issue-centric solutions and informed decision making.
h) Skill development and vocational programmes for rural youth and women

E. GUIDELINES FOR ICAR VIKSHIT BHARAT PROJECT (VBP)

The Indian Council of Agricultural Research (ICAR), New Delhi strives to support the research and ideas which are of problem solving in nature and address the issues of regional and national importance. Such researches are also supported to generate new dimensions of science and knowledge with their future potential application in agriculture and its allied areas including animal husbandry, fishery, social science and other relevant fields. Recently, ICAR has been able to secure the support from Government of India in terms of *Corpus Fund*, earmarked for supporting science and innovations in agriculture. The purpose of this allocated corpus fund under Vikshit Bharat Project (VBP) is to support scientists to address futuristic technologies, little known or not known but will have significance in future. Such research proposals are to be invited by the Council in the competitive mode to identify and support research projects for advancing science and knowledge in agriculture to address futuristic concepts. In order to pursue this programme, the following guidelines will be followed for its smooth implementation:

1. **Name of the programme:** ICAR- Vikshit Bharat Project (VBP)
2. **Sponsor of the programme:** Indian Council of Agricultural Research, New Delhi
3. **Aim of the programme:** To support inter-institutional/intra-institutional multi-disciplinary research projects to address futuristic technologies, little known or not known concepts which will have significance in future.
4. **Inviting proposals:** Time-to-time the Council will make announcement/notify to invite the proposals from the ICAR scientists.
5. **Eligibility Criteria for Considering the Proposal**
    i.   Only the ICAR Scientists can apply for this project (as Project Investigator), although they can establish the collaboration with CAUs/SAUs on some certain activities/components.
    ii. The proposed project needs to be under the mandate of ICAR-Research Institute(s) where scientist(s) is/are working.
    iii. The period of the project should be of maximum 3 years duration. Only in exceptional cases (to be decided by the SMD level Committee), the proposal for extension of project duration (beyond 3 years) will be reviewed.
    iv. The proposal should demonstrate novelty in its approaches/methodologies to tackle the prioritized issue(s)/problem(s) and suggesting solutions for them.
    v.   Proposal should be submitted in the prescribed proforma and not in any other format.
    vi. No proposal will be considered in absentia of the scientist(s) who is proposing the proposal.
    vii. Each discipline in an Institute will have the equal opportunity to apply for the project proposal in this programme.
    viii. The aim of this programme is to promote the multi-disciplinary and inter-institutional research in view of achieving future thrust areas and emphasis of ICAR (e.g., One ICAR Vision).

ix. Only the minor equipment/implements should be proposed on requirement basis. Availability of equipment/implements available at the Institute or approved in EFC are to be clearly mentioned in the project proposal. For the field and lab support, however, laborers and YPs can be engaged.

x. One scientist can apply for one project as PI only.

xi. Age limit: Minimum of 03 years of active regular service will be considered.

xii. The agricultural priority project proposal from priority of the concern authority/SMD.

xiii. Maximum Budget of the project is Rs. 1.00 crore.

6. Objective of Project/Scheme

i. Addressing futuristic challenges with a vision of agricultural development in 2047.

ii. Creating environment to inculcate the spirit of team work (Inter-institutional programmes) for quality research among the scientists.

iii. Enhancing exchange of resources and convergence among the institutes for their better utilization in improving quality of research works.

iv. Promoting quality products, processes, protocols, models, publications, policy inputs, etc.

Proforma for Proposals for Vikshit Bharat Project (VBP)

1**.** **Title of the project:**

2. Priority area:

3. Participating Institutes:

    3.1 Name of the Lead/Sole Institution (in case of single-institution project proposal):

    3.2 Name(s) of the Cooperating Institution (s)

4. Lead and Participating Scientists.

    4.1   Name and designation of the Principal Investigator (PI) i.e., the Lead Scientist from the Lead Institution and the Cooperating Investigators (CIs) from the lead Institute

    4.2 Name(s) and designation(s) of the Principal Investigator (s) CCPI) i.e., the Lead Scientist (s) from the Cooperating Institution(s)

    (Please give a brief CV of the PI and each CCPI and the area of specialization of each CIs as Annexure 1 in the prescribed format: *please mention the page number of the first page of the CV against each name*)

5. Objectives of the project (not more than Four)

6. How the achievements of these objectives will add to scientific advancement and/or technological advancement to address the futuristic challenges under which the project is being proposed? (Not more than 1 page)

7. Please give in brief, the status of research related to the objectives of the proposed project. (Not more than a page). Please quote only the significant references. The details of the references that you quote may please be given as Annexure at the end.

8. The knowledge and research gaps identified on analysis of the status of research in achieving the objectives (give in brief as bullet points).

9. State your working hypothesis of your project based on the analysis of gaps.

10. Give the major activities under each Objective (not more than four in any objective).

11. Give the major expected outputs of the project.

12. Give activity against year-wise deliverables, outputs and outcomes in the proforma table given as **Annexure 2.** The relationships among activities, deliverables, outputs and outcomes are given as Appendix 1 of the proforma.

13 a. Total budget: (**Rs. in lakhs):**
   b. Summary budget tables:

   13.1 Breakup of budget for each of lead/cooperating institutions year-wise (in the format given in **Annexure 3**)
   13.2 Consolidated project budget year wise (in the format given in **Annexure 4**)
   13.3 Consolidated project budget partner wise (in the format given in **Annexure 5**)

14. Number of YPs required for the lead and each participating institution.

Sl No.	Institution	YPs	Nos.	Remarks
1.				
2.				
3.				

15. Facilities/instruments etc. available at institute relevant to project proposal

16. Institute-wise list of equipment. Please give detailed justification for any equipment costing more than 1 lakh mentioning. *Please note that in the list of equipment only the generic name of the equipment is allowed and no brand name or name given by any company will be accepted*. **It will be the sole responsibility of the PI to ensure that this directive is followed.**

Lead Institution

Sl. No.	Name of the Equipment	Cost in INR		Justification
1.				
2.				
3.				

Partner 1

Sl. No.	Name of the Equipment	Cost in INR		Justification
1.				
2.				
3.				

Partner 2

Sl. No.	Name of the Equipment	Cost in INR		Justification
1.				
2.				
3.				

17. Please describe if any IPR issues are involved in using a technology/methodology/product/knowledge/software/equipment used for research under the proposed project. Please certify that the ICAR will be free from any IPR related encumbrances if the proposed project is approved and funded under the CFH.

Signature with date of the PI and the CCPI(S)

PI,   CCPIs (1),   CCPIs(2),   CCPIs(3)   CCPIs (5)

Signature and seal with date of the Heads of institutions/organizations involved in the Project as Lead and Partner institutions

Name of Institution (1)

Name of Institution (2)

Head of Institute

Head of Institute

Signature with seal

Signature with seal

Name of Institution (3)

Head of Institute

Signature with seal

Curriculum Vitae (CV) of the PI/CCPIs

1.   Name   :

2.   Designation   :

2.   Address   :

2.   Telephone   :

5.   E-mail   :

6.   Date of Birth   :

7.   Name of Institute / Centre   :
Postal Address of the Institution with
Tel/ Fax No. and E-mail

8.   Highest Qualification   :

9.   List not more than 5 major achievements in the past five years

-
-
-
-

10.   List not more than 5 best publications in the past five years

1.

2.

3.

4.

5.

a.   List the 10 best publications in the whole career

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

11.   List not more than two best multi-disciplinary/multi-institution projects in which the scientist has worked as PI and as partners

- Name of the Project :
  - Partner Institutions :

- Name of the Project :
  - Partner Institutions :

12.   List of projects in which the PI/CCPI has been working right now. Give for each the following information.

    a) Name of the project:

    b) Objectives:

    c) Working as PI/CCPI/CoPI:

    d) The objectives/activities that you are handling (in not more than 5 bullet points):

    e) Source of funding and total budget for you:

Year-wise Activities, Deliverables and Outputs
(Please give only two years in one page)

Objective	Activity	Year 1		Year 2		Year 3	
		Deliverable	Outcome	Deliverable	Outcome	Deliverable	Outcome

Annexure 3

Year-wise breakup of budget

S.No.	Head of project cost	Year-1	Year-2	Year-3	Total
A.	NON RECURRING COST				
B.	RECURRENING COSTS				
	Sub-Total (A+B)				

Consolidated year-wise breakup of budget

S.No.	Head of project cost	Year-1	Year-2	Year-3	Total
A	NON RECURRING COST				
B.	RECURRENING COSTS				
(A+B)	Sub-Total				

Consolidated Partner-wise breakup of budget

S.No.		Head of project cost	Partner-1	Partner-2	Partner-3	Total
	A.	NON RECURRING COST				
B.		RECURRENING COSTS				
(A+B)		Sub-Total				

Annexure 6

(Please give detailed technical programme here)