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**DIRECTORATE GENERAL OF SCIENCE AND TECHNOLOGY**

**Expression of Interest**

“Support R&D Consortia to catalyze discovery, invention, and innovation in three priority areas”

Building STI in Emerging Technologies (ADP 1822-210773)

|  |  |
| --- | --- |
| EOI Submission date | Jan 31, 2023 |
| Venue | Directorate General of Science and Technology, H. No 20, Old Jamrud Road, University Town, Peshawar |

**DIRECTORATE GENERAL OF SCIENCE AND TECHNOLOGY**

**Expression of Interest**

for grants to

**“Support R&D Consortia to catalyze discovery, invention, and innovation in three priority areas”**

* Directorate General of Science & Technology has initiated a developmental scheme (ADP 1822-210773) titled “**Building STI Capacity in Emerging Technologies (Phase I)**” to financially support R&D Consortia to Catalyze Discovery, Invention, and Innovation projects undertaken by different consortia.
* Expression of Interest **EOI** for grants “Support R&D Consortia to catalyze discovery, invention, and innovation in three priority areas” are requested from Consortium to conduct Research and Development in three priority areas:

|  |  |  |
| --- | --- | --- |
| **Advanced Materials** | **Biomedicine and Biomanufacturing** | **Space Sciences** |
| 1. Nanoparticles and its applications 2. Photovoltaic (solar) cells and renewable energy applications 3. New composite materials for industrial applications such as low-cost nano and micro-fiber materials. | 1. Molecular, Genomic, and Precision Medicine 2. Lab-scale or pilot-scale engineering of important compounds 3. Medical solutions based on genomics, proteomics, metabolomics, and other omics 4. Manufacturing of enzymes, antibodies, antibiotics, other APIs, and vaccines | 1. Astronomy 2. Geological studies of the lunar and Martian surface 3. Study of meteorites and other extraterrestrial rocks 4. Astrobiology and Space Health research and applications 5. Development of CubeSats and other satellites |

* The project is intended to develop novel scientific developments, discoveries, inventions (prototypes), and innovations (solutions or products) with at least 5 by each consortium.
* The R&D projects under this project will use a systematic approach, i.e. a grand challenge will be identified which will be resolved by a set of smaller projects, all working in a concerted manner towards a common goal i-e a major scientific technological accomplishment that is relevant to the place and time.
* The lead organization of the consortium must be KP based.
* Interested institutions/Consortia can download the EOI, eligibility criteria, and application forms from our website: [www.dost.kp.gov.pk](http://www.dost.kp.gov.pk).
* Interested National and International institutions (Academia, Industry, R&D organizations) both public and private with relevant experience are encouraged to participate. Up to 50 million PKR/- grants will be provided to the consortium.

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**The last date for application & proposal submission is 31-01- 2023 COB.**

**Director General**

**Directorate General of Science and Technology**

**Govt. of Khyber Pakhtunkhwa, Peshawar**

**House# 20, opposite Masjid Umar Bin Khattab, Old Jamrud Road University Town Peshawar**

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# CHECKLIST OF MANDATORY ITEMS FOR EOI

The mandatory documents as mentioned in the checklist must be attached with the proposal. Those proposals which do not fulfill the mandatory criteria will not be considered for proposal evaluation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No.** | **Consortium eligibility factor** | **Requirement** | **Document required** | **Checklist** |
|  | Registration with Income Tax | Mandatory  (For industry and private R&D organization in the Consortium) | Attach Copy of NTN |  |
|  | Registered with  Securities & Exchange  Commission of Pakistan  **OR**  Form H | Mandatory  (For industry and private R&D organization in the Consortium) | Attach a Copy of Registration Certificate |  |
|  | Registration with  KPRA Revenue  Authority | Mandatory  (For industry and private R&D organization in the Consortium) | Attach KPRA Registration Certificate |  |
|  | Local Office | Mandatory | Must have a local office in KP |  |
|  | Financial Capability | Mandatory  (Financial Capability of any partner in JV Consortium in  related services must exceed 50  Million per annum) | Audited balance sheets signed by a  registered audit firm must be  submitted as proof of turnover of  related services |  |
|  | Non-Blacklisting  & Non-Penalization | Mandatory  (Must not be blacklisted and not  be penalized on any project by  any Government Organization in  last 3 years) | Declaration of Non-blacklisting and  non-penalization on Non-Judicial Stamp  paper by the Bidder |  |
|  | JV agreement of Consortium | Mandatory | Written agreement on stamp paper duly signed by authorized personnel of each individual partner organization clearly mentioning the name of lead organization in the consortium |  |

# GENERAL DETAILS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Project details** | | | | | |
| Project Title |  | | | | |
| Priority Area | Advanced Material  Biomedicine and Bio-manufacturing  Space Sciences  Others  *Please specify others* . | | | | |
| Priority Sub-area? | **Advanced Material**  Nanoparticles  Photovoltaic cells and renewable energy  Composite materials industrial applications  Others  *Please specify others* .    **Biomedicine and Bio-manufacturing**  Molecular, Genomic, and Precision Medicine  Lab-scale or pilot-scale engineering of important compounds  Medical solutions based on genomics, proteomics and metabolomics  Manufacturing of enzymes, antibodies, antibiotics, and vaccines  Others  *Please specify others* .    **Space Sciences**  Astronomy  Geological studies of the lunar and Martian surface  Study of meteorites and other extraterrestrial rocks  Astrobiology and Space Health research and applications  Development of Cube Sats and other satellites  Others  *Please specify others* . | | | | |
| **R&D Consortium details** |  | | | | |
| Names of PI’s and CoPIs in R&D Consortium | 1.  2.  3.  4.  5. | | | | |
| Type of Consortium  (Tick relevant if applicable) | Academic | Industry | R&D organization | | Other |
|  | Please specify other |  | | | |
| Addresses of the PI’s and CoPI’s in R&D Consortium | 1.  2.  3.  4.  5.  6. | | | | |
| Name of corresponding PI |  | | | | |
| Address of physical office |  | | | | |
| Contact number |  | | | | |
| Email address |  | | | | |
| Signature |  | | | | |
| **Details of partner organization** | 1.  2.  3. | | (Lead organization)  (Partner organization)  (Partner organization) | | |
| Legal status of lead organization | Public Sector Organization | Public ltd company | Private ltd company | Partnership firm | |
|  | Others (please specify) |  | | | |

# APPLICATION FORM

**“Support R&D Consortia to Catalyze Discovery, Invention and Innovation in Three Priority Areas”**

1. **Project title**

*Limited to 100 characters, including spaces.*

1. **Project Purpose**

*For a non-specialized science audience, summarize your research project in one sentence. Maximum of 300 characters including spaces.*

1. **Abstract**

*Please provide summaries of the overall goal (“Big Problem” or Scientific Area) of the research. This information will provide first overview of your proposal (One page maximum).*

1. **Scientific goals**

*Please outline the research areas of the proposed project and describe the scientific goals to be achieved by the project. Note that these explanations are the focus of the proposal. (One page maximum).*

1. **Milestones**

*Summaries quarterly milestones of your project, including yearly deliverables that demonstrate progress and iteratively contribute to resources available to the scientific community and/or industry in Pakistan. Maximum 250 words.*

1. **Role of each PI and coPI**

*Describe the role of each PI and coPI in the project, maximum 500 words*

1. **Application domains**

*Describe plans for transforming the research on the “big problem” or scientific area to potential application domain.*

1. **Promotion of young researchers**

*Please describe strategy of the research for promoting early-stage researchers and graduate students (one page maximum).*

1. **Organization, Management and Infrastructure**

*Please describe the internal (inter-disciplinary) cooperation with different departments and institutions within university and network structures with similar institutions and industry. Also describe the administrative structure of the proposed setup within university. If the setup (Lab) is going to be cross-disciplinary, the sponsors must demonstrate the synergy and structural added value the cooperation will generate and expected benefit of this strategic cooperation. (One page maximum).*

1. **Details of equipment for R&D**

**Available equipment**

*List down the details of available equipment which can be used in the proposed research. The list of equipment must match with the research activities and the availability of human resources for the Lab.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **#** | **Equipment** | **Date of purchase** | **Current condition of the equipment** | | | **Curent usage** |
| **Working** | **Repairable** | **Out of order** |
| 1. |  |  |  |  |  |  |
| 2. |  |  |  |  |  |  |
| 3. |  |  |  |  |  |  |

**List of requested equipment**

*Please provide the list of lab equipment required to complete the research. The list of equipment must match with the research activities and the availability of human resources for the Lab.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **#** | **Equipment** | **Date of purchase** | **Current condition of the equipment** | | | **Curent usage** |
| **Working** | **Repairable** | **Out of order** |
| 1. |  |  |  |  |  |  |
| 2. |  |  |  |  |  |  |
| 3. |  |  |  |  |  |  |

1. **Availability of Trained Human Resources**

*Please provide the list along with CVs of the relevant professionals/researchers those will be engaged/associated with the lab*

1. **Other facilities**

*Please state other infrastructure and operational facilities and funds which will be provided by host institution to support the proposed Lab.*

1. **Research plan**

*Layout a brief research plan for how you propose so solve the “Big Problem” and each of the potential application domains. The proposed activities (and milestones) as well as measurable outputs and outcomes should be provided. Please also indicate the tentative budget for each research objective.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Application Domains** | **Proposed Research Activities** | **Milestones** | **Measurable Outcomes** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. **Community Engagement Plan**

*Engagement of all stakeholders and the broader community is critical for the success of a research project and the development of a broader community in areas of science and technology. This also includes communicating your science in a layman’s language to the public that eventually helps in developing a more science literate and informed general public. Stakeholders may include patients, under presented communities, non-profits and NGOs involved in non-academic research, and advocacy, politicians and opinion makers, journalists and science communicators, government officials and planning officers, students at different levels and the general audience.*

*Please describer your community engagement plan, including communities and stakeholders that you intend to engage, your history with them, and other institutional, local, regional partners that you will rely on. Clarify how the PI(s) and coPI(s) will be involved and what role they will play in the plan.*

1. **Statement of Host Institution**

*Host institution must show its commitment to provide facilities, cost-sharing for PIs/Co-PIs, MS/PhD Students, administrative support, infrastructure and accessibility to all central core facilities available at the host institution. The host institution must provide information on the financial support to the Lab to implement its unique role as a leading national Lab in the country and its uniqueness within the national context. The host institution must also commit to make the central core research facilities of this Lab accessible to all Pakistani researchers from research institutions and universities free of cost or with minimal costs.*

|  |  |
| --- | --- |
| **Signature of the Focal Person**  **Dated:** | **Signature of Vice Chancellor** |

# Annexure I: Relevant Experience of Consortium/ PI/ CoPI

*List down the details of research projects successfully completed by the PI’s, and CoPI’s. At least 4 projects related to R&D should be listed. Additional marks will be given to the projects relevant to the mentioned priority areas.*

**Project 01**

|  |  |
| --- | --- |
| ***Name of partner organization in Consortium:*** |  |
| Assignment name |  |
| Approx. value of the grant/ project (in  current US$ or PKR): |  |
| Country:  Location within country: |  |
| Duration of assignment (months): |  |
| Name of Client: |  |
| months of the assignment: |  |
| Start date (month/year): |  |
| Completion date (month/year): |  |
| No of professional staff-months  provided by associated Firm: |  |

# Annexure II: REGISTERED PATENTS

*List down the registered patents by any PI, CoPI or other team member in the consortium.*

|  |  |
| --- | --- |
| Name of patent |  |
| Research area in which the patent is registered |  |
| Country of registration |  |
| Name of recognizing body |  |
| Date of registration  (DD/MM/YYYY) |  |
| Name of organization/ Individual which has registered the patent |  |

# Annexure IV: CURRICULUM VITAE

1. **General Details**

|  |  |
| --- | --- |
| **NAME** |  |
| **CNIC #** |  |
| **ORCID ID** |  |
| **POSITION TITLE** |  |

**EDUCATION/TRAINING** *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

| **S.No.** | **INSTITUTION AND LOCATION** | **DEGREE**  ***(if applicable)*** | **Completion Date**  **MM/YYYY** | **FIELD OF STUDY** |
| --- | --- | --- | --- | --- |
| 1. |  | BS |  |  |
| 2. |  | PHD |  |  |
| 3. |  | Postdoctoral |  |  |

1. **Personal Statement**Please write down your personal statement here (100 or more word).
2. **Ongoing and recently completed projects**

|  |  |
| --- | --- |
| **Project 01** |  |
| Name of the assignment/ project |  |
| Cost of assignment/ project |  |
| Year |  |
| Starting date |  |
| Completion date |  |
| Position held |  |
| Actual time spent in projects (months) |  |
| Location |  |
| Client |  |
| Project brief |  |
| **Project 02** |  |
| Name of the assignment/ project |  |
| Cost of assignment/ project |  |
| Year |  |
| Starting date |  |
| Completion date |  |
| Position held |  |
| Actual time spent in projects (months) |  |
| Location |  |
| Client |  |
| Project brief |  |

1. **Citations :**

|  |  |
| --- | --- |
| S.No. | Details |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |
| 5. |  |

1. **Positions and Scientific Appointments**

|  |  |  |  |
| --- | --- | --- | --- |
| **Employer** | **Position** | **From (MM/YYYY)** | **To (MM/YYYY)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. **Honors and Awards**

|  |  |
| --- | --- |
| **Awarding body/ date** | **Award title** |
| *For example*  *International Ethnographic Society/ 2020* | *Award for Best in Interdisciplinary Ethnography,* |
|  |  |

1. **Contributions to Science**

Please write down description of your contribution to science, also list down a few relevant publications.

1. **Certification**

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of staff member or authorized representative

# EVALUATION CRITERIA

The evaluation criteria for EOI of the component **“Support R&D Consortia to Catalyze Discovery, Invention and Innovation in Three Priority Areas”** is given below. Those Consortium which scores 120 marks will be shortlisted for the submission of detailed proposals.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Parameter** | **Guidelines for evaluator** | | | | **Maximum marks** |
|  | **Relevant experience of Consortium** | Successfully completed a research project (worth 10 million or above for each project) | | | | 40 |
| * 1 project * 2 projects * 3 projects * 4 or more projects | 10 marks  20 marks  30 marks  40 marks | | |
| Successfully completed a research project in the three priority areas (worth 10 million or above for each project) | | | | 40 |
| * 1 project * 2 projects * 3 projects * 4 or more projects | 10 marks  20 marks  30 marks  40 marks | | |
| Successfully registered patents with a recognized national or international body on relevant research subject: | | | | 20 |
| * 1 patent * 2 or more patents | | 10 marks  20 marks | |
|  | **Consortium Profile** | Availability of Labs/ infrastructure with the Consortium that will be used in this project | | | | 20 |
| * The experimental setup is not available and will be procured during this project * All the experimental setup is available with the Consortium | | | 0 marks  20 marks |
| Involvement of International partners (academia, industry, R&D) in the Consortium | | | | 40 |
| * 1 international partner * 2 or more international partners | | | 20 marks  40 marks |
| Structure of Consortium | | | | 40 |
| * Academia and R&D organization * Academia and industry * Academia, R&D organization, and industry | | | 20 marks  30 marks  40 marks |
|  | **Proposed team** | * Project Investigator (1) * Co Project Investigator (3) | 40 marks  60 marks | | | 100 |
| The CV’s of the PI and CoPI’s submitted by the consortium will be evaluated as followed:   |  |  |  | | --- | --- | --- | | **S.No.** | **Criteria** | **Scores** | |  | Relevant education & qualification (A) | 25 | |  | Relevant background (B) | 70 | |  | Time with firm (C) | 5 |   **Relevant Education & Qualification (A)**   |  |  |  | | --- | --- | --- | | **S.No.** | **Criteria** | **Weightage** | |  | Relevant academic qualification | 15 | |  | Relevant professional certification/ patent | 10 | |  | **Total (A)** | **25** |   **Relevant academic qualification**   |  |  |  | | --- | --- | --- | | **S.No.** | **Criteria** | **Weightage** | |  | Relevant bachelor’s degree | 8 | |  | Relevant Master’s degree | 10 | |  | Relevant PhD degree | 12 | |  | Relevant Postdoc degree | 15 |   If the individual has a relevant professional certification/ patent by a recognized body that is relevant to his/her role in the assignment, full score (40%) will be given.  **Relevant Background (B)**  Relevant background for each individual is evaluated on four factors.   |  |  |  | | --- | --- | --- | | **S.No.** | **Criteria** | **Weightage** | |  | Number of similar assignments | 25% | |  | Value of largest similar assignment | 15% | |  | Role in similar assignments | 30% | |  | Time spent in similar assignment | 30% |  1. **Number of similar assignments**   The number of similar assignments listed on the individual CV for the past 10 years will be compared with a base value (Ts=5)  Subcomponent score = (N/Ts) x 25  Max score is 25%.   1. **Value of largest similar assignment**   The value of largest similar assignment listed on the individual CV for the past 10 years is compared to the present assignment.  The grading is done according to the following table:   |  |  | | --- | --- | | **Value in comparison to present assignment** | **Grade (G)** | | 80%+ | 100% | | 50%-80% | 65% | | <50% | 30% |   **Subcomponent score = G of 15%**   1. **Role in similar assignments**   The role of the individual in previous similar assignments listed in CV will be compared to the role in present assignment. The grading will be done according to the following table:   |  |  |  | | --- | --- | --- | | **Grade (G)** | **Role in number of similar projects** | | | **2 or more** | **1** | | Exactly similar | 100% | 65% | | Support role to similar | 65% | 42.25% | | Slightly similar | 30% | 19.5% |  1. **Time spent in similar assignments**   Time spent by the individual on similar projects in months (N) will be compared with the total number of possible months in the past 10 years i-e 120 months.  **Subcomponent score = (N/120) x 30%**  **Time spent with organization (C)**  If an individual has been working with the partner organization in consortium for 12 or more months, he/she will be given 5 marks otherwise 0. | | | |
|  |  | **Grand total** | | | | **300 marks** |