



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
Venue

Jan 31, 2023
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

- a. Nanoparticles and its applications
- b. Photovoltaic (solar) cells and renewable energy applications
- c. New composite materials for industrial applications such as low-cost nano and micro-fiber materials.

Biomedicine and Biomanufacturing

- a. Molecular, Genomic, and Precision Medicine
- b. Lab-scale or pilot-scale engineering of important compounds
- c. Medical solutions based on genomics, proteomics, metabolomics, and other omics
- d. Manufacturing of enzymes, antibodies, antibiotics, other APIs, and vaccines

Space Sciences

- a. Astronomy
- b. Geological studies of the lunar and Martian surface
- c. Study of meteorites and other extraterrestrial rocks
- d. Astrobiology and Space Health research and applications
- e. 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.
- 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.

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
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1. 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
1.	Registration with Income Tax	Mandatory (For industry and private R&D organization in the Consortium)	Attach Copy of NTN	
2.	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	
3.	Registration with KPRA Revenue Authority	Mandatory (For industry and private R&D organization in the Consortium)	Attach KPRA Registration Certificate	
4.	Local Office	Mandatory	Must have a local office in KP	
5.	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	
6.	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	
7.	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	<input type="checkbox"/> Advanced Material <input type="checkbox"/> Biomedicine and Bio-manufacturing <input type="checkbox"/> Space Sciences <input type="checkbox"/> Others <i>Please specify others</i> _____			
Priority Sub-area?	<p>Advanced Material</p> <input type="checkbox"/> Nanoparticles <input type="checkbox"/> Photovoltaic cells and renewable energy <input type="checkbox"/> Composite materials industrial applications <input type="checkbox"/> Others <i>Please specify others</i> _____			
	<p>Biomedicine and Bio-manufacturing</p> <input type="checkbox"/> Molecular, Genomic, and Precision Medicine <input type="checkbox"/> Lab-scale or pilot-scale engineering of important compounds <input type="checkbox"/> Medical solutions based on genomics, proteomics and metabolomics <input type="checkbox"/> Manufacturing of enzymes, antibodies, antibiotics, and vaccines <input type="checkbox"/> Others <i>Please specify others</i> _____			
	<p>Space Sciences</p> <input type="checkbox"/> Astronomy <input type="checkbox"/> Geological studies of the lunar and Martian surface <input type="checkbox"/> Study of meteorites and other extraterrestrial rocks <input type="checkbox"/> Astrobiology and Space Health research and applications <input type="checkbox"/> Development of Cube Sats and other satellites <input type="checkbox"/> Others <i>Please specify others</i> _____			
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)	<input type="checkbox"/> Academic	<input type="checkbox"/> Industry	<input type="checkbox"/> R&D organization	<input type="checkbox"/> Other



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	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.	(Lead organization)		
	2.	(Partner organization)		
	3.	(Partner organization)		
Legal status of lead organization	<input type="checkbox"/> Public Sector Organization	<input type="checkbox"/> Public ltd company	<input type="checkbox"/> Private ltd company	<input type="checkbox"/> Partnership firm
	<input type="checkbox"/> 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.

2. Project Purpose

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

3. 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).

4. 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).

5. 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.

6. Role of each PI and coPI

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

7. Application domains

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

8. Promotion of young researchers

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

9. 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).

10. 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.						

11. 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

12. Other facilities

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



13. 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

14. 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 describe 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.

15. 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

Signature of Vice Chancellor

Dated:



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

<u>Name of partner organization in Consortium:</u>	
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

A. 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		

B. Personal Statement

Please write down your personal statement here (100 or more word).

C. 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	

D. Citations :

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

E. Positions and Scientific Appointments

Employer	Position	From (MM/YYYY)	To (MM/YYYY)
i.			
ii.			
iii.			
iv.			
v.			

F. Honors and Awards

Awarding body/ date	Award title
<i>For example</i> International Ethnographic Society/ 2020	Award for Best in Interdisciplinary Ethnography,

G. Contributions to Science

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



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H. 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) <ul style="list-style-type: none"> 1 project 10 marks 2 projects 20 marks 3 projects 30 marks 4 or more projects 40 marks 	40
		Successfully completed a research project in the three priority areas (worth 10 million or above for each project) <ul style="list-style-type: none"> 1 project 10 marks 2 projects 20 marks 3 projects 30 marks 4 or more projects 40 marks 	40
		Successfully registered patents with a recognized national or international body on relevant research subject: <ul style="list-style-type: none"> 1 patent 10 marks 2 or more patents 20 marks 	20
	Consortium Profile	Availability of Labs/ infrastructure with the Consortium that will be used in this project <ul style="list-style-type: none"> The experimental setup is not available and will be procured during this project 0 marks All the experimental setup is available with the Consortium 20 marks 	20
		Involvement of International partners (academia, industry, R&D) in the Consortium <ul style="list-style-type: none"> 1 international partner 20 marks 2 or more international partners 40 marks 	40
		Structure of Consortium <ul style="list-style-type: none"> Academia and R&D organization 20 marks Academia and industry 30 marks Academia, R&D organization, and industry 40 marks 	40
	Proposed team	<ul style="list-style-type: none"> Project Investigator (1) 40 marks Co Project Investigator (3) 60 marks 	100



		<p>The CV's of the PI and CoPI's submitted by the consortium will be evaluated as followed:</p> <table border="1"> <thead> <tr> <th>S.No.</th> <th>Criteria</th> <th>Scores</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Relevant education & qualification (A)</td> <td>25</td> </tr> <tr> <td>2.</td> <td>Relevant background (B)</td> <td>70</td> </tr> <tr> <td>3.</td> <td>Time with firm (C)</td> <td>5</td> </tr> </tbody> </table> <p>Relevant Education & Qualification (A)</p> <table border="1"> <thead> <tr> <th>S.No.</th> <th>Criteria</th> <th>Weightage</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Relevant academic qualification</td> <td>15</td> </tr> <tr> <td>2.</td> <td>Relevant professional certification/ patent</td> <td>10</td> </tr> <tr> <td></td> <td>Total (A)</td> <td>25</td> </tr> </tbody> </table> <p>Relevant academic qualification</p> <table border="1"> <thead> <tr> <th>S.No.</th> <th>Criteria</th> <th>Weightage</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Relevant bachelor's degree</td> <td>8</td> </tr> <tr> <td>2.</td> <td>Relevant Master's degree</td> <td>10</td> </tr> <tr> <td>3.</td> <td>Relevant PhD degree</td> <td>12</td> </tr> <tr> <td>4.</td> <td>Relevant Postdoc degree</td> <td>15</td> </tr> </tbody> </table> <p>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.</p> <p>Relevant Background (B) Relevant background for each individual is evaluated on four factors.</p> <table border="1"> <thead> <tr> <th>S.No.</th> <th>Criteria</th> <th>Weightage</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Number of similar assignments</td> <td>25%</td> </tr> <tr> <td>2.</td> <td>Value of largest similar assignment</td> <td>15%</td> </tr> <tr> <td>3.</td> <td>Role in similar assignments</td> <td>30%</td> </tr> <tr> <td>4.</td> <td>Time spent in similar assignment</td> <td>30%</td> </tr> </tbody> </table> <p>1. Number of similar assignments</p>	S.No.	Criteria	Scores	1.	Relevant education & qualification (A)	25	2.	Relevant background (B)	70	3.	Time with firm (C)	5	S.No.	Criteria	Weightage	1.	Relevant academic qualification	15	2.	Relevant professional certification/ patent	10		Total (A)	25	S.No.	Criteria	Weightage	1.	Relevant bachelor's degree	8	2.	Relevant Master's degree	10	3.	Relevant PhD degree	12	4.	Relevant Postdoc degree	15	S.No.	Criteria	Weightage	1.	Number of similar assignments	25%	2.	Value of largest similar assignment	15%	3.	Role in similar assignments	30%	4.	Time spent in similar assignment	30%	
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		<p>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 = $(N/Ts) \times 25$ Max score is 25%.</p> <p>2. 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:</p> <table border="1" data-bbox="560 645 1134 824"> <thead> <tr> <th>Value in comparison to present assignment</th> <th>Grade (G)</th> </tr> </thead> <tbody> <tr> <td>80%+</td> <td>100%</td> </tr> <tr> <td>50%-80%</td> <td>65%</td> </tr> <tr> <td><50%</td> <td>30%</td> </tr> </tbody> </table> <p>Subcomponent score = G of 15%</p> <p>3. 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:</p> <table border="1" data-bbox="560 1106 1166 1361"> <thead> <tr> <th rowspan="2">Grade (G)</th> <th colspan="2">Role in number of similar projects</th> </tr> <tr> <th>2 or more</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>Exactly similar</td> <td>100%</td> <td>65%</td> </tr> <tr> <td>Support role to similar</td> <td>65%</td> <td>42.25%</td> </tr> <tr> <td>Slightly similar</td> <td>30%</td> <td>19.5%</td> </tr> </tbody> </table> <p>4. 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 = $(N/120) \times 30\%$</p> <p>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.</p>	Value in comparison to present assignment	Grade (G)	80%+	100%	50%-80%	65%	<50%	30%	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%	
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