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Government of India
Ministry of Chemicals & Fertilizers
Department of Chemicals & Petrochemicals

Shastri Bhawan, New Delhi
Dated, the, 21 May, 2020

“Scheme for Setting up of Centres of Excellence in the field of Petrochemicals”
Invitation for Applications

Ministry of Chemicals & Fertilizers, Department of Chemicals & Petrochemicals (DCPC) invites applications/ proposals from existing Central or State Government Universities and Govt. Organizations, already engaged in R&D activities in the petrochemical sector, with a proven track record of academic excellence or research and complying with the criteria laid down in the Scheme Guidelines document below to set up “Centre of Excellence”. For more details, please visit the website www.chemicals.nic.in.

2. The proposal, complete in all respects, may be submitted to the Department, latest by **6th July, 2020**.

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**SCHEME FOR SETTING UP OF CENTRE OF EXCELLENCE
IN THE FIELD OF PETROCHEMICALS**

**GUIDELINES
AND
PROFORMA FOR SUBMISSION OF PROPOSALS**

**GOVT. OF INDIA
MINISTRY OF CHEMICALS AND FERTILIZERS
DEPARTMENT OF CHEMICALS AND PETROCHEMICALS
SHASTRI BHAWAN, NEW DELHI**

Subject: - Scheme for setting up of Centre of Excellence (CoE) in the field of Petrochemicals – guidelines reg.

1. Introduction

The Petrochemical industry in India is one of the key contributors in acceleration of economic growth. Petrochemicals have penetrated enormously into the niche market in different forms and its potential has to be further harnessed to ensure techno-economic sustainability of the country. End products of Petrochemicals such as polymers have become inevitable in almost all areas such as packaging, automotive, infrastructure, transport, and telecommunication. R&D efforts and diversification of usage in an environmentally friendly and competitive way with scalability of projects in new areas would strengthen the Indian Petrochemical sector. A strategic funding pattern for collaborative research framework constituting inputs from experts in each steps starting from basic research to impactful commercial translation is proposed through DCPC's support. The initiative would support Govt. institutions / organizations already engaged in research and development activities in the petrochemical sector and allied fields to work on key emerging areas, so as to set up Centres of Excellence. The Centres of Excellence are expected to attract excellent researchers and developers, earning a reputation as a significant resource for the progress of science and technology and the spread of innovation in the field of polymers.

2. Background

The Department of Chemicals & Petrochemicals (DCPC) published the National Policy on Petrochemicals in the Gazette of India (Extraordinary) Part -1-Section -1 dated 30th April, 2007 which envisioned sustainable development of the petrochemical sector inter-alia through promotion of Research and Development and Human Resources Planning and Development to cater to the needs of the industry by adopting a mission mode approach. The policy states that a National Programme on Petrochemical Development is to be formulated to improve the existing petrochemical technology and research in the country and to promote the development of new applications of polymers and plastics, for which setting up of Centres of Excellence would be one of the components.

3. **Broad Areas of Research**

As per the National Policy, Centres of Excellence will be set up in existing educational and research institutions working in the field of polymers, which inter-alia includes –

- Updating products for new uses, extending the cycle for existing products through modification;
- Innovative product technology and product design changes;
- Improvements in the production processes to make it more efficient;
- Recycling process technology, innovative collection, segregation, cleaning and development of recycled products;
- Development of biopolymers and biodegradable polymers;
- Product developments using engineering polymers/compounds/ blends/alloys
Industrial spent water treatment for recycling;
- Other emerging areas in the field of Petrochemicals – development of eco efficient systems from bio and bio-based polymer for various applications and any other ground breaking technologies for development of indigenous products.

4. Based on the broad topics, specific activity areas are to be indicated in the proposals, developed through a logical framework of specifying the detailed sub activities, outputs, assumptions and timelines, together with the resources needed for their successful implementation. The CoE proposal should preferably focus on development of technology with business potential. The scheme shall not in any case support Pre-Feasibility or Proof of Concept Research.

5. Some areas of applied research under broad areas are:

- a. Development of biodegradable and bio-based polymers for various applications
- b. Plastics Waste Management and Recycling: Development of Eco-efficient technologies for Recycling of Plastics, Recycled products and Value addition thereof
- c. Polymer Composites & Nano-composites for Structural components including Building & transportation equipped with light weight, fire safe components delivering enhanced fuel efficiency
- d. Polymer based Specialized coatings and adhesives with tailored performance to be used in a wide variety of environments & applications
- e. Separation & purification membranes to effectively address the environmental concern through cost-effective water purification / desalination, gas separation etc.
- f. Development of cost-effective technologies for waste water treatment

- g. Development of polymer based systems for healthcare & bio-medical devices
- h. Design & development of Engineering Polymers/Polymer Blends & Alloys for various applications
- i. Energy efficient processes for innovative product design and development
- j. Other specialty applications to embrace newer, cutting technologies and innovations for generating affordable and qualitative products.

6. **Objectives of the CoE**

With the support, each Centre of Excellence (COE) would emerge as an internationally recognized Centre for the analysis and dissemination of existing global knowledge in the chosen fields, provide authoritative, strategic and timely information to DCPC for use in the development and implementation of projects / programmes, while engaging in future path-breaking R&D efforts. The specific objectives are as follows:-

- a. To focus on a specific area as identified in the national policy and create a competency centre for developmental activity in the identified areas.
- b. To establish a sound new institutional base for executing the programmes/projects by strengthening the existing infrastructure.
- c. To carryout R&D, Product & Process Development, process equipment selection, testing facility, training for industry
- d. To upgrade the Centre's technical capacity and information architecture.
- e. To support creative and innovative proposals in terms of functions and facilities.
- f. To disseminate the results of the R&D and other activities through filling of patents, transforming the research proposal into a business proposal to pick, invest and commercialize;
- g. Create skilled manpower competent to provide technical consultancy and facilitate START-UP entrepreneurs, keeping in view the larger interests of the society.
- h. To develop association between academia and industry for the benefit of the Petrochemical sector.

7. **Elements of a CoE Project:**

A CoE Project should, aim to have the following basic elements:

- a. The efforts must be to concentrate existing capacities and resources to facilitate collaboration across disciplines and across organizations on long-term programmes and projects of direct relevance to the sector.
- b. The CoE must strive to strengthen and broaden the scope of the Centre's external relations with an aim to service industry in the R&D sector and develop Public Private Partnerships, wherever possible.
- c. All parties involved in the CoE will bring to the partnership a special expertise of strategic importance to the petrochemical sector.
- d. The Team Leader of the proposed CoE must be an established research scientist who should have requisite administrative experience to direct the program and guide the co-investigator & other team members in the proposed CoE.
- e. The Team Leader should have continuity in research in the relevant area, as demonstrated from the publications in the last five years in various peer-reviewed international journals.
- f. Similarly, Co-investigator & other Team members must be under the permanent payroll of the proposed Institute and should have publications in International journals.
- g. After demonstrating the feasibility of the idea at the research labs, the activity should move to demonstrate the feasibility in the market place / field on a scale which involves some more investment but not too high. At this stage the aim should be towards understanding the unknown risks when a product/ process / solution is taken for field / prototype study. It would aim to unearth the additional risks, relevance of the solution based on other factors (like other technological solutions which would have entered the market in the intervening research period).
- h. At the end of this stage, the CoE would strive to transform the research proposal into a business proposal for industries both upstream and downstream through interaction, to pick, invest and commercialize, if an industry partner is not already there. The CoE shall strive to achieve self-sustainability through research and development activities including patent registration and licensing, consultancies while focusing on its core mandate.
- i. CoEs would help in development of new products, newer applications, innovation and improvement of technology, process innovation, quality, environmentally sustainable development, etc.
- j. The creation of CoEs will also serve the purpose of having a "low-cost-high-returns" intervention by the Government.

- k. The Centre should aim to become self-sustaining subsequently to attain a recognized status of a Centre of Excellence in its chosen area.

8. Eligibility conditions for Institutes for submission of proposal under the scheme

The CoE would be assessed for their eligibility based on the following parameters:

Essential

- a) Existing Central or State Government University, Government organizations with a proven track record of academic excellence or research.
- b) The institution should be currently engaged in research and development activities in the Petrochemical sector, as indicated by publications, research projects, consultancy assignments and registered PhD candidates.
- c) It should have adequate infrastructure in terms of land & building, to house the Centre of Excellence including, research scholars, equipment, plant / machinery to be purchased from the grant.
- d) The institute should have competent core staff of the field in which the Centre of Excellence is proposed to be set up.
- e) The institute should have sufficient / competent manpower / research staff who could be engaged in field in which the Centre of Excellence is proposed to be set up.
- f) The Team Leader should include details of research projects handled and number of Ph.D students registered in the proposal.

Desirable

- g) Those projects having an industrial partner from the beginning for promoting applied research, technology transfer and commercialization would be preferred.

9. Duration of the scheme

The scheme will be operational from 2020-21 onwards.

10. Funding pattern under the scheme

The funding pattern under the scheme is:

- a) The financial support under the scheme would include Laboratory Equipment, Plant/Machinery, Support to Research staff (JRF, SRF, RA-till the project/period), Research Literature and Consumables, Organizing Workshops/Conferences/Seminars in the relevant area and filling of patents.
- b) The funding will be mainly in the form of capital expenditure.
- c) The percentage of financial support required from the GOI out of the total investment/costs of the project will be a maximum of 50%, subject to an upper limit of Rs.5 crore. The balance will have to be met from the resources of the applicant institute and its Partners.
- d) Expenditure of recurring nature for support to research staff, consumable for the laboratory equipment's, plant / machinery procured will be made from this scheme only up to first two years of the scheme, beyond which the parent institute have to support these activities.
- e) The funds will be released in three instalments.
- f) The second and third instalment will be released after receiving satisfactory achievement-cum-performance report, on acceptance of UC, and approval of Project Sanctioning Committee.
- g) Not more than 10% of the total grant sanctioned will be spent for organizing workshops, seminars, conferences by the CoE.

11. Submission of proposals for setting up COE

Based on broad areas of research, the institutes may fill-in the enclosed proforma and submit research proposals on specific topics / areas in the proforma. After industry consultations / suggestions, areas would be prioritized and finalized for selection as CoE.

12. Modalities / Selection process for the approval of CoE

The selection of a proposal will be in the following steps:

- a) Internal to the Institute - Team Leader of the proposed centre will prepare the Project Report and submit it to the Head of the institution, who after evaluating it at his/her level for qualitative improvements, will cause it to be submitted to DCPC with his / her specific recommendations. He/she will make observations on achievements of the identified centre, its position in existing research and

development life-cycle, availability of infrastructure, potential for growth and requirements of additional support. Internal competition between different units/ centres of the same institute should be encouraged while selecting.

- b) Evaluation of the proposal by Expert Committee - The project proposals received from the institutes will be evaluated by an Expert Committee, chaired by Joint Secretary (Petrochemicals). Team Leader will make a presentation to the Expert Committee and the Expert Committee will make specific recommendations regarding selection of the centre, based on relevance on work in the present scenario, current research status of the applicant institute, its team, depth of collaboration with the industry and the requirements proposed.
- c) Final approval – the proposals recommended by the Expert Committee will be placed before the Project Sanctioning Committee chaired by Secretary (DCPC).
- d) Wherever possible, the project will be run on the lines of Public Private Partnership. The financial input/sponsorship has to be worked out as per the selected topics and institution's outputs. Besides, financial obligation has also to be undertaken by the institute/autonomous body where CoE is being created. A framework will be finalised, if a PPP partner is available. The CoE shall strive to achieve a stream of income through its research and development activities including by way Patent registration and licensing, consultancies as far as possible to achieve a degree of financial independence while focusing on its core mandate.
- e) After selection, a Bond and reporting formats will have to be signed by the applicant institution with DCPC.

13. Monitoring Mechanism

The Monitoring of the scheme will be ensured through the following measures

- a. After signing of the bond, and starting of the Project, the reporting formats will be submitted half yearly to the Petrochemical Division, DCPC.
- b. Progress reports shall be indicating inter-alia the date of commencement of the programme, location, name of the team leader, list of equipment's/ plant machinery purchased, achievements with reference to the milestones, names and number of scholars engaged, research activities undertaken, number of patents filed/ registered, services to the industry in the proposed area and income thereof details research papers number of consultancies involving dissemination of

knowledge to industries, earning from the consultancies, other dissemination activities.

- c) The Project Monitoring Committee will review the working of CoE yearly including against the targets set if any by the Project sanctioning Committee to consider release of the next instalment.
- d) Evaluation Post implementation and reporting thereof - At the end of the implementation /establishment of the CoEs each CoE will be evaluated by a team of independent experts in terms of the Outcome envisaged under the scheme and actual achievement. Each of these centres will be given a grading evolved in accordance with the weighted elements of the outcomes in the scheme in terms of impact on the Petrochemical Industrial scene. The committee shall make a SWOT analysis noting the success and shortcomings and suggest areas and mechanism for continued improvement.
- e) The Department of Chemicals and Petrochemicals shall consider the recommendations of the committee and take a final view. Decision arrived by at Department of Chemicals and Petrochemicals shall be binding on the CoE and it shall be incumbent on the CoE to act upon them.
- f) After the implementation of the scheme, each centre shall report yearly the achievements in respect of their centres to enable documenting the success stories as well as its shortcomings for continued improvement and learning. This will also ensure continuity of research in the proposed area and implementation of timely advancements in the technology.

14. Terms and Conditions

The term and conditions are:

- a. As per the latest instruction by Controller General of Accounts (CGA), Government of India, the grantee institution is required to register at CGA website (<http://pfms.nic.in>) post progress reports UCs and other information under the EAT module to facilitate release of funds.
- b. All CoEs are required to execute a Bond (in prescribed proforma) on a non-judicial stamp paper before any grants-in-aid are released to them.
- c. The grant being released should be exclusively spent for the specified purpose for which it has been sanctioned within the stipulated time. Any unspent balance out of the amount sanctioned, including interest accrued, would be refunded to the

Govt. of India by means of an Account's Payee Demand Draft drawn in favour of Drawing & Disbursing Officer, Department of Chemicals and Petrochemicals, payable at New Delhi.

- d. The grantee shall furnish to DCPC, utilization certificate and an audited statement of accounts pertaining to the grant as per the prevalent financial rules of Government of India) and submit progress reports, UCs and other information under the EAT module at the end of each financial year.
- e. The grantee is required to send two copies each of following to DCPC at the end of each financial year as well as at the time of seeking further instalments of the grant, if any.
 - a. Progress report in the reporting format (hard & soft copy);
 - b. Audited statement of accounts relating to the amount sanctioned; and
 - c. Utilization certificate, in the prescribed proforma,
- f. All the assets acquired or created from the grant shall be installed in the premises of the CoE and not in any other department/Division of the host institute, unless specifically approved by the DCPC.
- g. Assets acquired wholly or substantially out of government grant, except convinced that the grant is not being utilized properly or that appropriate progress in the project work is not being made.
- h. CoE would maintain a record of all the capital equipment procured and once these are unserviceable/ obsolete/unusable they should be disposed with a prior permission for assets more than Rs. 1.00 lakh from the DCPC. The fund thus generated from disposal of capital equipment should be flowed back to CoE.
- i. Concerned officers of DCPC or its authorized representatives may visit the organization/ CoE for ascertaining the progress of work and attempt to resolve any difficulties that might be encountered in the course of implementation.
- j. DCPC reserves the right to terminate support to the project at any stage, if it is convinced that the grant is not being utilized properly or that appropriate progress in the project work is not being made.
- k. DCPC will not have any liability towards the manpower appointed by the grantee institution for implementation of the project.

- I. DCPC will have no responsibility in case of any loss is caused to any life or property due to accident, fire or any other reasons. The host Institute is required to take appropriate safety and insurance measures to safeguard against any loss to human life and property related to CoE.
- m. The DCPC will have no liability on account of any omission or commission of regulatory/ statutory requirement by the CoE.
- n. The Grantee will indemnify, defend and hold harmless the DCPC from and against, and in respect to, any and all losses, expenses, costs, obligations, liabilities and damages, including interest, penalties and attorney's fees and expenses.

PROFORMA

FOR SUBMISSION OF PROPOSAL FOR CENTRE OF EXCELLENCE (to be filled by the applicant)

PART I: GENERAL INFORMATION

1. Name of the Institute/University/Organization submitting the Project Proposal;
2. Address and Status of the Institute:
3. *Sources of Funding for the institution and its projects*
4. Name and designation of the Executive Authority of the Institute/University Forwarding the applicant;
5. Project Title;
6. Duration of the *proposed* project (in years)
7. Total Cost (Rs.);
8. If the project is multi-institutional; please furnish the following:
 - Name of Team Leader and Co-investigators:
 - Designation:
 - Address
9. Scope of the proposed work (in broad sense)
10. Project Summary (Not to exceed one page. Please use separate sheet).

PART II: PARTICULARS OF TEAM LEADER / INVESTIGATORS TEAM LEADER

11. Name:
12. Date of Birth:
13. Sex (M/F):
14. Designation:

15. Department: Institute / University:

16. Address: PIN Telephone: Fax Email

17. Contributions in the area of technology including the field under which project is proposed

18. Number of Research project being handled at present: Co-Investigators

(Note: Use separate pages, if more Members of the applicant institute are involved)

PART III: TECHNICAL DETAILS OF PROJECT

(Under the following heads on separate sheets)

19. Objectives and scope of the project (not to exceed 2 pages)

20. Work Plan and Methodology

21. Time schedule for the work (Please provide quantifiable outputs and PERT chart)

22. Project Outcomes and Deliverables, during the project duration and beyond

23. **Budget Estimate Break-up** – Total contribution from Gol + contribution from Applicant Institute + contribution from Collaborating Institutions and Industries

A. Gol Grant

i. Non-Recurring

- Equipment

ii) Recurring

- Research Staff (C)
- Recurring Research Consumables (E)
- Organizing Workshops / seminar, outsourcing testing, participation in international conference, patent filling / procurement of e-journals & Contingency (F)

ii) (a) Overheads @ 15% of Total recurring cost

Total (Sl. No. A (i) + A (ii) + A (ii) (a)) -----[1]

B. Applicant Institute

i) Non-Recurring

- Equipment

ii) Recurring

Total (Sl. No. B (i) + B (ii)) -----[2]

C. Resources contributed by other Collaborating Institutions and Industries, if any

Total (C) -----[3]

Grand Total = [1] + [2] + [3]

PART IV: DECLARATION / CERTIFICATION

It is certified that,

- a. The research work proposed in the scheme/project has not been submitted to any other agency for financial support.
- b. If the project involves field trials/experiments/exchange of specimens, etc. we will ensure that ethical clearances would be taken from concerned ethical Committees/Competent Authorities and the same would be conveyed to DCPC.
- c. Any research outcome or intellectual property right(s) on the invention(s) arising out of the project shall be informed to DCPC
- d. The institute/university agrees that the equipment/plant & machinery and other basic facilities shall be extended to investigator(s) throughout the duration of the project.
- e. The institute assumes to undertake the financial and other management responsibilities of the project and submit the utilization of the grants annually to DCPC.

Signature of Team Leader

Signature of co-Investigator

Date:

Date:

**Signature of Executive Authority
Of Institute/ University with seal**

Date: