

MINUTES OF THE FIRST MEETING OF THE STEERING COMMITTEE ON ENVIRONMENTAL RESEARCH AND DEVELOPMENT PROGRAMME (ERDP) HELD ON 21st JUNE, 2024 AT MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, INDIRA PARYAVARAN BHAWAN, NEW DELHI.

The first meeting of the Steering Committee on ERDP for Conservation and Development was held on 21st June, 2024 under the Chairmanship of Shri Naresh Pal Gangwar, Additional Secretary to consider 17 project proposals (already recommended by the Technical-cum-Financial Appraisal Committee in its 3 meetings) received online under the ERDP for Conservation and Development. The list of participants is at **Annexure-I**.

2. Dr. Prashant Gargava, Director (RE) welcomed Shri Naresh Pal Gangwar, Additional Secretary(EF&CC), Chairman and the members of the Steering Committee. It was informed that project proposals are received online on the MIS-Portal under the ERDP for Conservation and Development. The project proposals are first considered and recommended in the earlier meetings of Technical-cum-Financial Appraisal Committee (TFAC) held on 12-13 October 2023; 4-5 January 2024 and 18-19 March 2024 respectively, for consideration and approval of the Steering Committee. 17 proposals recommended by TFAC are to be considered during the meeting.

3. Shri Naresh Pal Gangwar, Additional Secretary, MoEFCC and Chairperson of the Steering Committee welcomed all the participants in the meeting and the meeting was initiated with permission of the Chair.

4. The Member-Secretary appraised the Committee about the status of the research proposals. A total of 277 research proposals were received through online mode. All of them were considered by the TFAC in three meetings held on 12-13 October 2023; 4-5 January 2024 and 18-19 March 2024 respectively. A total 215 proposals were not found suitable for funding; 19 proposals were referred to experts for their comments; 10 proposals were sent back to the Principal Investigators (PIs) for revision; and, 16 PIs could not present their proposals in the TFAC meetings. TFAC recommended a total 17 research project proposals for funding.

5. Shri Suresh Kumar, Director(IFD) representative of AS&FA informed the Committee that as per the approved guidelines 'A Project or Study can be of a period of six months to two years. Any extension thereto will require prior approval of the Ministry'. In view of above, Chairman agreed to consider only the proposals with maximum project duration of two years. Accordingly following four proposals of two years' period and one proposal of one-year period, were considered by the Steering Committee for funding:

Sl	Project No./Title/PI/address	Duration /total cost (in ₹)
1	636/2024/RE "Bioprospecting and ecological survey of Chilika Lake metagenome for identification of new biocatalyst for industrial	Duration: 02 Years Total Outlay: ₹68,37,440/-

	application". Dr. Vishakha Raina, School of Biotechnology, KIIT Deemed to be University, Patia, Bhubaneswar.	Details of the proposal are at Annexure-III
2	600/2023/RE "Integrated Ecological Profiling and Isolation of Thermozyms from High-Altitude Hot Springs in District Kinnaur, Himachal Pradesh, India: A Culturable and Unculturable Approach with SeqCode Taxonomy." Dr. Pushp Lata, Asstt Prof., Deptt of Zoology, University of Delhi, Delhi.	Duration: 02 Years Total Outlay: ₹41,04,000/- Details of the proposal are at Annexure-IV.
3	419/2023/RE "Feasibility assessment of bioelectricity generation and optimization of substrate in coupled constructed wetlands for wastewater treatment". Dr. Kapil Kumar, National Institute of Technology, Delhi.	Duration: 2 Years Total Outlay: ₹67,13,760/- Details of the proposal are at Annexure-V.
4	594/2023/RE "Vehicular pollution (exhaust and road-wheel dust) reduction; on road charging of electric vehicles; and overall energy saving". Dr. Atul Babbar, Dept. of Mechanical Engineering, Shree Guru Gobind Singh Tricentenary University, Gurugram.	Duration: 02 Years Total Outlay: ₹18,11,250/- Details of the proposal are at Annexure-VI.
5	644/2024/RE "Novel dyes synthesized from pet waste and their applications in industry". Prof. Rakesh Kumar Soni, Deptt. of Chemistry, Chaudhary Charan Singh University, Meerut.	Duration: 1 Year Total Outlay: ₹19,59,360/- Details of the proposal are at Annexure-VII.

6. After detailed discussion, the Committee approved the above mentioned five (05) project proposals with the following conditions:

- i. The Grants-in-aid is subject to the General Financial Rules, 2017, as amended from time to time, read with the Government of India's decisions incorporated there under, and any other guidelines. All relevant information and documents/certificates as required as per GFR 2017- 230(1).
- ii. As per GFR 2017- 230(8), 'All interests or other earnings against Grants in aid or advances (other than reimbursement) released to any Grantee institution should be mandatorily remitted to the Consolidated Fund of India immediately after finalization of the accounts. Such advances are not allowed to be adjusted against future release.
- iii. Assets acquired wholly or substantially out of Government Grants will be the property of the Government of India and shall not be disposed of without obtaining the prior approval of the sanctioning authority of Grants-in-Aid.
- iv. The Equipment should be purchased as per GFR 2017 norms and through GeM procedure.

- v. There should not be any overlapping of activities under the project/scheme with the activities of on-going scheme of Central/State Government.
- vi. The timeline for completion of the project shall be adhered to.

7. The Steering Committee has also agreed that all the remaining project proposals which are mentioned at Sr. No. 2, 3, 4, 5, 6, 8, 11, 12, 14, 15, 16 and 17 at **Annexure-II** proposing for 3 years' duration are to be reconsidered by TFAC again for the project tenure as per the existing guidelines.

8. The Committee has also agreed that the component 'Any Other' will be limited for *dissemination of research* findings of the project for a maximum of 4 national conferences only.

9. Chairman, Steering Committee has advised to strengthen the Committee and to avoid duplication of work, the Directors of BSI, ZSI, WII, WCCB and GBPIHE may be co-opted as special invitees.

10. The Committee discussed about the tenure of the project proposals mentioned in the guidelines: '*A Project or Study can be of a period of six months to two years. Any extension thereto will require prior approval of the Ministry*'. All the members suggested that projects are usually for a period of three years' duration as the Ph. D. research work which is for a period of three years. Therefore, the members suggested to enhance the project duration from 2 years to 3 years and recommend to amend the concerned clause in the guidelines for Environmental Research and Development Programme (ERDP) accordingly.

11. With kind permission of the Chair, the matter related to identification of the critical areas/gaps for funding was placed before the Committee. It was decided to circulate the existing thematic areas to all Members of the Steering Committee and the TFAC (as the matter discussed in 4th TFAC meeting held on 18-19 June, 2024) with a request to submit the suggestions/comments on the subject matter to the Ministry for further consideration by the Steering Committee.

The meeting ended with a vote of thanks to the Chair.

Annexure-I.

List of the participants.

Sl.	Name	
1.	Shri Naresh Pal Gangwar, Additional Secretary, MoEF&CC, New Delhi.	Chairman
2.	Dr. K. Kathiresan , Emeritus Prof. CAS in Marine Biology, Annamalai University, Paranipettai.	Member
3.	Dr. A. J. Solomon Raju, Prof & Head, Deptt. of Environmental Sciences, Andhra University, Visakhapatnam.	Member

4.	Dr. K. P. Sharma, Deptt. of Botany, University of Rajasthan Jaipur.	Member
5.	Dr. Dinendra Raychaudhri, Deptt. of Zoology, Entomology Laboratory, University of Calcutta, Kolkata.	Member
6.	Dr. B. Balagi, NBA Chennai (Online).	Member
7.	Dr. Bharat K. Sharma, MS, CPCB, Parivesh Bhawan, CBD-cum-office Complex, East Arjun Nagar, Delhi.	Member
8.	Ms. Ridhika Aggarwal, Content Writer, Savitr Analytics & Media, B8G, Gangasthal Apartment, Part-1 Muni Ki Reti, Rishikesh (Online).	Member
9.	Sh. Suresh Kumar Director (IFD), representative of AS&FA, MoEF&CC.	Member
10.	Dr. Garima Sharma, DHR&D, CPCB, Parivesh Bhawan, CBD-cum-office Complex, East Arjun Nagar, Delhi.	Special Invitee
11.	Dr. Prashant Gargava, Director (RE), MoEF&CC.	Special Invitee
12.	Dr. Rajendra Kumar, Scientist 'C', MoEF&CC.	Member-Secretary

ANNEXURE-II.

List of the 17 recommended research proposals.

Sl.	Registration Number	Title/PI/Address
1.	636/2024/RE Ecosystems Conservation & Management (Mountain, Forest, Coastal, Wetlands, Pastoral, etc) and Evaluation of Ecosystem Services.	Bio prospecting and ecological survey of Chilika Lake metagenome for identification of new biocatalyst for industrial application. Dr. Vishakha Raina, Professor, School of Biotechnology, KIIT, Patia, Bhubaneswar. Duration: 02 Years. Total Outlay: ₹89,92,800/-
2.	555/2023/ Ecosystems Conservation & Management (Mountain, Forest, Coastal, Wetlands, Pastoral, etc) and Evaluation of Ecosystem Services.	Forest Ecosystem Assessment in the Western Himalayan Region: Integrated Approach for Sustainable Conservation and Management of Ecosystem Services. Prof. Sumit Sen, Hydrology, IIT Roorkee. Duration: 03 Years. Total Outlay: ₹2,00,77,030/-
3.	637/2024/RE Ecosystems Conservation & Management (Mountain, Forest, Coastal, Wetlands, Pastoral, etc) and Evaluation of Ecosystem Services.	Economic valuation of the Ecosystem Services provided by golden jackals and striped hyenas in and around Dholpur-Karauli Tiger Reserve and Kaila Devi Wildlife Sanctuary in Rajasthan. Dr. Randeep Singh, Associate Director, Amity Institute of Forestry and Wildlife,

		Amity University, Sector-125, Noida. Duration: 03 Years. Total Outlay: ₹69,39,440/-
4.	586/2023/RE Sustainable Management of Natural Resources.	Comprehensive Assessment of Co-Transport of Microplastics and Heavy Metals during Groundwater-Surface water Interactions. Prof. Brijesh Kumar Yadav, Deptt of Hydrology, IIT Roorkee. Duration: 3 Years Total Outlay: ₹49,42,000/-
5.	276/2020/RE Sustainable Management of Natural Resources.	Natural distribution, ecological niche modelling, selection of CPTs, its evaluation and nursery production of sandal (Santalum album Linn.). Dr. Binu N. Kamalobhavan, Assistant Professor, Dept. of Forest Biology and Tree Improvement College of Forestry Kerala Agricultural University KAU PO. Duration: 3 Years. Total Outlay: ₹63,56,400/-
6.	668/2024/RE Sustainable Management of Natural Resources.	Potential of periphytic diatoms in the uptake of nutrients in eutrophic environments, and their subsequent applications as slow-release bio-fertilizer for sustainable environment. Prof. Archana Tiwari, Professor, Amity University, Sector-125, Noida. Duration: 03 Years. Total Outlay: ₹68,85,472/-
7.	600/2023/RE Taxonomy	Integrated Ecological Profiling and Isolation of Thermozyms from High-Altitude Hot Springs in District Kinnaur, Himachal Pradesh, India: A Culturable and Unculturable Approach with SeqCode Taxonomy. Dr. Pushp Lata, Lab No. 112 Department of Zoology, University of Delhi, Delhi. Duration: 02 Years. Total Outlay: ₹49,22,000/-
8.	410/2023/RE Taxonomy	Molecular Taxonomy and Phylogeny of Terebrantia (Thysanoptera: Insecta) from India. Dr. Vikas Kumar, ZSI, Kolkata Duration: 3 Years. Total Outlay: ₹57,98,280/-
9.	419/2023/RE Pollution Prevention - Clean	Feasibility assessment of bioelectricity generation and optimization of substrate in

	Technologies and Processes, Cleaner Production, 3Rs, Resource Efficiency, Waste Minimisation and Management, etc.	coupled constructed wetlands for wastewater treatment. Dr. Kapil Kumar, NIT, Delhi. Duration: 2 Years. Total Outlay: ₹63,35,520/-
10.	644/2024/RE Pollution Prevention-Clean Technologies and Processes, Cleaner Production, 3Rs, Resource Efficiency, Waste Minimisation and Management, etc.	Novel dyes synthesized from pet waste and their applications in industry. Prof. Rakesh Kumar Soni, Chaudhary Charan Singh University, Meerut. Duration: 1 Year. Total Outlay: ₹19,59,360/-
11.	70/2021/RE Pollution Prevention - Clean Technologies and Processes, Cleaner Production, 3Rs, Resource Efficiency, Waste Minimisation and Management, etc.	Converting waste cooking oil to Biodiesel Using Green Catalyst and Catalyst Regeneration Studies. Prof. A. Geetha Bhavani, Deptt of Chemistry, Noida International University, Noida. Duration: 3 Years. Total Outlay: ₹63,32,089/-
12.	557/2023/RE Pollution Prevention - Clean Technologies and Processes, Cleaner Production, 3Rs, Resource Efficiency, Waste Minimisation and Management, etc.	Devising eco-friendly redox-active nano composites micro reactors with enhanced contaminant selectivity for continuous water purification. Dr. Nitin Kumar Khandelwal, Department of Hydrology, IIT, Roorkee. Duration: 3 Years. Total Outlay: ₹25,76,000/-
13.	594/2023/RE Pollution Prevention - Clean Technologies and Processes, Cleaner Production, 3Rs, Resource Efficiency, Waste Minimisation and Management, etc.	Vehicular pollution (exhaust and road-wheel dust) reduction; on road charging of electric vehicles; and overall energy saving. Dr. Atul Babbar, Dept. of Mechanical Engineering, Shree Guru Gobind Singh Tricentenary University, Gurugram. Duration: 02 Years. Total Outlay: ₹18,11,250/-
14.	364/2023/RE Climate Change: Vulnerability & Risk Assessment, Process, Mitigation and Adaptation.	Climate change adaptation model for water management and cropping practices in agro-climatic zone in the state of Gujarat. Dr. Geeta S. Joshi, Civil Engg. Dept. Faculty of Technology (The Maharaja Sayajirao University of Baroda), Rajmahal Road, Vadodara. Duration: 3 Years. Total Outlay: ₹54,66,000/-
15.	559/2023/RE Biodiversity Conservation including Issues of Alien and invasive species and Human-	Exploration, conservation and characterization of wild Brassica species for the development of genetic and genomic resources to uncover climate-

	wildlife Interface.	resilient traits through integrated approaches. Dr. Ashish Kumar, ICAR-National Institute for Plant Biotechnology, Lab No.- 12, LBS Building, Pusa Campus, New Delhi. Duration: 3 Years. Total Outlay: ₹57,74,624/-
16.	595/2023/RE Biodiversity Conservation including Issues of Alien and invasive species and Human-wildlife Interface.	Population Demography and Risk Assessment of Invasive South American Armoured Catfish <i>Pterygoplichthys</i> sp. in the Indian Freshwater Systems: A Way Forward for Sustainable Native Fish Diversity. Dr. Annam Pavan Kumar, ICAR-Central Institute of Fisheries Education, Panch Marg, Yari Road, Versova, Andheri West, Mumbai Duration: 3 Years. Total Outlay: ₹85,34,080/-
17.	625/2023/RE Biodiversity Conservation including Issues of Alien and invasive species and Human-wildlife Interface.	Airborne Microbial-contaminants in Delhi Slum Settlements: Isolation, Characterization, and Human Health Assessment. Dr. Rajeev Singh, Jamia Millia Islamia, Delhi. Duration: 03 Years. Total Outlay: ₹49,72,800/-

Annexure-III.

List of the approved proposals (05).

5. Details of the above stated approved (05) projects are as follows:

5.1 Project No: 636/2024/RE

Project entitled: "Bioprospecting and ecological survey of Chilika Lake metagenome for identification of new biocatalyst for industrial application".

PI: Dr. Vishakha Raina, School of Biotechnology, KIIT Deemed to be University, Patia, Bhubaneswar.

Co-PI:

- i. Dr. Lopamudra Ray, Associate Professor, School of Biotechnology, Campus11, KIIT Deemed to be University, Patia, Bhubaneswar.
- ii. Dr. Namrata Misra, Associate Professor, School of Biotechnology,

Campus11, KIIT Deemed to be University, Patia, Bhubaneswar.

Duration: 02 Years

Thematic Area: Ecosystems Conservation & Management (Mountain, Forest, Coastal, Wetlands, Pastoral, etc) and Evaluation of Ecosystem Services).

Background: Earlier this project was considered in the 3^d Meeting of TFAC. The Committee observed that the proposal is good and well formulated. Objectives are clear and the methodology is also appropriate. After detailed deliberations, the Committee recommend the proposal for funding for a period of two years with the followings budgetary details:

- JRF-2
- Equipment - ₹15.00 lakh (Details of the equipment's are required from the PI)
- Consumable - ₹15.00 lakh @₹7.5 lakh per year
- Travel - ₹4.0 lakh @₹2.0 lakh per year
- Any Other - ₹2.0 lakh @₹1.0 lakh per year
- Contingency (5%) and Institutional Charges (15%) of the total cost (As per the norms/rules of the Ministry)

Objectives of the Project:

- Taxonomic characterization, whole genome sequencing and DNA barcoding of industrially and ecologically relevant novel microorganisms particularly Actinomycetes from benthic and shoreline sediment of Chilika lake.
- Metagenomic sequencing and analysis to understand Microbial community dynamics and its correlation with biogeochemical cycling.
- Metatranscriptomic sequencing diversity distribution study at the regions in Chilika Lake

Expected Outputs of the Project:

- Novel potent microorganism.
- Novel candidate gene.
- Metagenome for more data mining.

Expected Outcome of the Project

- Novel potent microorganism.
- Novel candidate gene.
- Metagenome for more data mining.

The component wise breakup of the cost of the project (in ₹) as per the recommendations of TFAC is given below:

Component	Year 1	Year 2	Total Cost
Salary (JRF-2, HRA-20%)	1065600	1065600	2131200
Equipment (RT PCR)	1500000	0	1500000

Consumables	750000	750000	1500000
Travel	200000	200000	400000
Contingency	175780	100780	276560
Institutional Charges	527340	302340	829680
Any Other	100000	100000	200000
Total Cost	4318720	2518720	6837440

The details of manpower and equipment required specifically for the project is given below:

JRF: 02

Details of equipment required under the project are given below:

S. No.	Equipment
1.	RT PCR

Annexure-IV.

5.2: Project No. 600/2023/RE

Title of the project: "Integrated Ecological Profiling and Isolation of Thermozyms from High-Altitude Hot Springs in District Kinnaur, Himachal Pradesh, India: A Culturable and Unculturable Approach with SeqCode Taxonomy"

PI: Dr. Pushp Lata, Asstt Prof., Deptt of Zoology, University of Delhi, Delhi.

Duration: 2 Year

Thematic Area: Taxonomy

Objectives of the Project:

- i. To Study the Microbial diversity and Functional dynamics of different habitats of hot springs in Thopan (Rarang) District Kinnaur, Himachal Pradesh.
- ii. Isolation of Thermo-zyms from these hot springs.
- iii. To taxo-genomically characterize the novel bacterial species isolated from habitats of the hot springs in Thopan (Rarang) District Kinnaur.
- iv. To perform Nomenclature of novel bacterial species using SeqCode and other modern Bioinformatics tools.
- v. To validly publish names of these newly discovered species using the SeqCode Registry.

Expected Outputs of the Project:

- Publications (2-4)

- Products (0-1)
- Patent (0-1)

Expected Outcome of the Project

- Mapping of the Microbial diversity in the region.
- Isolation of commercially viable thermos-zymes.
- Understanding the Functional dynamics of these microbial species.
- Promoting SeqCode among the scientific community and showing its potential in microbial nomenclature.
- Ability to link literature through the use of valid names using the SeqCode registry.

Background: Earlier this project was considered in the 3^d Meeting of TFAC. The Committee observed that the proposal is good and well written. Objectives are clear and the methodology is also focused. The Committee recommended the proposed study subject to involvement of Co-PI for a period of two years with the following budgetary provisions:

- Permanent Equipment - ₹21.00 lakh (High-performance workstation/server 2X Intel Xeon Platinum processor with 48 cores 256 GB RAM 3TB SSD Monitor and other peripheral accessories, Laminar Class II Type A2, Incubator Orbital Shaker and Laboratory Balance with least count 0.01mg)
- Consumables-₹12.0 lakh @₹7.0 and 5.0 lakh per year;
- Travel- ₹1.20 lakh @₹0.6 lakh per year;
- Contingency (5%) and Institutional Charges (15%) of the total cost (As per the norms/rules of the Ministry).

The component wise breakup of the cost of the project (in ₹) as per the recommendations of TFAC is given below:

Items	1 st Year	2 nd Year	Total Cost
Equipment	2100000	0	2100000
Consumables	700000	500000	1200000
Travel	60000	60000	120000
Contingency	143000	28000	171000
Institutional Charges	429000	84000	513000
Total Cost	3432000	672000	4104000

The details of additional manpower and equipment required specifically for the project is given below:

Manpower: **Nil**

Details of equipment required under the project are given below:

S. No.	Equipment
2.	Incubator Shaker
3.	SERVER
4.	Laminar Flow Hood
5.	Laboratory Balance

5.3. Project No. 419/2023/RE

Title of the project: “Feasibility assessment of bioelectricity generation and optimization of substrate in coupled constructed wetlands for wastewater treatment”.

PI: Dr. Kapil Kumar, National Institute of Technology, Delhi.

Co-PI: Dr. Asheesh Kumar Yadav, Sr. Principal Scientist, CSIR- Institute of Minerals and Material Technology, asheesh@iimt.res.in, 9439914320.

Duration: 02 Years

Objectives of the Project:

- Optimization of the substrate for enhanced removal of pollutants (Domestic and Industrial wastewater).
- To determine the influence of CW operational conditions on energy production in CW-MFCs.
- To determine and quantify the effect of implementing MFCs on CW treatment efficiency.
- To determine the environmental and economic impact of implementing MFCs in CWs.

Expected Outputs of the Project:

- Identifying and developing substrate formulations that significantly enhance the removal of pollutants from domestic and industrial wastewater.
- Identification of specific improvements in pollutant removal and wastewater treatment effectiveness attributed to MFC implementation.
- Detailed assessment of the environmental benefits of implementing MFCs in CW systems, including reductions in environmental pollution and energy consumption.
- An economic analysis that quantifies the cost-effectiveness and potential economic advantages of incorporating MFC technology into constructed wetlands for wastewater treatment.

Expected Outcome of the Project

- Development of an affordable wastewater system, making it a practical solution for villages, urban, and suburban areas.
- Potential for increased groundwater recharge through treated water discharge, aiding in sustainable water resource management.
- Insights and data will guide upcoming researchers and policymakers in selecting the most suitable approaches for water treatment and disposal in national water bodies.
- A better understanding of the effectiveness of integrated MFC-CW systems

for wastewater treatment.

Background: This project was earlier considered in the 3^d Meeting of TFAC. The Committee observed that the proposal is good and well written. Objectives are clear and the methodology is appropriate. The Committee recommended the proposed study subject to involvement of Co-PI for a period of two years with the following budgetary provisions:

- RA.III-1 and JRF-1;
- Permanent Equipment -₹15.00 lakh (Ion- Exchange Chromatography System- and pH and TDS analyser)
- Consumables-₹3.0 lakh @₹2.0 and 1.0 lakh per year;
- Travel-₹3.0 lakh @₹2.0 and 1.0 lakh per year;
- Any Other-₹1.5 lakh for 2 years;
- Contingency (5%) and Institutional Charges (15%) of the total cost (As per the norms/rules of the Ministry).

The component wise breakup of the cost of the project (in ₹) as per the recommendations of TFAC is given below:

Component	1 st Year	2 nd Year	Total Cost
Salary (RA.III-1 and JRF-1+HRA@30%)	1622400	1622400	3244800
Equipment	1500000	0	1500000
Consumables	200000	100000	300000
Travel	200000	100000	300000
Contingency	176120	91120	267240
Institutional Charges	528360	273360	801720
Any Other	150000	150000	300000
Total Cost	4376880	2336880	6713760

The details of manpower and equipment required for the project is given below:

Research Associate-III: 01
Junior Research Fellow: 01

Details of equipment required under the project are given below:

S. No.	Equipment
1	Ion- Exchange Chromatography System
2	pH and TDS analyser

Annexure-VI.

5.4. Project No. 594/2023/RE

Title of the project: "Vehicular pollution (exhaust and road-wheel dust) reduction; on road charging of electric vehicles; and overall energy saving".

PI: Dr. Atul Babbar, Dept. of Mechanical Engineering, Shree Guru Gobind Singh

Tricentenary University, Gurugram.

Co-PI: Sujoy K. Guha, Professor, Dept. of Electrical Engineering (Biomedical Engineering), SGT University, Gurugram.

Duration: 02 Years

Objectives of the Project:

The project aims to demonstrate that - Driver decided towing of multiple vehicles in a row on the road is technically feasible and that such towing will lead to

- Reduction in vehicle exhaust pollution
- Reduction in generation of road wheel dust
- On road charging of Electric Vehicle
- Overall energy saving -The system can be realized with low cost retrofitting to existing vehicles - The engine and electrical motor in case of electric vehicles is not altered and hence full use of the vehicle in normal mode is possible where there is no towing system. - The system is rugged and maintainable with minimal manpower input and cost

Expected Outputs of the Project:

- Proven vehicle assist system - On road charging of electric vehicles.

Expected Outcome of the Project

- Gives to India and the world another approach to pollution containment and energy saving. The Government as well as the private sector will then with confidence launch multicentre trials opening the way to adoption on a pilot scale basis initially and thereafter bringing the system into mainstream public use technology.

Background: Earlier this project was considered in the 2nd meeting of the TFAC. The recommendation of the committee is as follows:

“The PI has present the proposal before the TFAC in detailed. The PI should consider the road safety issues raised by the members of the committee while implementing the project proposal. The PI should choose a dedicated site within the campus of the University of the PI for the implementation of the project proposal. The PI is suggested to submit the revised proposal to the Ministry. The Chairman, TFAC is authorised by the Committee to take a final decision for the funding on the modified research proposal”.

Further, the revised proposal has been placed in 3rd Meeting of TFAC. The recommendation of the committee is as follows: -

As per recommendations of the TFAC, the PI has been advised to revise the proposal as per suggestions of the TFAC. The PI has submitted the

revised proposal accordingly. The revised proposal has been referred to the Chairman with a request to take final decision. The Chairman, TFAC has recommended the proposal for funding as per norms/rules of the Ministry and the same has also been accepted by the TFAC in its 3rd meeting.

The component wise breakup of the cost of the project (in ₹) given below:

Component	1 st Year	2 nd Year	Total Cost
Salary (Lab Tech-1)	240000.00	240000.00	480000.00
Equipment	200000.00	300000.00	500000.00
Consumables	200000.00	200000.00	400000.00
Travel	15000.00	15000.00	30000.00
Contingency	50000.00	50000.00	100000.00
Institutional Charges	86250.00	0.00	86250.00
Total Cost	806250.00	1005000.00	1811250.00

Details of manpower and equipment required for the project are as follows:

Manpower: Lab Technician- 01

Details of equipment required under the project are given below:

S. No.	Equipment (No. of Units)
1	Electrical Motors (04)
2	Drive Gear Box (03)
3	Strain Gauge Analyzer (01)

Annexure-VII.

5.5 Project No: 644/2024/RE

Project entitled: "Novel dyes synthesized from pet waste and their applications in industry".

PI: Prof. Rakesh Kumar Soni, Professor, Chemistry, CCS University, Meerut.

Co-PI: to be indented

Duration: 01 Year

Objectives of the Project:

- To develop new method for the recycling of PET waste.
- To synthesize aminolysed products from PET waste.

- To develop a range of dyes from the aminolysed products and evaluate their properties, including colour, stability, and solubility.
- To Investigate the application of the synthesized dyes in different fields, such as textiles industry, ink industry, printing industry etc.

Expected Outputs of the Project:

- Research paper
- patent
- Technology transfer
- 1 Ph.D. degree may be produced.

Expected Outcome of the Project

- New methods for recycling of PET waste.
- Synthesis of new molecules.
- Synthesis of dyes.
- Helpful in controlling pollution.

Background: Earlier this project was considered in the 3^d Meeting of TFAC. The Committee observed that the proposal is good and well written. Objectives are clear and the methodology is appropriate. The Committee initially recommended the proposed study subject to involvement of a Co-PI for a period of one year only on pilot scale. Further extension would be considered on evaluation of one year's progress. Samples collected may be analysed from the nearby Institution i.e. IIT, Roorkee etc. Break-up of the budgetary provision for one year's duration is as under:

- JRF-1,
- Consumable ₹10.00 lakh
- Travel ₹1.00 lakh
- Contingency (5%) and Institutional Charges (15%) of the total cost.

The component wise breakup of the cost of the project (in ₹) as per the recommendations of TFAC is given below:

Component	1st Year
Fellowship (JRF-1)	532800
Consumables	1000000
Travel	100000
Contingency	81640
Institutional Charges	244920
Total Cost	1959360

Details of manpower and equipment required for the project are as below:

Manpower: JRF-01.

Details of equipment required under the project are given below:

S. No.	Equipment

1	Gas Chromatography-Mass Spectrometry (GC-MS)
2	Fluorescence Spectrophotometer
