Summary record of the 5th meeting of the reconstituted technical-cum-financial appraisal Committee (TFAC) on Environmental research and Development Programme (ERDP) held on 5th -6th Sept, 2024 under the Chairmanship of Dr. Rup Lal, Professor, (Retd.), Acharya Narendra Dev College, University of Delhi, Delhi.

The 5th meeting of the reconstituted TFAC on ERDP was organized as per schedule. Member – Secretary, TFAC welcomed all the participants and briefed that there are 28 new research proposals, 5 revised proposals that would be considered by the TFAC. In addition, the Committee would also consider the project proposals which were already recommended for funding wrt the project duration. List of participants is at **Annexure-I.**

Agenda item No. 1.0. introductory remarks by the Chairman/ Member Secretary.

1.1: The Chairman welcomed the participants and after introductory session, requested the MS, TFAC to initiate the discussions on the listed Agenda items. Accordingly, the meeting was initiated as per the listed agenda items.

Agenda Item No.2.0.

2.1: Confirmation of minutes of 4th TFAC meeting held on 18th -19th June,2024. The TFAC was informed that the minutes of the 4th meeting were circulated to the Members for their views/comments. The comments and suggestions received from the TFAC members and chairman were incorporated in the final minutes presented.

Decision taken: After detailed discussion, the TFAC agreed to confirm the minutes of its 4th meeting held on 18th -19th June, 2024.

Agenda Item No.3: Consideration of the revised project proposals.

3.1.1: 705/2024/RE - Engineered Metal-Organic Framework-based Multistage Groundwater Purification System for Arsenic-dominated Northeast Groundwater Tables by Dr. Selvaraju Narayanasamy, Assoc., Prof., Biosciences and Bioengineering Deptt., Indian Institute of Technology, Guwahati.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that a lot of work has already been done in this field and the proposed study is of routine nature and there is no novelty in the study. The Committee also observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.2: 764/2024/RE - Assessment of economic valuation of Biodiversity and Ecosystem services (BDES) with special reference to NTFPs in Dudhwa National Park by Dr. Subhadra Rajpoot, Assistant Professor, Department of Applied Sciences, Amity University, Greater Noida.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is of routine nature and there is no novelty in the study. The Committee also observed that the objectives are not specific and ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.3: 815/2024/RE - Assessing and Mitigating the Impact of Climate Change on Biodiversity and Ecosystems in Pauri, Uttarakhand by Dr. Aman Kumar Sharma, Assistant Professor, Department of Zoology, HNB Garhwal University, BGR, Campus, Pauri Garhwal, Srinagar-246001.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the PI is not an expert in the field and the proposed study is of routine nature and there is no novelty. The Committee also observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.4: 826/2024/RE - Climate change and urban flooding: Building capacity for climate adaptation by Dr. K.S. Jinesh Babu, Professor, Department of Civil Engineering, Mepco Schlenk Engineering College, Sivakasi.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is simple survey and no science is involved. The Committee also observed that the objectives are not focused and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.5: 748/2024/RE - Enhancing the Fire Resistance and Mechanical Performance of Areca/Epoxy Composite for Automotive Applications by Dr. Rajkumar R, Senior Professor, Department of Mechanical Engineering, Mepco Schlenk Engineering College, Sivakasi.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is good and well written. Objectives are clear and the methodologies are appropriate. After detailed deliberations, the Committee recommended the project for funding for a period of two years only subject to involvement of any industry working in the field or utilize the final product.

3.1.6: 834/2024/RE Middleware for Internet of Underwater Things (IoUT) based Big-Aquatic Data Analytics Infrastructure by Dr. Senthil, Senior Associate Prof., School of Computer Science Engineering & Information Systems, Sjt411 A20, Vit, Vellore, Tamil Nadu.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is good and well written. Objectives as well as the methodologies are clear. After detailed deliberations, the Committee recommended the project for revision subject to involvement of a marine biologist and a user agency i.e. Gujarat Forest Department etc. The revised proposal may be submitted to the Ministry for further consideration.

3.1.7: 711/2024/RE - Growth Promoters: food Wastewater to biofuel and Plant-energy–water–environment nexus approach by Dr. Vinod Kumar, Associate Professor, Graphic Era (deemed to be) University, Dehradun.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is good, objectives as well as the methodologies are clear. After detailed deliberations, the Committee recommended the proposal for a period of two years only as per the guidelines subject to revision/reduction

of the budget accordingly. The revised proposal may be submitted to the Ministry for further consideration.

3.1.8: 828/2024/RE Experimental and numerical analysis of forest fire burning and their environmental impact at wildland urban interface by Dr. Sanjay Bhutani, Professor, Sustainability Cluster, UPES University of Tomorrow, Dehradun.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is of routine nature and there is no novelty in the study. The Committee also observed that the objectives are not specific and are ambiguous and as well as numerous. This project is not in the field of Paryavaran Mantralaya. It may be submitted in any other agency for funding. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.9: 843/2024/RE Assessment and Carbon Sequestration Techniques for a Sustainable Environment by Dr. Jyoti Prakash, Asstt Prof.,-III, Amity Institute of Biotechnology, Amity University, Lucknow Campus, Lucknow.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the PI is not clear about the proposed study. Further, the Committee also observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.10: 842/2024/RE - Investigations and prediction of Surface and Ground water quality in Kolar District, Karnataka, India: Using multi-pronged artificial Intelligence based approach by Dr. Shivendr B.T, Dayananda Sagar College of Engineering.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is good, objectives as well as the methodologies are clear. After detailed deliberations, the Committee recommended the proposal for a period of two years without Equipment. The Committee also recommended to coordinate with concerned State Pollution Control Boards' for demonstration of the results.

3.1.11: 848/2024/RE - An experimental study of fireworks industries waste disposal by landfill by adding solid inerrant to mitigate fire hazards and analyse the biodegradation & phytotoxicity to ascertain soil pollution by Dr. A. Azhagurajan, Mepco Schlenk Engineering College, Sivakasi

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that a lot of work has already been done in this filed and the proposed study is of routine nature and there is no novelty in the study. The Committee also observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.12: 854/2024/RE Conversion of Lignin into High Value-Added Chemicals from Woody Biomass Using Membrane Contactor System Targeting to Reduce Overutilization of Fossil Fuel for Safety Environment by Dr. Palsamy Kanagaraj, Asstt Prof., Chemistry, Mepco Schlenk Engineering College (Autonomous), Sivakasi.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.13: 853/2024/RE Development of Eco-Friendly Phosphate Solubilizing and Nitrogen Fixing Microbial Consortium to Enhance the Algal Density, Water Quality and Productivity in Aquaculture Pond by Dr. P. Sivagurunathan, Annamalai University, Annamalai Nagar.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the PI does not have expertise in the field and no background work has been done by him. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.14: 841/2024/RE Assessing the execution characteristics of an Acoustic Fire Quencher by Dr. T. Prabaharan, Senior Professor, Mechanical Engg., Mepco Schlenk Engineering College, Sivakasi

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present his proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be provided.

3.1.15: 840/2024/RE Detonation way of synthesizing Nano Diamonds using low class pyrotechnic mixtures by Dr. Prakash L, Asstt Prof., Mechanical Engineering, Mepco Schlenk Engineering College, Sivakasi.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that a lot of work has already been done in this field and the proposed study is of routine nature and there is no novelty in the study. The Committee also observed that the objectives are not specific and the methodology is also not appropriate. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.16: 852/2024/RE Development of eco-friendly phosphate modelling and nitrogen-fixing microbial consortium to ensure survival and growth of the mangrove seedling by Dr. G. Usharani, Annamalai University, Annamalai Nagar-608002.

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present his proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be provided.

3.1.17: 829/2024/RE - Biomass/plastic waste derived hierarchical nanostructured porous carbon and novel perovskite oxides for asymmetric super capacitor by Prof. Raj Kishor Sharma, Professor, Deptt of Chemistry, University of Delhi, Delhi

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is good, objectives as clear and the methodologies are appropriate. After detailed deliberations, the Committee recommended the proposal for funding for a period of two years and without Equipment.

The Committee advised the PI to revise the proposal accordingly and submit to the Ministry for further consideration.

3.1.18: 693/2024/RE - Zero-waste algal bio refinery: Eco-biotechnological production of biodiesel and PHA using denim washing industry wastewater with integrated mathematical modelling study by Dr. Mamtesh Singh, Asstt Prof., Deptt of Zoology, Gargi College, University of Delhi, Delhi.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the PI is not having expertise in the field. The Committee also observed that the objectives are not specific and are ambiguous and so many. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.19: 857/2024/RE - Optimized Passive condenser-cooled solar desalinator equipped with nano PCM amalgam and Solar Photovoltaic system by Dr. Selvan P, Asstt Prof., Mechanical Engg., Mepco Schlenk Engineering College (Autonomous), Sivakasi

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that a lot of work has been done and the proposed study is of routine nature and there is no novelty involved. The Committee also observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.20: 539/2023/RE Automated Sustainable Lifecycle Assessment system to promote the developed cementless eco-friendly precast panels by Dr. R Mohana, Mepco Schlenk Engineering College, Sivakasi

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is good and well written, objectives are clear and the methodologies are appropriate. After detailed deliberations, the Committee recommended the proposal for funding form the Ministry.

3.1.21: 792/2024/RE - Molecular characterization of the fungal microbiome of rare Himalayan lichens and development of repository of culturable 'lichen-associated microfungi' for conservation and bioprospecting applications by Dr. Santosh Upadhyay, Assistant Prof., Deptt of Biotechnology, Kumaun University, Nainital.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is good and well written. Objectives and the methodologies are clear and appropriate. After detailed deliberations, the Committee recommended that the proposal may be revised with the following changes:

- Usage of the word 'Rare' is not fit in the title, so it may be removed.
- Lichens are high priority in the Red-list of IUCN, so taxonomical term may be used.
- Objectives may be limited to 2 to 3 only.
- Project duration may be proposed for two years as per the guidelines.

The revised proposal may be submitted to the Ministry for further consideration.

3.1.22: 872/2024/RE - Sustainable Slope Stabilization Using Geogrids Made from Pet Bottle Waste by Low-Emission Method by Dr. Kannan G, Asstt Prof., Civil Engg Deptt., Mepco Schlenk Engineering College, Sivakasi.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is nicely written, objectives are clear and the methodology is appropriate. The Committee observed that as the project primarily focuses on the reduction of plastic pollution by reusing it for slope stabilization. Further, the method is devised to reduce environmental emissions in view of protecting the environment, so the low emission method may be adopted and patent possibility may be explored. After detailed deliberations, the Committee suggest the PI to revise the proposal as suggested for a period of two-year duration as per the guidelines. The revised proposal may be submitted to the Ministry for further consideration.

3.1.23: 877/2024/RE - Assessing Genomic Damage from Environmental Radioactivity in the Populations of Kanyakumari District: Harnessing Deinococcus radiodurans for Bioremediation by Dr. N. Rajendra Prasad, Professor, Deptt of Biochemistry and Biotechnology, Annamalai University, Annamalai Nagar.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee also observed that the objectives are not specific and are ambiguous and so many. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.24: 847/2024/RE - Ordered Mesoporous Adsorbent Materials of Carbon and Silicon for the Removal and Recovery of Toxic Dyes by Dr. Jyoti Mittal, Asstt Prof., Chemistry, Maulana Azad National Institute of Technology, Bhopal.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is based on synthesis of ordered mesoporous adsorbents for the wastewater treatment pertaining to dye eradication and major work of the project will be performed in the laboratory and it is intended to carry out a comprehensive adsorption studies of total 12 adsorbate - adsorbent systems. The project is nicely written, objectives are clear and the methodology is appropriate. After detailed deliberations, the Committee recommended the proposal for funding without equipment for a period of two-year duration as per the guidelines. The Committee suggest the PI to revise the proposal accordingly and it may be submitted to the Ministry for further consideration.

3.1.25: 878/2024/RE - Development of a Decision Support System (DSS) for Air Quality Management in Indian States by Ms. Shivani Sharma, Associate Fellow, Centre for Air Quality Research, The Energy and Resources Institute (TERI), Delhi.

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present the proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be provided.

3.1.26: 678/2024/RE - Technology development for conversion of tender coconut waste to bio-coal as an energy rich and smokeless cooking fuel for rural applications in Puri District of Odisha by Prof. Manoj Kumar Ghosal, Scientist, Socio Cultural Development Centre, Hajipur, Biridi, Jagatsinghpur -754111 (Odisha).

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is related to technology development for

conservation of tender coconut water to bio-coal as an energy rich and smoke less cooking fuel. The project is good and well written, objectives as well as the methodology are clear. After detailed deliberations, the Committee recommended the proposal for funding for a period of two-year duration as per the guidelines.

3.1.27: 866/2024/RE - Mapping buffer zones of human-wildlife conflict in the fringes of forests in the Western Ghats in Kerala, Tamil Nadu and Karnataka due to the expansion of plantation crops using geospatial technology by Mr. Pradeep B., Scientist 'B', Remote Sensing, Rubber Research Institute of India (RRII), Kottayam, Kerala.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that a lot of work has been done and the proposed study is of routine nature and there is no novelty in the study. The Committee also observed that the objectives are not specific and are ambiguous and so many. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.1.28: 844/2024/RE - ZnO nanorods-microalgae-based Yamuna wastewater treatment and beneficiation to the energy content of microalgae biomass for enhanced biofuel conversions by Dr. Meenakshi Sharma, Asstt Prof., Dr B R Ambedkar Centre for Biomedical Research, University of Delhi, Delhi.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that a lot of work has been done in the field and the proposed study is of routine nature and there is no novelty in the study. The Committee also observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

Agenda No. 3.2: Project in which PI could not attended the earlier TFAC meeting.

3.2.1: 697/2024/RE - Impact of Forest Fires on Biological diversity of the Mandakini Catchment Area, Rudraprayag: A Multi-Taxa Approach by Dr. V.P. Uniyal, Graphic Era University, Dehradun.

Recommendations: The PI, Dr. V.P. Uniyal could not attend the meeting. The Committee advised the PI to present the proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be given.

3.2.2: 719/2024/RE - Unlocking Genetic Diversity: Molecular Taxonomy of Freshwater Fish species in the Satluj River, H.P. by Prof. Ram Krishan Negi, Deptt of Zoology, University of Delhi, Delhi.

Recommendations: The proposal was presented by the PI before the TFAC in detail. The Committee observed that a lot of work has been done and the proposed study is of routine nature and there is no novelty in the study. The Committee also observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.2.3: 737/2024/RE - Integrative taxonomy and phylogeny of non-biting midges (Diptera: Chironomidae) from Western Ghats with an emphasis on their ecological and molecular aspects by Dr. Atanu Naskar, ZSI Kolkata.

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present the proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be given.

3.2.4: 733/2024/RE - Bioprospecting of Endophytic fungi from Invaluable medicinal plants distributed in different agro-climatic zones of Uttarakhand, India by Dr. Vedpriya Arya, Patanjali Research Foundation Trust, Haridwar.

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present the proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be provided.

3.2.5: 690/2024/RE - Design and Development of Perovskite Solar Cells (PSCs) by utilizing Quantum Dots Materials by Dr. Neetu Divya, Asstt Prof., Ehemical Engg., Dr. B. R. Ambedkar National Institute of Technology, Jalandhar.

Recommendations: The proposal was presented by the PI before the TFAC in detail. The Committee observed that the PI does not have expertise in the proposed field as well as no background work has been done by the PI. The Committee also observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.2.6: 775/2024/RE - Developing high-value tree-based plantation systems for economic and ecological security in sodic water environments by Dr. Raj Kumar, Senior Scientist, Soil and Crop Management, Central Soil Salinity Research Institute, Kach.

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present the proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be provided.

3.2.7: 750/2024/RE - Lecture and Demonstration Programme on “Biodiversity Conservation in the Face of Climate Change by Mrs. Minati Bindhani, General Secretary, Women and Child Welfare Society, Gamhandia New Colony, Buxibazar, Cuttack.

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present the proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be provided.

3.2.8: 759/2024/RE - An assessment of avifauna diversity, their migration and conservation status in Yadahalli Chinkara Wildlife Sanctuary, Bagalkot: Karnataka by Dr. Ningappa Changond Hiragond, Assoc. Prof., Zoology, Yashwantrao Chavan Mahavidyalaya Halkarni, Kolhapur.

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present the proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be provided.

3.2.9: 758/2024/RE - Navigating the Lantana Conundrum: Invasion to restoration through soil dynamics and native grass interactions by Prof. Vartika Mathur, Deptt of Zoology, Sri Venkateswara College, University of Delhi, Delhi.

Recommendations: The proposal was presented by the PI before the TFAC in detail. The Committee observed that the PI is not having expertise in the proposed field as well as no background work has been done by the her. The Committee also observed that the objectives are not specific and are ambiguous. After detailed discussions, the Committee **did not recommend** the proposal for funding.

3.2.10: 578/2023/RE - Pre-processing approaches in Machine learning and Remote Sensing based on Groundwater Potential mapping in the drought prone area of North Eastern part of Tumkur District, Karnataka by Dr. H.K. Ramaraju, Prof., Civil Engg Deptt., Dayananda Sagar College of Engineering, Shavigemalleshwara Hills, Kumaraswamy Layout, Bangalore-560111.

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present the proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be provided.

3.2.11: 590/2023/RE - Development of novel biodegradable multifunctional mulching film for sustainable and environmentally friendly agriculture practices by Dr. Bhanu Prakash Vellanki, Department of Civil Engineering, IIT, Roorkee-247667.

Recommendations: The proposal was presented by the PI before the TFAC. The Committee observed that the proposed study is related to technology development for multiple problems associated with agriculture land by using bio-degradable multifunctional mulching film. The Committee observed that the project is good and objectives are clear and the methodology is appropriate. After detailed deliberations, the Committee recommended the proposal for funding for a period of two-year duration as per the guidelines.

3.2.12: 337/2020/RE - Plausible role of Bacteriophages present in the High Altitude Himalayan River waters by Dr. Angayarkanni J, Department of Microbial Biotechnology, Bharathiar University, Coimbatore.

Recommendations: The PI could not attend the meeting. The Committee advised the PI to present the proposal before the TFAC in its next meeting. In case the PI fails to present the proposal in the next meeting, the project proposal will be closed and no further opportunity for presentation will be provided.

Agenda No. 3.3 Consideration of revised proposal.

3.3.1. 712/2024-RE – Evaluation ecosystem functioning using Herpetofauna as a model system in Goa and adjoining area by Dr. Nitin Savant, Asstt. Prof., Department of Zoology, Goa University, Goa.

Background: The proposal was presented by the PI before the TFAC in its 4th meeting held on 18-19 June, 2024. Based on the presentation the Committee observed that the proposal is good and well written. Objectives are clear and the methodology is

appropriate. After detailed deliberations, the Committee suggested the PI should focus only on one defined ecosystem i.e. Plateau, Coastal Wetland only and the budget may be revised accordingly. The revised proposal be submitted to the Ministry for further consideration.

Recommendations: The TFAC was appraised by the Member Secretary that the recommendations of the Committee were communicated to the PI and the proposal has been revised accordingly. The revised proposal along-with revised budget was discussed in detail. After detailed deliberations, the revised proposal has been recommended for funding for a period of two-year duration by the Committee.

3.4: Consideration of the proposals along-with referees' comments.

3.4.1: 19-4/2023-RE - Remote Sensing and GIS based Ecosystem Services Valuation of Agro forestry Systems Prevailing in Punjab – A case study by Dr. Dikesh Chandra Loshali, Punjab Remote Sensing Centre, Ludhiana.

Background: Based on the recommendations of the TFAC, the proposal was referred to i) Director, WISA, ii) Head, Director, Atmosphere Division, IIT, Delhi, iii) Dr. Girish Pujar, Scientist, ISRO, Hyderabad and iv) Director, IIRS, Dehradun. The TFAC has been appraised that out of four experts, only two responded.

Recommendations: The proposal along-with comments of the experts has been considered by the Committee. The Committee after detailed discussion, **did not recommend** the proposal for funding.

3.4.2: 19-6/2023-RE - Development of microwave irradiated rice straw for animal feeding to combat straw burning issue and increase productivity by Dr. Rajesh Kumar, Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar.

Background: Based on the recommendations of the TFAC, the proposal was sent to the identified experts for their comments namely i) Director, IARI, Bareli, ii) Director, SVBP University of Ag and Tech, Meerut and iii) Director, IIFM, Bhopal.

Recommendations: The TFAC has been informed that out of three experts, only two responded. The Committee has considered the proposal along-with the comments and suggest that the comments of the experts may be sent to the PI with a request to revise the proposal accordingly. The revised proposal may be uploaded on the web-portal for further consideration.

3.4.3: 19-7/2023-RE - Studies on Ecology, phytosociology, reproductive biology and Conservation action for threatened ten iconic endemic trees in south Western Ghats, Kerala by Dr. Jose Mathew, Sanatana Dharma College, Sanatanapuram- 688003.

Background: Based on the recommendations of the TFAC, the proposal was sent to the identified experts for their comments namely i. Director, FRI, ii. Director, NBRI, iii. Director, BSI, iv. Head, CAS in Botany, Madras University and v. Director, KFRI, Peechi, Kerala for their comments.

Recommendations: The TFAC has been informed that out of five experts, only two experts have responded. The Committee has considered the proposal along-with the comments of the experts and suggest that these comments may be sent to the PI with

a request to revise the proposal accordingly. The revised proposal may be uploaded on the web-portal for further consideration.

3.4.4: 618/2023/RE - Biodiversity characterization and development of biodiversity conservation plan for unexplored sohagi barwa and suhelwa wildlife sanctuaries of Uttar Pradesh by Prof. Jamal A Khan, Deptt. of Wildlife Sciences, AMU, Aligarh.

Background: Based on the recommendations of the TFAC, the proposal was sent to the identified experts for their comments namely i. Dr. GV Gopi, WII, ii. Dr. Randeep Singh, Director, Amity Instt of Forestry and Wildlife, iii. Dr. Somita Mukharjee, SACON, iv. Prof. KS Rao, Botany, DU and Director, NBA, Chennai for their comments. The TFAC has been informed that out of five experts, only three experts have been responded.

Recommendations: The TFAC has been informed that out of five experts, only three have responded. The Committee has considered the proposal along-with the comments of the experts and suggest that these comments may be sent to the PI with a request to revise the proposal accordingly. The revised proposal may be submitted to the Ministry for further consideration. The Chairman, TFAC has been authorized by the Committee to take final decision on the revised proposal.

Agenda No. 3.4: Project proposals which were returned by the Steering Committee for reconsideration of the project duration.

Background: As per approved guidelines, research proposals are considered by the TFAC for funding under ERDP of the RE Division. Thereafter, the proposals along-with the recommendations of TFAC are placed before the Steering Committee for final consideration/selection for funding. Further, with approval of the Steering Committee, the proposals are referred to IFD for their financial concurrence and with their consent funds will be released to the Institution concerned for implementation of the selected research proposals.

The TFAC in its earlier meetings recommended 17 research proposals for funding and these proposals were placed before Steering Committee in its 1st meeting held on 21st June, 2024 for final consideration/selection. During the meeting, it was observed that these proposals are for a period of two and three years' duration. The Committee observed that as per 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.*** Hence, the Steering Committee has considered and approved only 5 proposals having two-year duration. Further, the Steering Committee has advised that the remaining 12 proposals may be placed before the TFAC for reconsideration of them for a period of two-year duration as per the guidelines.

Therefore, all 12 research proposals, which were already recommended by TFAC for funding in its earlier meetings were again placed before it for reconsideration. After detailed deliberations, the TFAC agreed to recommend 11 research proposals except one proposal entitled "Forest Ecosystem Assessment in the Western Himalayan Region: Integrated Approach for Sustainable Conservation and Management of Ecosystem Services' submitted by Prof. Sumit Sen, Department of Hydrology, IIT, Roorkee as the budget of this proposal is on higher side and it is also not covered under the thematic areas of the ERDP. List of the 11 approved research proposals is enclosed at **Annexure-II.**

3.5. Additional Agenda: With the permission, the followings proposal were also considered:

With kind permission of the Chair, the followings research proposals which were considered and deferred by the TFAC in its earlier meetings were reconsidered and the decisions are as follows:

3.5.1: 663/2024/RE - Evaluating the Biodegradation Potential of Indigenous Bacteria from Okhla Landfill Site: Toward Sustainable Plastic Waste Management by Dr. Jasvinder Kaur, Asstt. Prof., Deptt of Zoology, Gargi College, University of Delhi, Delhi.

Background: The proposal has been presented by the PI before the TFAC. The Committee has observed that the proposed study is focused and the PI has already carried out the preliminary work on which the study was based. The proposed study involves a three-part approach. Firstly, in the field component, the focus is on gathering soil samples from the landfill site. Subsequently, in the lab component, these collected samples will undergo processing and testing. Following the initial screening and testing, the desk component will be initiated. During this phase, specific bacteria with the ability to degrade plastic waste will be identified, sequenced, and, in the case of new species, taxonomically characterized. The Committee observed that a lot of work has already been carried out in the area. After detailed discussions, the Committee deferred the proposal.

Recommendations: The proposal has been discussed in detailed. The Committee after detailed discussion, **did not recommend** the proposal for funding.

3.5.2: 814/2024/RE – Marine Mammals of the Andamans: eDNA Meta-barcoding for IUCN Red List Species and Climate Change Impacts by Dr. K. Sivakumar, Assoc, Prof., CASMB, Annamalai University, Parangipettai.

Background: This proposal was not in the agenda, however Dr. Shivakumar requested the Chairman to allow him to present the proposal. PI thus presented the proposal before the TFAC. The Committee observed that in the absence of a detailed proposal it will not be possible for the members to make any decision. It was also not clear if the PI has the expertise in the relevant area of the project. After detailed deliberations, the Committee deferred the proposal for next meeting and requested the PI to submit the proposal to the Ministry.

Recommendations: The proposal has been discussed in detailed. The Committee after detailed discussion, **did not recommend** the proposal for funding.

3.5.3: 654/2024/RE- Assessment and Biomonitoring of Heavy Metals Across Entire Stretch of River Yamuna (U.K, H.P, Delhi, U.P) & Ecological Impact of Heavy Metals on Freshwater Ecosystem by Prof. Seema Makhiaja, Ciliate Biology Laboratory, Department of Zoology, Acharya Narendra Dev College, Govindpuri, Kalkaji.

Background: The proposal was presented by the PI before the TFAC. The Committee observed that a lot of work has already been carried out in the area of collecting data on the assessment and biomonitoring of Heavy Metals of River Yamuna. The Committee has suggested to refer the proposal to i) Member Secretary, CPCB; and ii) Executive Director (Projects), NMCG. The proposal along-with the comments of the experts may be place before the TFAC in its next meeting**.**

Recommendations: The TFAC has been informed that the proposal was referred to designated experts; however, no comments have been received to date. The Committee has recommended sending a final reminder to the experts, requesting their comments within a month. If comments are received by then, they may be forwarded to the Chairman for a final decision. Should no comments be received by this deadline, the Chairman is authorized to make the final decision based on the recommendation of TFAC. The proposal, along with the Chairman's decision, will then be presented at the next TFAC meeting for a final decision.

3.5.4: 721/2024/RE- Deciphering the pathogenicity and antibiotic determinants in water and sediment samples at major drain confluence spots in Yamuna River in Delhi. Dr. Utkarsh Sood, Kirori Mal College, University of Delhi, Delhi.

Background: The PI presented the proposal before the TFAC in detail. The TFAC has suggested to refer the proposal to the following experts for their comments: - Member Secretary, CPCB; and - Member Secretary, DPCC. The proposal along-with the comments of the experts, may be placed before the TFAC in its next meeting.

Recommendations: The TFAC has been informed that the proposal was referred to designated experts; however, no comments have been received to date. The Committee has recommended sending a final reminder to the experts, requesting their comments within a month. If comments are received by then, they may be forwarded to the Chairman for a final decision. Should no comments be received by this deadline, the Chairman is authorized to make the final decision based on the recommendations of the TFAC. The proposal, along with the Chairman's decision, will then be presented at the next TFAC meeting for a final decision.

Concept Note

MS apprised the TFAC members that concept note was circulated among the members for their inputs, however only two of the members responded. Thus it was decided that the previously circulated concept note should be resent to all TFAC members. All members are requested to submit their inputs on the concept note as soon as possible to the Member Secretary, with copies to the Chairman and Dr. Lalit Sharma, a TFAC member. Dr. Lalit Sharma agreed to the request made by the members with preparing a consolidated report/concept note, which will be presented and finalized at the next meeting.

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

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Annexure-I.

List of Participants.

Sl.	Members/ Experts	Remarks
1.	Dr. Rup Lal	Chairman
2.	Dr. I. P. Pandey	Member
3.	Shri Sushil Gupta (Online)	Member
4.	Dr. R. Vasudeva	Member
5.	Dr. Yogesh Gokhale (Online)	Member
6.	Dr. T. Ramanathan	Member
7.	Dr. Lalit Sharma, Rep of ZSI (Online)	Special Invitee
8.	Dr. Rajendra Kumar, Deputy Director(S), MoEF&CC	Member-Secretary

Sl.	Name of PI and Address
1.	Prof. Vartika Mathur, Sri Venkateswara College, University of Delhi, Delhi.
2.	Dr. Pushpendra K. Vishwakarma, IIT Roorkee
3.	Dr. Sanjay Bhutani, UPES University of Tomorrow, Dehradun
4.	Dr. S. Surya, Mepco Schlenk Engineering College, Sivakasi
5.	Dr. K. S. Jinesh Babu, Mepco Schlenk Engineering College, Sivakasi
6.	Mr. Pradeep B., Rubber Research Institute of India (RRII), Kerala
7.	Dr. Raj Kumar, ICAR-Central Soil Salinity Research Institute, Kach.
8.	Dr. A. Azhagurajan, Mepco Schlenk Engineering College, Sivakasi.
9.	Dr. Palsamy Kanagaraj, Mepco Schlenk Engineering College (Auto), Sivakasi
10.	Dr. Prakash L, Mepco Schlenk Engineering College
11.	Dr. Selvan P, Mepco Schlenk Engineering College (Autonomous), Sivakasi
12.	Dr. Kannan G, Mepco Schlenk Engineering College, Sivakasi.
13.	Dr. Neetu Divya, Dr. B. R. Ambedkar NIT, Jalandhar.
14.	Dr. Selvaraju Narayanasamy, Indian Institute of Technology, Guwahati
15.	Dr. Mamtesh Singh, Gargi College (University of Delhi), Delhi
16.	Dr. Vinod Kumar, Associate Professor, Graphic Era University, Dehradun
17.	Prof. Ram Krishan Negi, Zoology, University of Delhi, Delhi.
18.	Dr. Aman Kumar Sharma, Asstt Prof., Zoology, BGR, Campus, Pauri Garhwal
19.	Dr. Santosh Upadhyay, Kumaun University Nainital
20.	Dr. Bhanu Prakash Vellanki, Deptt of Civil Engineering, IIT, Roorkee-247667.
21.	Dr. Senthil, Senior Associate Professor, Murugan B, School of Computer Science Engineering And Information Systems, Sjt411 A20, Vit, Vellore, TN.
22.	Dr. Jyoti Mittal, Maulana Azad National Institute of Technology, Bhopal
23.	Dr. Shivani Tyagi, Gargi College, University of Delhi, Delhi.
24.	Dr. N. Rajendra Prasad, Annamalai University, Annamalai Nagar
25.	Dr. P. Sivagurunathan, Annamalai University, Annamalai Nagar,
26.	Dr. Meenakshi Sharma, University of Delhi, Delhi
27.	Prof. Raj Kishor Sharma, Chemistry, University of Delhi, Delhi
28.	Prof. Manoj Kumar Ghosal, Socio Cultural Development Centre, Odisha
29.	Dr. Shivendra B.T, Dayananda Sagar College of Engineering,
30.	Mr. Atul Kumar Singh, Dayananda Sagar College of Engineering
31.	Dr. Sathvik, Dayananda Sagar College of Engineering
32.	Dr. R Mohana, Mepco Schlenk Engineering College, Sivakasi.
33.	Dr. Jyoti Prakash, Amity University, Lucknow Campus, Lucknow
34.	Dr. Subhadra Rajpoot, Asstt Prof., Amity University, Greater Noida.

Annexure-II.

Sl	Registration No./PI and Address/Title /Duration /Total Outlay
1	555/2023/RE - Forest Ecosystem Assessment in the Western Himalayan Region: Integrated Approach for Sustainable Conservation and Management of Ecosystem Services by Prof. Sumit Sen, Department of Hydrology, IIT Roorkee. **Duration:** 03 Years, **Total Outlay:** ₹2,00,77,030/-. **Recommendations:** The proposal has been re-considered by TFAC and it has been observed that the budget of the proposed study is on higher side and it is not covered under the thematic areas of the ERDP. As stated under Agenda No. 3.4, proposal **was not recommended** by the Committee for funding from the Ministry.
2	**637/2024/RE** - 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 by Dr. Randeep Singh, Associate Director, Amity Institute of Forestry and Wildlife, Amity University Uttar Pradesh Noida sector 125 Gautam Budha Nagar. **Recommendations**: As stated under Agenda No. 3.4, proposal was recommended by the TFAC for funding for a period of two-year duration from the Ministry.
3	586/2023/RE - Comprehensive Assessment of Co-Transport of Micro plastics and Heavy Metals during Groundwater-Surface water Interactions by Prof. Brijesh Kumar Yadav, Deptt of Hydrology, IIT, Roorkee. **Recommendations:** As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.
4	276/2020/RE - Natural distribution, ecological niche modelling, selection of CPTs, its evaluation and nursery production of sandal (Santalum album Linn.) by Dr. Binu N. Kamalolbhavan, Assistant Professor, Dept. of Forest Biology and Tree Improvement College of Forestry Kerala Agricultural University, KAU PO, Kerala. **Recommendations:** As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.
5	668/2024/RE - Potential of periphytic diatoms in the uptake of nutrients in eutrophic environments, and their subsequent applications as slow-release biofertilizer for sustainable environment by Prof. Archana Tiwari, Professor, Amity University, Noida, Uttar Pradesh. **Recommendations:** As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.
6	410/2023/RE - Molecular Taxonomy and Phylogeny of Terebrantia (Thysanoptera: Insecta) from India by Dr. Vikas Kumar, Zoological Survey of India M Block, New Alipore, Kolkata. **Recommendations:** As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.
7	70/2021/RE - Converting waste cooking oil to Biodiesel Using Green Catalyst and Catalyst Regeneration Studies by Dr. A. Geetha Bhavani, Professor, Chemistry, Noida International University, Noida.

	Recommendations: As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.
8	557/2023/RE- Devising eco-friendly redox-active nano composites micro reactors with enhanced contaminant selectivity for continuous water purification by Dr. Nitin Kumar Khandelwal, Deptt of Hydrology, IIT, Roorkee. **Recommendations:** As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.
9	364/2023/RE- Climate change adaptation model for water management and cropping practices in agro-climatic zone in the state of Gujarat Climate Change: Vulnerability & Risk Assessment, Process, Mitigation and Adaptation by Dr. Geeta S. Joshi, Civil Engg. Dept. Faculty of Technology (MS University of Baroda), Vadodara. **Recommendations:** As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.
10	559/2023/RE - Exploration, conservation and characterization of wild Brassica species for the development of genetic and genomic resources to uncover climate-resilient traits through integrated approaches by Dr. Ashish Kumar, ICAR-National Institute for Plant Biotechnology, Lab No.- 12, LBS Building, Pusa Campus, New Delhi. **Recommendations:** As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.
11	595/2023/RE - Population Demography and Risk Assessment of Invasive South American Armoured Catfish Pterygoplichthys sp. in the Indian Freshwater Systems: A Way Forward for Sustainable Native Fish Diversity by Dr. Annam Pavan Kumar, ICAR-Central Institute of Fisheries Education, Panch Marg, Yari Road, Versova, Andheri West, Mumbai. **Recommendations:** As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.
12	625/2023/RE - Airborne Microbial-contaminants in Delhi Slum Settlements: Isolation, Characterization, and Human Health Assessment by Dr. Rajeev Singh, Chemistry, Jamia Millia Islamia, Delhi. **Recommendations:** As stated under Agenda No. 3.4, the proposal was recommended for funding for a period of two year duration from the Ministry.

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