

ANNUAL REPORT

2021-22



Technology Information, Forecasting & Assessment Council (TIFAC)

Department of Science & Technology
(Government of India)
New Delhi



TECHNOLOGY INFORMATION,
FORECASTING AND ASSESSMENT COUNCIL (TIFAC)
(An autonomous body of Department of Science & Technology, Government of India)

Annual Report

2021-22

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GOVERNING COUNCIL (2021-22)

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Shri Amitabh Kant Chief Executive Officer NITI Aayog New Delhi – 110 001	Ex-officio Member
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Shri Alkesh Kumar Sharma Secretary Ministry of Electronics and Information Technology New Delhi – 110 003	Ex-officio Member
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Shri Anurag Jain Secretary Department for Promotion of Industry and Internal Trade New Delhi – 110 011	Ex-officio Member
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Prof P K Jain Director Indian Institute of Technology, BHU	Ex-officio Member

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Sh M Ventatadri Ranganathan Chief Operating Officer Nutrition and Science Business at Tata Chemical Mumbai	Ex-officio Member
Executive Director TIFAC, Technology Bhawan New Mehrauli Road New Delhi – 110016	Member Secretary

Finance Committee

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Executive Director, TIFAC	Chairman
Shri Vishvajit Sahay	
Additional Secretary & Financial	
Adviser-Department of Science & Technology	Member
Nominee of Secretary, DST	Member
Shri Mukesh Mathur	
In-charge (Finance and Admin.), TIFAC	Member Convener

EXECUTIVE SUMMARY

TIFAC has identified itself into a vibrant knowledge partner on emerging technologies and plays an important role in the country's technology space through technology foresight exercises, technology information services and demonstrating models of technology development through academia-R&D-industry interaction. In the process, TIFAC activities encompass a wide array of technology areas and fill a critical gap in the overall S&T system of India through required technology intervention. TIFAC also prepares Technology Impact Statements, with a view to uncover the likely implications and consequences, both desirable and undesirable, of the existing as well as newly emerging technologies upon society, indicating to decision-makers, through generation of future-oriented scenarios, their short-term and long-term implications. TIFAC also has been actively supporting innovations and innovative technologies through patent support or extending soft loans.

TIFAC continues its legacy of bringing out short term and long-term foresight reports, preparing policy documents towards bring back Indian economy on track post COVID-19, specific action plan document in attaining Aatma Nirbharta (AAN). During this year, several foresight studies have been taken up by TIFAC such as Climate Smart Agriculture, self-healing roads and Current Trends in Telemedicine in India. TIFAC has embarked upon an action plan for achieving power generation of 500GW through renewable energy under climate change initiative. Innovative technology-based projects from startups, MSMEs and labs have been assessed in terms of technology merits, market potential, economics for considering financial support towards commercialization in programme-based approaches like (TIFAC-SIDBI Srijan Programme). TIFAC has also initiated assessment of technology for industry during the period under ATMA programme

TIFAC and NITI Aayog have jointly developed an agent-based model to develop alternate scenarios for the penetration of Electric Two-Wheelers in India up to 2030. This would have impact on policy actions such as demand incentives and technology improvement. TIFAC contributed to NITI Aayog initiative on assessment of techno-economic feasibility study of Hyperloop technology. For the evaluation of the economic feasibility, a model was developed by TIFAC that estimates the cost of a hyperloop project based on the basic system parameters.

TIFAC has brought out two focused policy reports – (i) Speciality Chemicals – Opportunities for India and (ii) Smart Healthcare Ecosystem for India.

During the year, 22 Indian patents and one European Patent were granted in the name of various institutions facilitated by

PFC-TIFAC. TIFAC imparted one-year training to 98 women scientists on IPR under the KIRAN IPR (WOS-C) 12th Batch. TIFAC initiated a study on assessment of technologies/innovations developed by academia/research organizations and start-ups which are at TRL 6 with the financial support of DSIR under its A2K+ study program. For the deployment and adoption of clean technology within the MSMEs/ startups, TIFAC signed an MoU with Sustainable Communities India Pvt. Ltd. (SCIPL).

TIFAC, focussing on Make in India initiatives for Atmanirbhar Bharat, has been working with MSME clusters with R&D and technical support since last fifteen years, towards upgrading their technological capabilities. This year, TIFAC has completed six Technology Gap Analysis Study for MSME clusters across the country namely Toys Cluster, Arecanut/ Sal Leaf Plate Manufacturing Cluster, Apparel Manufacturing Cluster, Fisheries and Food & Spices Clusters. Through TAP program, TIFAC has long-term vision to support and handhold MSME clusters by technology mapping & gap analysis TIFAC has established three (03) TAPs in different region (East, West and South) of the country and further plan to extend in another region is in pipeline.

The SAKSHAM portal developed by TIFAC has served as an innovative platform during the COVID – 19 pandemic and subsequent lockdowns, by providing job opportunities to both industry and shramiks. The portal has helped industries to employ people based on the skill of shramiks and at the same time enhancing the opportunity for shramiks to search job in nearby region as per their need. So far, more than one lakh Shramik profiles have been created through a complete skill evaluation process. These shramiks represent 719 unique districts of India, covering the entire country. A notable more than 4000 shramiks have been connected with potential employers.

The pilot project on 'Tele-digital Health' has been launched this year to demonstrate the efficacy of cutting-edge technologies to a target population of ~60,000 and help in providing affordable quality healthcare to a vast majority of Indian masses including those living in inhospitable terrain. To strengthen the rural infrastructure and accessibility to technologies in villages, TIFAC initiated the 'Mapping of Employment and Investment Opportunities in Villages from Technology Perspective'. A very similar approach has been conceptualized for the state Jammu & Kashmir by initiating program on 'Mission for Innovative Technological outreach and Application (MITRA)'. The initiative would help realizing full potential and overall inclusive growth of J&K through the selection and diffusion of appropriate technologies.

TIFAC has strengthened its international outreach. Recognizing the mutual benefits of scientific collaboration in a broad field of activities of global concern and interest, TIFAC has taken up a few projects of strategic importance with the International Institute for Applied Systems Analysis (IIASA), Luxemburg, Austria. TIFAC organized a training workshop in association with IIASA and Indian Academic organization for the capacity building of Indian researchers.

In the coming years, TIFAC will continue to proactively work towards strengthening the MSME clusters through technology intervention, supporting innovative technology at different

TRL, taking up foresight studies in the area of socio-economic importance, focusing on better outreach of technology to the remotest and rural areas for promoting their inclusive growth and contributing the country's ambition to achieve Atma Nirbharta. TIFAC also endeavoured to work for Net Zero Emissions in tandem with Hon'ble PM Vision of Net Zero by 2070.

(Pradeep Srivastava)
Executive Director
TIFAC

ACRONYMS

ABHA: Ayushman Bharat Health Account
AB-PMJAY: Ayushman Bharat –Pradhan Mantri Jan Aarogya Yojana
ACR: Albumin to Creatinine Ratio
AICTE: All India Council for Technical Education
API: Active Pharmaceutical Ingredient
AQM: Air Quality Monitoring
ASSOCHAM: Associated Chambers of Commerce and Industry of India
ATMA: Assessment of Technology Maturity for Aatma Nirbharta
ATMS: Advanced Traffic Management System
BDTD: Biomedical Devices and Technology Development
BHU: Banaras Hindu University
BIS: Bureau of Indian Standards
BPL: Below Poverty level
CBG: Compressed Bio gas
C-DAC: Centre for Development of Advanced Computing
CDSCO: Central Drugs Standard Control Organisation
CE: Conformité Européenne
CEA: Controlled Environment Agriculture
CFTRI: Central Food Technological Research Institute
CIC: Central Information Commission
CII: Confederation of Indian Industry
CIMFR: Central Institute of Mining and Fuel Research
CMPDI: Central Mine Planning and Design Institute
CODISSIA: Coimbatore District Small Scale Industries Association
COVID-19: Coronavirus disease
CPCB: Central Pollution Control Board

CPWD: Central Public Work Department
CRRI: Central Road Research Institute
CSIR: Council of Scientific and Industrial Research
CVC: Central Vigilance Commission
DB: Decibel
DCPC: Department of Chemicals & Petrochemicals
DICOM: Digital Imaging and Communications in Medicine
DNA: Deoxyribonucleic Acid
DPR: Detailed Project Report
DRDO: Defence Research and Development Organisation
DSIR: Department of Scientific and Industrial Research
DTEE: Decarbonization of Transport in Emerging Economy
ECG: Electrocardiogram
EFC: Expenditure Finance Committee
ETG: Empowered Technology Group
EV: Electrical vehicle
FAME: Faster Adoption and Manufacturing of Hybrid and Electric Vehicles
FDA: Food and Drug Administration
FHIR: Fast Healthcare Interoperability Resources
FIIT-IIT: Foundation for Innovation and Technology Transfer
FPO: Farmers Producer Organizations
FTT: Futuristic Technologies Division
GBMRS: GIS Based Minefield Recording System
GHG: Green House Gas
GI: Geo-Information
GIS: Geo-Information System
GoI: Government of India

GPS: Global Positioning System
IARI: Indian Agricultural Research Institute
ICAR: Indian Agriculture Research Institute
ICD: International Classification of Diseases
ICFRE: Indian Council of Forestry and Research Education
ICMR: Indian Council of Medical Research
ICRISAT: International Crops Research Institute for the Semi-Arid Tropics
ICU: Intensive care Unit
IEC: International Electrotechnical Commission
IFD: Integrated Finance Division
IGP: Indo-Gangatic Pollution
IIASA: International Institute for Applied Systems Analysis
IIIM: Indian Institute of Integrative Medicine
IIMC: Indian Institute of Mass Communication
IIMR: Indian Institute of Millets Research
IIS: Indian Information Service
IISF: India International Science Festival
IIT: Indian Institute of Technology
IMMT: Institute of Minerals and Materials Technology
INMAS: Institute of Nuclear Medicine & Allied Sciences
IOMT: Internet of Medical Things
IoT: Internet of Things
ISM: Indian School of Mines
ISO: International Organization for Standardization
ISTM: Institute of Secretariat Training and Management
ITEC: Indian Technical and Economic Cooperation
ITS: Intelligent Transport Systems
KIRAN: Knowledge Involvement in Research Advancement through Nurturing
L&T: Larsen & Tubro

LC: Low carbon
LCA: Life Cycle Analysis
LED: Light Emitting Diode
LOINC: Logical Observation Identifiers Names and Codes
LPM: Litre Per Minute
MBPS: Micro Byte Per Second
MCDA: Multi Criteria Decision Analysis
MHRD: Ministry of Human Resource Development
ML: Machine Learning
MoHFW: Ministry of Health and Family Welfare
MoS: Minister of State
MoU: Memorandum of Understanding
MMF: Man-Made Fibres
MSME: Micro Small and Medium Enterprises
MTCC: Microbial Type Culture Collection
NAAS: National Academy of Agriculture Sciences
NAC: National Advisory Committee
NCD: Non-Communicable Diseases
NDC: Nationally Determined Contribution
NECTAR: North East Centre for Technology Application & Reach
NEERI: National Environmental Engineering and Research Institute
NEIST: North East Institute of Science and Technology
NIB: National Institute of Biologicals
NICRA: National Initiative on Climate Resilient Agriculture
NIN: National Institute of Nutrition
NIT: National Institute of Technology
NITI: National Institution for Transforming India
NMICPS: National Mission on Interdisciplinary Cyber-Physical Systems
NML: National Metallurgical Laboratory

NM-QTA: National Mission on Quantum Technology Applications
NPCRE: National Centre for Photovoltaic Research and Education
OECD: Organisation for Economic Co-operation and Development
PFC: Patent Facilitating Centre
PG: Public Grievances
PIC: Patent Information Centre
PLI: Production Linked Incentive
PM: Particulate Matter
PMO: Prime Minister's Office
PM-STIAC: Prime Minister's Science and Technology Innovation Advisory Council
PSA: Principal Scientific Advisor
PV: Photo Voltaic
R&D: Research & Development
RBI: Reserve Bank of India
RRS: Regional Research Station
SAKSHAM: Shramik Shakti Manch
SATCOM: Satellite Communication
SGPGIMS: Sanjay Gandhi Postgraduate Institute of Medical Sciences
SGRH: Sir Ganga Ram Hospital

SHR: Self-Healing Road
SHWW: Sexual Harassment of Women at Workplace
SIDBI: Small Industries Development Bank
SIEMA: Southern India Engineering Manufacturers' Association
SKUAST: Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu
SNOMED-CT: Systematized Nomenclature of Medicine -- Clinical Terms
SPARROW: Smart Performance Appraisal Report Recording Online Window
SPECS: Promotion of Manufacturing of Electronic Components and Semiconductors
SPO ₂ : Oxygen Saturation
TERI: The Energy Research Institute
TFAR: Technology Fusion and Application Research
TRL: Technology Readiness Level
TV: Technology Vision
UF: Ultra-Filtration
UI: User Interface
UNIDO: United Nations Industrial Development Organizations
USA: United State America
UT: Union Territory
WHO: World Health Organization
WoC-C: Women Scientists Scheme

1. TECHNOLOGY FORESIGHT & VISION

Foresight and Vision division of TIFAC is primarily engaged in the preparation of technology vision documents, technology foresight reports, follow up actions on the recommendations of vision document, preparation of need-based reports, capacity building on technology foresight techniques and leveraging international cooperation with premier technology foresight institutes around the globe. During the year, several foresight reports were prepared on the selected technology areas to bring out insights on such technologies to facilitate policymakers, researchers and other stakeholders to take decisions for the adoption of such technologies.

1.1 Foresight Studies

Several foresight studies have been taken up by the division. A gist of them are presented below under the category of ongoing, completed and newly initiated:

1.1.1 Foresight Studies in progress

a. Foresight study on Climate Smart Agriculture:

In view of the economic impact of climate change on the agriculture sector and its implications on food security, farmers' welfare and societal transformation, there was an urgent need to take adaptation and mitigation measures at different levels. Climate-Smart Agriculture (CSA) is a viable solution and has enormous potential to provide resilience to the poor and marginalized farmers of India suffering from the climate-induced crop failure and will significantly help to mitigate GHG emission.

TIFAC, seeing the importance of the subject, prepared a foresight report on CSA based on a critical analysis of the current and future vulnerabilities along with specific interventions/schemes that could be taken up on standalone basis or mainstreamed into the existing schemes of the GoI. The overarching objective of this important study is to strengthen the capacities of Indian agriculture and to make climate prune through use of scientific information, technologies and enhanced public and private sector engagement. The report is being prepared in a consultative mode involving eminent experts from various sectors both public and private agencies under the overall guidance of a National Advisory Committee (NAC).

So far, in the report, an array of Climate Smart advanced technologies in the field of Agriculture and its different sub-sectors, i.e. dairying, livestock farming and fisheries has been identified. The advanced technologies for CSA are captured under the broad categories such as; next generation climate services for smart agriculture; Climate ready crops and varieties; Water Management Technologies for CSA; Nutrient Management for CSA; Climate smart carbon and

energy management; Protected cultivation and vertical farming; Climate smart livestock production, Fisheries and Aquaculture.

The draft report is prepared with the contribution from members of the NAC and select experts in identified domains pertaining to different sections/chapters. The draft report is validated by a group of Fellows from National Academy of Agriculture Sciences (NAAS) in a validation workshop conducted at NAAS office, New Delhi.

Based on the technologies identified under the study, it is being planned also to formulate important strategies for promotion of CSA and solutions to tackle the issues of up scaling, deployment and farm level adoption of CSA technologies. The study report will help in promotion of CSA and to bring its potential to the notice of ministries and other line departments to formulate enabling policies, help in projecting investments required and developing collaborations with various stakeholders so that CSA will get boost in terms of promoting new technologies and investments for sustainable development of agriculture towards societal harmony and overall development.

b. Self-Healing Roads

Road Transport carries about 60% of freight and 87% of passenger traffic in India. The heavy loads of commercial vehicles on the roads are causing cracks and potholes. These cracks and potholes on the roads are one of the major reasons for congestion, accidents, and high vehicle operating and maintenance/repair cost, leading to increasing burden on the economy. Therefore, there was a need for a sustainable road which needs less maintenance, having self-healing property whenever cracks develop. This prompted researchers to develop a self-healing roads which is the process of healing fine cracks by some external force factors or chemicals or by bacterial reaction. Self-healing materials will automatically repair the damaged roads when having a conducive atmosphere thereby maintaining good road conditions and hence improving the efficiency of the vehicles. The working principle of SHR for both Asphalt and Concrete is depicted in Figure 1.1.

Technology Vision 2035 document of TIFAC identified SHR as one of the upcoming technologies to solve the road maintenance problem. A detailed foresight report on SHR has been prepared by TIFAC to understand the current research status, potential for large scale adoption, its feasibility in the Indian context. The first draft of the report has covered analysis of various materials with self-healing properties w.r.t. strength, sustainability, longevity, cost-effectiveness, environmental friendliness, etc. An action plan for large scale implementation of Self-Healing Roads is also covered.

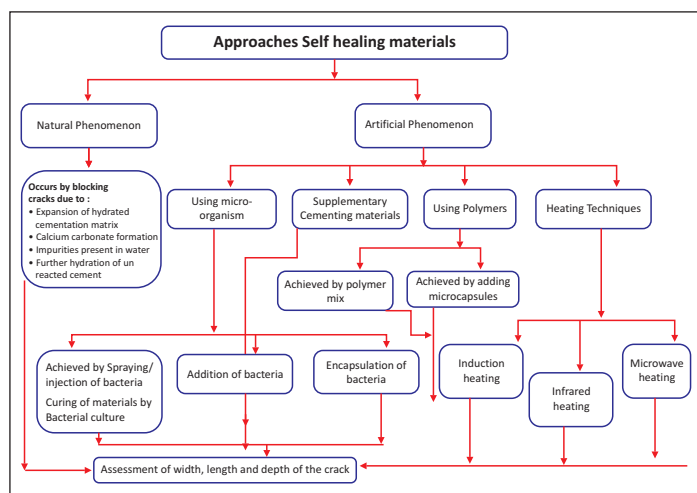


Fig.1.1 Approaches for Self-Healing Materials

With respect to the R&D status in India and globally, India has just begun its journey in this area. Few institutes like CSIR-CRRI, New Delhi, IIT Bombay, IIT Roorkee, IIT Kharagpur etc. are working in this area. CSIR-CRRI work is at the laboratory testing stage. Globally Several institutes are working on self-healing or smart materials to develop self-healing roads. Delft University of Technology, Netherlands, University of Bath, Cardiff University, University of Cambridge, University of Illinois, Chicago, Ghent University, Belgium are few to mention. The details of their R&D status and work is covered in the report.

The report has identified a few specific working areas that require special attention in order to produce this new generation self-healing pavements:

- More research in the development of low-cost induction and microwave equipment for self-healing mechanism
- Collaborative research between research, academic, and manufacturing industries for manufacturing the microcapsules capable of self-healing is needed.
- Development/design of damage sensing and repair triggering elements
- Development of multiple self-healing processes.
- Development of self-healing assessment mechanism

c. Study on Current Trends in Telemedicine in India

In India, around 70% of the population live in rural areas having very low penetration of healthcare services and necessary infrastructure. There is also a problem of retaining doctors in rural areas especially the specialist doctors. In contrast, cities and towns are equipped with all facilities; around 90% of secondary & tertiary care facilities are available in cities and towns. Shortage of doctors is another issue. In India it is 1: 1457, much lower than WHO (1:1000) recommendation

(Fig 2). This ratio is more skewed in rural areas (1:2500) and approximately 89 million populations in India is below the poverty line (BPL), which poses another serious challenge in delivering health care services efficiently and uniformly throughout the country.

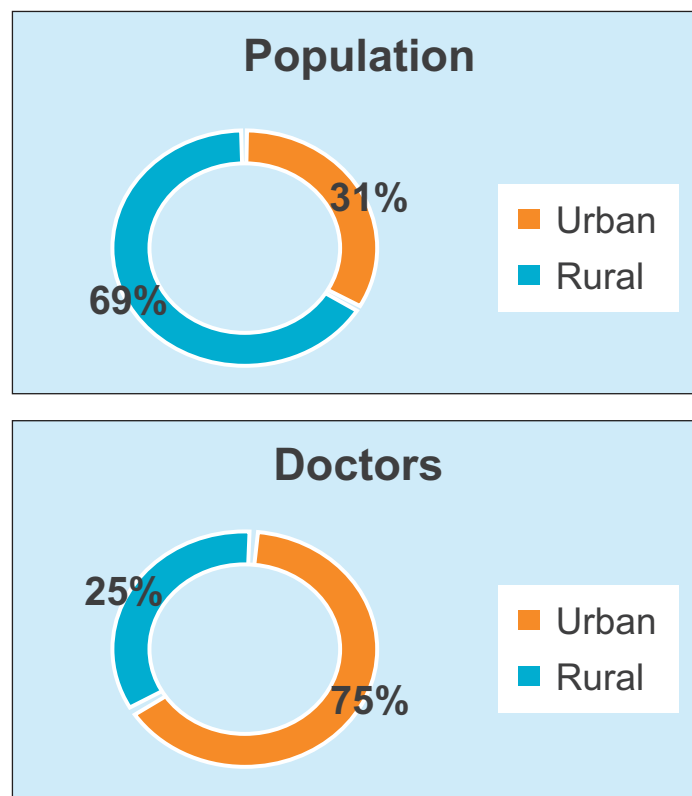


Fig. 1.2 Availability of Doctors

Therefore, new and emerging Information and Communication Technology tool, i.e., use of Telemedicine has potential to improve rural healthcare delivery system. It is an evolution of digital healthcare system, it enables the use of IT tools for making healthcare services unrestricted by geographical location. Patients living in remote areas can access the best quality of care, cost-effectively using a telemedicine system.

Considering the potential of telemedicine technology in strengthening rural healthcare delivery system, TIFAC has prepared a foresight report on Telemedicine Technologies. The report has also captured best practices, strategies, policy issues, standards and regulatory framework to understand the challenges and issues for large scale implementation of telemedicine technology in India.

Initial analysis of start-ups working in the area of telemedicine reveals that: most of the companies are using technologies like Artificial Intelligence/Machine Learning just for commercial purposes to understand customer preferences, and connecting them with relevant doctors etc. However,

advanced technologies like Blockchain, Robotics, Computer Vision are the technologies that were used by the companies who started their business in the recent past (during 2018-2019). A schematic representation of functioning Telemedicine technology is presented in Fig. 3.

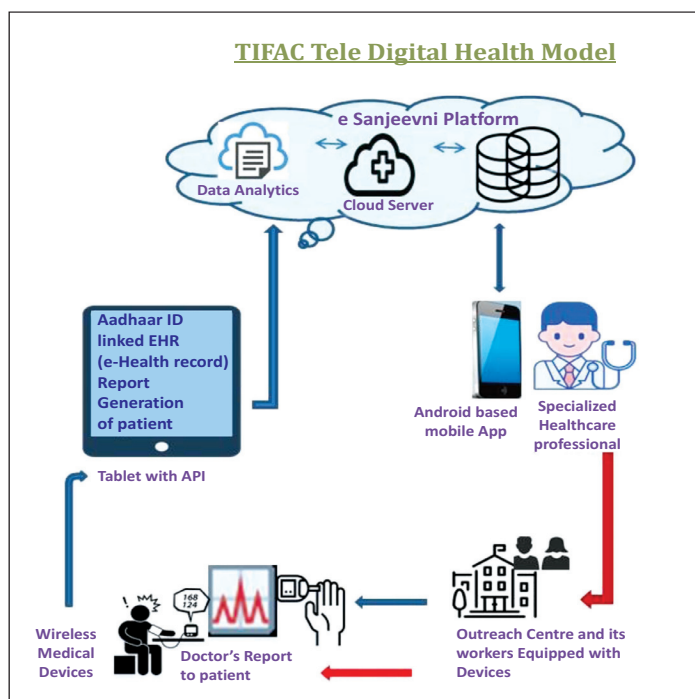


Fig. 1.3 TIFAC Tele-Digital Health Model

In the report, the following Government initiatives, policies and programs have been captured:

Programmes:

- National & State Telemedicine Network
- SATCOM based Telemedicine nodes at Pilgrim Places
- National Medical College Network
- Bharat broadband net programme
- National Digital Health Mission' announced (15th Aug, 2020)
- E-Sanjeevani -- (e consultation platform)
- Ayushman Bharat Digital Mission
- Ayushman Bharat Health Account (ABHA) (13th Jan, 2022)

Government Policy:

- National Digital Health Blueprint
- (Defined Standards to be used in Telemedicine) (SNOMED CT) (2016) (ICD 11) (2016), (LOINC) (2016), (DICOM) (2016) and FHIR (2020)

- MoHFW – NITI Aayog –Telemedicine Practice Guidelines to enable practicing the health delivery services remotely. (25th March, 2020)

Key recommendations captured in the report are:

- Seamless integration amongst various available platforms and services require Adoption of standards like FHIR, DICOM, SNOMET CT etc. Data has to complement with the national and international legal security framework.
- For advanced telemedicine technologies like Telesurgery, Tele ICU, 5G would be an enabler. Public-Private Partnerships need to be encouraged for affordable and efficient system.
- Platform integration Hospital to Hospital to Diagnostics to Pharmacy is needed.
- Advanced Technologies (Health 4.0): AI, Analytics, IOMT, Cloud, Blockchain, Robotics, Computer vision etc. need to be leveraged.

1.1.2 Foresight Studies Completed:

a. Vertical farming vs Horizontal farming – a comparative analysis

TIFAC study on vertical farming analysed vertical farming technology in comparison with the conventional/horizontal farming by identifying the needs, constraints, implementation opportunities, possible alternative approaches and highlighted the potential of vertical farming technology as possible option for food and nutritional security in India with the objectives i). To review international literature on vertical farming; ii). To develop an understanding of vertical farming technology. Identify benefits and limitations of vertical farming and its comparative analysis with conventional / horizontal farming; iii). To gain insight into latest developments in vertical farming technology and explore future options for its implementation in India and iv). To make recommendations to address any knowledge gaps identified in this area for wider adoption.

The study analysed vertical farming technology in comparison with the conventional/ horizontal farming by identifying the needs, constraints, implementation opportunities and possible alternative approaches and highlights the potential of vertical farming technology as possible option for food and nutritional security in India. It gives status of vertical farming technology in India and world, its impact on climate change. The study also provided information on Intellectual property in vertical farming, market trends and entrepreneurship related information and growth projections.

TIFAC study inferred that Vertical farming technology as an innovative method that can complement arable farming in future to meet the demand of new food choices. In India, vertical farming is still in nascent stage but now practiced by

many innovative growers and entrepreneurs taking up it as a speciality agriculture by growing microgreens, leafy greens and high value food crops. It is mentioned that the advancement in technology and availability of materials will enable lowering the capital investments and with the improvement of variety of crops to grow in vertical farming conditions with ease, vertical farming can become more main stream and remunerative option of growing food. The study also presented the cost-benefit analysis and a business model for establishing a vertical farm along with the case studies documenting the experiences of the farmers, growers and entrepreneurs. The study brought out inclusive recommendations for promotion of vertical farming in India.

Now Vertical farms, which are many storeys high is a reality and can be seen in the heart of the world's prominent urban centres. If successfully implemented, vertical multilayer farms offer the promise of food production providing safe, nutritious and a wide array of food sustainably.

b. Technology Foresight studies on Food Processing focusing on North Eastern region of India

Completed studies on "Opportunities for Food Processing in North Eastern Region of India" in the following three sectors:

- i. Fisheries
- ii. Traditional Ethnic Foods
- iii. Spice Processing

The studies have broadly covered the identification of technology gaps with recommendations on how to catch up with the national benchmark in Food Processing sector for North Eastern region and formulating a technology roadmap in short, medium and long term.

1.1.3 New Study Initiated

a. Report on Chemicals & Petrochemicals with focus on Specialty Chemicals

At the request of Secretary, DST, TIFAC initiated a Special Study Report on Chemicals & Petrochemicals with focus on Specialty Chemicals. Import-Export data was collected from the government websites and several rounds of discussions were held with concerned stakeholders and manufacturer's associations, traders & industries.

This report gives a brief overview of the Indian Specialty Chemicals (Agrochemicals, Dyes & Pigments and Foods & Flavours) & Petrochemicals Industry, its market size, demand, future potential, geographical spread and emerging technology trends. The report also analysed annual import data statistics from the Department of Chemicals & Petrochemicals (DCPC) of specialty chemicals in terms of quantities and values for the last 5 years (2016-17 to 2020-21).

This publication also highlights the dependency of certain specialty chemicals on a single source country. India's strengths and weaknesses in specialty chemicals manufacturing and production capabilities are also covered in the report. Recommendations are designed to initiate a tri-partite effort involving Academic Institutions, Star-ups/ Industry and Government bodies towards achieving Aatma Nirbharta in this sector. The report presents a way forward to strengthen this sector and also make India a Global Player in Specialty Chemicals Sector.



Fig:1.4: Report on Specialty Chemicals: Opportunities for India

b. White Paper on Smart Healthcare Ecosystem for India

The TIFAC report on Smart Healthcare Ecosystem for India focusses on designing healthcare ecosystem for India powered by practical use of technologies in the context of India's hyperlocal uniqueness. This report has been prepared with consultative inputs from Sapio Analytica Private Limited, Mumbai.

The report in addition to the coverage on key healthcare needs of India, stresses on the need for smart hospitals and smart primary centres. Five action plans including smart decision support systems, cost effective new age infrastructure and a model business plan have been detailed in this report.

The report was released on the occasion of 35th TIFAC Foundation Day by Dr S Chandrasekhar, Secretary-DST on 10th February, 2022.

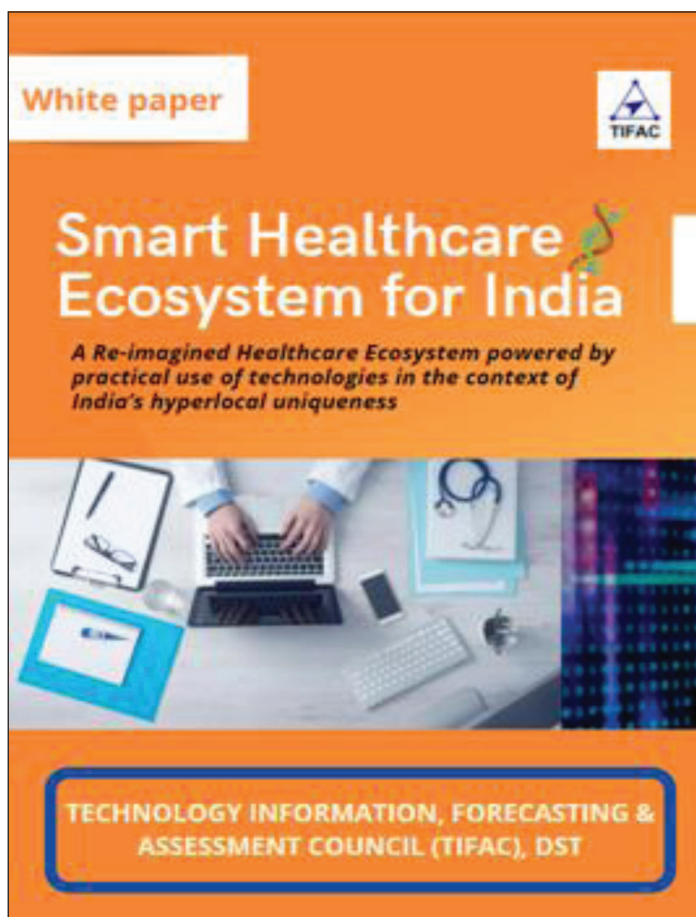


Fig:1.5: White paper released by TIFAC on Smart Healthcare Ecosystem for India

1.2 Brainstorming Meetings for New Initiatives

1.2.1 Brainstorming meeting on Advanced technologies in Agriculture with Focus on AI, ML and IOT

Digital technologies like Artificial Intelligence (AI), Machine Learning (ML), IoT, Sensors, Big Data Analytics, Remote Sensing Technologies etc. are transforming agriculture production system and value chains by playing a key role in modernizing agricultural activities. Digital technologies have potential in overcoming the challenges faced by the farmers in agriculture with respect to climate change, decreasing total factor productivity, unsustainable practices or marketing related problems etc.

In the pursuit of fostering and promoting futuristic technologies and also to explore avenues for intervention, TIFAC interacted with ICAR and Ministry of Agriculture and Farmers' Welfare to develop a project towards demonstration of advanced technologies in agriculture such as AI, ML, IoT and sensor technologies for improved farm management, enhanced production, increase farmers' income and livelihood improvement.

In order to understand the level of readiness of the target group in the select regions for such interventions and workout modalities to deploy and implement advanced technologies in the field, TIFAC organized a Brainstorming meeting on the theme "Advanced technologies in agriculture with focus on AI, ML and IOT" on 23rd June, 2021, on a virtual platform. In the brainstorming meeting the following key issues were discussed:

- Status adoption of high-end technologies like AI, ML Sensors, IoT, Robotics etc. by farmers
- Identifying gap areas for deployment of advanced technologies especially digital technologies in agriculture.
- Policy related issues.
- Exploring funding opportunities for development and implementation of such projects.

In the brainstorming meeting, the speakers/experts including Govt./Policy Makers (Min. of Agriculture - GoI, Dept. S&T - GoI); Academia / Research (ICAR, IIT Guwahati, C-DAC, ICRISAT), IT sector/ Start-ups (Microsoft Research Labs, Aeris India, Wolkus, Cerelabs) delivered talks.

1.2.2 Brainstorming Meeting for DPR Preparation on Advanced Technologies in Agriculture with Focus on AI, ML and IoT

As a follow-up to the outcome / recommendations in the "Brainstorming meeting on Advanced Technologies in Agriculture with focus on AI, ML and IoT" TIFAC initiated the project on preparation of DPR by constituting an Advisory Committee with experts from Government, industry, academia and R&D to steer and guide the preparation of DPR. Based on the suggestion by the Advisory Committee, TIFAC focussed on Cereals, Cash crops, Apple & Saffron for initiating technology demonstration project. Accordingly, TIFAC scientists interacted with Apple and Saffron growers in and around Baramulla, Phulwama, Gulmarg and Pahelgam districts of Union Territory of Jammu and Kashmir during 27th - 31st September, 2021, to understand various issues and problems being faced by the farmers. Later, a meeting with Faculties of Sher-e-Kashmir University of Agricultural Sciences and Technology (SKUAST), Srinagar was held on 29th Sept 2021, and MoU has been signed between TIFAC and SKUAST to collaborate for technology intervention in the area.

As a follow up, TIFAC interacted with several agri start-ups like "Agdhi", "FASAL" and discussed about several issues like auto seed quality testing technology at farmer's level, implementation of Block Chain Technology in seed business, data driven agriculture to understand auto irrigation, sprays, fertigation, monitoring of micro & macro climatic conditions, soil parameters etc. and facilitate farmers to take informed decisions.

TIFAC scientists also interacted with Scientists of CSIR – Indian Institute of Integrative Medicine (IIIM), Regional centre Srinagar, UT of J&K in a virtual platform on 20th January, 2022, and discussed about collaboration for technology intervention in Saffron cultivation, processing and value chain in J&K.

1.2.3 Evolving Strategy for Promotion of Millets Towards Achieving Nutritional Security

In response to the public health crises in terms of COVID-19 pandemic, rising Non-Communicable Diseases, increasing food & commodity prices and upwardly moving healthcare costs, people are looking towards traditional staple foods for balancing the daily recommended nutrition apart from various immunity and health boosting foods. India is a country with vast semi-arid lands known for producing numerous traditional cereal crops such as Sorghum, Pearl Millet, Finger Millet, Foxtail Millet, Proso Millet, Little Millet, Barnyard Millet, Brown-top Millet, etc. The people in arid and semi-arid regions of the country grow and consume millets as a staple food. In addition to their nutrition, millets provide food and fodder security to the dry land agricultural communities. They are the most secure crops to small farmers as they are the hardiest, resilient and climate-adaptable crops in harsh, hot and drought environments. Against the backdrop of rising malnutrition and Non-Communicable Diseases (NCDs), it becomes imperative to focus towards promotion of millets.

The Government of India has realized the importance of millets in building Nutritional Security in the country and made several efforts to promote millets. Seeing this opportunity, TIFAC has planned to develop a collaborative programme on promotion of Millets towards achieving nutritional security in association with ICAR – Indian Institute of Millets Research (IIMR), Hyderabad. Apart from ICAR, TIFAC also networked to involve other stakeholder agencies in this national level programme like ICRISAT, State and Central Govt. Departments, Farmers Producer Organizations (FPO's), food processing industries, Start-ups and credible civil society bodies to nucleate a national programme on Millets.

TIFAC and IIMR organized a National level Brainstorming meeting entitled 'Evolving a National Strategy for Promotion of Millets towards Achieving Nutritional Security' on July 16, 2021. In the brainstorming meeting, eminent speakers and stakeholders from Research, Academia, Policy bodies, Industry, Professional bodies and Start-Ups on to a single platform to identify gap-area, address challenges and strengthen the millets value chain towards promotion of millets and achieving nutritional security.

As a follow-up, steps were taken to initiate a foresight study on promotion of fortified millets and coarse cereals in collaboration with ICAR – Indian Institute of Millets Research (IIMR), Hyderabad. The study aims to assess current production, demand, supply & utilization of coarse cereals

towards making healthier food grains available to all especially undernourished and augment economic benefits to farmers. Also, exploring role of Public Distribution System and other avenues towards achieving the target. In this regard, a concept note has been prepared for furthering the thought process.

1.2.4 TIFAC Brainstorming Meeting on Addressing COVID Resurgence – S&T Perspective

It was felt that a well-considered calibrated approach for addressing the COVID resurgence is necessary to be evolved considering the perspectives of Doctors, Industry and Policy makers, post the two waves of COVID-19 and that it was also imperative to evolve the approach as promptly as possible.

Towards this, TIFAC organized an online brainstorming meeting on 10th May 2021, titled '**Addressing COVID Resurgence – S&T Perspective**' bringing relevant stakeholders on one common virtual platform to deliberate on the issues and arrive at best approach. The meeting was chaired by Dr VK Saraswat, Chairman- TIFAC Governing Council and Member NITI Aayog. Prof Ashutosh Sharma, Secretary DST and Dr Vijay Chauthaiwale Healthcare Consultant also participated.

Other eminent speakers included: Prof Pradeep Srivastava, ED TIFAC, Prof Nandita Das, Professor Pharmaceutical Sciences, College of Pharmacy and Health Science, Butlar University USA, Shri P K Pathak, Special Secretary, Ministry of AYUSH, Dr P B N Prasad, Jt. Drugs Controller (India) CDSCO, Dr Suresh Jadhav Executive Director, Serum Institute of India, Dr Bakulesh Khamar, Executive Director- R & D, Cadilla Pharma Ltd, Pune, Dr Siddharth Daga, CEO, M/s Vins Bioproducts Ltd., Hyderabad, Shri Ravi Ramaswamy Sr Director, Healthcare Systems, Phillips Innovations, Shri Sunil Khurana, CEO/MD, BPL Medical Technologies Pvt. Ltd., Bengaluru and others.

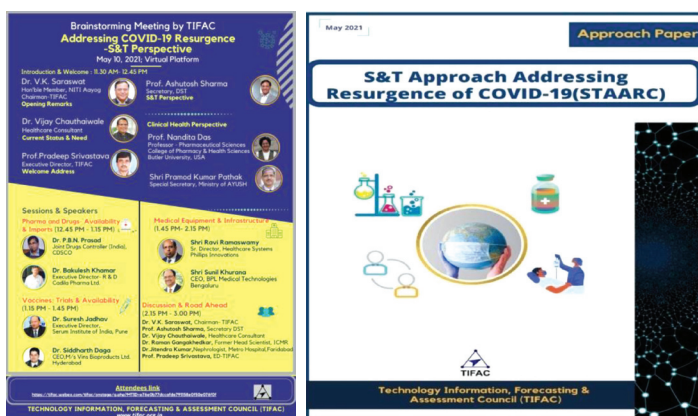
The discussions were steered on the following issues:

Clinical/ Health Perspectives: Infection Rate/ Death Rate/ Disease Prognosis/Treatment Methodology

India's Preparedness:

- Drugs & pharmaceuticals/ Vaccines/ Medical Equipment/ Infrastructure: Need- Actual & Availability (Current)
- Supply/ Distribution: Whether adequate or need for ramping up production or resort to import
- How and where to procure from? Suppliers? Regulatory Issues if any?
- Plan for exigency- Existing manufacturers scaling up, New Plants/ Technology, Acquisition from Foreign Sources if required, requisite funds

The entire brainstorming session outcomes were collated into an action plan document named STAARC, which was submitted to the Government subsequently.



1.3 Foresight Training

- Training cum workshop on Technology Foresight was conducted during 16th – 17th September, 2021, for Indian Information Service (IIS) Group 'A' Officers as part of their induction course in Media & Communication at Indian Institute of Mass Communication (IIMC), New Delhi. Around 25 IIS officers attended the training programme. As a part of training, lectures on various topics of Foresight methods & tools like, Technology Foresight, scenario building, MCDA etc. Dr Gautam Goswami, Scientist-G and Dr T Chakradhar Scientist-C imparted hands on training to the participants.
- Dr Gautam Goswami, Scientist-G, Ms Jancy Ayyaswamy, Scientist-F and Dr T Chakradhar Scientist C conducted hands on training on Technology Foresight techniques for the teachers of Thakur College of Engineering and Technology, Mumbai in the event of Multicon-W 2022 on February 25, 2022.

1.4 Impact Assessment of TIFAC Reports

TIFAC has undertaken a study to assess the impact of TIFAC Reports published during the last 10 years (2011-2020) on the society, economic & technology growth of the country. A total 18 reports were selected, based on the importance for economic development of our country, to study their impact. TIFAC Study Reports are of various types: some are macro-focused and others are micro-focused. The impact of these reports has been assessed based on secondary data available on open domain (Annual Reports, Literature reviews, PIB, Economic Survey, Annual Budgets etc). Impact has been captured on whether the study report facilitated in bringing out policy, new programmes launched, product developed, actions taken by other stakeholders etc.

A brief account of the impacts emerged out of TIFAC reports are given below:

a. R&D and Innovation Centre for Howrah Foundry Cluster- Published in 2011

The report resulted in establishment of R&D and Innovation

Centre for Howrah Foundry Cluster. The R&D Centre initially carried out a feasibility study on the scope of quality up gradation of Howrah Foundry Cluster. In further development the sanding machine were mounted on a mobile van. It used to visit foundries on call and provided services on minimum charges. Several training programs were organised. Total of 322 industry benefited by R&D centre directly and 66 industries indirectly through consultations over the years. The revenue generated through this R&D centre is 11.22 lacs directly and 15 thousand indirectly through Consultancy.

b. Indian Perspectives on Global Energy Scenarios till 2050 - Published in 2014

The report facilitated in integrating objectives of India Hydrocarbon Vision 2025, National Policy of Biofuel -2018, and National Smart Grid Mission etc. GoI started key initiative on coal bed methane, natural gas hydrates, and underground coal gasification etc. Several activities at different stages of R&D on clean coal are being done in collaboration and joint ventures with CSIR-IMMT Bhubaneswar, CSIR-CIMFR Dhanbad, CSIR-NML Jamshedpur, CSIR-NEIST Jorhat, R&D Division of Tata Steel, CMPDI Ranchi, ISM Dhanbad, IIT Kharagpur etc.

c. Commercial Scale Food Processing Technologies pertinent to Malda Cluster- An attempt towards Rainbow Revolution - Published in 2014

The report promoted in establishment of Regional Research Station (RRS) at ICAR-Central Institute for Subtropical Horticulture. RRS has establishing Aseptic Pulp processing unit within its centre. The centre works as a referral laboratory and a quality assurance laboratory. Further the centre continues to be an active partner with the National Horticulture Mission and National Horticulture Board units for its outreach activities of promoting integrated development of horticulture. In a similar development, Krishi Vigyan Kendra (KVK), Malda initiated training for Crop Improvement and Biotechnology, Crop Protection and Post-Harvest Management, on farm trail & front-line demonstration.

d. Solar PV - Technology Foresight for India - Published in 2015

The report has facilitated into two PLI schemes on National Programme on High-Efficiency Solar PV Modules-2021 & Guideline on Enlistment under Approved Models & Manufacturers of Solar Photovoltaic Modules etc. Two Core R&D facilities has been established at NPCRE-IIT Bombay and IIT Hyderabad. Several Scheme have been initiated like off-grid & decentralized solar PV application Programme phase 3, Pradhan Mantri Kisan Urja Suraksha Evam Utthaan Mahaabhiyaan, Atal Jyoti Yojana. Some key initiative in Skill development program like Saurya Mitra Skill Development Program, Indian Technical and Economic Cooperation Program (ITEC) and National Certification Programme for Rooftop Solar Photovoltaic etc.

e. Technology Vision 2035- Published in 2016

The report led to formation of many policies & programs. Several leads were taken up from Technology vision 2035 by NITI Aayog, ICFRE, ICMR, Line Ministries, Academics & Industries. PMO gave direction to all the ministries to take follow up actions on the recommendations captured in 2035 document. Some of the policies emerged out of TV 2035 document are New India Literacy Programme- Education to all – MHRD, New Helicopter policy and schemes on rural health and road connectivity, National Solar Mission, National Smart Grid Mission & Green Energy Corridor for efficient transmission & distribution network, Swachh Bharat Mission, Atal Mission for Rejuvenation & Urban Transformation, Zero Effect, Zero Defect to enhance energy & resource efficiency, Launched Green Highways Policy, FAME India, Paramparagat Krishi Vikas Yojana, Pradhan Mantri Krishi Sinchayee Yojana, Namami Gange, National Initiative on Climate Resilient Agriculture (NICRA) etc.

f. Technology Vision 2035: Technology Roadmap Medical and Health Care- Published in 2016

The report promoted in forming objectives of several policy & programs like Ayushman Bharat – Pradhan Mantri Jan Aarogya Yojana (AB-PMJAY), National Telemedicine Service e-Sanjeevani, MoHFW. Ministry of Jal Shakti Rural Sanitation Strategy (2019-2029), Assisted Reproductive Technology (Regulation) Act, 2021 etc, it also led to programme on Biomedical Devices and Technology Development (BDTD).

g. Technology Vision 2035: Technology Roadmap ICT - Published in 2016

The report facilitated in integrating several schemes like Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS), PLI for Large Scale Electronics Manufacturing, Data Centre Policy 2020, NMICPS and PLI scheme for Phased Manufacturing programme for xEV Parts under Fame India scheme phase-2 etc. It also promoted setting up of Technology Fusion and Application research (TFAR) of Frontier and Futuristic Technologies Division (FTT) in Department of Science & Technology.

h. Technology Vision 2035: Technology Roadmap Manufacturing- Published in 2016

The report promoted integrating objectives of Production Linked Incentive (PLI) Scheme for Textiles for Promoting MMF and Technical Textiles segments, Project SURE - Sustainable Resolution National Strategy for Additive Manufacturing etc. Similarly, for skill development Bharat Kausal Abhiyaan have been started. Several Policies are in drafting stage such as Strategic Material Policy and National logistics policy.

i. Technology Vision 2035: Technology Roadmap Materials - Published in 2016

The report resulted formation for several policy documents

like National Mineral Policy, 2019, National Non-Ferrous Metal Scrap Recycling Framework etc. Centre of Excellence in Advanced Materials and Manufacturing has been established. Several research & development projects on materials and polymer are going on at IIT Guwahati, IIT Delhi, and IIT Hyderabad etc.

j. Technology Vision 2035: Technology Roadmap Education - Published in 2016

The roadmap facilitated in integrating objectives of New Education Policy 2020, National Mission on Education and National Language Translation Mission by MeitY etc.

k. Technology Vision 2035: Technology Roadmap Transport - Published in 2016

The report facilitated in integrating with the objectives of New Helicopter policy, Gati Shakti - National Master Plan for Multi-modal Connectivity etc. It also has role in developing technologies for forming programme on National Intelligent Transport systems (ITS) standards, ITS clearing house to design and adopt best ITS practices and Advanced Traffic Management System (ATMS) etc.

1.5 Climate Change Initiative (Decarbonizing of Sectors)

TIFAC Scientists interacted with representatives from around 30 industries in Coimbatore, Tamilnadu on 16th March, 2022, towards drawing an action plan for Hon'ble PM's goal of achieving 500 GW energy generation from Renewable Energy Sources by 2030. The representatives from CODISSIA, Steel, pumps and motors, foundry, SIEMA, CII, L&T, Cement, Electroplating, EV, electronic components, kitchen appliances, Garment Export Units, e-waste management and other waste management firms explained the energy efficiency measures taken in their company.

1.6 Technology Foresight for Automotive Research (TFAR)

1.6.1 Technology Foresight Study on Electric Mobility

a. Agent Based Bottom-up Model for Forecasting Penetration of Electric Two-Wheelers in India

TIFAC and NITI Aayog have jointly developed an agent-based model to estimate the year-wise market penetration scenarios of electric two-wheelers up to 2030. A consumer survey was conducted to generate data on real-life statistical distribution of various attributes of the agents, i.e., the buyers. A detailed survey was also conducted on the specifications of available vehicles, technology trends and plans for manufacturing of vehicles and installation of charging infrastructure. The model and generated data were used to conduct a scenario analysis of penetration of electric two-wheelers along with projections of required charging infrastructure and battery. Impacts of policy actions such as demand incentives and technology improvement were also analysed. The draft report has been prepared.

b. Impacts of Electric Mobility

The objective of this study is to evaluate the impacts of electric mobility in terms of materials/ resources, lifecycle emissions, infrastructure etc. A model has been developed for estimating requirement of critical materials for various technology choices. A draft report has been prepared on estimation of demands for critical materials. Based on TIFAC works on lifecycle analysis of electric vehicles, the International Transport Forum at the OECD under discussion with TIFAC for a study that will support the LCA tool development for Indian Transport sector under the projects 'Decarbonization of Transport in Emerging Economy (DTEE)' and "NDC Transport Initiative Asia'.

c. Wireless Opportunity Charging of Electric Buses Using Solar Energy

Objective of this study is to explore how electric public transport, wireless charging, opportunity charging and solar energy utilization can be combined to achieve sustainable transportation solution with enhanced lifecycle benefits, reduced congestion, higher road utilization which will outline the implementation plan for a demonstration project integrating these technologies.

Works have been carried out on analysing status and trends of wireless charging of electric buses, utilization of solar energy for charging of electric buses and opportunity charging of electric buses. Work was in progress on the techno-economic feasibility analysis and life-cycle analysis for a fleet of electric buses.

d. Electric Road Systems

Electric Road System, is an emerging alternative concept to address this issue of range-anxiety of users of electric vehicles by transferring power to the vehicle when it is on the move. Works have been carried out on analysis of technology trends and maturity levels for various options for Electric Road Systems. Techno-economics and comparative impacts of such systems and suitability under Indian conditions are being evaluated.

1.6.2 Technology Foresight Study on Emerging Energy Storage Technologies

The objective of this study is a systematic analysis on various emerging energy storage technologies from Indian perspectives and to identify the priorities, challenges and expected impacts. The study is ongoing. A draft report has been prepared that discusses technology trends, patents analysis and technology readiness levels for various emerging energy storage technologies. Further works are being carried out related to potential of the various technology options to address the challenges associated with electric mobility such as safety.

1.6.3 Techno-economic Feasibility of Hyperloop

TIFAC contributed to NITI Aayog initiative on assessment of techno-economic feasibility study of Hyperloop technology. Executive Director, TIFAC is a member of National Expert Committee on Hyperloop constituted by NITI Aayog, and two TIFAC scientists are part of the sub-committee that studied techno-economic feasibility. Further, TIFAC coordinated the Workgroup-2 that evaluated the economic feasibility. For this purpose, a model was developed by TIFAC that estimates the cost of a hyperloop project based on the basic system parameters.

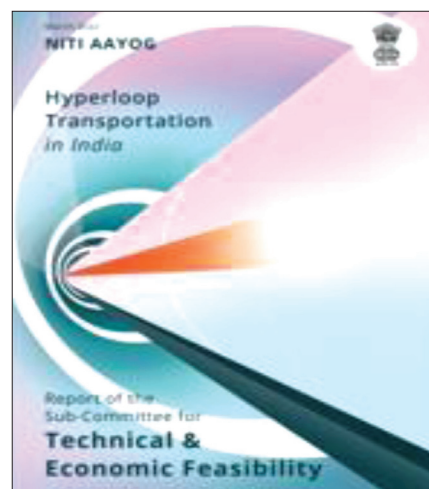


Fig:1.6 Study report on Hyperloop Transportation in India

1.6.4 Technology Roadmap for Aatma-Nirbharta in Semiconductor

TIFAC is in the process of formulating a study titled "Technology Roadmap for Aatma Nirbharta in Semiconductor". An approach paper was prepared and the process of stakeholder consultations started. Discussions were held with the Ministry of Electronics and Information Technology (MeitY) regarding the scope of the study.

1.6.5 Estimation of Real-Life Fuel Economy of Indian Vehicles for Life Cycle Analysis Model by a Data Driven Approach

The International Transport Forum (ITF) at the OECD has requested TIFAC to support their efforts for development of a life Cycle Analysis (LCA) tool for Indian Transport Sector under their projects Decarbonising Transport in Emerging Economies (DTEE) and NDC Transport Initiative for Asia (DTEE). Based on discussions with ITF, a proposal for a study titled "Estimation of Real-Life Fuel Economy of Indian Vehicles for Life Cycle Analysis Model by a Data Driven Approach" was prepared. The ITF approved the study with budgetary support of Euro 29,236/- for a duration of 4 months. Actions were initiated towards finalization of the agreement and obtaining necessary approval of the Government of India.

2. NURTURING INNOVATION

Intellectual Property Rights Division of TIFAC implements two programmes of DST namely Patent Facilitating Centre (PFC) and Women Scientist Scheme C (WOS-C) popularly known as KIRAN-IPR. PFC was established by DST at Technology Information Forecasting and Assessment Council with four-fold objectives of creating IPR awareness and deeper understanding of patents and IPR in the country, facilitating filing, obtaining and maintaining patents on sustained basis, providing patent information as an input to R&D and handling IPR policy matters.

2.1 IP/Patent Facilitation

PFC in the quest of facilitation of filing and prosecuting patent and other IPR applications on behalf of academic

institutions and government R&D institutes has filed 17 new patent applications, one copyright and one trademark applications were filed after due assessment of patentability of about 54 new requests and about 60 plus new requests are in process. These patent and IP applications are drafted and filed through patent attorneys on the panel of PFC TIFAC. The cost of filing these patents is borne by PFC TIFAC and patent/IP applications are filed in the name of inventing institute/s. PFC conducts thorough patentability assessment in house for all the invention disclosure received by it. During this period, 22 Indian patents and one European Patent were granted; list of those patents is given in Table-2.1. PFC facilitated filing and prosecution of these patents.

Table-2.1: Patents Granted in this financial year (2021-22)

S. No.	Patent No.	Grant Date	Applicant	Title
Indian Patents				
1.	365565	28-04-2021	Tezpur University, Tezpur, Assam	Nanocatalyst for bio oil production
2.	366731	15-05-2021	Tezpur University, Tezpur, Assam	A process for manufacture of turmeric powder from raw turmeric rhizomes
3.	370356	25-06-2021	Indian Institute of Technology Bhubaneswar	A processing condition monitoring system and/or method for motor operated utility products such as food processors and the like.
4.	370710	30-06-2020	Indian Association for the Cultivation of Science, Kolkata	Peptidomimetic ligands regulate BCL-2 expression by stabilizing DNA secondary structures
5.	370787	30-06-2021	Tezpur University, Assam	Mesoporous secondary nanostructures as multifunctional heavy metal scavenger
6.	371059	02-07-2021	Panjab University, Chandigarh	Sophorolipid based nanostructured lipid carriers targeted for drug delivery purposes
7.	371088	05-07-2021	College of Engineering, Perumon	RFID based smart library system
8.	372370	22-07-2021	Banaras Hindu University, Varanasi	Electrolysis of starch-based electrolytes
9.	372999	28-07-2021	Indian Institute of Technology, Kharagpur	A system for non-contact measurement and analysis of surface profile of a sample/3-D object
10.	373980	06-08-2021	Indian Institute of Technology, Delhi	A system for optofluidically Controlled fluid motion for variety of microscale applications
11.	375918	31-08-2021	National Institute of Technology, Calicut	An air actuated radial robotic gripper attachable to a robot Manipulator arm
12.	376462	06-09-2021	Central University of Punjab	Novel Fused Heterocycles Compounds and Method of Synthesis Thereof

13.	377984	27-09-2021	Panjab University, Chandigarh	Cocrystals of Naringenin
14.	378489	01-10-2021	Malviya National Institute of Technology, Jaipur	A mobile equipment for a user
15.	381620	11-11-2021	Forest Research Institute, Dehradun	Management of fungal Deterioration of stored medicinal plant products
16.	382514	24-11-2021	Punjabi University, Patiala	A process for hyperproduction of catalase enzyme from novel extremophilic bacterium <i>Geobacillus extremococcus</i> MTCC 5873 and strain thereof
17.	382675	25/11/2021	1. Guru Ghasidas Vishwavidyalaya (A Central University) 2. Indian Council of Medical Research (ICMR)	Novel 5-[4-(2-Biphenyl-4-Yl-2-Oxoethoxy)-Benzylidene]-Thiazolidine-2,4-Diones, Their Synthesis And Uses Thereof
18.	387201	24-01-2022	IIT Kharagpur, Kharagpur	Switching power converter adapted for improved output impedance and load regulation through inductor
19.	387907	31-01-2022	IIT Kharagpur, Kharagpur	An improved hand pumping system
20.	388708	08-02-2022	Indian Association for the Cultivation of Science, Kolkata	A method for manufacturing visible transparent conducting material
21.	388712	08-02-2022	Panjab University, Chandigarh	Formulation comprising metallocate anionic vesicles encapsulating photosensitizer dye
22.	389777	19-02-2022	1. Bose Institute, Kolkata 2. Department of Biotechnology (DBT)	Anti-cancer Nifetepimine Nanoformulation
European Patent				
1.	3294125	12-08-2021	Indian Institute of Science, Bangalore	Device and method for detecting creatinine and albumin to creatinine ratio

The European patent granted as above is a part of consortia of three patents facilitated by PFC- TIFAC and is bearing Application No. #16792263.2. This patent is for an electrochemically active, creatinine-binding device provided to detect and measure quantitatively, creatinine in biological samples. It detects and measures quantitatively creatinine and albumin bioanalytes simultaneously and also determines albumin to creatinine ratio (ACR). The second patent Appl # 15839945.1 is being granted & third patent Appl # 15840639.7 is under prosecution. These inventions were protected in India also. Based on these patent products under tradenames PathShodh, anuPath™ multi-analyte lab-on-palm, is fully certified (ISO13485, IEC61010, IEC61326, NIB, ICMR, CDSCO), one of its kind products with huge market potential. The product also has great potential in the US and European market. Based on the experience from large scale deployment in India during 2022, it has been planned by applicant to go through regulatory processes (CE and FDA) after 2023, enabling the access to European and US markets. A large production of anuPath™ handheld devices has been

initiated and it is aimed to deploy at least 2,000 products during the year 2022.

2.2.1 Training Programmes and workshops

Due to the pandemic, all training and awareness activities were conducted online in webinar mode on TIFAC's Cisco WebEx platform. Two such programmes were organised besides regular talks by division officials in various programmes.

- One-week Advanced Training for Patent Searches was organised in online mode from September 20-24, 2021.
- TIFAC jointly organised a 3-day Seminar with Sharda University on "Harnessing Intellectual Property Rights in Higher Education Institutions (HEIs) in the Changing Paradigm: Challenges and Opportunities" from November 24-26, 2021.
- One Workshop on "Patent Processing and Role of Patent Agents" was organised at Goa on December 23, 2021.



Figure 2.1: Workshop on IPR in progress at Goa

2.2 Women Scientists Scheme (WOS-C), WISE KIRAN-IPR

Women Scientist Scheme (WOS-C), KIRAN-IPR is a flagship programme of WISE-KIRAN Division of Department of Science & Technology (DST). Through one of its components- 'Women Scientist Scheme-C (WOS-C)' - it provides one-year, on-the-job training, in the area of Intellectual Property Rights (IPR) to women with science background. Patent Facilitating Centre (PFC) of Technology Information, Forecasting and Assessment Council (TIFAC) has been entrusted with implementation of WOS-C since its inception in 2002. The scheme is a recipient of Nari Shakti Puraskar from the Hon'ble President of India for the year 2015.

a. Completion of 11th Batch & Distribution of Certificates by the Hon'ble Minister

Certificates to women scientists of 11th batch were given away by Dr Jitendra Singh, Hon'ble Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space. A total of 110 women successfully completed their training in this batch, and about 27 trainees received certificates during the ceremony held on December 21, 2021 at New Delhi and others in absentia. More than 50% of the women from 11th Batch have been able to get employment in the area of IPR after the completion of their training.



Fig.2.2: Certificates given by the Hon'ble Minister, Dr Jitendra Singh to 11th Batch of women scientists

b. Launch of Training of 12th Batch

The process for selection of women scientists for one-year training under the 12th Batch started this year. In response to the advertisement, a total of 3831 applications were received. Online exam for 3773 candidates was conducted at All- India level in 55 Exam Centres located in 45 cities. After the interviews and final selection, the one-year training for 98 women selected under the 12th Batch started on December 20, 2021, and was inaugurated by the Hon'ble Minister of Science & Technology, Dr Jitendra Singh.



Fig. 2.3: Hon'ble Minister Inaugurating the Training of 12th Batch of WOS-C, WISE KIRAN IPR

c. Orientation Program for Women Scientists of 12th Batch of WOS-C, WISE KIRAN IPR

The Orientation Programme for the 12th batch of women scientists started in the physical mode on December 20, 2021, at Miranda House, New Delhi. The programme was conducted in physical mode till December 28, 2021, and then the programme was resumed in virtual mode through Webex platform from January 10 to 31, 2022.

Orientation program was attended by women from all the four coordination centres; Delhi, Bengaluru, Pune and Kharagpur. About 65 lectures were delivered on different aspects of IPR and related matters by about 55 speakers from various sectors, such as academic institutions, government organizations, leading law firms and entrepreneurs.

During the online segment of the orientation program, there were hands-on training sessions on patent searches using various free and paid patent databases. There were some group exercises given to the participants towards the end of the orientation program to gauge their retention and assessment skills.

Executive Director-TIFAC gave a talk on **“Changing role of Women” in the Orientation Programme**. The orientation program concluded on 31st January, 2022, with the Valedictory Program. Women scientist alumni and trainees of 12th Batch were invited to share their experiences; Shri Vishvajit Sahay, Additional Secretary & Financial Adviser, IFD, DST emphasized the importance of the WOS-C scheme under WISE KIRAN IPR in the present times and years to come. After the orientation Programme, the women have been placed with various agencies for on the job and hands on training.

2.2.1 Celebration of National Girl Child Day

Women Scientist Scheme (WOS-C, WISE KIRAN IPR) of TIFAC celebrated the National Girl Child Day in virtual mode on January 24, 2022. On this occasion, a motivational talk on **“Women Empowerment: Importance & Challenges”** was delivered by eminent scientist, Dr Nidhi Sandal from Institute of Nuclear Medicine & Allied Sciences (INMAS), Defence Research & Development Organisation (DRDO). Dr Sandal highlighted the technologies developed and patented by women across the globe and guided women on how to make their career in the area of intellectual property rights.

2.2.2 Celebration of International Women’s Day

a. Release of 75 Success Stories from WOS-C on March 8, 2022

On the occasion of International Women’s Day (IWD), and at the time when India is celebrating Azadi Ka Amrit Mahotsav on the occasion of 75 years of India’s independence, the 75 Success Stories from the Women Scientists Scheme, WOS-C, were released by the Hon’ble Minister of Science & Technology, Dr Jitendra Singh. The event was a part of the DST programme for celebration of the IWD on March 08, 2022. The Hon’ble minister also interacted with the successful women scientists and they narrated their experiences of getting trained under the WOS-C, WISE KIRAN-IPR and becoming successful after completing the training.



Fig. 2.4: Booklet being released by Hon'ble Minister

The booklet gives a vivid account of the inspiring journey of these 75 women alumni and how the one-year training changed their lives professionally. These women scientists had

to discontinue their regular careers in science due to various social and family reasons. The booklet can motivate many such women to restart their careers. Besides their journey, the booklet includes details like their qualifications, area of specialization, present employment status, experience, and information about technical qualifications in IPR attained by each woman after completing training.

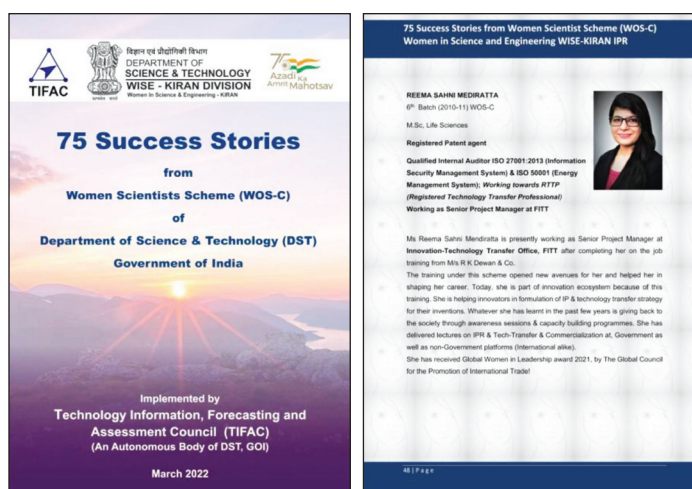


Fig. 2.5: Booklet containing 75 Success Stories

b. Tweets by DST Media Cell

The DST media cell of Vigyan Prasar has also started developing a write up/ story of select women scientists from the 75 success stories. Two of the stories about Dr Amita Kumari and Ms Anita Gurnani have been tweeted by the Hon’ble Minister also.

c. Two-day webinar for celebration of International Women’s Day

A 2- day webinar was organised by Women Scientist Scheme, WOS-C, WISE KIRAN IPR, PFC-TIFAC for celebrating the International Women’s Day on March 7-8, 2022. The theme of the webinar was ‘Opportunities for Women in IPR’.



Fig. 2.6: Poster for Celebration of International Women's Day

The webinar was attended by women scientist alumni of WOS-C scheme, govt officials and scientists from academia. Panel discussions were held on both the days, where the successful women scientists' alumni of WISE KIRAN-IPR were invited as panellists to share their experiences. On day 1, i.e. March 7, 2022, panel discussions were held on **"Career Avenues for Women in IPR"**. Women alumni working at senior levels with renowned IP law firms like K & S Partners, LexOrbis, government offices like FITT- IIT Delhi, Patent Information Centre (PIC)- Punjab and PIC West Bengal shared their experiences with the 12th Batch of women scientists and other women attending the webinar.

On Day-2, panel discussion on **"Self-employment opportunities for Women in IPR"** was held. Women alumni who have started their own firms, are working as freelancers and providing IP Consultancy, shared their experiences and motivated the women scientists to start their own IP start-ups.

Many women across the country were part of the webinar. On both the days more than 100 women attended the webinar.

2.3 TIFAC-SIDBI Technology Innovation Programme (Srijan)

2.3.1 New technologies assessed for scaling up under Srijan Programme

Technically appraised 07 new project proposals in terms of innovation contents, techno-economic feasibility, readiness level, market potential and recommended following 03 project proposals for financial appraisal towards scaling up under TIFAC-SIDBI Srijan Programme:

- **"GPS/GIS Based Minefield Recording and Retrieval System"**

The GPS/GIS based technology is for the application of minefield recording and retrieval system (GBMRS) as per Indian Army protocols. The developed system would provide centimeter (cm) level accurate recording of mine locations, artificial intelligence (AI) based mine retrieval system, easy to use and friendly user interface (UI) for non-technical soldiers. The GBMRS system would provide a user-friendly portable device to record locations of mines manually laid by soldiers, recording their positions on a digital interactive real time Mine Map. The technology has also the export potential to 3rd world nations (subject to national security clearances), scouting alternate Defence markets, and also penetrating local disciplines of road construction, public works, mining & excavation applications etc.

- **"Production of medical grade Oxygen Concentrator"**

The technology has capacity of oxygen concentration of 93% for 5, 8 and 10 LPM capacity based on Sodium/Calcium-based zeolite media instead of Lithium based zeolite media and deployment of oil free compressors with noise level

<60db. The technology will find applications for the benefit of defence personnel deployed at high-altitude facing low oxygen breathing issues.

- **"Manufacturing of high precision low voltage micro electronic connectors and terminals for applications in automotive, medical, defence and electrical components sectors"**

The technology pertains to the design, development and manufacturing of high precision low voltage miniature electronic connectors and terminals. The products would be economical as made with unique design and raw material used along with various additive polymers to reduce the product cost without compromising the quality. The unique raw material would provide more performance, fire retardance and stability to the connectors.

2.3.2 Ongoing Project

- Intelligent Waterless Solar Panel Cleaning Robot by M/s Aegeus Technologies Pvt. Ltd., Bangalore

2.3.3 Projects completed

- Herbal Formulation to Keep Away Wild Animals from Browsing Farm Lands and also to Promote Crop Growth by M/s Provimi Products Pvt. Ltd., Erode
- UF Ceramic Membrane with Module/Filter Unit for Fluid (Water Purification, Oil, Waste Water, Dairy Etc.) Filtration Application by M/s Need Innovation, Kolkata

2.4 Assessment of Technology Maturity for Aatma Nirbharta (ATMA)

A total of 130 public-funded institutions and research organizations were contacted to gather information on technologies developed by them. In response, TIFAC received information on 81 technologies that are patented and have significant commercial potential.

An initial evaluation of these technologies was carried out based on maturity level, relevance, commercial potential, and patent. After initial screening, 17 technologies were shortlisted.

Detailed information on market potential and handholding support required was obtained from the institutions/labs for these 17 technologies. TRL assessments are underway to rank the technologies and to consider further handholding support to these selected technologies.

2.5 Collaboration

- Techno-commercial assessment of TRL-6 and above technologies developed in India in academia, research labs and industry**

With the financial support of DSIR under its A2K+ study program, TIFAC initiated a study on assessment of

technologies/innovations developed by academia/research organizations and start-ups which are at TRL 6 and above in the domains of chemicals & pharmaceuticals and health care & medical equipment. As policy inputs to the government, the study would also identify barriers, issues and challenges towards commercialization of these matured technologies and would recommend solutions to overcome such barriers in the innovation ecosystem.

b. Assessment of Technology from Industry

TIFAC initiated assessment of an app used for background noise reduction during audio-video conferencing which is based on AI algorithm towards certification of the functional parameters and efficiency of the technology on chargeable basis.

2.6 MoUs Signed

a. An MoU was signed among TIFAC, NECTAR & CSIR-CFTRI for demonstration of “Mobile fruits & vegetables Processing Unit in North Eastern Region of India”



Fig. 2.7: An MoU was signed among TIFAC, NECTAR & CSIR-CFTRI

TIFAC identified the technological need for development and demonstration of a small-scale processing plant to be mounted on a mobile van which could reach out to the marginal farmers in North East to facilitate processing of fruits & vegetables at the harvested site to produce pulps with proper packaging to increase shelf-life. This technology was one of the identified technologies recommended in the TIFAC's Technology Foresight study on “Opportunities for processing of fruits and vegetables in North Eastern region of India”.

North Eastern Region accounts for about 5.1% of fruits and 4.5% of vegetables in the national scenario with 10 fruits are recognized with GI tags. More than 40% of locally produced fruits & vegetables go waste due to lack of facilities for proper

storage, transportation and other logistic supports. Due to the difficult terrains, farmers cannot bring their produce to mandis in time and that leads to huge losses for farmers.

TIFAC, NECTAR and CSIR-CFTRI collaborated towards implementation of the first demo unit. To this effect, an MoU was signed by Executive Director, TIFAC, Director General, NECTAR and Director, CFTRI on 25th February, 2022, in TIFAC in the august presence of Dr Srivari Chandrasekhar, Secretary, DST.

In this joint initiative for implementation of TIFAC identified technology, TIFAC will play the pioneer role towards planning, assessment, mentoring, monitoring, review & handholding whereas CSIR-CFTRI, Mysuru will be the technology know-how provider, while NECTAR will provide the required financial support and promotion of the technology.

b. MoU between TIFAC and Sustainable Communities India Pvt. Ltd.

TIFAC signed an MoU with Sustainable Communities India Pvt. Ltd. (SCIPL), a wholly owned subsidiary of Institute for Sustainable Communities (ISC), Vermont, USA and collaborated for the deployment of CleanTech within the MSMEs / startups, linking them with relevant Clean Tech providers towards scalability of adoption of clean technologies, providing training and mentoring support to accelerate greening of skills in sector specific clusters of Chemical, Automotive and Textile towards realizing a net zero, equitable and resilient India.



Fig.2.8 MoU signed between TIFAC and Sustainable Communities India Pvt. Ltd

3. TECHNOLOGY SUPPORT

TIFAC has been playing a significant role in Industry segments by providing Technical and R&D support to technologically homogeneous MSME clusters. Some of TIFAC initiatives in this regard are given below:

3.1 MSME Cluster Programme

MSME Program of TIFAC, ongoing since 2006, aims to provide R&D and technical support to MSMEs, in select technologically homogenous clusters through a methodological approach based on establishing and leveraging academia-industry interaction. The program focuses on harnessing the knowledge and expert base available with the proximate academic and R&D Institutions which with some motivation can be leveraged to reach out and support the MSME industries.

The Program has covered more than forty clusters across the country. This year, six technology gap analysis studies for MSME clusters have been completed and finalized as briefly given below:

a. Toys Cluster, Channapatana, Karnataka

The study has been carried out by MS Ramaiah University of Advanced Sciences (MSRUAS), Bangalore. The study focussed on the toys cluster situated in Channapatana, Karnataka which houses more than 250 units/enterprises of micro and small-scale manufacturing/producing wooden toys, natural fibre toys/articles, educational aids etc. The turnover of the cluster is around Rs. 20 crore. The cluster markets toys nationally and internationally including in countries like France, Australia, Netherlands, Germany, USA etc.

The manpower (around 3,000) are mostly engaged in design, manufacturing/processing, printing and packaging. The main issues of the cluster are continued usage of traditional technology/methods of manufacturing toys, lack of innovation in material, designing and application, lack of market platform etc.



Fig.3.1 Meeting held at Toys Cluster Channapatana, Karnataka

b. Katkhal Sital Pati Cluster of Katkhal Hialakandi, Assam

The study has been carried out by NIT-Mizoram. The cluster houses around 227 units involved in producing variety of products mainly mat, file covers, hand bags etc. It is a small cluster with turnover of around Rs. 45 lakhs. The articles are produced only for local consumption. Around 1,000 people are involved in the cluster directly or indirectly with most of them either uneducated or having only basic education level. Traditional methods and tools are being used by the worker in the cluster which is inherited from their ancestors and the industries of the cluster are not aware of the modern technology that can possibly be used for increasing the productivity level and reducing effort.

The main issues comprise of low production rate due to lack of machineries and inadequate resources and need for new market/expanding the market.

c. Arecanut/Sal Leaf Plate Manufacturing Cluster Bishnupur, West Bengal

The study has been carried out by Maulana Abul Kalam Azad University of Technology (MAKAUT) Govt. of West Bengal, with association of expert from Jadavpore University.

At present the cluster is producing only low value products. The study suggested that this would be a good replacement as environment friendly products for serving/selling food products. The reports suggested to explore the possibility of big hotel/restaurant to use this product as new possible market.

d. Apparel Manufacturing Cluster - 24 North Parganas, West Bengal

The study has been carried out by Maulana Abul Kalam Azad University of Technology (MAKAUT) Govt. of West Bengal. Once a vibrant cluster, presently in view of the intense competition, it needs infusion of updated technologies for bringing in efficiency and competitiveness. The study has mapped and listed the present status of the indigenous machineries in use, brought out the shortcomings in terms of design, productivity & pricing vis a vis the imported machines which hinder their adoption by the units.



Fig.3.2 Apparel Manufacturing Cluster, Barasat West Bengal

e & f. Fisheries Cluster – Manipur & Food and Spices Cluster – Churanchandpur, Manipur

Both the studies have been carried out by NIT-Manipur. The region is rich in fresh water fish diversity. Different varieties of fish such as Grass Crap, Silver Crap, Rou/Mingal, Kamal Crap, Katla etc. are found in abundant. Some of the indigenous

fish of Manipur are Pengba, Nagamu, Porom, Ngakra etc. The reports suggested the different methods of fish processing and different machines for fish drying.

The region is also full of different spices and the Spice Cluster report suggested the methods of increasing the self-life of these spices along with different methods and machinery for drying and grinding of the spices.

In both cases, entrepreneurs/farmers lack visibility and connect with different markets of the country.

3.2 TIFAC Academic Partners (TAP) Programme

For India to be “Atma Nirbhar”, need of constant technology infusion to MSMEs as well as its regular association with approximate academia to uplift their technical capabilities is required. TAP program is launched to cater the above need of MSMEs. In this program, TIFAC is in the process of establishing Academic Partners in different regions of the country for supporting and handholding MSME clusters. These TAPs will take up technology mapping / gap analysis reports and chalk out technology intervention plan for the MSME clusters. These TAPS will regularly hand hold these clusters in identification and adoption of appropriate technology.

During the year 2021-22, TIFAC has established three (03) TAPs in different regions of the country as follows: -

- i. Pimpri Chinchwad College of Engineering (PCCoE), Pune, Maharashtra
- ii. Sathyabama Institute of Science and Technology, Chennai, Tamil Nadu
- iii. Maulana Abul Kalam Azad University of Technology (MAKAUT), Kolkata, West Bengal

Agreement with IIT-BHU, Varanasi has already been signed and will be operational soon. TIFAC is also planning to extend the TAPs in various remote parts of the country e.g., Jammu & Kashmir etc.

3.3 SAKSHAM

In view of COVID – 19 pandemic and the ensuing lockdowns, which have brought acute misery and hardships to lakhs of Shramiks (blue collared workers) all across India due to reverse migration, TIFAC has taken up a project for development of a dynamic portal for mapping of skills of Shramiks vis-a-vis requirements of MSMEs and other industries. The objective of the project is to address the immediate need of these shramiks for their gainful employment and at the same time to support the MSMEs and other industries, to learn about the region/district wise availability of skilled/semi-skilled shramiks as per their requirements. The portal (SAKSHAM) is to provide a platform to shramiks as well as industries, where the available skills can be highlighted and utilised by the industries on a need based rational approach. There is a WhatsApp Chat bot used with missed call service. The portal

with the data (demand and supply) uses artificial intelligence-based algorithm and logic being integrated with the system, so that it would not only provide region wise information on demand and availability of shramiks, but would also provide analysis on skill match, skill gap, skill diary, recommendations on skill training programmes, etc.

The portals offer the following for various stakeholders:

- **Shramiks-** the portal is built on Whatsapp chat where the shramiks can chat with a bot and share their current work status and their supply of skills with preferred locations.
- **Industries-** the portal is built as a web application for industry representatives to log in and see the availability of shramiks across India, while also sharing their requirements; with the option to connect with “relevant” shramiks based on their workforce hiring needs and the consent of matching shramiks for the same.
- **Administrators and Policymakers-** the portal is built as a web application for government representatives to see the spread of shramiks across India on a GIS dashboard, along with demand by industries, with skill evaluation done for each shramik based on which supply-demand mapping of skills were done. Also, the portal is able to show skill development needs across regions of India.

Information collected from Shramiks and evaluation of skill proficiency for each shramik is being done. So far more than one lakh Shramik profiles have been created through a complete skill evaluation process. These have a higher chance of placements with companies. These shramiks represent 719 unique districts of India, covering the entire country. The numbers are dynamic.

Hindi, English and various regional languages are being used for communication with Shramiks and MSMEs.

Pilot mapping of jobs is in progress. So far more than 4000 shramiks have been connected with potential employers.

3.4 Bioprocess & Bioproducts

Programme aims towards carrying out systems study in the field of bioprocess & bioproducts and supporting R & D in niche areas. Under the program, technology development projects were supported earlier in the areas of biotransformation & enzymatic processes for API, nutraceuticals, phyto-chemicals, value-added bioproducts, bio-energy & biofuels, etc. Several specialized reports in the area of bioproducts, biomass assessment published and spatial information systems for biomass and bioenergy mapping have been developed.

3.4.1 Ongoing Projects:

a. Seaweed program

Seaweed cultivation and utilization is being considered as a priority area by the GoI, which is having potential to generate

a huge employment, is being promoted under the Pradhan Mantri Matsya Sampada Yojana (PMMSY), a scheme launched in September, 2020. Under PMMSY, it is envisaged to transform seaweed farming and value chain in the country by drastically enhancing the production from current levels to about 11.2 lakhs tons of wet weight in the next five years. An investment of Rs.640 crores have been earmarked under PMSSY for seaweed cultivation, processing and marketing.

India routinely experiences acute shortage of seedling (germplasm) for re-initiating large-scale commercial activity after rains. Adequate availability of seed coupled with viable germplasm maintenance techniques can enhance the seaweed production multi-fold. The situation in India for *Gracilaria dura* is dismal due to lack of adequate biomass for processing by agar and agarose producing industries.

With this in view, TIFAC in collaboration with CSIR-Central Salt and Marine Research Institute (CSMCRI) and Indian Centre for Climate and Societal Impact Research (ICCSIR), Mandvi-Kutch, Gujarat has jointly launched a seaweed project in March 2022, for scaling-up of a cultivation process (*Monostroma sp.*) & supply of seedlings (*Gracilariadura*).



(C) *Gracilaria salicornia* by the tubular net method



Gracilaria Corticata



Fig.3.3 TIFAC Team visiting sea weed farming site at Kutch, Gujrat

The project is targeted to standardize critical biological and physical parameters such as size of clone and weight to volume ratio respectively and various pre-treatments of hormones and seaweed extract to achieve maximum survival and regeneration under controlled laboratory condition.

Further, it proposes to expand and intensify S&T activities in association with private companies with an aim to promote cultivation of red and green seaweeds for developing newer processes, products and applications needed for making seaweed cultivation as a successful enterprise in the country. The benefits associated with this success include improving of livelihoods in the coastal villages, forms basis for new seaweed industries in the coastal regions, development of new products and applications, help to secure country's food demands, and markets that collectively contribute to inclusive economic growth of nation.

3.4.2 New Project Initiatives

a. Mapping of Employment and Investment Opportunities in Villages from Technology Perspective

Around 65% of Indian Population lives in 663026 villages spread over 28 states and 8 union territories across the country. Despite significant progress in S&T sector, the benefit of advancement of S&T is yet to fully percolate down to the villages. This is due to lack of strong S&T coupling with villages.

Different villages, have their own particular issues based on their location, culture and population which need redressal. At the same time villages have their unique potential, opportunities and aspirations too. Many of such issues can and need to be addressed from technology perspective. To realise the positive outcomes of new industrial revolution there is an urgent need for bridging the technology divide between village and cities. Villages still lack a strong coupling with S&T system. Requisite infrastructure also needs augmentation.

Emerging technologies will create new opportunities for all, whether by enabling more efficient access to suppliers and markets through the platform economy or enabling new opportunities for dispersed manufacturing and remote working.

A shift from wage employment to self-employment can accordingly be expected in rural India. Inclusive agriculture, rural growth and structural transformation from agriculture to high-productivity manufacturing and other economic sectors can be accelerated, as technological change transforms individuals' lives and enables developing countries to progress at speeds and on scales previously inconceivable. Employment growth is critical in low-productivity agriculture, which accounts for nearly three-quarters of the poor population. Automation further threatens to create more unemployment. All this requires quick strong coupling of the rural sector with S&T system.

Accordingly, the proposal is for Mapping of Employment and Investment Opportunities in seventy-five villages across the country from Technology Perspective by proximate competent academic institutions.

The mapping will help inflow of investment and creation of employment opportunities across the villages considering the local potential, needs and aspirations.

Objective: Assessment of technological requirements is proposed to be done leveraging the immense knowledge base and technical expertise of Academic Institutions across the country.

Expected Outcome

- Village Specific potential Mapping: Resources (Natural and Human); their skill levels and needs for upgrading
- Available waste output
- Opportunities to leverage with new technologies
- Identification of stakeholders
- Estimation for investments required
- Preparation of village specific action plan

b. TIFAC Tele Digital Health Pilot Program

TIFAC has launched the tele-digital health pilot project in partnership with IIT Madras-Pravartak Technologies Foundation & CDAC Mohali, focused on the demonstration of the efficacy of cutting-edge technologies to a target population of ~60,000 in three districts for collection of health data and also to generate Electronic Health Record (EHR). This project was inaugurated by Hon'ble Minister for S&T Dr Jitendra Singh Ji on 31st December, 2021, at BHU Varanasi, UP in august presence of Hon'ble Ministers of State Government of UP, Shri Ravindra Jaiswal. Senior Officials including Prof P K Jain, Director IIT- BHU, Prof A K Tripathi, Director- Institute of Science, Banaras Hindu University, Dr P K Khosla, Executive Director- C-DAC Mohali, Dr Shankar Raman, CEO, IITM Pravartak Technologies Foundation and Prof Pradeep Srivastava- Executive Director TIFAC were also present.



Fig.3.1: Hon'ble Minister, S&T, Sh. Jitendra Singh inaugurating the launch of Tele Digital Health Program at BHU, Varanasi

Major Focus: The pilot project is focused on the demonstration of the efficacy of cutting-edge technologies targeting an underprivileged population especially women and children living in remote areas of three districts (Varanasi and Gorakhpur in UP and Kamjong in Manipur) with quality medical care.

This year three districts namely, Gorakhpur, Varanasi and Kamjong in Manipur with respective Outreach Academic Partners: Deen Dayal Upadhyaya Gorakhpur University, Gorakhpur, BHU- Varanasi and NIT- Manipur have been selected. Around 20,000 people would be covered in a span of six months by two outreach persons.

Diagnostics/Tests/Parameters: The key health parameters to be analyzed included *ECG, Heart Rate, Blood Pressure, Temperature, SpO2, Blood Sugar, Lipid Profile, Haemoglobin & Fetal Doppler* for child care with the help of portable tele-diagnostic device kits. Towards prognosis of the test data generated, TIFAC has constituted a panel of highly eminent doctors.

Mobile App: A web-based interface with Mobile Application (Android) – an integrated platform for tele-diagnosis would be developed to capture different diagnostic parameters of patients/persons. The data would be digitally uploaded on cloud and may be sent to doctors for advice and generation of prescription with diagnosis. This android app would have Store & Forward based on Hub & Spoke model including several other features like Login Module for health worker, patient registration, doctor login and doctor consultation module and patient feedback etc. During data management, all the ethical and privacy norms would be followed.

It is expected that the successful demonstration would help in providing affordable quality healthcare to a vast majority of Indian masses including those living in inhospitable terrain.



Fig.3.2: Hon'ble Minister, S&T, Sh. Jitendra Singh delivering speech during the launch of Tele Digital Health Program at BHU, Varanasi

c. Mission for Innovative Technological out Reach and Application (MITRA) for J&K

The economy of Jammu and Kashmir (J&K) is primarily service based and agri-oriented. A vast natural resource base has enabled J&K to develop land for cultivating major fruits and establish food processing and agro-based industries (J&K has Asia's largest tulip garden). J&K's handicrafts are world famous and the traditional handicraft industry has emerged as a large industry. Due to its large employment base and export potential, the industry has been receiving priority attention of the government. The Union Territory (UT) is also famous for its small-scale and cottage industries such as carpet weaving, silks, shawls, basketry, pottery, copper and silverware, papier-mâché, and walnut wood. The cottage handicrafts industry provides direct and gainful employment to around 340,000 artisans.

In order to help J&K realize its full potential, a need has been felt for systematic and continuous diffusion of appropriate technologies for bringing an overall transformational change in the quality of output and efficiency of production. Towards this, TIFAC is conceptualizing a Mission for Innovative Technological out Reach and Application (MITRA) for J&K which will assess, harness and effect application of appropriate technologies in different sectors of importance.

Broad Objectives

- Identifying initiatives towards strengthening economy/ livelihood of J &K people.
- Specific technology related interventions to improve earnings of masses.
- Complying to National call for Sabka Saath Sabka Vikaas.

d. CBG grid

TIFAC has carried out a study which provides district scale for surplus biomass and their bioethanol production potential in India. Further, this biomass survey was used to disaggregate at 1 km grid level to produce spatial map of surplus biomass and bioenergy potential along with associated infrastructure for facilitating establishment of tailor-made biomass plants for better utilization of biomass resources. Further, characterization study of biomass residues for biochemical composition had also been carried out.

In this context, TIFAC is planning to collaborate with Punjab & UP Government to make joint efforts towards creating awareness and capacity building of the Industries, Oil Companies, Investors and entrepreneurs of Punjab towards

available potential and technological options for converting the huge locally available biomass resource into energy.

TIFAC has partnered with Indian Biogas Association (IBA) to work jointly towards different activities in the area of bioenergy including biogas especially on technology roadmap and DPR for the demonstration of CBG generation for state of Punjab & its integration through grid. This would envisage benefit as clean energy supply, CO₂ savings, job creation, impact on rural economy, increase in farm income, etc.

Objectives

Towards promoting utilization of waste biomass as a source of energy & furthering its existing effort, TIFAC would like to take up an initiative contributing towards development and adoption of technologies related to biogas, compressed biogas (CBG) and biogrid.

Focus Areas & Deliverables

- Utilization of LC biomass as feedstock in biogas/ CBG production, along with conventional feedstock materials.
- Identification & evaluation of technological barriers for higher methane production from such feedstocks and evaluation of emerging technologies
- Techno-economic feasibility of biogas grid and biogas based smart energy grid, outlining demonstration projects and implementation plans.
- Development of business plan/model for identified demographic region/state.

4. INTERNATIONAL LINKAGES

TIFAC has collaborated with various international institutions/agencies for carrying out activities related to system analysis & modelling in socio-economic sectors, sharing IP knowledge, training and facilitating cooperation in science, technology and innovation policy etc.

4.1 India-IIASA Programme

India-IIASA Programme focuses on undertaking collaborative research projects among scientists from Indian S&T organizations/academic institutions with IIASA researchers in the areas on mutual interests and organizing training workshops. The Programme also offers opportunities for young Indian researchers to work at IIASA under the '**Young Summer Scientist Programme (YSSP)**' and Postdoctoral Programme, which help strengthen their skills in advanced systems analysis and research techniques.

4.1.1 Capacity Building Initiative

This is well acclaimed IIASA programme running since 1977. This provides an opportunity to young researchers from all National Member Organization countries to research on a theme related to IIASA's ongoing research on issues of environmental, economic and social change. Through this, young scientist joins an IIASA programme (June-August every year) and experiences at first hand, interdisciplinary cooperation in an international setting. This year, two YSSPs from India had undergone training at IIASA.

4.1.2 Collaborative Studies

On-Going: Under the India-IIASA programme, the following studies are underway:

- a) **Study on Climate Smart Livelihood & Socio-ecological Development of Biodiversity Hotspots of India** by Institute for Social and Economic Change (ISEC), Bangalore.

In this study, an attempt has been made to develop bio-physical vulnerability indicators to assess the impact of climate change in bio-diversity hotspots of India viz., Eastern Himalaya and Western-Ghat. Both these areas are very rich biodiversity as well as cultural diversity and at the same time in a danger end in term of losing the same. The study would develop model and determine the sustainable development path, particularly in the relationship between human-induced systems, the demand and its natural environment. This approach would help to identify "interfaces" between human behaviour and the natural ecosystem, such as agricultural practices; changes in natural resource management pattern; flow of resources such as economy, energy, biomass; uncertainty because of several independent variables such as climate, weather etc.

The concept behind the model is to understand the decision-making process of farmers which is not unidirectional but are always influenced by several driving forces. ISEC has studied the impact of climate variability and change on crop productivity in Kodagu district. Kodagu district contributes more than one third (36.73% as of 2013-2014) of India's total coffee production (Coffee Board of India). Coffee is the predominant crop of the region occupying around 57.5% of the gross cropped area, followed by paddy (19.8%), cardamom (5.06%) and pepper (4.9%). ISEC has also assessed rainfall, temperature and water stress trends over time in Kodagu and Chamoli district, using Standardized Precipitation Index, Thermal Heat Index, and Normalized Difference Vegetation Index (NDVI) as a proxy of water stress. MOSAICC model has been used for the study which allows the users to assess the climatic impacts as it integrates a powerful data management system with a flexible and configurable system to run multiple models.

- b) **Study for developing an integrated model for analysing linkages between India's water, land and energy policies and the Sustainable Development Goals**

IIASA has agreed to work with the Ministry of Environment, Forest and Climate Change in India (MoEF&CC) to develop tools to lead the Indian Government agencies in evaluating targets for Land Degradation Neutrality (LDN) and Sustainable Development Goals (SDGs). The innovative tool provides insights into the vulnerability of linked systems to future socioeconomic and climatic change, and how technological and policy solutions can be implemented to avoid trade-offs across sectors. The collaboration is a multi-phase project in which IIASA transfers the NEST approach and tools to the Ministry of Environment Forests & Climate Change (MoEF&CC) for their ongoing use in national planning. The main project goal is to explore cost-effective solutions to jointly meet water, land and energy demands under different development and climate pathways. Focus for NEXUS project was on Indus river which has its expanse beyond India. MOEF&CC has identified key technical partners to work on the model.

- c) **Study on Establishment and Application of AQM Modelling In The Indo Gangetic Plain with World Bank and MOEF&CC**

The World Bank is currently engaged with the Government of India on a technical assistance (TA) program on AQM. Through this program it is supporting the MoEF&CC, CPCB, and the SPCBs to strengthen ambient air quality monitoring (AAQM), source apportionment (SA), emission inventory (EI) and overall AQM that will help in achieving targets relevant for the National Clean Air Program (NCAP). The key objectives

of the project AQMod were to develop the IGP version of the GAINS model and demonstrate its utility as an air quality management tool in the IGP region.

AQM modelling would help understand the sources and dispersion of pollution across an air-shed that may cross jurisdictional boundaries, as well as evaluate the cost-effectiveness of proposed policies to reduce air pollution. The work is being carried out in technical partnership with IIASA, World Bank, NEERI, and TIFAC.

The activity data for all sub-sectors and sectors have been compiled and updated in the IGP-GAINS model for the baseline year 2020 (few data are only available till 2019). Emissions of primary pollutants and secondary precursors have been estimated for each state for the baseline year. The baseline calculation considered all existing control scenarios implemented by the Government of India.

The sectoral and sub-sectoral contributions to primary and secondary PM_{2.5} have been estimated at the state level. The regional contributions to each sector and sub-sector-specific PM_{2.5} have been quantified.

Figure 4.1 shows Bihar, where Bihar's own contribution is around 50%, the rest is contributed by neighbouring states (Uttar Pradesh is the most important), long-range transport, and natural sources. Among the anthropogenic, PM_{2.5}, residential and commercial cooking and heating contribute the most (45%), followed by the agriculture (16%) and waste (13%) sectors. Transport and industry contributions are equal.

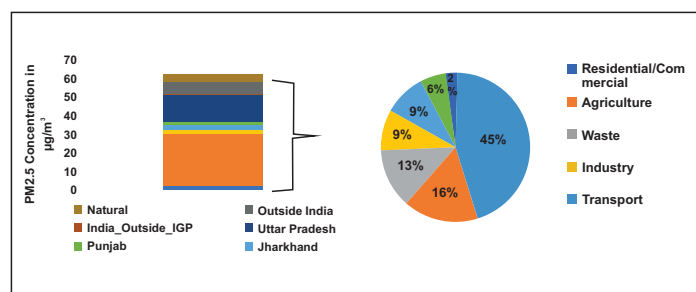


Figure 4.1: Contributions of local and regional emissions to annual PM_{2.5} in Bihar in the baseline year

The relative proportions of the various anthropogenic sectors to anthropogenic PM_{2.5} are shown in the pie chart. Currently, IITD is working on the control measures for projecting emissions and PM_{2.5} exposure (population-weighted) in each state for 2025 and 2030. Most recently, several new policies have been announced, which need to be included in the scenario analysis. For example, the GoI policy to promote electric vehicles and the new scraping policies need to be included in the future control strategies in the model.

d) Climate Change Mitigation and Regional Bio-Diversity Strategy under fairSTREAM initiatives of IIASA: A study on documentation of diversity and socio-ecological systems in Bheema River Basin

TIFAC plans to undertake the project under **fair STREAM** to develop and demonstrate a co-production methodology for including equity and justice (fairness) alongside efficiency in developing sustainable policy options across the food-water-biodiversity nexus. Under the FairSTREAM initiative of IIASA, TIFAC plans to take up the project on **Climate Change Mitigation and Regional Bio-Diversity Strategy** with IIASA and Indian collaborators. Better protection, management and restoration of natural and managed ecosystems can make significant contributions to climate mitigation by reducing emissions from deforestation and other land use change, and by enhancing carbon sinks. The work would be initiated in Bhima Basin, in Maharashtra.

e) India Energy Model

IIASA and NITI-Aayog along with TIFAC have partnered to develop MESSAGEix modeling framework for NITI Aayog for national energy system and energy policies. The model would allow analysis of key-questions in addition to sectorial details, fuel-conversion technologies, etc. It would update data and assumptions and establish baseline scenario. Due to varying inter-sectoral dependencies and cross sectoral issues, the aforesaid modelling approach would help national policy making – to come out with better solutions.

f) Participation of TIFAC in IIASA Governing Council Meeting

TIFAC scientists participated in the Governing Council meeting of IIASA in November, 2021 and had series of discussions with various programme leaders to explore areas of future collaborations.



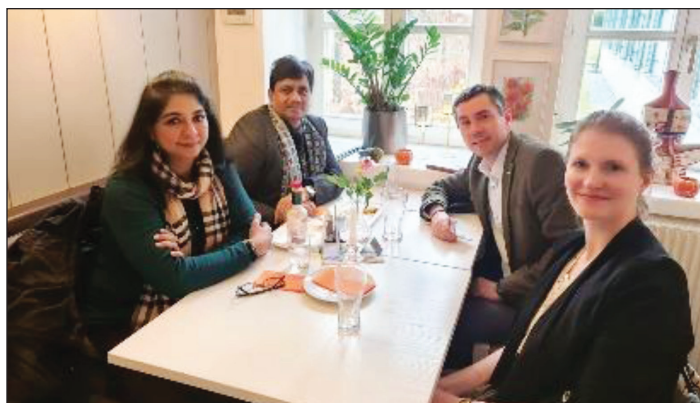


Fig.4.2 Prof Pradeep Srivastava, ED TIFAC and Ms Sangeeta Bakshi, Sc-F attending the IIASA Governing Council at Austria

4.1.3 Training Workshop

- a. TIFAC organized five-day training workshop on 'Integrated Assessment of Air Pollution and GHG Mitigation in India' during September 13-17, 2021. The training programme was organized in association with Indian and international experts from IIASA, Austria., IIT-Delhi and NEERI, Nagpur.

The aim of the workshop is to provide hands on training on integrated assessment approach to mitigate the air pollution using Greenhouse Gas and Air Pollution Interactions and Synergies (GAINS) model developed by IIASA. The objectives, coverage and deliverables of the workshop is mentioned below:

- to offer insight into the methodology and practical hands-on experience to users of IIASA's GAINS model
 - facilitate emission control strategies that balance emission control measures across the various sources in the most cost-effective way
 - assess risk associated with air pollution on human health in India
 - understand the associated environmental and health impacts of air pollution control measures and enhance role of integrated assessment in decision making process and explore available cost-effective control measures
- b. Under Strategic Initiative of IIASA, a workshop on Just Transitions for All to Net Zero Carbon Emissions (Just Trans 4 All) was organized on December 14, 2021, in developing and applying the new framework and scenarios.
 - c. IIASA organised a webinar on January 26, 2022 on how to set research agendas that create impactful and relevant science in a fast-paced and rapidly changing world.
 - d. Under the Fair STREAM initiative of IIASA, TIFAC plans to take up the project on **Climate Change Mitigation and Regional Bio-Diversity Strategy** with IIASA. A workshop to this effect was organised on February, 11, 2022 to finalize the scope and methodology.

4.1.4 Other Activities

The interaction with IIASA is helping build up national capability in applied systems analysis and development of integrated models, which can help in planning process and identification of technology priorities. In particular, IIASA's applied systems analysis has brought a global perspective, interdisciplinary research expertise, and policy relevance to issues ranging from the future of India's energy system to increasing the country's food production.

The India-IIASA collaboration has resulted in the publication of approximately 400 journal articles or reports on a diverse range of disciplines and issues, primarily on energy, biofuels, emissions (climate change), and forestry. IIASA's broader agenda also generates research of direct relevance to decision makers in India. IIASA's academic training programs have also been successfully building the next generation of systems analysts in India.

5. EVENTS

The following sections details out TIFAC's participation in various events as organiser and delegates:

5.1 Swachhata Pakhwada

In order to support the very cause of Swachh Bharat Mission, TIFAC took up several activities throughout the financial year and observed Swachhata Pakhwada during 1st-15th May 2021. The theme of this year's celebrations was Swachhata 'Everyone's Business'. While some special swachhata related actions were taken up each month under the annual plan, during the pakhwada such activities were a daily feature. Though several COVID-19 related restrictions were in place this year, TIFAC did not waste any opportunity to address the very cause of Swachhata.



5.1 Banner of the Swachhata Pakhwada In TIFAC Committee Room

The activities included, special cleansing drives, anti-littering pledge taking, online technical talks by internal and external experts, screening of documentaries and various competitions etc. Their details are as under.

Screening of Documentaries

- Gandhi and Cleanliness Mission-22 Minutes – 03.05.2021
- Documentary on Pradhan Mantri UjjwalaYojna (PMUY) – 15.12.2021

On-line Technical Talks

- Gainful Utilization of Agri Wastes (Waste to Wealth) by Dr K Annapurna, Head, Microbiology Division, IARI, New Delhi – 06.05.2021
- Construction industry: issues and real-life solutions towards environmental cleanliness & sustainability by Shri O P Tripathi, Chief Engineer, CPWD, IIT Delhi Project Zone – 07.05.2021
- Gainful utilization of kitchen waste: a real-life experience by Shri T Chandrasekhar, Scientist "F", TIFAC -12.05.2021

- Electric vehicles an immediate way forward to reduce the urban air pollution by Shri Arghya Sardar, Scientist "F", TIFAC-03.09.2021
- Rapid urban afforestation using Miyawaki method for clean air by Shri Shubhendu Sharma, Founder & Director, Afforestt, Bengaluru -16.011.2021
- Current practices in crop residue utilization for clean environment by Ms Nirmala Kaushik, Scientist "F", TIFAC-22.12.2021
- Challenges & Opportunities in India- E-waste recycling by Shri A L N Rao, CEO, Exigo Recycling India Pvt. Ltd., Noida-02.02.2022

Competitions

- Hindi and English slogan writing competition on swachhata for TIFAC staff members – 25.08.2021
- Hindi poetry recitation on the subject of "Swachh Bharat" – 17.02.2022
- Hindi and English essay writing competition on the subject "Increasing population a challenge for cleanliness – 10.03.2022

Other Events

- On-line open mike discussions among employees about their personal experiences during last one year on swachhata practices- 05.05.2021
- Distribution of tabletop air purifying potted plants for cabins and work stations – 11.11.2021

Any cleanliness drive is incomplete without the involvement of frontline workers who, in particular, played very significant role during the Covid-19 pandemic period. Their contribution to this very cause was well appreciated at TIFAC this year and they were provided useful gifts which were bought from the personal contribution by all the employees. Professor Pradeep Srivastava, ED-TIFAC, gave away these gifts to all the housekeeping staff members in a small function organized on 11th November, 2021.

5.2 Vigilance Awareness Week

In pursuance of the directives of CVC, the Vigilance Awareness Week (VAW)-2021 was observed in TIFAC from October 26, 2021 - November 01, 2021. A specific anti-corruption theme is selected every year for observance of VAW. Accordingly, the theme for this year is "Independent India @75: Self Reliance in Integrity". The rundown of the various activities during a weeklong observance are as follows:

• Pledge Administration

The Integrity Pledge was administered (both in Hindi and English) by Shri Sanjay Singh, Scientist 'G' on 26th October, 2021. All of the scientific and administrative staff of TIFAC enthusiastically participated in the integrity pledge ceremony.



Fig. 5.2: TIFAC Officials taking the pledge of integrity

Outreach Activities on Vigilance

• Preventive Vigilance

Preventive vigilance is aimed at tackling the areas vulnerable to corruption within the organisation. Towards educating on vigilance matter and related case studies and for creating awareness, a film on Preventive Vigilance Initiatives by CVC screened for TIFAC employees.

• Creating Awareness on the vigilance

With aim to create awareness among the employees about the VAW, the banners were displayed at the prominent places of TIFAC office premises, programme place and at the entry gate. The information about the observation of Vigilance Awareness Week-2021, was also circulated to all the employees.

• Social Media and Website

TIFAC employees were instructed to take an e-integrity pledge and to facilitate the same, a hyperlink to e-pledge of CVC website was made available to all by email.

Twitter handle was used to promulgate the awareness week observation in TIFAC. The pictures and messages associated with the integrity pledge, lecture and other VAW activities were posted on tweeter handle.

• Vigilance Awareness Lecture

As a part of Vigilance Awareness Week, spreading awareness and educating on the preventive & punitive vigilance, good governance and related matters, a lecture was organised on 28th October, 2021, by Guest faculty from ISTM Shri SM Srivastava.

TIFAC staff and officials attended the lecture, which was indeed an informative one and received very well among staff members of TIFAC. It was concluded with interactive session at the end, wherein various doubts of TIFAC Officials were cleared by the ISTM Guest Faculty.

Display of Important Notice at Entry Gate for awareness among public

If public is made aware of their rights, and also of the rules and regulations, then they are able to resist unfair treatment and arbitrary behaviour by public officials. Public should be encouraged to demand the services due to them and to raise their voice when their rights are denied or powers are misused by public officers. With the aforesaid in view, organisations are required to prominently display information relevant / useful to the common public on their office notice board / website.

5.3 India International Science Festival (IISF) 2021



Fig.5.3: IISF 2021 organized at Campal Ground (SAG), Panaji, Goa



Fig.5.4: Hon'ble Minister Inaugurating IISF 2021 event

The 7th edition of the India International Science Festival (IISF)- Mega Science Technology and Industry Expo was successfully conducted during 10th- 13th December 2021, at Campal Ground (SAG), Panaji, Goa in which the total visitors for the expo (including our main programmes) was approximately 1 lakh. The theme of IISF 2021 was 'Celebrating Creativity in Science' to promote Creativity in Science, Technology and Innovation for prosperous India including Mega Science Expo. The total of 12 events were organized to engage creative and imaginative minds in India and across the globe to celebrate science through various programs and activities connected to the five pillars of Aazadi ka Amrit Mahotsav.



Fig.5.5: TIFAC stall exhibited during the IISF mega Expo



Fig.5.6: Sh. Deepak Kumar, Sc-C and Sh Anil Kumar Rai from TIFAC with visitors at TIFAC Stall

IISF 2021 Mega Science Expo was officially inaugurated on 11th December 2021, by the Hon'ble Minister of Ministry of Science & Technology and Earth Sciences Shri Jitendra Singh Ji in the esteemed presence of Secretary, MoES, Shri M Ravichandran Ji, and Secretary, DSIR & DG CSIR, Shri Shekhar Mande Ji. Hon'ble Minister of Ayush, Shri Sarbananda Sonowal Ji, has also visited the expo on Day 2. The Mega Science Expo was constructed in the area of 1,00,000 Sq. Mtr. at the Campal Ground (SAG), Panaji, Goa which was one of the main events of the Science festival, with more than 174 stalls comprised of academic institutions, R&D organizations, Science & Industrial councils, S&T organizations, traditional arts & crafts etc. The

major participants of this year's expo are Ministry of AYUSH, Ministry of Earth Sciences, Ministry of IT, Department of Biotechnology, CSIR, DRDO, ISRO, DAE, ICMR, ICAR, AICTE, State councils for Science and Technology, Departments under Govt. of Goa, IIT's, IISER's, etc.

5.4 35th TIFAC Foundation Day

After traversing very successful 34 years of journey, TIFAC celebrated its 35th Foundation Day on February 10, 2022, in its new office at Technology Bhavan, Shaheed Jeet Singh Marg. Dr S Chandrasekhar, Secretary DST, Prof Devang Khakhar, Chairman, TIFAC Governing Council (GC), Dr Rajesh Kumar Pathak, Secretary, TDB and a few other TIFAC Governing Council Members graced the Occasion. Secretary, DST made a quick visit to the TIFAC new office before joining the foundation day programme.

Prof Srivastava, Executive Director, TIFAC extended warm welcome to all the guests with a bouquet of flowers and a memento. He made a brief presentation on different activities of TIFAC highlighting several success stories. He highlighted the imprints made by TIFAC in country's socio-techno-economic scenario specially the Technology Vision documents, innovation ecosystem, technology infusion in the MSME sectors, International collaborations and IPR domain.

A short film, prepared in house on TIFAC success stories was also screened. On this occasion, two specialised reports on "Smart healthcare ecosystem for India" and "Specialty Chemicals- Opportunities for India" were released by Dr S Chandrasekhar, Secretary- DST. Contents of both the reports were narrated by TIFAC scientists.

Secretary, DST congratulated TIFAC for its successful and eventful completion of 34 years of journey since its inception in 1988. He welcomed Prof Devang Khakhar, the Chairman of TIFAC Governing Council. He appreciated the vast coverage of TIFAC activities starting from Technology forecasting, Technology visioning, Technology information, Technology Innovation, to Technology Assessment and IPR management. He said TIFAC has a very important role to play in Indian S&T ecosystem. He suggested that TIFAC should strengthen its foresight activities and advise Govt. regarding upcoming technologies, analyse their impact on India's economy, formation of policies etc. He wished all successes to TIFAC for its future endeavour.

Prof Devang Khakhar, the new Chairman of TIFAC GC, welcomed all the guests and TIFAC staff in the TIFAC foundation day. He said that 34 years is a very long journey for any organisation and TIFAC has performed its journey pretty well. He said TIFAC played a very important role in the domain of forecasting. He specifically mentioned about Technology Vision 2035 document which have projected technology trajectories for the country. However, he advised that TIFAC's report should be of international standard. The

report should be based on thorough analysis of data analysing future plausible scenarios. He appreciated TIFAC's effort in technology innovation and assessment initiatives. He also joined Secretary DST in wishing good luck to TIFAC for its continued contribution in technology foresight and defining future technology path for the nation.



Fig:5.7: Release of TIFAC reports by Dr S Chandrasekhar, Secretary, DST during TIFAC Foundation day

5.5 Mega expo Azadi Ka Amritmahotasav



Fig.:5.8: TIFAC Stall displayed during Mega Expo and display of IFFCO developed sea weed based pesticide and fertilizer supported by TIFAC

The office of PSA along with the Ministry of Culture coordinated aggregated ongoing grand activities of Science and Technology eco-system in India. As a part, a week-long festival and celebrations were organized during February 22-28, 2022, titled "Vigyan Sarvatra Pujyate". On invitation of Vigyan Prasar, New Delhi in Association with DST, TIFAC participated at the Vigyan Sarvatra Pujyate' Mega Expo, held at Jawahar Lal Nehru (JLN) Stadium to showcase its various STI activities. The achievement of TIFAC were exhibited by displaying posters, recent publications, reports etc. which was admired by visitors.

5.6 TIFAC Tech Talks (T3)

Towards strengthening science-society dynamics, TIFAC had initiated TIFAC Tech Talk (T3) series- Talks by Luminaries in different S&T domains. During the year, the following TIFAC Tech Talks were organised by TIFAC as a part of Azadi Ka Amrit Mahotsav initiatives:

TIFAC Tech Talk 2- Prof Anil Sahasrabudhe, Chairman-AICTE on Access, Anytime Anywhere- A new education paradigm in India on August 06, 2021.

TIFAC Tech Talk 3- Dr Anil Kakodkar Former Secretary, AEC and Former Chairman, TIFAC on Energy Security and Sustainability in India on August 24, 2021.

TIFAC Tech Talk 4-Dr Subash Bhattacharjee, Former M.D, NERAMAC, DoNER: Horticulture in North East India- Strengths and Prospects on September 23, 2021.



TIFAC TECH TALK 3





Dr. Anil Kakodkar
Former Chairman,
AEC & TIFAC

**Energy Security &
Sustainability in India**

AUGUST 24, 2021
11.00 AM -12.00 Noon

ORGANISED BY
TECHNOLOGY INFORMATION,
FORECASTING & ASSESSMENT
COUNCIL(TIFAC)



6. HUMAN RESOURCE DEVELOPMENT, PUBLICATION AND OUTREACH

TIFAC has been involved in various human resource development activities including internship schemes, publishing reports & articles, newsletters, delivering lectures & invited talks etc. The details are mentioned in the following section:

6.1 Participation in National and International Conferences/Seminars/Symposia/Workshops/ Meetings

Name of the Event	Name of Scientist/Officer
Workshop on “EV Charging Infrastructure and its Grid Integration – Way Forward for Indian EV Ecosystem” organized by IIT Bombay, held on 9th July 2021.	Arghya Sardar
Meetings of the Committee for Restructuring of Fifteen R&D Institutions under the Department of Science & Technology	Arghya Sardar Nirmala Kaushik
Eleven (11) meetings (2021-22 cycle) of the Pre-Screening Committee for Recognition of In-house R&D units (ROI) in the Industry under Industrial Research & Development Promotion Programme (IRDPP) of DSIR, 3rd June 2021.	Arghya Sardar
Meetings of the Expert Committee for the Innovation Challenge in the "Electrical Energy Storage" Vertical under the UNIDO project “Facilitation of Low Carbon Technology Development”.	Arghya Sardar Jancy Ayyaswamy
Meetings of the NITI Aayog Subcommittee (Study Group) to study Hyperloop Technology	Arghya Sardar Jancy Ayyaswamy
Meetings of the Expert Committee on the Hyperloop Transportation Technology constituted by NITI Aayog.	Arghya Sardar Jancy Ayyaswamy
Meetings of the Workgroup-2 on Economic Feasibility of Hyperloop under NITI Aayog Sub-Committee (Study Group) to study Hyperloop Technology.	Arghya Sardar Jancy Ayyaswamy
Participated in Bio-Energy Summit 2020, FARM2FUEL: Sustainable BioEnergy Solutions for Atmanirbhar Bharat” through a virtual platform on 23rd September 2021organised by CII.	Ms Nirmala Kaushik
Attended the webinar on ‘Report Launch and Panel Discussion on Water Sustainability Assessment of Gurugram’ held on 28th July 2021 organised by TERI.	Ms Nirmala Kaushik
Attended (virtually) 17th International Conference of Telemedicine Society of India ‘Telemedicon 2021’ held on November 12-14, 2021 organised by School of Telemedicine and Biomedical Informatics, SGPGIMS, Lucknow.	Ms Nirmala Kaushik Ms Mukti Prasad
Attended as Member of Sectional Committee meeting for Quality Management Sectional Committee, MSD 2 of Bureau of Indian Standard (BIS), New Delhi	Dr Debabrata Majumder, Scientist-F
Participated as Member in meetings of CPCB Expert Committee for assessment of new proposals	Sh PR Basak, Scientist-G
Participated as Member in meetings of Project Review and Steering Group (PRSG) of Meit Y for assessment of status of incubators at Delhi University, IIITM Kochi and IIT Patna	Sh PR Basak, Scientist-G
Participated and delivered an invited talk on in the Webinar on Climate Change- Ecological Restoration and Socio-Ecological Sustainability Jointly organized by University of Mysore, DOS in Environmental Science, Mysuru & Institute for Social and Economic Change (ISEC), Bengaluru on July 02, 2021	Sangeeta Baksi
Participated in the Webinar on Driver of Mainstreaming Climate Change Adaptation into Sub-national and Local Planning organized by TERI, July 20, 2021	Sangeeta Baksi

Training Workshop on GAINS model organized by TIFAC in collaboration with IIASA, IITD and NEERI Nagpur during September 13-17, 2021	Sangeeta Baksi
Participated and delivered an invited talk as a panelist on session- Assessing the potential of Peri-urban agriculture under changing climate for the two-day seminar on Advancing Frontiers of Knowledge on Climate Action: Cross –sectional Approaches for Mitigation and Resilience organized by institute for Social and Economic Change during October 22-23, 2021 in Collaboration with IIM-Ahmedabad and IIT-Bombay	Sangeeta Baksi
Training Workshop on GAIN model organized by TIFAC in collaboration with IIASA, IITD and NEERI Nagpur during September 13-17, 2021.	Sangeeta Baksi
FICCI Webinar on Steel Technology & Innovations: Increasing Productivity & Technology Quotient on April 16, 2021	Jancy Ayyaswamy
FICCI Webinar on Future of Indian Mining Industry: Exploration to Mining on July 23, 2021 (Friday)	Jancy Ayyaswamy
FICCI online Webinar on Future of Indian Mining, Metals & Cement Industries: Decarbonization, Environment Management & Sustainable Solutions on September 29, 2021	Jancy Ayyaswamy
XI International Academic Conference (Online) on Foresight and Science, Technology and Innovation Policy organised by Institute for Statistical Studies and Economics of Knowledge, National Research University Higher School of Economics during October 18-26, 2021	Jancy Ayyaswamy
Attended the Seminar series organised by NISTEP, Japan on International Foresight Trends on December 9 and December 16, 2021	Jancy Ayyaswamy
Attended the 15th Annual India Chemical Industry Outlook online Conference during 1st & 2nd March 2022, organised by Indian Chemical Council, Mumbai	Jancy Ayyaswamy

International Meetings

- Dr Gautam Goswami, Scientist-G and Ms Jancy Ayyaswamy, Scientist-F delivered a talk on "Foresight driven Policy and Decision-Making System in India - An insight" in the Special Workshop on "Science and Technology foresight in BRICS countries" organized by HSE, Moscow Russia on 18th October, 2021.
- Dr Gautam Goswami, Scientist-G and Ms Jancy A, Scientist-F attended ISSEK HSE Moscow International Advisory Board meeting on 3rd December, 2021 and suggested to take up Foresight Study on effect of altered industrial technology paradigm on Global Economy. They also suggested to initiate a foresight study on Impact of Global Food Village concept on Economy.

6.2 Invited Lectures

- Prof Pradeep Srivastava delivered a Talk on 'Intellectual Property Rights' on the occasion of World IPR Day at Institute of Advanced Study in Science and Technology (IASST) on 26.04.2021.
- Prof Pradeep Srivastava delivered a Talk on 'Clean Technology and Innovation' at Lal Bahadur Shastri National Academy of Administration, Mussorie on 09.08.2021.

- Prof Pradeep Srivastava delivered a Keynote lecture on 'Entrepreneurship Opportunity in Vegetable/Fruits Processing' at the International Conference on Vegetable Research (ICVEG-21) on 14-16th December, 2021 at ICAR.
- Prof Pradeep Srivastava delivered a Talk on 'Decarbonization in MSME' in the Technical Workshop on 'Accelerating Adoption of clean-tech solutions for SMEs' organised by Institute for Sustainable Communities (ISC) on 21.04.2022, at Tirupur.
- Prof Pradeep Srivastava was a key speaker at CTSA Convening event of ISC and TIFAC on 13th May, 2022, on "Opportunity Framing for the Propagation of clean tech steering alliances (CTSA) in Gujarat.
- Prof Pradeep Srivastava delivered a Talk on 'Water & Climate Initiatives and Management for Hindkush region' at the IIASA Council Meeting held on 16-17 November, 2021, at Luxemburg.
- Prof Pradeep Srivastava delivered a Talk on 'Strategies for Cell Tissue Engineering' organised by UPM Biologicals, Finland on 14th September, 2021.
- Prof Pradeep Srivastava delivered a talk on 'Wireless Opportunity charging' organised by BHEL, Varanasi on 15th April, 2021.

- Prof Pradeep Srivastava delivered a talk on 14th September, 2021, 'Strategies for Cell Tissue Engineering' organised by UPM Biologicals, Finland in the online Meeting - 7th Annual Conference on Biologicals and Cell Engineering.
- Ms Jancy Ayyaswamy, Scientist-F delivered a talk on "Industry - Academia Linkage - TIFAC Experience" on July 10, 2021, at the Industry-Institute Symposium (National Level) on the Theme Enhancing Employability and Employment of Engineering Graduates through Implementation of NEP 2020, organised by Thakur College of Engineering and Technology (TCET), Mumbai.
- Ms Jancy Ayyaswamy, Scientist-F, delivered an invited lecture on Technologies for leveraging Indian Manufacturing Industry - coping up with future challenges in the thematic session 2: Best practices on promoting project development and ensuring smooth industry and supply chains at the 2021 BRICS Forum on Partnership on New Industrial Revolution on September 7, 2021, at Xiamen, China through online mode.
- Dr Gautam Goswami, Scientist-G delivered a talk on Scientific Social Responsibility in the training programme on "High End Workshop in Choosing Scientific Research as career - Why and How" organised by NICAIR on 22nd October, 2021.
- Ms Mukti Prasad, Scientist-C, delivered an invited talk on "Current Scenario of Telemedicine in India with Special reference to Start-up Ventures" in the 17th Annual International Conference of Telemedicine Society of India (Telemedicon 2021) held during 12th - 14th November, 2021, at SGPGI, Lucknow.
- Dr G Goswami, Scientist G delivered the key note address on "Block Chain Technology - A tool for Transparent and effective supply chain management of Agriculture Commodity" in the 85th Annual Convention of Indian Society of Soil Science on 16th November, 2021, at Visva-Bharati University, Sriniketan, West Bengal.
- Sh Arghya Sardar, Scientist-F made a presentation on "Life Cycle Assessment of Road Transport Vehicles in India" at the workshop "Life Cycle Assessment Methods to support India's Efforts to Decarbonize Transport" jointly organized by the International Transport Forum at the OECT and NITI Aayog during 13-14 April 2014.
- Sh Arghya Sardar, Scientist-F made a presentation on "Vehicle Electrification- Concept, Challenges, Strategies" on 27 July 2021, at the Faculty Development Programme titled: Development of Technologies for a Sustainable Mobile Society" organized by SCMS School of Engineering and Technology.

- Sh Arghya Sardar, Scientist-F made a presentation on "Electric Mobility and Just Transition" at the "National Workshop on Energy Scenario in India: 2040 and Beyond" organized by The Energy and Resources Institute (TERI) and Konrad Adenauer Stiftung (KAS) at Leh, Ladakh during 06-08 October, 2021.

6.3 TIFAC Newsletter

TIFAC publishes a quarterly Newsletter covering various progress made on activities and programmes of TIFAC to reach out to various stakeholders. During this year, TIFAC published three newsletters that highlighted articles & news on the following:

TIFAC study documents viz., S&T Approach addressing resurgence of COVID-19 (STAARC) document, Journey of Women Scientists: from break in career to become patent professionals, and Technology Foresight study on opportunities for fruits and vegetables processing for North-Eastern region of India.

TIFAC Programmes/Events viz., Thematic Workshop on Telemedicine Sector; Swachhata Pakhwada, Yoga Day, TIFAC celebrates Azadi Ka Amrit Mahotsav: India @ 75, Let us sing Rashtagaan, TIFAC celebrates Nari-shakti, Swachhata Annual Plan, and Inauguration of TIFAC Programme on Tele-Digital Health pilot demonstration.

TIFAC articles viz., Controlled release fertilizers, Block-chain applications in agriculture, Technology foresight practices worldwide, Technology Foresight Study on Opportunities for processing of traditional ethnic food in North-Eastern region of India, and Patents Granted: Leading to commercialization.

The issues also covered the collaborations by TIFAC with HSE, Russia with focused discussion on mutual areas of cooperation, and with Goa University for capacity building in technology foresight.



Fig.6.1: Sample cover pages of TIFAC Newsletters are enclosed for Annual Report

7. INFRASTRUCTURE AND RESOURCES

TIFAC facilitates resources for smooth functioning and day to day activities to TIFAC employees by way of library, seamless internet connectivity, digital access to journals and e-office facility etc.

7.1 Library

TIFAC Library, a knowledge centre, facilitates and fosters the flow of scientific and technical information. During the period, TIFAC Library continued to strengthen its holdings by procuring scientific books, reports, journals and magazines as per the requirement of TIFAC. Six (6) scientific/technical books and reports were procured during the year, raising the total holding of TIFAC Library to 2578. In addition, TIFAC Library subscribed to twenty-three (23) scientific/technical journals and magazines. During the year, disseminated scientific and technical information published in the newspapers/magazines to the scientists.

7.2 Mahanagar Telephone Nigam Ltd Network (MTNL)

During the year, TIFAC made use of the connectivity provided by Mahanagar Telephone Nigam Ltd Network (MTNL). This provides TIFAC a 100MBPS line for internet connectivity.

7.3 E-Resources

Implementation of eOffice

TIFAC implemented eOffice in November, 2020, and it shifted all the files/Receipts/Orders in digital mode to the eOffice. The eOffice played a significant role in improving governance, transparency, accountability, data security & integrity, and staff productivity. TIFAC has also upgraded the eOffice version from v5.4 to v6.0 for new features and functionality at par with DST configuration.

Implementation of SPARROW

TIFAC implemented SPARROW in the organization on October 25, 2021. Sparrow is an online system based on the comprehensive performance appraisal dossier that is maintained for each officer/staff in service. All the Annual Performance and Appraisal Reports (APAR) are being processed in digital mode through SPARROW. The aim of this system is to facilitate the electronic filling of APAR by employees in a way that is not only user-friendly but also allows them to fill from anywhere anytime as per their convenience. Similar convenience is available to the officials at different levels in the workflow hierarchy of filling and submission process. The system also reduces delays in the submission of completely filled APARs. Now no APARs are being filled in physical mode but are being generated, and reviewed digitally.

7.4 TIFAC Information Interfaces

During the period, TIFAC continued to maintain the in-house website (<https://tifac.org.in>). Some design features of the website were changed to enhance the look. Various menu items were clubbed together to give it a more concise feel. Announcement menu was added in the menu bar along with sub-menus. The Experts Database form was integrated on the website. Along with all the changes, regular updates of forthcoming and ongoing events were made on the website. The website also served as a platform for the announcement of the Government schemes as and when required. TIFAC website also has hyperlinks to other Government Department web portals. The NIC firewall security feature was enabled for the website.

Periodic updates on technology information and new initiatives of TIFAC were covered in social media through TIFAC Facebook & Twitter accounts (URLs given below).

- www.facebook.com/tifac.dst.16
- www.twitter.com/TIFAC4

Both these media platforms enabled people to be informed about the different TIFAC events, activities, advertisements and schemes. The Web statistics data of the TIFAC website (<https://tifac.org.in>) was more than 3 lakhs.

Towards enabling reaching out to stakeholders in a more efficient way, TIFAC mobile App was launched by Hon'ble Minister Dr Jitendra Singh, on 21st December 2021. Through the TIFAC App, users can avail services, access and purchase the knowledge products/services such as technology reports, training programmes, patent filing and access to expert data base.



Fig.7.1: Launch of TIFAC App

8. COMPLIANCES

8.1 Internal Complaints Committee (ICC)

TIFAC is compliant with the SHWW Act 2013, and has an Internal Complaints Committee (ICC) in place since 2014. The ICC-TIFAC is responsible for attending to the sexual harassment cases and to ensure a safe and secure workspace for its women staff. Activities of ICC-TIFAC include creating consciousness about the SHWW act, conducting awareness workshops/ survey about the Act etc.

During the period April 2021 to March 2022, the ICC held two meetings. In addition, an awareness program was organized for the women employees of TIFAC on December 09, 2021, to commemorate the 8th Anniversary of the notification of SHWW Act. During the program, Advocate Dr Charuwalli Khanna, External member ICC TIFAC had delivered a lecture on the basic rules and Do's and Don'ts of SHWW Act 2013. The report of the awareness programme was submitted to DST for onward forwarding to Ministry of Women and Child Development. Electronic resources related to the prevention of the Cyber-crime were circulated to women employees for creating awareness during the period.

8.2 Right to Information (RTI)

During the year 2021-22, TIFAC received 06 RTI's applications including RTI Appeals. All these applications (whether

received online or by post) were entered onto the RTI portal and also were disposed off timely. The replies to all such queries were also made available online. TIFAC has also filed quarterly returns during the year 2021-22. As per the CIC guideline, TIFAC has Suo Moto disclosed the information on TIFAC website as per Section 4.0 of the RTI Act. The website was audited by a Third Party namely Indian Institute of Mass Communication (IIMC) in August 2021. TIFAC scored 95% for the information disclosed on the website.

8.3 Public Grievance

TIFAC has a Grievance Cell to address grievances / complaints received online through PG portal as well as offline. During the financial year 2021-2022, TIFAC received two grievances which were duly examined and disposed of within the stipulated time.

8.4 Official Language

The implementation of Official Language Policy is done under the guidance of the Official Language Implementation Committee and was continued during this year as well. Two Hindi workshops were organised for the benefit of employees. The Hindi Pakhwada was organised in September 2021. TIFAC employees participated in seven different competitions and were given certificates and cash prizes.



Fig.8.1: Awareness program at TIFAC on December 9, 2021, to commemorate the 8th Anniversary of the notification of SHWW Act

9. AUDITOR'S REPORT TOGETHER WITH AUDITED STATEMENT OF ACCOUNT



INDEPENDENT AUDITOR'S REPORT

The Members

The Governing Council

Technology Information, Forecasting and Assessment Council (TIFAC)

New Delhi

Report on the Financial Statements

1. We have audited the accompanying financial statements of M/s Technology Information, Forecasting and Assessment Council (TIFAC), New Delhi, (hereinafter referred to as 'Society') which comprise the Balance Sheet as at March 31, 2022 and the Statement of Income and Expenditure Account for the year then ended, and a summary of significant accounting policies and other explanatory information.

Responsibility of Management for the Financial Statements

2. The management of the Society is responsible for the preparation of these financial statements that give a true and fair view of the financial position and financial performance of the Society in accordance with the accounting principles generally accepted in India including Accounting Standards issued by the Institute of Chartered Accountants of India. Their responsibility includes maintenance of adequate accounting records for safeguarding the assets of the Society and for preventing and detecting frauds and other irregularities; selection and application of appropriate accounting policies; making judgments and estimates that are reasonable and prudent; design, implementation and maintenance of adequate internal financial controls, that are operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

3. Our responsibility is to express an opinion on these financial statements based on our audit. We have conducted our audit in accordance with the Standards on Auditing issued by the Institute of Chartered Accountants

of India. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

4. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal financial control relevant to the Society's preparation of the financial statements, that give a true and fair view, in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on whether the Society has in place an adequate internal financial controls system over financial reporting and the operating effectiveness of such controls. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by the Society's management, as well as evaluating the overall presentation of the financial statements.
5. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

6. In our opinion and to the best of our information and according to the explanations given to us, the aforesaid financial statements give the information required and give a true and fair view in conformity with the accounting principles generally accepted in India of the state of affairs of the Society as at 31st March 2022 and Excess of Income over Expenditure for the year ended on that date however subject to:
 - a) Non recognition of various loans, amounting to Rs. 42.22 crores, given to various parties under various projects from the year 1992 to 2005 as Assets of the society in the Balance Sheet (Note No. 13 of Notes on Accounts of the Balance Sheet).



- b) Non allocation of housekeeping, electricity, security services, water and horticulture expenditure between NECTAR and TDB for which the amount is unascertained. (Note No. 8 of Notes on Accounts of the Balance Sheet).
- c) Non recognition of an amount of Rs. 48,067/- as recoverable from Smt. Sangeeta Nagar (Scientist E) and corresponding rectification of Fixed Assets Schedule as per AGCR Report dt. 06.07.2018.
- d) Non recognition of Rs. 2.28 lakhs as delegation fees recoverable from the delegates of workshop organized by PFC division of the society from 12th January, 2017 to 14th January, 2017 as per the statutory audit report for the financial year 2016-17.
- e) The society is not maintaining fixed assets register in proper format so as to show inventory of individual fixed assets items. Physical verification of fixed assets items has not been done by the society but orders have been passed for doing physical verification.
- f) The society is not maintaining inventories of publication of its reports.
- g) Non recognition of an amount of Rs. 69,730/- recoverable from Mr.VibhuMushran, Scientist G, against excess transport allowance paid to him from 1.03.2014 to 30.11.2014, as per Para no. 8 of Part 1 of Internal Audit Report of DST for the period 1-4-2016 to 31-3-2018.
- h) It has been observed that "IPIRTI, Bangalore", an instituteto whom a grant of Rs.1,84,000/- was released on 11.08.2017, has not submitted Utilisation Certificate of this grant till the date of audit.
- i) The Society is making the payment for expenditure on the basis of perfoma invoice instead of tax/commercial invoice in some cases.
- j) The society is not registered with the GST authorities as per the legal opinion taken by it from K. S. Gupta & Co.
- k) The Employees contribution to PF has been paid after the due dates under PF Act invariably.
- l) The society has reimbursed the expenses against the bills for the prior period i.e. for FY 2013-14 to 2020-21 during the year.
- m) The SIDBI use to charge management fees on the total disbursement of project loans, year to year basis,whereas the management fees should have been charged once only at the time of disbursement of the project loans. No provision for the same has been made in the Profit & Loss account as not yet agreed by the SIDBI.
7. We further report that:
- a) We have sought and obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit;
- b) In our opinion proper books of account as required by law have been kept by the Society so far as appears from our examination of those books;
- c) The Balance Sheet and Statement of Income & Expenditure Account dealt with by this Report are in agreement with the books of account;
- d) In our opinion, the aforesaid financial statements comply with the applicable Accounting Standards issued by the Institute of Chartered Accountants of India except where disclosed otherwise.
- e) In our opinion and to the best of our information and according to the explanations given to us, we report as under with respect to other matters to be included in the Auditor's Report
- The society does not have any pending litigations which would impact its financial position.
 - The Society did not have any long-term contracts including derivative contracts; as such the question of commenting on any material foreseeable losses thereon does not arise.

Date: 29-08-2022
Place: Delhi

For Shiv Tibrewal & Co.
Chartered Accountants
Firm Registration No. 011391N




(S.K. Tibrewal)
Partner
M. No. 080098
UDIN: 22080098AQGDVX4341

TECHNOLOGY INFORMATION, FORECASTING AND ASSESSMENT
COUNCIL REPLIES TO AUDIT QUERY "ANNEXURE AR1"

The reply to the observation of Auditors are as given below :

- | | |
|--|--|
| <p>6 (a) The observations have been noted. This is due to the accounting procedure followed during the FY 1992-2005. However, the matter is being examined.</p> <p>6 (b) Due payment from TDB has been received. Action regarding the recovery of dues from NECTAR is ongoing. The opinion noted for compliance.</p> <p>6 (c) The matter is under examination.</p> <p>6 (d) The workshop was organized by PFC and DRDO with both contributing towards the project. DRDO have already contributed the amount which has been adjusted towards the expenditure incurred under the workshop and the remaining amount held amounting to Rs.2.28 lakhs was to be adjusted as PFC contribution. The matter is being put up to the competent authority of TIFAC for approval for adjusting the balance amount of Rs.2.28 lakhs as part of PFC division's contribution.</p> | <p>6 (e) Physical verification of fixed assets has now been completed.</p> <p>6 (f) Matter is being taken up for compliance.</p> <p>6 (g) The matter related to payment of transport allowance to Mr Vibhu Mushran, Scientist G promoted under FCS has been referred to DST for opinion/decision.</p> <p>6 (h) Being followed up.</p> <p>6 (i) Now this is being complied.</p> <p>6 (j) TIFAC has now registered itself with GST authorities for the deduction of GST on Tax. In regard to Society Registration again a legal opinion will be taken by M/s K S Gupta & Co.</p> <p>6 (k) Now this is being complied.</p> <p>6 (l) The matter is under examination.</p> <p>6 (m) The matter has been taken up with to SIDBI.</p> |
|--|--|

Technology Information Forecasting And Assessment Council, (TIFAC) Balance Sheet as at 31.03.2022 (2021-2022)

	Sche- dule	Current Year				Previous Year			
		TIFAC	PFC	WSS	Total	TIFAC	PFC	WSS	Total
CORPUS / CAPITAL FUND AND LIABILITIES									
Corpus / Capital Fund	1	416929522.02	-1439772.47	37720800.46	453210550.01	400004157.37	9914914.05	8907741.46	418826812.88
Reserves and Surplus	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Earmarked / Endowment Funds	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Secured Loans and Borrowings	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsecured Loans and Borrowings	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deferred Credit Liabilites	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Current Liabilities and Provisions	7	198477780.50	2347014.00	7061504.00	207886298.50	193136229.94	1470479.00	1564873.00	196171581.94
Total		615407302.52	907241.53	44782304.46	661096848.51	59,31,40,387.31	1,13,85,393.05	1,04,72,614.46	61,49,98,394.82
Assets									
Fixed Assets (Net)	8	46828848.60	208767.23	48175.40	47085791.23	51889368.54	277011.30	80292.40	52246672.24
Investments-From Earmarked / Endowment Funds	9	141183000.00	0.00	0.00	141183000.00	141434000.00	0.00	0.00	141434000.00
Investments-Others	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Current Assets, Loans, Advances etc.	11	427395453.92	698474.30	44734129.06	472828057.28	399817018.77	11108381.75	10392322.06	421317722.58
Miscellaneous Expenditure		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(to the extent not written off or adjusted)					0.00				0.00
Total		615407302.52	907241.53	44782304.46	661096848.51	59,31,40,387.31	1,13,85,393.05	1,04,72,614.46	61,49,98,394.82
Significant Accounting Policies and Notes on Accounts	24								
Contingent Liabilities									

Subject to Schedule -1 to 24, forming part of the Balance Sheet
As per our report of even date Attached

For Shiv Tibrewal & Co.

Chartered Accountants

FRN NO.: 011391N



Shiv Kumar Tibrewal

Partner

Membership No. 080098

Date : 29-08-2022

Place : New Delhi



Accounts Officer

TIFAC

दीप प्रकाश / DEEP PRAKASH

लेखा अधिकारी / Accounts Officer

प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)

Technology Information, Forecasting and Assessment Council (TIFAC)

विज्ञान एवं प्रौद्योगिकी विभाग, नया दिल्ली / Dept. of Science & Technology, Govt. of India

ए-बी, सफाई, ए.आई.डी. ब्लॉक / 5th Floor, AI Block,

टेक्नोलॉजी भवन, नया दिल्ली-110016 / New Delhi-110016



Incharge (Fin.&Admin)

TIFAC

मुकेश माथुर / MUKESH MATHUR

वैयक्तिक एवं लेखा अधिकारी (वित्त एवं प्रशासन) / Assistant Secretary (Finance & Admin)

प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)

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नई दिल्ली-110016 / New Delhi-110016



Executive Director

TIFAC

प्रो. प्रदीप श्रीवास्तव / Prof. Pradeep Srivastava

कार्यकारी निदेशक / Executive Director

प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)

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नई दिल्ली-110016 / New Delhi-110016

Technology Information Forecasting And Assessment Council, (TIFAC) Income & Expenditure Account for the Year Ended 31.03.2022

Annual Report 2021-22

		Sche- dule	Current Year				Previous Year			
			TIFAC	PFC	WSS	Total	TIFAC	PFC	WSS	Total
	Income									
	Income from Sales / Services	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grants / Subsidies	13	2200000000.00	0.00	45000000.00	265000000.00	210100000.00	20000000.00	24570446.00	254670446.00
	Fees / Subscriptions	14	20.00	0.00	0.00	20.00	200.00	0.00	0.00	200.00
	Income from Investments	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Income from Royalty, Publication etc	16	61500.00	0.00	0.00	61500.00	2000.00	0.00	0.00	2000.00
	Interest Earned	17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Other Income	18	4352022.46	0.00	0.00	4352022.46	2472082.00	0.00	1186697.52	3658779.52
	Increased/(Decrease) in stock of Finished Goods and Works-in-Progress	19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Refund from Projects	20	19185000.00	0.00	0.00	19185000.00	950000.00	0.00	0.00	950000.00
	Total (A)		243598542.46	0.00	45000000.00	288598542.46	21,35,24,282.00	2,00,00,000.00	2,57,57,143.52	25,92,81,425.52
	Expenditure									
	Establishment & Other Administrative Expenses	21	141320526.71	11137825.45	16154824.00	168613176.16	127307097.98	4728861.70	16485298.10	148521257.78
	Expenditure on Grant, Subsidies etc	22	75262211.38	148617.00	0.00	75410828.38	33899504.01	668176.00	0.00	34567680.01
	Interest	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Depreciation (Net Total at the Year end)	8	10090439.72	68244.07	32117.00	10190800.79	10905960.25	102308.70	53529.00	11061797.95
	Total (B)		226673177.81	11354686.52	16186941.00	254214805.33	17,21,12,562.24	54,99,346.40	1,65,38,827.10	19,41,50,735.74
	Balance being excess of Income over Expenditure (Expenditure over Income)		16925364.65	-11354686.52	28813059.00	34383737.13	4,14,11,719.76	1,45,00,653.60	92,18,316.42	6,51,30,689.78
	Transfer to Special Reserve (Specify each)									
	Contingent Liabilities									

Subject to Schedule -1 to 24, forming part of the Balance Sheet
As per our report of even date Attached

For Shiv Tibrewal & Co.
Chartered Accountants
FRN NO.: 011391N



Shiv Kumar Tibrewal
Partner
Membership No. 080098
Date : 29-08-2022
Place : New Delhi

[Signature]

Accounts Officer
TIFAC

दीप प्रकाश / DEEP PRAKASH
सेवा अधिकारी / Accounts Officer
प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)
Technology Information, Forecasting and Assessment Council (TIFAC)
विज्ञान एवं प्रौद्योगिकी विभाग, पांचवें मंजूर / 5th Floor, AI Block,
टेक्नोलॉजी भवन, प्रौद्योगिकी विभाग, दिल्ली-110016 / New Delhi-110016

[Signature]

Incharge (Fin.&Admin)
TIFAC

मुकेश माथुर / MUKESH MATHUR
वैयक्तिक एवं वित्त (विज्ञान एवं प्रौद्योगिकी) / Section Fin. & Admin.
प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)
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टेक्नोलॉजी भवन, प्रौद्योगिकी विभाग, दिल्ली-110016 / New Delhi-110016

[Signature]

Executive Director
TIFAC

प्रो. प्रदीप श्रीवास्तव / Prof. Pradeep Srivastava
कार्यकारी निदेशक / Executive Director
प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)
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Technology Information Forecasting And Assessment Council, (TIFAC)
Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

Schedule 1 - Corpus / Capital Fund								
	Current year				Previous Year			
	TIFAC	PFC	WSSS	Total	TIFAC	PFC	WSSS	Total
Opening Balance (General)	23,00,04,157.37	99,14,914.05	89,07,741.46	24,88,26,812.88	18,85,92,437.61	(45,85,739.55)	(3,10,574.96)	18,36,96,123.10
Opening Balance (SIDBI Revolving Fund)	17,00,00,000.00			17,00,00,000.00	17,00,00,000.00			17,00,00,000.00
Total Opening Balance (A)	40,00,04,157.37	99,14,914.05	89,07,741.46	41,88,26,812.88	35,85,92,437.61	(45,85,739.55)	(3,10,574.96)	35,36,96,123.10
Excess of Income over Expenditure (Expenditure over Income)(C)	1,69,25,364.65	(1,13,54,686.52)	2,88,13,059.00	3,43,83,737.13	4,14,11,719.76	1,45,00,653.60	92,18,316.42	6,51,30,689.78
Total Closing Balance (A)+(B)+(C)	41,69,29,522.02	(14,39,772.47)	3,77,20,800.46	45,32,10,550.01	40,00,04,157.37	99,14,914.05	89,07,741.46	41,88,26,812.88



Technology Information Forecasting And Assessment Council, (TIFAC) Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

Schedule 2 - Reserve and Surplus : NIL

Schedule 3 - Earmarked/Endowment Funds : NIL

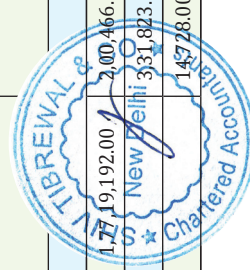
Schedule 4 - Secured Loans and Borrowings : NIL

Schedule 5 - Unsecured Loans and Borrowings : NIL

Schedule 6 - Deferred Credit Liabilities : NIL

Schedule 7 - Current Liabilities And Provisions :

Particulars	Current year				Previous Year			
	TIFAC	PFC	WSSS	Total	TIFAC	PFC	WSSS	Total
1. Sundry Creditors : a) For Goods				-				-
URDIP Pune (WSSS)			11,164.00	11,164.00			11,164.00	11,164.00
2. Statutory Liabilities				-				-
a) Others : TDS Payable (Sub Total (B) of Annexure-8)	13,88,345.00	83,404.00	8,411.00	14,80,160.00	15,47,761.00	67,823.00	1,046.00	16,16,630.00
3. Other Current Liabilities				-				-
IIT-TIFAC Maintenance (Provisions)	1,88,40,000.00			1,88,40,000.00	1,27,40,000.00		-	1,27,40,000.00
Grant : Global Technology Watch Growup (GTWG) (Annexure 10)	20,18,218.00			20,18,218.00	20,18,218.00		-	20,18,218.00
Grant : Interdisciplinary Cyber Physical Systems (ICPS)(Annexure 10)	1,00,785.00			1,00,785.00	1,00,785.00		-	1,00,785.00
National steering Committee on Tech Need Assessment (TNA) for Habitat Sector (MOEF&CC)	32,34,206.70			32,34,206.70	12,98,371.70		-	12,98,371.70
Grant : Technology Assessment of Start ups for Tax Exemption (Annexure 10)	6,09,478.00			6,09,478.00	6,09,478.00		-	6,09,478.00
Grant : Assessment of Government of India's Gender Mainstreaming Programs for Women in Science (Annexure 10)	2,93,523.00			2,93,523.00	5,18,723.00		-	5,18,723.00
Grant : Detail project report for National Mission on Quantum Technology & Application (NM-QTA) (Annexure 10)	2,49,818.00			2,49,818.00	7,57,435.00		-	7,57,435.00
Grant : Experts Committee on Bibliometrics (ECB)	-			-	3,65,600.00			3,65,600.00
Grant : DSIR Techno-Commercial Assessment of TRL-6 and above technologies developed in India in academic, research labs and Industry.	22,00,000.00			22,00,000.00	-			-
International Womens Day KIRAN - IPR 2021				-	-		4,50,000.00	4,50,000.00
Bharat Kosh (Govt)	1,77,19,192.00	2,00,466.00	2,12,189.00	1,81,31,847.00	2,07,76,115.00	91,502.00	24,028.00	2,08,91,645.00
DRDO's Workshop Expenses		3,31,823.00		3,31,823.00		3,31,823.00	-	3,31,823.00
WIPO's Workshop Expenses		14,728.00		14,728.00		14,728.00	-	14,728.00



Particulars	Current year				Previous Year			
	TIFAC	PFC	WSSS	Total	TIFAC	PFC	WSSS	Total
Training of Trainers Programme		15,714.00		15,714.00		15,714.00	-	15,714.00
UNIDO Workshop		5,88,088.00		5,88,088.00		5,88,088.00	-	5,88,088.00
Sh Sanjay Singh (Foreign Travel)	55,314.00			55,314.00				
Expenses Payable (Sub Total (A) of Annexure - 8)	1,21,21,305.80	10,36,537.00	68,29,740.00	1,99,87,582.80	1,48,69,481.24	2,61,537.00	10,78,635.00	1,62,09,653.24
Medical Scheme	1,500.00			1,500.00	500.00		-	500.00
GPF	17,000.00			17,000.00	17,000.00		-	17,000.00
GSLIS	18,572.00			18,572.00	21,016.00		-	21,016.00
4 (a) Uspent Balance of Running Projects		76,254.00		76,254.00	-	76,254.00	-	76,254.00
4. (b) Due to DST (Uspent Balance Amount In Respect of Old Projects) (List enclosed in Notes to Accounts at S.No7)	-			-	9,56,919.00		-	9,56,919.00
5. EMD/ Security Deposit (TIFAC) of (Annexure - 9)	5,33,784.00	-	-	5,33,784.00	5,33,784.00	23,010.00	-	5,56,794.00
6. Superannuation / Pension/ Gratuity	7,39,72,283.00			7,39,72,283.00	7,27,28,255.00		-	7,27,28,255.00
7. Accumulated Leave Encashment	6,51,04,456.00			6,51,04,456.00	6,32,76,788.00		-	6,32,76,788.00
Total (A+B)	19,84,77,780.50	23,47,014.00	70,61,504.00	20,78,86,298.50	19,31,36,229.94	14,70,479.00	15,64,873.00	19,61,71,581.94



Technology Information Forecasting And Assessment Council, (TIFAC) (REGULAR) Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

SCHEDULE 8-FIXED ASSETS	GROSS BLOCK					DEPRECIATION			NET BLOCK		(Amount - Rs)
	Rate of Depreciation	Cost / valuation As at beginning of the year	Additions during the year	Deductions during the year	Cost / valuation at the year end	As at the beginning of the year	On during the year	Total upto the year end	As at the current year end	As at the previous year end	
A. FIXED ASSETS		-	-	-	-	-	-	-	-	-	
1. LAND		-	-	-	-	-	-	-	-	-	
a) Freehold		-	-	-	-	-	-	-	-	-	
b) Leasehold		-	-	-	-	-	-	-	-	-	
2. BUILDING		-	-	-	-	-	-	-	-	-	
a) On Freehold Land		-	-	-	-	-	-	-	-	-	
b) On Leasehold Land		-	-	-	-	-	-	-	-	-	
c) Ownership Flats/Premises		-	-	-	-	-	-	-	-	-	
d) Superstructures on Land not belonging to the entity	10.00	11,78,50,000.00	-	-	11,78,50,000.00	9,81,95,941.13	19,65,405.89	10,01,61,347.02	1,76,88,652.98	1,96,54,058.87	
e) Interior work of TIFAC Building	10.00	5,28,32,441.00	7,57,986.80	-	5,35,90,427.80	3,89,68,607.58	14,24,282.68	4,03,92,890.26	1,31,97,537.54	1,38,63,833.42	
3. PLANT MACHINERY & EQUIPMENT : Fire Alarm System at TIFAC Building & Fire Extinguishers	15.00	14,88,381.00	-	-	14,88,381.00	10,33,351.04	68,254.50	11,01,605.54	3,86,775.46	4,55,029.96	
4. VEHICLES		-	-	-	-	-	-	-	-	-	
5. FURNITURE & FIXTURES	10.00	30,06,858.60	7,97,632.00	-	38,04,490.60	20,11,169.72	1,39,450.49	21,50,620.21	16,53,870.39	9,95,688.88	
6. OFFICE EQUIPMENT	15.00	2,86,17,530.58	30,499.00	-	2,86,48,029.58	2,39,78,576.65	7,00,005.44	2,46,78,582.09	39,69,447.49	46,38,953.93	
6(A) OFFICE EQUIPMENT (Ext. Proj)	15.00	6,780.00	-	-	6,780.00	1,449.70	799.55	2,249.25	4,530.75	5,330.30	
7. COMPUTER/PERIPHERALS	40.00	1,85,61,246.05	32,90,086.98	-	2,18,51,333.03	1,29,56,095.97	30,16,984.93	1,59,73,080.90	58,78,252.13	56,05,150.08	
7 (A) COMPUTER/PERIPHERALS (Ext.Proj)	40.00	14,02,583.00	-	-	14,02,583.00	10,77,623.60	1,29,983.76	12,07,607.36	1,94,975.64	3,24,959.40	
8. TIFAC SOFTWARE DEVELOPMENT	40.00	3,24,500.00	-	-	3,24,500.00	64,900.00	1,03,840.00	1,68,740.00	1,55,760.00	2,59,600.00	
9. ELECTRIC INSTALLATIONS		-	-	-	-	-	-	-	-	-	
10. LIBRARY BOOKS	100.00	61,34,048.60	1,53,715.00	-	62,87,763.60	60,86,766.10	1,25,640.00	62,12,406.10	75,357.50	47,282.50	
11. TUBEWELL & W.SUPPLY		-	-	-	-	-	-	-	-	-	
12. OTHER FIXED ASSETS (E-Office)	40.00	1,00,65,802.00	-	-	1,00,65,802.00	40,26,320.80	24,15,792.48	64,42,113.28	36,23,688.72	60,39,481.20	
TOTAL OF CURRENT YEAR		24,02,90,170.83	50,29,919.78	-	24,53,20,090.61	18,84,00,802.29	1,00,90,439.72	19,84,91,242.01	4,68,28,848.60	5,18,89,368.54	
PREVIOUS YEAR		22,14,04,044.01	1,88,86,126.82	-	24,02,90,170.83	17,74,94,842.04	1,09,05,960.25	18,84,00,802.29	5,18,89,368.54	4,39,09,201.97	
B. CAPITAL WORK IN PROGRESS		-	-	-	-	-	-	-	-	-	

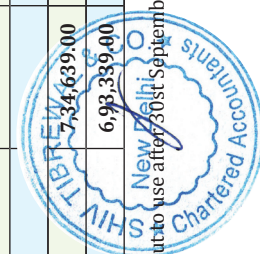
Note : For the assets which have been put to use after 30th September 50% of the prescribed depreciation has been charged.



Technology Information Forecasting And Assessment Council, (TIFAC) (REGULAR)
Patent Facilitating Center (PFC)
Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

(Amount – Rs)										
SCHEDULE 8-FIXED ASSETS	GROSS BLOCK				DEPRECIATION			NET BLOCK		
	Rate of Depreciation	Cost / v aluation As at beginning of the year	Additions during the year	Deductions during the year	Cost / valuation at the year end	As at the beginning of the year	On during the year	Total upto the year end	As at the current year end	As at the previous year end
A. FIXED ASSETS		-	-	-	-	-	-	-	-	-
1. LAND		-	-	-	-	-	-	-	-	-
a) Freehold		-	-	-	-	-	-	-	-	-
b) Leasehold		-	-	-	-	-	-	-	-	-
2. BUILDING		-	-	-	-	-	-	-	-	-
a) On Freehold Land		-	-	-	-	-	-	-	-	-
b) On Leasehold Land		-	-	-	-	-	-	-	-	-
c) Ownership Flats/Premises		-	-	-	-	-	-	-	-	-
d) Superstructures on Land not belonging to the entity	10.00	-	-	-	-	-	-	-	-	-
e) Interior work of TIFAC Building	10.00	-	-	-	-	-	-	-	-	-
3. PLANT MACHINERY & EQUIPMENT : Fire Alarm System at TIFAC Building & Fire Extinguishers	15.00	-	-	-	-	-	-	-	-	-
4. VEHICLES		-	-	-	-	-	-	-	-	-
5. FURNITURE & FIXTURES	10.00	48,000.00	-	-	48,000.00	14,757.60	3,324.24	18,081.84	29,918.16	33,242.40
6. OFFICE EQUIPMENT	15.00	2,29,159.00		-	2,29,159.00	98,808.10	19,552.63	1,18,360.73	1,10,798.27	1,30,350.90
7. COMPUTER/PERIPHERALS	40.00	4,16,180.00		-	4,16,180.00	3,27,542.00	35,455.20	3,62,997.20	53,182.80	88,638.00
8. TIFAC Software Development	40.00	41,300.00	-	-	41,300.00	16,520.00	9,912.00	26,432.00	14,868.00	24,780.00
8. ELECTRIC INSTALLATIONS		-	-	-	-	-	-	-	-	-
9. LIBRARY BOOKS	100.00	-	-	-	-	-	-	-	-	-
10. TUBEWELL & W SUPPLY		-	-	-	-	-	-	-	-	-
11. OTHER FIXED ASSETS		-	-	-	-	-	-	-	-	-
TOTAL OF CURRENT YEAR			-	-	7,34,639.00	4,57,627.70	68,244.07	5,25,871.77	2,08,767.23	2,77,011.30
PREVIOUS YEAR		7,34,639.00	-	-	7,34,639.00	3,55,319.00	1,02,308.70	4,57,627.70	2,77,011.30	3,38,020.00
B. CAPITAL WORK IN PROGRESS		6,93,339.00	41,300.00							

Note : For the assets which have been put to use after 30th September 50% of the prescribed depreciation has been charged.



Technology Information Forecasting And Assessment Council, (TIFAC) (REGULAR)
Women Scientist Scholarship Scheme (WSSS)
Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

(Amount - Rs)										
SCHEDULE 8-FIXED ASSETS	GROSS BLOCK					DEPRECIATION			NET BLOCK	
	Rate of Depreciation	Cost / valuation at beginning of the year	Additions during the year	Deductions during the year	Cost / valuation at the year end	As at the beginning of the year	On during the year	Total upto the year end	As at the current year end	As at the previous year end
A. FIXED ASSETS		-	-	-	-	-	-	-	-	-
1. LAND		-	-	-	-	-	-	-	-	-
a) Freehold		-	-	-	-	-	-	-	-	-
b) Leasehold		-	-	-	-	-	-	-	-	-
2. BUILDING		-	-	-	-	-	-	-	-	-
a) On Freehold Land		-	-	-	-	-	-	-	-	-
b) On Leasehold Land		-	-	-	-	-	-	-	-	-
c) Ownership Flats/Premises		-	-	-	-	-	-	-	-	-
d) Superstructures on Land not belonging to the entity	10.00	-	-	-	-	-	-	-	-	-
e) Interior work of TIFAC Building	10.00	-	-	-	-	-	-	-	-	-
3. PLANT MACHINERY & EQUIPMENT : Fire Alarm System at TIFAC Building & Fire Extinguishers	15.00	-	-	-	-	-	-	-	-	-
4. VEHICLES		-	-	-	-	-	-	-	-	-
5. FURNITURE & FIXTURES	10.00	-	-	-	-	-	-	-	-	-
6. OFFICE EQUIPMENT	15.00	-	-	-	-	-	-	-	-	-
7. COMPUTER/PERIPHERALS	40.00	4,79,573.00	-	-	4,79,573.00	3,99,280.60	32,117.00	4,31,397.60	48,175.40	80,292.00
8. ELECTRIC INSTALLATIONS		-	-	-	-	-	-	-	-	-
9. LIBRARY BOOKS	100.00	-	-	-	-	-	-	-	-	-
10. TUBEWELL & W SUPPLY		-	-	-	-	-	-	-	-	-
11. OTHER FIXED ASSETS		-	-	-	-	-	-	-	-	-
TOTAL OF CURRENT YEAR		4,79,573.00	-	-	4,79,573.00	3,99,280.60	32,117.00	4,31,397.60	48,175.40	80,292.00
PREVIOUS YEAR		4,79,573.00	-	-	4,79,573.00	3,45,751.60	53,529.00	3,99,280.60	80,292.40	1,33,821.40
B. CAPITAL WORK IN PROGRESS										

Note : For the assets which have been put to use after 30th September 50% of the prescribed depreciation has been charged.



Technology Information Forecasting And Assessment Council, (TIFAC)
Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

Schedule 9 - Investments from Earmarked/Endowment Funds

Particulars	Current year				Previous Year			
	TIFAC	PFC	WSSS	Total	TIFAC	PFC	WSSS	Total
1. In Government Securities				-				-
2. Other approved Securities				-				-
3. Shares				-				-
4. Debentures and Bonds				-				-
5. Subsidiaries and Joint Ventures				-				-
6. Others (TIFAC-SIDBI Revolving Fund)	14,11,83,000.00			14,11,83,000.00	14,14,34,000.00			14,14,34,000.00
Total	14,11,83,000.00	-	-	14,11,83,000.00	14,14,34,000.00	-	-	14,14,34,000.00



Technology Information Forecasting And Assessment Council, (TIFAC) Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

Schedule 10 - Investments - Others : NIL

Schedule 11 - Current Assets, Loans, Advances Etc

Particulars	Current year			Total	Previous Year			
	TIFAC	PFC	WSSS		TIFAC	PFC	WSSS	Total
1. Sundry Debtors :								
a) Debts outstanding for a period exceeding six months	2,70,000.00	2,22,775.00		4,92,775.00	2,70,000.00	2,22,775.00		4,92,775.00
2. Cash Balances in Hand (including Cheques / Drafts and Imprest) (Under TIFAC Account)	10,366.00	1,793.00	1,667.00	13,826.00	7,265.00	1,793.00	1,667.00	10,725.00
3. Bank Balances :				-				-
Union Bank of India : Deposit Accounts (Short Term deposits) (Annex-7)	21,25,27,272.00	-	-	21,25,27,272.00	21,47,28,095.00	-	-	21,47,28,095.00
Union Bank of India : Flexi Deposit Account (Annex - 7)	5,00,000.00	-	-	5,00,000.00	10,00,000.00	-	-	10,00,000.00
Accrued Interest (Accrued Interest) (Annexure 7)	40,80,502.00	-	-	40,80,502.00	44,09,847.00	-	-	44,09,847.00
On Savings Accounts	20,41,34,487.70	4,39,737.30	4,03,65,796.06	24,49,40,021.06	17,35,76,958.05	1,05,83,199.75	1,03,90,655.06	19,45,50,812.86
B) Loans, Advances and Other Assets :-				-				-
1. Loans:				-				-
a) Staff Loan (Under TIFAC Account) (Annex-1)	4,91,442.00	-	-	4,91,442.00	6,57,367.00	-	-	6,57,367.00
Advance : DAVP	-			-	1,77,581.00	2,65,780.00	-	4,43,361.00
Advance : M/s Balmer Lawrie & Co. Ltd.	1,12,476.00			1,12,476.00	1,12,476.00	-	-	1,12,476.00
Advance : CSIR-Central Glass & Ceramic Research Institute	8,550.00			8,550.00	8,550.00	-	-	8,550.00
Advance : India International Centre	-			-	624.00	-	-	624.00
Advance : Special Festival Package	-			-	1,31,000.00	-	-	1,31,000.00
Advance : NICSI (Sparrow)	18,06,930.00			18,06,930.00	22,58,662.00			22,58,662.00
Advance : Principal, Miranda House			11,76,000.00	11,76,000.00				-
International Womens Day Kiran-IPR 2021			20,446.00	20,446.00				-
Advance : Kharagpur Centre KIRAN IPR			5,62,177.00	5,62,177.00				-
Advance : Karnataka State Council for Science and Technology			15,97,113.00	15,97,113.00				-
Advance : Pune Center KIRAN IPR			10,00,000.00	10,00,000.00				-
Advance : E-Office (System Administrator)	5,07,934.50			5,07,934.50				
India-IIASA Membership Fee (Provision)	-			-				-
GEM	-			-				-



Particulars	Current year				Previous Year			
	TIFAC	PFC	WSSS	Total	TIFAC	PFC	WSSS	Total
Grant : Scientific Social Responsibility (SSR) Policy (Annexure 10)	1,15,000.72			1,15,000.72	1,15,000.72		-	1,15,000.72
Security Deposit	1,08,403.00			1,08,403.00	8,403.00		-	8,403.00
Sundry Debtor : PFC				-	-		-	-
WSSS (Overhead) receivable	8,29,950.00			8,29,950.00	8,29,950.00			8,29,950.00
Womens Day & Certificate Distribution Ceremony & International Womens Day (10 Batch)				-			-	-
TDS Receivable from Income Tax Department (DIPP)	1,40,400.00	1,972.00		1,42,372.00	1,40,400.00	1,972.00	-	1,42,372.00
TDS Receivable from Income Tax Department (AERIS)	5,000.00			5,000.00				
Interest Accrued from Union Bank of India (on Savings Bank Account)	17,46,740.00	32,197.00	10,930.00	17,89,867.00	13,84,840.00	32,862.00	-	14,17,702.00
Total (A) + (B)	42,73,95,453.92	6,98,474.30	4,47,34,129.06	47,28,28,057.28	39,98,17,018.77	1,11,08,381.75	1,03,92,322.06	42,13,17,722.58



Technology Information Forecasting And Assessment Council, (TIFAC) (REGULAR) Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

Schedule 12 - Income From Sales / Services : NIL

Schedule 13 - Grants / Subsidies (TIFAC Regular)

Particulars	Current year			Previous Year		
	TIFAC	PFC	WSSS	TIFAC	PFC	WSSS
1. From Central Government						
TIFAC Grant						
a) Grants in Aid (Plan)	12,00,00,000.00		4,50,00,000.00	13,93,00,000.00	2,00,00,000.00	2,45,70,446.00
b) Grant in Aid (Non-Plan)						
c) Grant in Aid (Plan) Capital Assets	-					
d) Grant in Aid (Salary)	10,00,00,000.00			7,08,00,000.00		
6. Other (Specify)						
Total	22,00,00,000.00	-	4,50,00,000.00	21,01,00,000.00	2,00,00,000.00	2,45,70,446.00
						25,46,70,446.00

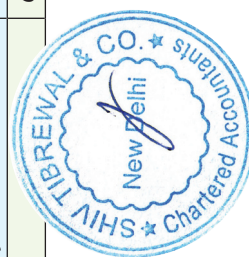
Schedule 14 - Fees / Subscriptions

Particulars	Current year			Previous Year		
	TIFAC	PFC	WSSS	TIFAC	PFC	WSSS
Award for Nari Shakti						
RTIA Questions	20.00			200.00		
Total	20.00	-	-	200.00	-	-
						200.00

Schedule 15 - Income From Investments (Income on Invest. From Earmarked/Endowment Funds transferred to Funds) : NIL

Schedule 16 - Income from Royalty, Publication Etc.

Particulars	Current year			Previous Year		
	TIFAC	PFC	WSSS	TIFAC	PFC	WSSS
1) Income from Royalty						
2) Sale of Publications	61,500.00			2,000.00		
3) Other (Specify)						
Total	61,500.00	-	-	2,000.00	-	-
						2,000.00



Technology Information Forecasting And Assessment Council, (TIFAC) (REGULAR)
Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

Schedule 17 - Interest Earned (Regular)

Particulars	Current year				Previous Year			
	TIFAC	PFC	WSSS	Total	TIFAC	PFC	WSSS	Total
1. On Term Deposits				-				-
a) Union Bank of India, (Scheduled Banks)	-			-	-			-
2. On Savings Accounts				-				-
Interest from Savings Bank (General)	-			-	-		-	-
Interest from Savings Bank Salary Account	-			-	-			-
Interest from Savings Bank Flexi Account	-			-	-			-
3. On Loans :				-				-
a) Employees (LTA, Scooter, Car, tour, LTC, HBA and Computers)	-			-	-			-
b) Others (Interest from Income Tax and Projects)	-			-	-			-
4. Interest on Debtors and Other Receivables (TIFAC-SIDBI Revolving Fund)				-				-
Total	-	-	-	-	-	-		-

Note : Tax deducted at source to be indicated

Schedule 18 - Other Income

Particulars	Current year			Total	Previous Year			
	TIFAC	PFC	WSSS		TIFAC	PFC	WSSS	Total
1. Miscellaneous Income				-				-
Other Receipts	1,05,772.46			1,05,772.46	58,893.00			58,893.00
Leave Salary & Pension Contribution	2,65,426.00			2,65,426.00	2,05,983.00			2,05,983.00
Encashment of Leave	-			-	22,247.00			22,247.00
Training Workshop : Integrated Assessment of Air Pollution	1,02,000.00			1,02,000.00				
Training Workshop : Patent Searches and Analytics	20,000.00			20,000.00				
Technology Evaluation and Assessment	50,000.00			50,000.00				
Transport Recovery (Sh Sanjay Singh)	-			-	1,27,571.00			1,27,571.00
Refund : Textile Technology & Machinery at KCT, Coimbatore (Unspent Balance)				-	8,54,000.00			8,54,000.00
Chennai Centre - KIRAN IPR (Unspent Balance)				-			11,86,697.52	11,86,697.52
2. Income Accrued and Received on Running Projects				-				-
Revenue Earned During the Year (TIFAC-SIDBI Revolving Fund)	28,94,000.00			28,94,000.00				
Overhead : Assessment of Government of India's Gender Mainstreaming Programs for Women in Science	41,200.00			41,200.00	54,073.00			54,073.00
Overhead : Detail Project Report for National Mission	79,705.00			79,705.00	3,19,365.00			3,19,365.00
Overhead : WSSS	7,93,919.00			7,93,919.00	8,29,950.00			8,29,950.00
Total	43,52,022.46			43,52,022.46	24,72,082.00	-	11,86,697.52	36,58,779.52

Technology Information Forecasting And Assessment Council, (TIFAC) (REGULAR) Schedules Forming Part of Balance Sheet as at 31.03.2022 (2021-2022)

Schedule 19 - Increase / (Decrease) in stock of Finished Goods & Work in Progress : NIL

Schedule 20 - Refund from Projects, (TIFAC Regular Account)

Particulars	Current year				Previous Year			
	TIFAC	PFC	WSSS	Total	TIFAC	PFC	WSSS	Total
Home Grown Technology (Annex-2)	85,85,000.00	-	-	85,85,000.00	8,00,000.00	-	-	8,00,000.00
Advanced Composites Programme (Annex-2)	6,00,000.00	-	-	6,00,000.00	1,50,000.00	-	-	1,50,000.00
Sugar Technology Mission (Annex-2)	1,00,00,000.00	-	-	1,00,00,000.00	-	-	-	-
Total	1,91,85,000.00	-	-	1,91,85,000.00	9,50,000.00	-	-	9,50,000.00

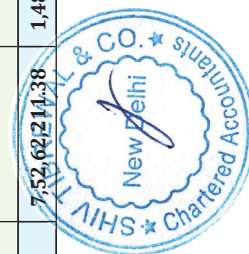
Schedule 21 - Establishment & Other Administrative Expenses

Particulars	Current year				Previous Year			
	TIFAC	PFC	WSSS	Total	TIFAC	PFC	WSSS	Total
Establishment Expenditure(Annex 3)	12,28,35,382.80	7,75,554.00	1,16,33,013.00	13,52,43,949.80	10,83,26,247.64	8,39,277.00	1,52,83,407.00	12,44,48,931.64
Administrative Expenses (Annex 4)	1,84,85,143.91	1,03,62,271.45	45,21,811.00	3,33,69,226.36	1,89,80,850.34	38,89,584.70	12,01,891.10	2,40,72,326.14
Establishment & Administrative Expenditure (Vision 2020)(Annex-6)	-			-	-			-
Total	14,13,20,526.71	1,11,37,825.45	1,61,54,824.00	16,86,13,176.16	12,73,07,097.98	47,28,861.70	1,64,85,298.10	14,85,21,257.78

Schedule 22 - Expenditure on Grants, Subsidies Etc

Particulars	Current year			Previous Year				
	TIFAC	PFC	WSSS	Total	TIFAC	PFC	WSSS	Total
Grants given to Institutions/ Organisations				-				-
Project Expenditure (Annex - 5)	6,67,92,495.38	1,48,617.00	-	6,69,41,112.38	3,33,92,543.01	6,68,176.00	-	3,40,60,719.01
Project Expenditure (Vision 2020) (Annex-6A)	84,69,716.00			84,69,716.00	5,06,961.00			5,06,961.00
Project Expenditure (Vision 2035) (Annex-6&6A)	-			-	-			-
Total	7,52,62,211.38	1,48,617.00	-	7,54,10,828.38	3,38,99,504.01	6,68,176.00	-	3,45,67,680.01

Schedule 23 - Interest : NIL



Technology Information, Forecasting & Assessment Council (TIFAC)

Schedule Forming Part of the Accounts for the Year Ended 31.03.2022

SCHEDULE 24

A. SIGNIFICANT ACCOUNTING POLICIES

1. The financial statements are prepared under the historical cost convention on going concern basis. The Society follows the mercantile system of accounting except receipt of Government grants, Royalty, sale of publications and as stated in the below paras.
 - (i) On the Grants on which Overhead @ 20% is granted to the society, they are taken as income in the year of receipt of grant irrespective of the fact whether the sanctioned grant is actually spent or not.
 - (ii) Regular Grants in the form of General Grants, Salary Grants and Capital Assets Grants are treated as income of the society of the year in which it is received and regular expenditure are treated as expenditure during the year and unspent portion of the Grants received for specific projects are shown as liabilities.
 - (iii) Amounts released as grants under various projects are accounted for as expenditure for the year in which the same are released, irrespective of the fact that the amounts so released may not have been fully utilized towards the projects during the year.
 - (iv) The repayment of Loans/assistance by the beneficiaries to the society as per the conditions stated in the respective agreements is accounted for on receipt basis.
 - (v) In cases where the projects are executed by other institutions, all disbursements of grants irrespective of its utilization by them for projects are treated as expenditure during the Financial Year in which the grant is released.
2. Fixed assets are stated at cost less accumulated depreciation. Cost comprises the purchase price and any attributable cost of bringing the asset to its working condition for its intended use.
3. Depreciation on fixed assets is computed on the written down value (WDV) method at the rates and in the manner prescribed under the provisions of Income Tax Act, 1961.
4. Total expenditure is not bifurcated into plan and non-plan expenditure in the financial statements of the society.

CHANGE IN ACCOUNTING POLICY

5. The Society on the basis of project report received from SIDBI use to credit/debit the net of Revenue/expenditure from SIDBI Revolving Fund by debiting/crediting it to Bharat Kosh Account and corresponding debit/credit to SIDBI Revolving fund without routing through Income & Expenditure Account till last year. From this year the Revenue and Expenditure of SIDBI Revolving Fund is shown separately in the Books of Accounts and routed through Income and Expenditure Account.

B. CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS

a. Contingent Liabilities

Some legal cases have been filed against the Society for which liability may arise in future. The amount is not ascertainable.

b. Notes on Accounts

1. The society runs various projects under the instructions and guidance of Department of Science and Technology (DST), Ministry of Science and Technology, separate accounts for project-wise have not been maintained for the unutilized amount on the project for which the grant/fund released and accounted for as expenditure irrespective of the fact that the amounts so released may not have been fully utilized towards the projects during the year as per the accounting policies.
2. Other Current liabilities also include the net amount of the Grants received for external projects from DST and amount released for the projects. No period wise details have been maintained to adjust the same either by the release to the project or refund to the DST (grantee).



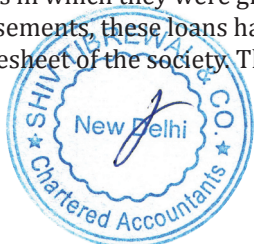
3. Current Assets includes old balance receivable from M/s Balmer Lawrie & Co. Ltd for Rs. 1,12,476/- which is pending for adjustment since long.
4. An amount of Rs. 81,042/- under the head staff Tour advance to Mr. Sajid Mubashir is receivable since 2005 and is need to be adjusted by getting the requisite claim.
5. EMD/ Security Deposits includes Rs. 4,38,784/- being long outstanding amounts for more than 8 years which may be adjusted.
6. 'Sundry Debtors' under the head Current Assets, Loans and Advances include Rs.2,70,000/- as amount recoverable from Shree Chitra Tribunal Institute for Medical Science and Technology, an Autonomous Institute under Ministry of Science and Technology which is outstanding since March 2011.
7. Stock of Publications and Studies, which are published and printed by the Society and distributed at a cost are not accounted for as Stock in hand at the end of the year.
8. NECTAR & TDB have been using approximately 10,000 Sq Ft. & 3,000 Sq Ft. respectively out of total useable area of 50,000 Sq Ft. available with TIFAC but no share of maintenance from NECTAR and TDB is being charged for current year as in the previous yearssince the matter has not yet been decided by DST.
9. In the opinion of the Management, the current assets, loans and advances have a value on realization in the ordinary course of business, at least equal to the amount at which they are stated in the Balance Sheet.
10. In view of there being no taxable income under Income tax Act, 1961 as per section 10(23C) applicable to the Society, no provision for Income Tax has been considered necessary.

11. FOREIGN CURRENCY TRANSACTIONS

(Amount Rs.)

	Current Year	Previous Year
Expenditure in foreign currency:		
a) Travel	260468/-	Nil
b) Remittances and Interest Payment to Financial Institutions/ Banks in Foreign Currency	Nil	Nil
c) Patents Filing abroad	58,77,100/-	Nil
d) Other expenditure:		
- Membership Fees	598,13,734/-	3,06,23,945/-
- Legal and Professional Expenses	Nil	Nil
- Miscellaneous Expenses	Nil	Nil
12. Remuneration to Auditors:		
- Audit Fees	142175/-	1,32,000/-
- Taxation matters	Nil	Nil
- Consultancy Charges	Nil	Nil
- Certification	Nil	Nil
- Goods & Service Tax	25,592/-	23,760/-


13. The Society had given loans to various parties under various projects from the year 1992 to 2005 which were written off in the Financial Years in which they were given as per the then prevailing accounting policies of the society. At the time of their respective disbursements, these loans had not been recognized as loans and advances and hence do not reflect in the assets side of the balancesheet of the society. The details are given as follows :-



Name of the Project	Overdue upto 3 years	Overdue more than 3 years	Total
Home Grown Technology	0.00	157661195.36	157661195.36
Advanced Composite Programmes	0.00	134258293.00	134258293.00
Sugar Technology Units	0.00	15135528.00	15135528.00
Fly Ash Utilization	0.00	11834000.00	11834000.00
Agriculture and Agro Food Sector	0.00	10625000.00	10625000.00
Targeted Programmes in other Important Areas	0.00	92765000.00	92765000.00
Total	0.00	422279016.36	422279016.36

14. CPF Trust Account collects money from the staff of TIFAC as well as from TIFAC as employer and invests this amount in Fixed Deposits of Nationalized Banks on which interest is earned as per the prevailing bank rates. Similarly the trust provides interest to the staff CPF accounts at the rates prescribed in CPF Act from time to time which results in difference of interest earned & interest paid amount. During the Financial Year 2021-22 there was a deficit of Rs. 1247388.80 with the CPF Trust due to difference in interest provided on the balance in the employees account and interest earned on deposits with the Nationalised Banks and the same to be recovered from the TIFAC.
15. An amount of Rs. 48067/- is recoverable from Scientist F, (Ms. Sangeeta Nagar) on account of a laptop misplaced by her in FY 2009-10. The same has not been shown as recoverable from her and corresponding adjustment has not been done in Fixed Asset Schedule.
16. An amount of Rs.181,31,847/- is to be transferred to Bharat Kosh Account being Interest earned on deposits with Nationalised banks for the years 2021-22.
17. The Grants have been given on the basis of utilisation certificates issued by the Institute itself to which the grant has been given and not certified by the designated auditors of the institute, who had audited the accounts of the institute, regarding the expenditure incurred by the institute for the given specified project.
18. As per the change in Accounting Policy during the year the Revenue Earned from TIFAC-SIDBI Revolving Fund amounting to Rs.28,94,000/- and Management Fee & Incidental Charges from TIFAC SIDBI Revolving Fund amounting to Rs.31,45,000/- is now routed through Income and Expenditure account for the FY 2021-2022.
19. Previous year's figures have been regrouped/rearranged wherever found necessary to make them comparable with current year figures.
20. Schedules 1 to 24 are annexed to and form an integral part of the Balance Sheet as at 31.03.2022 and the Income and Expenditure Account for the year ended on that date.

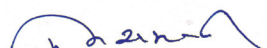
As per our report of even date annexed herewith
For SHIV TIBREWAL & CO.
Chartered Accountants
FRN: 011391N


S.K. TIBREWAL
(Partner)
MRN: 080098




Accounts Officer
TIFAC

दीप प्रकाश / DEEP PRAKASH
लेखा अधिकारी / Accounts Officer
प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)
Technology Information, Forecasting and Assessment Council (TIFAC)
विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार / Deptt. of Science & Technology, Govt. of India
5-वीं मंजिल, ए-आई, ब्लॉक / 5th Floor, AI Block,
टेक्नोलॉजी भवन, न्यू मेहरौली रोड / Technology Bhawan, New Mehrauli Road
नई दिल्ली-110016 / New Delhi-110016


Incharge (Fin. & Admin.)
TIFAC

मुकेश माथुर / MUKESH MATHUR
वैज्ञानिक 'एफ' एवं प्रशासकी (वित्त एवं प्रशासन) / Scientist 'F' & In-charge (Fin. & Admin.)
प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)
Technology Information, Forecasting and Assessment Council (TIFAC)
विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार / Deptt. of Science & Technology, Govt. of India
नई दिल्ली-110016 / New Delhi-110016


Executive Director
TIFAC

प्रो. प्रदीप श्रीवास्तव / Prof. Pradeep Srivastava
कार्यकारी निदेशक / Executive Director
प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)
Technology Information, Forecasting and Assessment Council (TIFAC)
विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार / Deptt. of Science & Technology, Govt. of India
नई दिल्ली-110016 / New Delhi-110016

Date: 29-08-2022
Place: New Delhi

Staff Advances

PARTICULARS	Current Year			Previous Year				
	TIFAC	PFC	WSS	Total	TIFAC	PFC	WSS	Total
A) Staff Advances under TIFAC Account								
B) HBA Advance								
Ms. Sangeeta Baksi	1,36,800.00			1,36,800.00	1,87,200.00			1,87,200.00
C) Car Advance				-				
Sh.T. Chandrasekhar	38,700.00			38,700.00	49,500.00			49,500.00
Sh. Yashwant Dev Panwar	32,400.00			32,400.00	54,000.00			54,000.00
D) Leave Travel Concession				-				-
Ms. Mini K K	14,000.00			14,000.00				
E) Tour Advance				-				-
Sh. Sajid Mubashir	81,042.00			81,042.00	81,042.00			81,042.00
F) Scooter Advance				-				-
G) Computer Advance				-				-
Sh. Mahipal Singh Rawat	23,000.00			23,000.00	35,000.00			35,000.00
Sh. Sanjay Sundriyal	33,000.00			33,000.00	45,000.00			45,000.00
Sh. Deep Prakash	-			-	21,875.00			21,875.00
Sh. Deep Kumar	-			-	25,000.00			25,000.00
Sh. Ravi Dutt	19,000.00			19,000.00	31,000.00			31,000.00
Sh. S K Muneshwar	-			-	29,750.00			29,750.00
Sh. Kunwar Singh	38,000.00			38,000.00	50,000.00			50,000.00
Ms. Promila Khilani	39,500.00			39,500.00				
Sh. Bishram Bhakta	36,000.00			36,000.00	48,000.00			48,000.00
H) Advances				-				-
Total	4,91,442.00	-	-	4,91,442.00	6,57,367.00	-	-	6,57,367.00



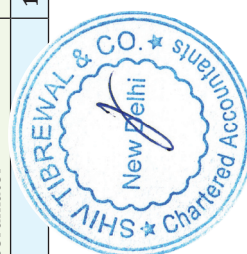
Refund From Projects Financed (Tifac Regular Account) - Income

PARTICULARS	Current Year				Previous Year			
	TIFAC	PFC	WSS	Total	TIFAC	PFC	WSS	Total
(A) Home Grown Technology :								
Up Scaling Technology for Processed Coir	85,85,000.00			85,85,000.00	8,00,000.00	-	-	8,00,000.00
Sub Total (A)	85,85,000.00	-	-	85,85,000.00	8,00,000.00	-	-	8,00,000.00
(B) Advanced Composites Programme								
Development of Composite Modular Acoustic Enclosure	6,00,000.00			6,00,000.00	1,50,000.00	-	-	1,50,000.00
Sub Total (B)	6,00,000.00	-	-	6,00,000.00	1,50,000.00	-	-	1,50,000.00
(C) Sugar Technology Mission								
Cane Juice Clarification	1,00,00,000.00			1,00,00,000.00				
Sub Total (D)	1,00,00,000.00	-	-	1,00,00,000.00	-	-	-	-
Total (A) + (B) + (C) + (D)+(E)	1,91,85,000.00	-	-	1,91,85,000.00	9,50,000.00	-	-	9,50,000.00



Establishment Expenditure (TIFAC Regular)

PARTICULARS	Current Year			Previous Year				
	TIFAC	PFC	WSS	Total	TIFAC	PFC	WSS	Total
a) Salaries	9,21,89,433.00			9,21,89,433.00	8,50,71,228.00	-	-	8,50,71,228.00
Salary - Consolidated	3,18,876.00	7,75,554.00		10,94,430.00	3,18,876.00	8,39,277.00	-	11,58,153.00
Stipend	3,02,400.00			3,02,400.00				
Internship Scheme	10,838.00			10,838.00	36,000.00	-	-	36,000.00
b) TIFAC Contribution to New Pension Scheme	79,65,410.00			79,65,410.00	43,07,828.00	-	-	43,07,828.00
c) Contribution to Provident Fund	44,90,446.80			44,90,446.80	46,66,267.64	-	-	46,66,267.64
d) Others (Specify)				-		-	-	-
Consultancy Fee (Others)	13,92,838.00			13,92,838.00	8,42,323.00	-	-	8,42,323.00
Consultancy Fee (Legal)	7,52,500.00			7,52,500.00	13,70,000.00	-	-	13,70,000.00
Consultancy Fee (Estt.)	8,80,000.00			8,80,000.00	16,20,000.00	-	-	16,20,000.00
Young Professional	8,18,193.00			8,18,193.00				
Hospitalisation Expenses	4,33,283.00			4,33,283.00	11,13,490.00	-	-	11,13,490.00
Medical Expenses	16,91,296.00			16,91,296.00	9,34,295.00	-	-	9,34,295.00
Leave Travel Concession	8,08,075.00			8,08,075.00	6,71,029.00	-	-	6,71,029.00
Gratuity	57,46,566.00			57,46,566.00	21,78,900.00	-	-	21,78,900.00
Leave Encashment (TIFAC Employees)	19,75,890.00			19,75,890.00	33,78,281.00	-	-	33,78,281.00
Encashment of Leave (TIFAC Employees)	16,32,456.00			16,32,456.00	5,97,314.00	-	-	5,97,314.00
Tuition Fee/Children Education Allowance	14,26,882.00			14,26,882.00	12,20,416.00	-	-	12,20,416.00
Scholarship for Women Scientist (11th Batch)				-	-	-	1,36,17,091.00	1,36,17,091.00
Scholarship for Women Scientist (12th Batch)			98,31,517.00	98,31,517.00				-
Salary of IT Scientist			80,000.00	80,000.00				-
Salary of Staff Training Coordinator			7,24,836.00	7,24,836.00	-	-	-	-
Salary of Accounts Assistant			3,32,220.00	3,32,220.00	-	-	2,93,885.00	2,93,885.00
Salary of Data Entry Operator			3,32,220.00	3,32,220.00	-	-	3,49,255.00	3,49,255.00
Salary of Training Assistant			3,32,220.00	3,32,220.00	-	-	3,21,570.00	3,21,570.00
Salary of Training Coordinator				-	-	-	7,01,606.00	7,01,606.00
Total	12,28,35,382.80	7,75,554.00	1,16,33,013.00	13,52,43,949.80	10,83,26,247.64	8,39,277.00	1,52,83,407.00	12,44,48,931.64



Administrative Expenses (TIFAC Regular)

PARTICULARS	Current Year			Previous Year				
	TIFAC	PFC	WSS	Total	TIFAC	PFC	WSS	Total
Repair and Maintenance	3,76,877.00			3,76,877.00	11,56,644.00	-	-	11,56,644.00
Rent, Rates and Taxes				-	-	-	-	-
Car hire Charges	9,40,201.53	2,834.00		9,43,035.53	6,45,998.00	2,872.00		6,48,870.00
Postage, Telephone and Communication Charges	15,43,380.69			15,43,380.69	5,25,207.00	-		5,25,207.00
Printing, Stationary & Printing of Publications	10,15,374.72			10,15,374.72	11,95,907.70	-		11,95,907.70
Transport Recovery (Sh Sanjay Singh)	3,29,323.00			3,29,323.00				-
Travelling and Conveyance Expenses	58,941.00			58,941.00	37,091.00	663.00		37,754.00
Subscription Expenses	1,81,930.00			1,81,930.00	1,76,799.00	-		1,76,799.00
TIFAC Foundation Day (2020-21)	1,120.00			1,120.00	4,45,369.00	-		4,45,369.00
TIFAC Foundation Day (2021-22)	1,10,671.00			1,10,671.00				-
Professional Charges	1,54,992.00			1,54,992.00	1,37,758.00	-		1,37,758.00
Auditors Remuneration				-		-		-
Audit Fee	1,42,175.00			1,42,175.00	1,32,000.00	-		1,32,000.00
GST on Audit Fee & Incomet Tax Return	31,608.00			31,608.00	29,340.00	-		29,340.00
Tea/Water/Opening and Closing of Office	2,98,824.00			2,98,824.00	3,67,470.00	-		3,67,470.00
Advertisement and Publicity	2,07,985.00	2,65,780.00	28,72,806.00	33,46,571.00	1,26,442.00	-	7,08,958.00	8,35,400.00
Others (Specify)				-		-		-
Bank Charges	11,047.97	622.45	1,416.00	13,086.42	895.36	666.70	4,950.10	6,512.16
Misc. Office Expenses	8,27,642.76	2,662.00		8,30,304.76	8,10,362.60	270.00		8,10,632.60
Membership Fee	1,08,559.00			1,08,559.00	99,822.00	-		99,822.00
Manpower (Service Provider Agencies)	24,38,738.00			24,38,738.00	22,32,606.00	-		22,32,606.00
Card Insurance Charges	-			-	679.68	-		679.68
E-Office (System Administrator)	4,10,068.50			4,10,068.50	7,19,643.00	-		7,19,643.00
E-Office LITE (Sparrow)	4,57,036.00			4,57,036.00				-
Constitution Day Celebraton	-			-	31,500.00	-		31,500.00
Maintenance of Vishwakarma Bhavan	61,00,000.00			61,00,000.00	63,70,000.00	-		63,70,000.00
Legal Charges	1,31,645.00			1,31,645.00	1,41,860.00	-		1,41,860.00
PM Relief Fund (M/s APL Poly Fab)				-	-	-		-
Rajabhasha Committee Meeting	1,39,508.00			1,39,508.00	96,970.00	-		96,970.00
Swatch Bharat Mission	15,000.00			15,000.00	-	-		-
Digitilization and Scanning Service	1,17,065.74			1,17,065.74	1,10,254.00	-		1,10,254.00
Web Portal Service/Applications	2,41,770.00			2,41,770.00	7,27,258.00	-		7,27,258.00



PARTICULARS	Current Year			Previous Year			
	TIFAC	PFC	WSS	Total	TIFAC	PFC	WSS
Filing of Patent (Indian)		37,38,426.00		37,38,426.00	-	22,34,075.00	
Filing of Patent (Abroad)		58,77,100.00		58,77,100.00	-	16,51,038.00	
Honorarium to Experts	6,04,000.00		1,28,000.00	7,32,000.00	5,83,000.00	-	81,957.00
Housekeeping of TIFAC Building	14,75,560.00			14,75,560.00	20,78,094.00	-	
Demand TDS (2019-20)	-			-	1,880.00	-	1,880.00
TIFAC Software Maintenance	11,800.00			11,800.00	-	-	-
Patent Agents Exam Price (9th & 10th Batch)				-	-	-	80,000.00
Interest : TDS	2,300.00			2,300.00			-
TA/DA for attending Orientation Programme				-	-	-	2,51,747.00
TA/DA for Attending Orientation Programme (12th Batch)			40,191.00	40,191.00			
TA/DA for Women Scientist (Workshop & Orientation)			4,04,362.00	4,04,362.00			
Orientation Programme			1,62,473.00	1,62,473.00	-	-	32,800.00
Contingency, Refresher for Alumni			48,002.00	48,002.00	-	-	1,255.00
Contingency (12th Batch)			70,642.00	70,642.00			-
Hardware Maintenance and Software				-	-	-	40,224.00
Overhead			7,93,919.00	7,93,919.00	-	-	-
Training Programme on IPR at Telengana State Council		1,99,203.00		1,99,203.00			
Training Programme on IPR at Tamil Nadu State Council		2,75,644.00		2,75,644.00	-	-	-
Total	1,84,85,143.91	1,03,62,271.45	45,21,811.00	3,33,69,226.36	1,89,80,850.34	38,89,584.70	12,01,891.10
							2,40,72,326.14



PROJECT EXPENSES (TIFAC Regular Account)

PARTICULARS	Current Year			Total	Previous Year			
	TIFAC	PFC	WSS		TIFAC	PFC	WSS	Total
(a) Follow-Up Action/Special Initiatives								
Characterisation of the major Agro-Residue Biomass	-			-	2,65,412.00			2,65,412.00
Spatial Information System on Biomass Potential	0.00			-	8,29,540.00			8,29,540.00
Shramik Shakti Manch (Saksham)	6,10,945.00			6,10,945.00	4,24,800.00			4,24,800.00
Management Fee & Incidental Charges (TIFAC-SIDBI Revolving Fund)	31,45,000.00			31,45,000.00				
Sub-Total (a)	37,55,945.00	-	-	37,55,945.00	15,19,752.00	-	-	15,19,752.00
(b) IIASA - TIFAC Projects/Study/Membership Fee				-				-
IIASA - TIFAC joint Workshop (TIFAC)	1,14,294.00			1,14,294.00	32,824.00			32,824.00
INDIA-IIASA Membership Fee	5,98,13,734.38			5,98,13,734.38	3,06,23,945.01			3,06,23,945.01
IIASA-TIFAC Study on Climate Smart Livelihood and	-			-	5,00,000.00			5,00,000.00
Sub-Total (b)	5,99,28,028.38	-	-	5,99,28,028.38	3,11,56,769.01	-	-	3,11,56,769.01
(c) HOME GROWN TECHNOLOGIES								
Project related expenses				-				-
Sub-Total (c)	-	-	-	-	-	-	-	-
(d) Technology Foresight for Automotive Research								
Technology Foresight for Automotive Research (TFAR)				-				-
Sub-Total (e)				-	-	-	-	-
(e) Technology Foresight Study in Security Technology								
Technology Foresight study on Security Technologies				-				-
Sub-Total (f)	-	-	-	-	-	-	-	-
(f) Project Related Expenditure								
Meeting Expenditure, Meeting (Project Related), Meeting (NITI AAYOG) TIFAC, DST Review Committee Meeting	2,17,973.00	24,000.00		2,41,973.00	94,761.00	23,160.00		1,17,921.00
Travelling Expenditure, Travel Abroad, Travel Expenditure (Project Expenditure)	20,92,738.00			20,92,738.00	1,95,623.00	1,40,285.00		3,35,908.00
Workshop Expenditure, Workshop :TIFAC/ DST ITS Canada), Workshop on CIPC 2016	7,97,814.00	1,24,617.00		9,22,428.00	4,25,638.00	5,04,731.00		9,30,369.00
Sub-Total (f)	31,08,522.00	1,48,617.00	-	32,57,139.00	7,16,022.00	6,68,176.00	-	13,84,198.00
Total (a) to (f)	6,67,92,495.38	1,48,617.00	-	6,69,41,112.38	3,33,92,543.01	6,68,176.00		3,40,60,719.01

Annexure – 6

EXPENDITURE OF VISION 2020 and Vision 2035

PARTICULARS	Current Year		Previous Year	
	V2020	Vision 2035	V2020	Vision 2035
Establishment & Administrative Expenditure				
Printing, Stationary & Printing of Publications				
Sub Total (A)	-	-	-	-
Total (A)	-	-	-	-

Annexure – 6A

PROJECT EXPENDITURE OF VISION 2020

PARTICULARS	Current Year		Previous Year	
	V2020	Vision 2035	V2020	Vision 2035
(a) Targeted Programme in Other Important Area				
MSME Expenses	3,10,496.00		1,51,011.00	
MSME : Commissioning TIFAC Academic Partner (TAP)	66,23,800.00			
MSME : Seaweed Mission	8,88,920.00			
MSME : Study for the Ihula Cluster, Kankaivaganj, Nalanda, Bihar	2,04,600.00			-
MSME Study for Agriculture Implement Cluster, Noorsarai, Nalanda Bihar	2,04,600.00			-
MSME : Study for the Textile & Garment Manufacturing	2,37,300.00		3,55,950.00	
	84,69,716.00	-	5,06,961.00	
				3,55,950.00
				5,06,961.00



Annexure – 6A

PROJECT EXPENDITURE OF VISION 2020

PARTICULARS	Current Year			Previous Year		
	V2020	Vision 2035	TOTAL	V2020	Vision 2035	TOTAL
(a) Targeted Programme in Other Important Area			-			-
Brainstroming Meeting 2035			-			-
Sub-Total (a)			-			-
(b) Project Related Expenditure			-			-
Travelling Expenditure, Travel Abroad, Travel Expenditure (Project Expenditure)			-			-
Sub-Total (b)			-			-
TOTAL (a) to (b)	84,69,716.00	-	84,69,716.00	5,06,961.00	-	5,06,961.00

Annexure – 7

SHORT TERM DEPOSITS WITH BANKS

PARTICULARS	Current Year			Previous Year		
	TIFAC	PFC	WSSS	TIFAC	PFC	WSSS
Short Term Deposits						
TIFAC	21,25,27,272.00			21,47,28,095.00		
Flexi Account	5,00,000.00			10,00,000.00		
Accrued Interest	40,80,502.00			44,09,847.00		
Total	21,71,07,774.00	-	-	22,01,37,942.00	-	-
						2,01,37,942.00

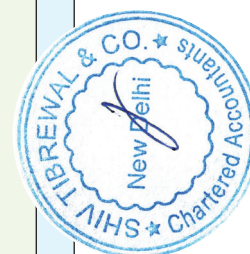


EXPENSES PAYABLE

PARTICULARS	Current Year				Previous Year			
	TIFAC	PFC	WSS	Total	TIFAC	PFC	WSS	Total
Expenses Payables Under TIFAC								
Salary Payable	54,73,263.00	24,180.00	2,15,818.00	57,13,261.00	52,07,341.00	-	1,42,338.00	53,49,679.00
Salary Arrear 30% Payable (01.04.2019 to 31.01.2020)	-	2,44,147.00		2,44,147.00	34,01,874.00	2,44,147.00		36,46,021.00
Court Loan (Sh. Amil Kumar Rai)	-			-	8,000.00	-		8,000.00
Consultancy Fee	4,05,645.00			4,05,645.00	2,64,470.00	-		2,64,470.00
NPS Contribution (Employees)	3,54,881.00			3,54,881.00	3,36,693.00	-		3,36,693.00
NPS Contribution (Employers)	4,96,824.00			4,96,824.00	3,36,693.00	-		3,36,693.00
CPF Contribution (Employee)	3,24,658.00			3,24,658.00	3,42,930.00	-		3,42,930.00
CPF Contribution (Employers)	14,28,395.80			14,28,395.80	27,04,131.64	16,130.00		27,20,261.64
Opening Closing of TIFAC office	-			-	6,000.00	-		6,000.00
Experts Members Payable (Outsiders) (Honorarium)	32,000.00			32,000.00	8,000.00	-		8,000.00
GEM	-			-	5,46,949.60	-		5,46,949.60
M/s Airtel Relationship No.10954184	-			-	11,724.00	-		11,724.00
M/s Shiv Tibrewal & Co. (Chartered Accountant)	1,19,790.00			1,19,790.00	1,11,925.00	-		1,11,925.00
M/s Ashok Travels and Tours	3,71,606.00			3,71,606.00	1,28,324.00	-		1,28,324.00
Bhanaras Hindu University (BHU)	4,80,000.00			4,80,000.00				-
Indian Institute of Technology BHU, Varanasi	10,00,000.00			10,00,000.00				-
M/s K S Gupta And Company	6,750.00			6,750.00				-
M/s Haneef Furniture Works, New Delhi	4,325.00			4,325.00				-
MTNL	12,747.00			12,747.00				-
M/s Business Aids (India)	1,69,128.00			1,69,128.00				-
M/s Chawla Reprographics	14,281.00		38,068.00	52,349.00				-
M/s Sunil Sharma, New Delhi	13,214.00			13,214.00				-
M/s Prime System Technologies	47,096.00			47,096.00				-
M/s Scientific American, Harlan, IOWA	4,473.00			4,473.00				-
M/s Darshee Enterprises, New Delhi	46,744.00			46,744.00				-
M/s CDAC Pune BDG 2021-22	873.00			873.00				-
M/s Babu Tourist Taxi Service	37,423.00			37,423.00				-
M/s Forty Five Integrated Solutions Pvt. Ltd.	1,77,000.00			1,77,000.00				-
M/s Star Travel Solution	26,535.00			26,535.00				-
NIFT-TEA Knitwear Fashion Institute	2,37,300.00			2,37,300.00				-



PARTICULARS	Current Year				Previous Year			
	TIFAC	PFC	WSS	Total	TIFAC	PFC	WSS	Total
PSG College of Technology Science and Technology Enterprises	42,595.00			42,595.00				-
Reimbursement Payable	3,89,098.00			3,89,098.00				-
The Printways	1,416.00		14,537.00	15,953.00				-
Income Tax on Audit & Return	66,000.00			66,000.00	31,000.00			31,000.00
Institute for Social & Economic Change (ISEC) Bangalore	-			-	5,00,000.00	-		5,00,000.00
M/s Sarathi Enterprises	41,265.00		5,640.00	46,905.00	14,145.00	-		14,145.00
M/s Oasis Telecommunications	7,540.00			7,540.00	7,572.00	-		7,572.00
M/s Brain Bridge Technical Centre LLP	-			-	1,61,719.00	-		1,61,719.00
M/s Malik Water Supply	2,365.00			2,365.00	11,447.00	-		11,447.00
M/s Creative Arts Studio	-			-	39,843.00	-		39,843.00
M/s Kaushal Gram Rural Services Pvt Ltd.	-			-	1,03,246.00	-		1,03,246.00
M/s Sensys Technologies Pvt. Ltd.	95,000.00			95,000.00	2,09,950.00	-		2,09,950.00
M/s Bhavan Prakashan	-			-	22,316.00	-		22,316.00
GST on Audit Fee	35,010.00			35,010.00	27,360.00	-		27,360.00
M/s Director, New Delhi HPQ, Delhi	342.00			342.00	-	-		-
M/s Unecops Technologies Limited, New Delhi	1,544.00			1,544.00	1,858.00	-		1,858.00
Indian National Science Academy				-	-	-	369.00	369.00
Ms Sangeeta Nagar				-	-	1,260.00		1,260.00
M/s Perfect Traders	-			-	41,589.00	-		41,589.00
M/s Anand & Anand		2,68,322.00		2,68,322.00	-	-		-
M/s Anjan Sane & Associates		12,245.00		12,245.00				
M/s S Majumdar & Company		4,87,643.00		4,87,643.00				
Scholarship for Women Scientists								
TIFAC (Overhead Charges) Payable			57,25,727.00	57,25,727.00	-	-	1,05,978.00	1,05,978.00
M/s Uma Dev & Sons	1,54,179.00			1,54,179.00	-	-	8,29,950.00	8,29,950.00
Sub Total (A)	1,21,21,305.80	10,36,537.00	68,29,740.00	1,99,87,582.80	1,48,69,481.24	2,61,537.00	10,78,635.00	1,62,09,653.24
TDS Payable	13,88,345.00	83,404.00	8,411.00	14,80,160.00	15,47,761.00	67,823.00	1,046.00	16,16,630.00
Sub Total (B)	13,88,345.00	83,404.00	8,411.00	14,80,160.00	15,47,761.00	67,823.00	1,046.00	16,16,630.00
Total A+B	1,35,09,650.80	11,19,941.00	68,38,151.00	2,14,67,742.80	1,64,17,242.24	3,29,360.00	10,79,681.00	1,78,26,283.24



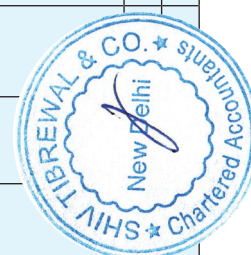
Earnest Money held with TIFAC

PARTICULARS	Current Year			Previous Year		
	TIFAC	PFC	WSS	TIFAC	PFC	WSS
Earnest Money held from Sugar Factories						
Earnest Money: Sakthi Sugars Ltd	1,00,000.00			1,00,000.00		
Earnest Money : Simbhaoli Sugar	3,00,000.00			3,00,000.00		
Sub Total (A)	4,00,000.00	-	-	4,00,000.00	-	-
Earnest Money from Parties						
M/s Nimbus Harbour Pvt Ltd.	20,000.00			20,000.00		
M/s Perfect Traders	5,000.00			5,000.00		
M/s Omnitech Automations Pvt Ltd	5,000.00			5,000.00		
M/s Dip Tecnologies Pvt. Ltd.	5,000.00			5,000.00		
M/s Asha Enterprises Pvt. Ltd.	50,000.00			50,000.00		
M/s Beltek Canadian Water Ltd. (Aquaфина)	5,000.00			5,000.00		
Security Deposit : M/s Pink House Keeping	18,784.00			18,784.00		
Security Deposit : M/s Prime Systme Technologies	25,000.00			25,000.00		
Security Deposit : M/s Softline Studio Services					23,010.00	
Sum Total (B)	1,33,784.00	-	-	1,33,784.00	23,010.00	-
TOTAL A + B	5,33,784.00	-	-	5,33,784.00	23,010.00	-



External Projects Handled by TIFAC

PARTICULARS	Current Year										Previous Year									
	GTWG	ICPS	TNA	MSW	DIPP	NM-QTA	SSR	ECB	DSIR-TRI-6	AGGMPWS	GTWG	ICPS	TNA	MSW	DIPP	NM-QTA	SSR	ECB	DSIR-TRI-6	AGGMPWS
Opening Balance from Previous Year	20,18,218.00	1,00,785.00	12,98,371.70	-	6,09,478.00	7,57,435.00	(1,15,000.72)	3,65,600.00	-	5,18,723.00	20,18,218.00	11,54,094.00	12,98,371.70	2,75,000.00	6,09,478.00	5,00,000.00	(2,07,000.00)	-	-	13,41,524.00
Income Received during the Year																				
Grant Received from Ministries			19,78,430.00			2,00,000.00			22,00,000.00							20,00,000.00		3,65,600.00	-	
Refund from Institutions						1,69,138.00											96,764.28			
Sub Total	20,18,218.00	1,00,785.00	32,76,801.70	-	6,09,478.00	11,26,573.00	(1,15,000.72)	3,65,600.00	22,00,000.00	5,18,723.00	20,18,218.00	11,54,094.00	12,98,371.70	2,75,000.00	6,09,478.00	25,00,000.00	(1,10,235.72)	3,65,600.00	-	13,41,524.00
Expenditure Incurred																				
Head (Recurring)																				
Research Associates/ Manpower / Consultancy						7,97,050.00				1,84,000.00		10,53,309.00				6,35,376.00				7,68,728.00
DPR Steering Committee Meeting																5,88,353.00				
Consultative Meeting/ Workshops			42,595.00																	
TA/DA Expenses of Steering Committee Members (6-7 experts, there to four meeting in three months)																				
Honorarium for the Advisory Committee (18-20) and Steering Committee Members @4000/- pre sitting per member except TIFAC officials																				
Printing of DPR																1,81,104.00				
Travelling								6,300.00								18,367.00				
Recurring																				
Contingency																	4,765.00			
Meeting expenses of Advisory and Steering Committee Members (Local Transport, Boarding/Lodging, Working Lunch etc)																				
Consumables																				
Sitting Fee																				



PARTICULARS	Current Year										Previous Year									
	GTWG	ICPS	TNA	MSW	DIPP	NM-QTA	SSR	ECB	DSIR-TRI-6	AGGMPWS	GTWG	ICPS	TNA	MSW	DIPP	NM-QTA	SSR	ECB	DSIR-TRI-6	AGGMPWS
Regional Workshop																				
Web Portal Development																				
Multi Function Printer																				
Overhead						79705.00				41,200.00						3,19,365.00				54,073.00
Amount Refunded back to the Institute								3,59,300.00						2,75,000.00						
Sub Total	.	.	42,595.00	.	.	8,76,755.00	.	3,65,600.00	.	2,25,200.00	.	10,53,309.00	.	2,75,000.00	.	17,42,565.00	4,765.00	.		8,22,801.00
Total	20,18,218.00	1,00,785.00	32,34,206.70	.	6,09,478.00	2,49,818.00	(1,15,000.72)	.	22,00,000.00	2,99,523.00	20,18,218.00	1,00,785.00	12,98,371.70	.	6,09,478.00	7,57,435.00	(1,15,000.72)	3,65,600.00	.	5,18,773.00



Technology Information, Forecasting & Assessment Council (TIFAC)
Receipts & Payments for the Period the Year Ended 31.03.2022

	Receipts	Current Year	Previous Year
1	Opening Balances		
	Cash in hand	7,265.00	79,048.00
	Cash in Hand (Under PFC New Account)	1,793.00	3,293.00
	Cash in Hand (Under WSSS New Account)	1,667.00	12,367.00
	Bank balances		
	In Current Accounts		
	In Deposit Accounts	21,91,37,942.00	22,28,71,696.00
	Short Term Deposite (Flexi Deposit Account)	10,00,000.00	5,00,000.00
	Savings Accounts	17,35,76,958.05	14,14,16,592.10
	Savings Accounts (Under PFC New Account)	1,05,83,199.75	1,63,697.45
	Savings Accounts (Under WSSS New Account)	1,03,90,655.06	76,31,100.64
	Advance for Franking Machine	-	-
2	Grants Received		
	From Government of India - Plan (TIFAC)	22,00,00,000.00	21,01,00,000.00
	From Government of India - Non Plan (TIFAC)		
3	Interest Received		
	On Bank Deposits (TIFAC)		-
	On Bank Savings (TIFAC)		-
	Loans Advances etc. (Staff advances)		-
	Interest from Income Tax/ Projects		-
	Interest on Debtors & other Receivable (TIFAC-SIDBI Revolving Fund)		-
4	Other Income (Specify)		
	Refund from HGT Project	85,85,000.00	8,00,000.00
	Refund from Advance Composite Programme	6,00,000.00	1,50,000.00
	Refund from Sugar Technology Mission	1,00,00,000.00	-
	Other Income (Schedule 18)	43,52,022.46	24,72,082.00
	Refund from Fly Ash Utilization Programme		-
5	Receipts fro Patent Facilitating Centre		
	Grant in Aid (Under PFC New Account)		2,00,00,000.00
	Other Receipts		-
	Interest from Bank (Savings) (Under PFC New Account)		-
6	Receipts for Women Scientist Scholourship Scheme		
	Grant in Aid (Under WSSS New Account)	4,50,00,000.00	2,45,70,446.00
	Other Income		11,86,697.52
	Interest from Bank (Savings) (Under WSSS New Account)		-
7	Other Receits (Give Details)		
	Nominal Charges for Dissemination of TIFAC Reports	61,500.00	2,000.00
	Income from Royalty		-
	RTIA Questions	20.00	200.00
		70,32,98,022.32	63,19,59,219.71



Technology Information, Forecasting & Assessment Council (TIFAC) Receipts & Payments for the Period the Year Ended 31.03.2021

Receipts	Current Year	Previous Year
National Steering Committee on Tech Need Assessment (TNA) for Habitat Sector (MOEF&CC)	19,78,430.00	-
Grant : Detail project report for Natinal Mission on Quantum Technology & Application (NM-QTA)	3,69,138.00	20,00,000.00
Grant : Experts Committee on Bibloomatrics (ECB)		3,65,600.00
Grant : Scientific Social Responsibility (SSR) Policy		91,999.28
Grant : DSIR Techno-Commercial Assessment of TRL-6 and above technologies developed in India in academic, Research labs and Industry	22,00,000.00	-
International Womens Day KIRAN-IPR		4,50,000.00
Retment Benifit (Prof. Prabat Ranjan)		-
Bharat Kosh (Govt.) (TIFAC, PFC & WSSS)	1,81,31,847.00	2,08,91,645.00
Sh Sanjay Singh (Foreign Travel)	55,314.00	
Amount to be received from PFC to TIFAC		-
CPF Trust (TIFAC)		-
GSLIS	18,572.00	850.00
GPF		-
Staff Loan	1,65,925.00	1,28,526.00
EMD/Security Deposit (TIFAC) of (Annexure - 9)		
Womens Day & Certificate Distribution Ceremony & International Womens Day (10th Batch)		2,92,576.00
Medical Scheme	1,500.00	500.00
IIT-TIFAC Maintenance (Provision)	61,00,000.00	63,70,000.00
Advance DAVP	4,43,361.00	1,51,562.00
Advance : India International Centre	624.00	
Advance : Special Festival Package	1,31,000.00	
Advance : NICSI (Sparrow)	4,51,732.00	
Advance : Chennai Centre Kiran IPR		-
Advance : Pune Centre Kiran IPR		-
TIFAC-SIDBI Revolving Funds)	2,51,000.00	
Security Deposit		-
Prof. Prabath Ranjan Recovery (Transport)		-
Salary Recoverable (Dr Aruna)		-
Interest Accrued from Union Bank of India (Savings Bank)	14,17,702.00	13,86,530.00
Superannuation / Pension/ Gratuity (Provision)	12,44,028.00	17,48,631.00
Accumulated Leave Encashment	18,27,668.00	30,09,922.00
Total (ii)	3,47,87,841.00	3,68,88,341.28
	73,80,85,863.32	66,88,47,560.99



Technology Information, Forecasting & Assessment Council (TIFAC)
Receipts & Payments for the Period the Year Ended 31.03.2022

	Particulars	Current Year		Previous Year	
1	Expenses				
a	Establishment Expenses (Schedule 21)	12,28,35,382.80		10,83,26,247.64	
	Add : Opening Expenses Payable	86,09,215.00		1,94,00,313.00	
	Less : Expenses Payable	54,73,263.00	12,59,71,334.80	86,09,215.00	11,91,17,345.64
b	Administrative Expenses (Schedule 21)	1,84,85,143.91		1,89,80,850.34	
	Add : Opening Expenses Payable	78,08,027.24		32,73,906.76	
	Add : Loss of sale of Fixed Assets			-	
	Less : Payables	80,36,387.80	1,82,56,783.35	78,08,027.24	1,44,46,729.86
	Less : Loss on Sale of Fixed Assets				
	(Previous year figure does not include obsolescence Expenses in it.)				
c	Expenditure on Grants, Subsidies etc. (As per Schedule 22)		6,67,92,495.38		3,33,92,543.01
2	Payments made against funds for various projects				
	Establishment Expenses (Under PFC New Account)	7,75,554.00		8,39,277.00	
	Add : Opening Expenses Payable	2,44,147.00		14,75,577.00	
	Less : Expenses Payable	2,68,327.00	7,51,374.00	2,44,147.00	20,70,707.00
	Administrative Expenses (Under PFC New Account)	1,05,10,888.45		45,57,760.70	
	Add : Opening Expenses Payable	85,213.00		2,31,000.50	
	Less : Expenses Payable	8,51,614.00	97,44,487.45	85,213.00	47,03,548.20
	Payments made against funds for various projects				
	Establishment Expenses (Under WSSS New Account)	87,86,722.00		1,52,83,407.00	
	Add : Opening Expenses Payable	1,42,338.00		1,36,820.00	
	Less : Expenses Payable	2,15,818.00	87,13,242.00	1,42,338.00	1,52,77,889.00
	Administrative Expenses (Under WSSS New Account)	45,14,105.00		12,01,891.10	
	Add : Opening Expenses Payable	9,37,343.00		77,00,073.00	
	Less : Expenses Payable	37,68,336.00	16,83,112.00	9,37,343.00	79,64,621.10
	Grant Utilisation - Vision 2020	84,69,716.00		5,06,961.00	
	Add : Opening Expenses Payable			-	
	Less : Expenses Payable		84,69,716.00	-	5,06,961.00
	Grant Utilisation - Technology Vision 2035				-
	Addition in Fixed Assets				
	Office Equipment		30,499.00		8,25,059.00
	Library Book		1,53,715.00		94,565.00



Particulars		Current Year		Previous Year	
	Furniture & Fixtures		7,97,632.00		59,983.00
	Computer & Peripherals		32,90,086.98		71,58,482.82
	Interior Work of TIFAC Building		7,57,986.80		20,060.00
	Fire Alarm System at TIFAC Building & Fire Extinguishers				74,005.00
	Computer & Paripherals (Ext. Project)				2,63,670.00
	TIFAC Software Development				3,24,500.00
	E-office				1,00,65,802.00
	TIFAC Software Development (PFC)				41,300.00
3	Other Payments (Specify)				
	Earnest Money /Security Deposit				-
	Stale Cheques (TIFAC, PFC & WSSS)				-
	CGHS(Sh Rajani Kanth Gupta) Ex. Registrar				2,550.00
	Sundry Creditor : Alaka Chakraborty				46,648.00
			24,54,12,464.76		21,64,56,969.63



Technology Information, Forecasting & Assessment Council (TIFAC)
Receipts & Payments for the Period the Year Ended 31.03.2021

Particulars		Current Year
Global Tecnology Watch Group		-
Interdisciplinary Cyber Physical System (ICPS)		10,53,309.00
National Steerign Committee on Tech Need Assessment (TNA) for Habitat Sector (MOEF&CC)	42,595.00	-
Grant : Assessment of Government of India's Gender Mainstreaming Programs for Women in Science	2,25,200.00	8,22,801.00
Grant : Detail project report for Natinal Mission on Quantum Technology & Application (NM-QTA)	8,76,755.00	17,42,565.00
Grant : Experts Committee on Bibloomatrics (ECB)	3,65,600.00	-
Database of Technologies for Management of Muncipal Solid Waste		2,75,000.00
Grant : Scientific Social Responsibility (SSR) Policy		-
Retirement enifit (Prof. Prabat Ranjan)		4,04,679.00
International Womens Day KIRAN-IPR	4,50,000.00	
Bharat Kosh (Govt.) (TIFAC, PFC & WSSS)	2,08,91,645.00	2,52,57,000.00
UNIDO Workshop		1,06,200.00
Amount to be paid by PFC to TIFAC		-
TIFAC-SIDBI Revolving Funds)		26,65,200.00
Medical Scheme	500.00	
CPF Turst	-	2,41,290.50
GSLIS	21,016.00	-
Unspent Balance of Running Projects		3,03,139.00
EMD/Securiy Deposit TIFAC	23,010.00	1,81,990.00
Advance : India International Center		624.00
Advance : Special Festival Package		1,31,000.00
Advance : NICS (Sparrow)		22,58,662.00
Advance : Principal Miranda House	11,76,000.00	
International Womens Day Kiran - IPR	20,446.00	
Advance : Kharagpur Centre KIRAN IPR	5,62,177.00	
Advance : Pune Centre KIRAN IPR	10,00,000.00	
Advance : Karnataka State Council for Science and Technology	15,97,113.00	
Advance : E-Office (System Administrator)	5,07,934.50	
Security Deposit	1,00,000.00	
Overhead (WSSS) Receivable		8,29,950.00
Due to DST (Unspent Balance Amount in respect of Old Projects)	9,56,919.00	-
TDS Receivable from Income Tax Department (AERIS)	5,000.00	
IIT-TIFAC Maintenance (Provisions)		-
Advance : CSIR Glass & Ceramic Research Institute		-



Particulars		Current Year
Womens Day & Certificate Distribution Ceremony & International Womens Day (10th Batch)		-
Staff Loan		-
Interest Accrued From Union Bank of India (Savings Bank of India)	17,89,867.00	14,17,702.00
Closing Balance		
Cash in Hand	10,366.00	7,265.00
Cash in Hand (Under PFC New Account)	1,793.00	1,793.00
Cash in Hand (Under WSSS New Account)	1,667.00	1,667.00
Cash at Bank	20,41,34,487.70	17,35,76,958.05
Cash in Bank (Under PFC New Account)	4,39,737.30	1,05,83,199.75
Cash in Bank (Under WSSS New Account)	4,03,65,796.06	1,03,90,655.06
Short Term Deposit	21,66,07,774.00	21,91,37,942.00
Short Term Deposit (Flexi Deposit Account)	5,00,000.00	10,00,000.00
Total (ii)	49,26,73,398.56	45,23,90,591.36
Total (i) + (ii) = (B)	73,80,85,863.32	66,88,47,560.99



**SHIV TIBREWAL & CO.**

Chartered Accountants

301, Rohit House, 3 Tolstoy Marg, Connaught Place, New Delhi - 110001
Ph.: 011-43723307, 43545218, Mob.: 9811118154 E-mail : stc_ca@yahoo.com

INDEPENDENT AUDITOR'S REPORT**The Trustees****TIFAC Contributory Provident Funds Trust****New Delhi****Report on the Financial Statements**

1. We have audited the accompanying financial statements of TIFAC Contributory Provident Fund Trust, New Delhi, (hereinafter reference to as 'Trust') which comprise the Statement of Affairs as at March 31, 2022.

Responsibility of Management for the Financial Statements

2. These financial statements are the responsibility of the management of TIFAC Contributory Provident Fund Trust with respect to the preparation of these financial statements that give a true and fair view of the financial position and financial performance of the Trust in accordance with the accounting principle generally accepted in India including Accounting Standards issued by the institute of Chartered Accountants of India. This responsibility includes maintenance of adequate accounting records in accordance with the for safeguarding the assets of the Trust and for preventing and detecting frauds and other irregularities; selection and application of appropriate accounting policies; making judgments and estimates that are reasonable and prudent; design; implementation and maintenance of adequate internal financial controls, that are operating effectively for insuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatements, whether due to fraud or error.

Auditor's Responsibility

3. Our responsibility to express an opinion on these financial statements based on our audit. We have taken into account the accounting and auditing standards and matters which are required to be included in the audit report under the provisions of the Act and the Rules made thereunder. We conducted our audit in accordance with the standards on Auditing. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.
4. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risk of material misstatement of the financial statements, whether due to fraud or error in making those risk assessments, the auditor considers internal control relevant to the Trust's preparation of the financial statements, that give a true and fair view, in order to design audit procedure that are appropriate in the circumstances, but not for the purpose of expressing an opinion on whether the Society has in place an adequate internal financial controls systems over financial reporting appropriateness of accounting policies used and the reasonableness of the accounting estimates made by the Society's management and Governing Council, as well as evaluation the overall presentation of financial statements.
5. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basic for our audit opinion.

Opinion

6. In our opinion and the best of our information and according to the explanations given to us, the aforesaid financial statements give the information required by the Act in the manner so required and give a true and fair view in conformity with the accounting principles generally accepted in India of the state of affairs of the Trust as at 31st March 2022 however subject to the following;



The Funds of the Trust should be invested as per the Investment Pattern laid in Government of India, Ministry of Finance (Department of Economic Affairs) Notification No. F-12(1)-DD/86 dated 17th March, 1986. But the above mentioned notification is not available with the Trust and the Funds are being invested into Fixed Deposits with the Nationalised Banks.

7. We Further state that

- a) We have sought and obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit;
- b) In our opinion proper books of account as required by law have been kept by the Trust so far as appears from our examination of those books;
- c) The Statements of Affairs dealt with by this Report are in agreement with the books of accounts;

Date: 29-08-2022

Place: Delhi

For Shiv Tibrewal & Co.

Chartered Accountants

Firm Registration No. 011391N



(S.K. Tibrewal)

Partner

M. No. 080098

UDIN: 22080098AQGDVX4341

Contributory Provident Fund of TIFAC

Statement of Affairs as on 31st March, 2022

Previous Year as on 31.03.2021	Particulars	Current Year as on 31.03.2022	Previous Year as on 31.03.2021	Particulars	Current Year as on 31.03.2022
	Employees Contribution				
4,29,94,420.00	Opening Balance	5,18,67,555.00	1,17,35,028.20	Union Bank of India S/b A/C	1,52,84,454.04
60,56,456.00	Add: Received during the year	36,35,867.00	5,20,330.00	Special deposit with RBI	5,20,330.00
	Add : Amount directly transferred from PFC	1,12,910.00			
32,48,749.00	Add: Interest Accrued During the Year	37,79,843.00	7,07,09,248.00	Short Term deposit with UBI including interest accrued thereon Less Bank Charges	7,45,07,947.00
5,22,99,625.00		5,93,96,175.00	7,02,521.00	Flexi Deposit- UBI	7,23,477.00
7,75,000.00	Less: Paid during the year	25,98,155.00		Loan/ Advances to staff members	
5,15,24,625.00		5,67,98,020.00	-	Sh. Y. D. Panwar	1,90,000.00
3,42,930.00	Add: Employees Subscription for the m/o March'2022	3,24,658.00	5,72,180.00	Receivable from TIFAC account of Employer	5,05,665.00
5,18,67,555.00	Total (A)	5,71,22,678.00		& Employee Contribution for March'2022	
	TIFAC Contribution				
2,85,29,886.44	Opening Balance	3,48,62,763.84	24,91,011.64	Receivable from TIFAC account difference in	12,47,388.80
38,43,107.00	Add: Received during the year	23,68,045.00		interest earned & paid by the CPF Trust	
22,60,520.40	Add: Interest Accrued During the Year	26,19,699.00			
3,46,33,513.84		3,98,50,507.84			
-	Less: Paid during the year	31,96,063.00			
	Less : Payable to TIFAC for payment of Nector	9,78,868.00			
3,46,33,513.84		3,56,75,576.84			
2,29,250.00	Add: Employer Subscription for the m/o March'2022	1,81,007.00			
3,48,62,763.84	Total (B)	3,58,56,583.84			
8,67,30,318.84	Total (A+B)	9,29,79,261.84	8,67,30,318.84	Total	9,29,79,261.84

Subject to Schedule-I, forming part of the Balance Sheet.
As per our report of even date attached herewith.

For Shiv Tibrewal & Co.

Chartered Accountants

FRN : 011391N

Shiv Kumar Tibrewal

Partner

Membership No.080098d

Date : 29-08-2022

Place : New Delhi




Deep Prakash

Trustee

दीप प्रकाश / DEEP PRAKASH

लेखा अधिकारी / Accounts Officer

प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (एडवॉकेट)

Technology Information, Forecasting and Assessment Council (TIFAC)

भवन ६ प्रौद्योगिकी भवन, ५५, ५६, ५७, ५८, ५९, ६०, ६१, ६२, ६३, ६४, ६५, ६६, ६७, ६८, ६९, ७०, ७१, ७२, ७३, ७४, ७५, ७६, ७७, ७८, ७९, ८०, ८१, ८२, ८३, ८४, ८५, ८६, ८७, ८८, ८९, ९०, ९१, ९२, ९३, ९४, ९५, ९६, ९७, ९८, ९९, १००, १०१, १०२, १०३, १०४, १०५, १०६, १०७, १०८, १०९, ११०, १११, ११२, ११३, ११४, ११५, ११६, ११७, ११८, ११९, १२०, १२१, १२२, १२३, १२४, १२५, १२६, १२७, १२८, १२९, १३०, १३१, १३२, १३३, १३४, १३५, १३६, १३७, १३८, १३९, १४०, १४१, १४२, १४३, १४४, १४५, १४६, १४७, १४८, १४९, १५०, १५१, १५२, १५३, १५४, १५५, १५६, १५७, १५८, १५९, १६०, १६१, १६२, १६३, १६४, १६५, १६६, १६७, १६८, १६९, १७०, १७१, १७२, १७३, १७४, १७५, १७६, १७७, १७८, १७९, १८०, १८१, १८२, १८३, १८४, १८५, १८६, १८७, १८८, १८९, १९०, १९१, १९२, १९३, १९४, १९५, १९६, १९७, १९८, १९९, २००, २०१, २०२, २०३, २०४, २०५, २०६, २०७, २०८, २०९, २१०, २११, २१२, २१३, २१४, २१५, २१६, २१७, २१८, २१९, २२०, २२१, २२२, २२३, २२४, २२५, २२६, २२७, २२८, २२९, २३०, २३१, २३२, २३३, २३४, २३५, २३६, २३७, २३८, २३९, २४०, २४१, २४२, २४३, २४४, २४५, २४६, २४७, २४८, २४९, २५०, २५१, २५२, २५३, २५४, २५५, २५६, २५७, २५८, 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COUTRIBUTORY PROVIDENT FUND OF TIFAC
SCHEDULE FORMING PART OF ACCOUNTS FOR THE YEAR ENDED 31.03.2022

SCHEDULE – I

SIGNIFICANT ACCOUNTING POLICIES AND NOTES ON ACCOUNTS

1. The financial statements are prepared under the historical cost convention on going concern basis. The Trust follows the mercantile system of accounting except interest received on special deposit with Reserve Bank of India (RBI) thru Union Bank of India (UBI) on calendar year basis & hence accounted for on receipt basis.
2. The Trust follows the Rule as notified by Government of India, Ministry of Finance, Department of Expenditure under sub section (2) of section 8 of the Provident Funds Act, 1925 (19 or 1925), vide their notification no. 4(1)-EV/92 (II) dated 10th August, 1993 and have also added to the schedule to the said Act the name of Technology information, Forecasting and Assessment Council (TIFAC) under sub section (3) of Section 8 of the said Act, Vide Act, vide notification no. 4(1)-EV/92(I) dated 10th August, 1993.
3. CPF Trust Account collects money from the staff of TIFAC as well as from TIFAC and invests this amount in Fixed Deposits of Nationalized Banks on which interest is earned as per the prevailing bank rates. Similarly the trust provides interest to the staff at the rates prescribed in CPF Act from time to time. Till 31.03.2022 there was a deficit of Rs.12,47,388.80 with the CPF which has been shown as recoverable from TIFAC.
4. Previous year's figures have been regrouped/rearranged wherever found necessary to make them comparable with current year figures.

As per our report of even date attached herewith

For Shiv Tibrewal & Co.

Chartered Accountants

FRN: 011391N



CA. S. K. Tibrewal
(Partner)

MRN: 080098

Date: 29.08.2022

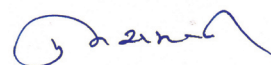
Place: New Delhi





Accounts Officer
TIFAC

दीप प्रकाश / DEEP PRAKASH
लेखा अधिकारी / Accounts Officer
प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)
Technology Information, Forecasting and Assessment Council (TIFAC)
विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार / Deptt. of Science & Technology, Govt. of India
5-वीं मंजिल, ए.आई. ब्लॉक / 5th Floor, AI Block,
टेक्नोलॉजी भवन, न्यू महारौली रोड / Technology Bhawan, New Mehrauli Road
नई दिल्ली-110016 / New Delhi-110016



Incharge (Fin. & Admin.)
TIFAC

मुकेश माथुर / MUKESH MATHUR
वैज्ञानिक 'एफ' एवं प्रशासकी (वित्त एवं प्रशासन) / Scientist 'F' & In-charge (Fin. & Admin.)
प्रौद्योगिकी सूचना, पूर्वानुमान एवं मूल्यांकन परिषद् (टाइफैक)
Technology Information, Forecasting and Assessment Council (TIFAC)
विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार / Deptt. of Science & Technology, Govt. of India
नई दिल्ली-110016 / New Delhi-110016



Technology Information, Forecasting and Assessment Council (TIFAC)

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Web: www.tifac.org.in