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**TECHNOLOGY INFORMATION, FORECASTING AND
ASSESSMENT COUNCIL (TIFAC)**

(Department of Science & Technology)

A-Wing, Vishwakarma Bhavan, Shaheed Jeet Singh Marg, New Delhi-110016

www.tifac.org.in



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EXECUTIVE SUMMARY

The Technology Information, Forecasting & Assessment Council (TIFAC), an autonomous society set up under the Department of Science & Technology in 1988, is mandated to assess the state-of-the-art technology and set directions for future technological development in India in important socio-economic sectors. Leveraging its knowledge networking capabilities, TIFAC had implemented a wide array of programmes in many technology areas. It has now been decided to gradually realign TIFAC activities with the main mandate. TIFAC can play a major role in developing a strong foresight framework and network for the country by carrying out foresight studies in crucial sectors of national importance. Foresight activities to be driven by factors like economic growth and sustainability, socio economic and developmental imperatives, vulnerability of sectors to changes and environmental issues. The year 2010-11 marked launching of new programmes, in line with the main mandate. A glimpse of highlights of few significant achievements during the year is encapsulated below.

Technology Vision 2035: As a sequel to the Technology Vision 2020 exercise carried out by TIFAC and released in 1996, TIFAC initiated preparation of a Technology Vision 2035 document. It would be a National Vision and would be prepared on a consultative framework. The Vision document would take into account our capabilities and competitiveness and would be inclusive accommodating regional aspirations, disparities and priorities. In this direction, the first of a series of brainstorming meetings on '*Science and Technology Perspectives for Changing India*' was organized at TIFAC, Delhi on January 25, 2011, involving recipients of Swarna Jayanthi and Shanthi Swarup Bhatnagar Awards and other eminent experts from Industry, Academia and Research Institutions. During the meeting, four parallel panel sessions on Life Sciences, Medical Sciences, Engineering and Physical Sciences and Chemical Sciences and Technology were conducted. Other such meets would follow.

Foresight & Assessment Activities: Towards reinitiating the foresight activities, a seminar on Technology Foresight Methodologies was organised in September to sensitize the officials on forecasting techniques. Sectors are being prioritized to initiate studies.

Studies & Reports: A study for assessment and projection of S& T manpower needs based on secondary sources of data, limited primary data and opinion survey was initiated. The outcome of the study will be used as input to S&T Division of Planning Commission.

Integrated Technology Assessment Programme (iTAP): This programme envisages undertaking technology assessment studies on specific technology areas/ sectors as well as assessment reports on project proposals. Two studies, viz., '*Correlation of GDP growth and technology causes, if any, in select districts of few Indian States*' and '*Assessment of Solar Thermal Technologies*' in specific areas, were launched.

TIFAC-SIDBI Revolving Fund for Technology Innovation Programme (SRIJAN): This new programme named SRIJAN (सृजन) was launched by TIFAC on November 1, 2010, as a joint



TIFAC-SIDBI Technology Innovation initiative. Under the scheme, TIFAC set up a Revolving Fund with Small Industries Development Bank of India (SIDBI) to fund industries particularly MSMEs for scaling up / commercialization of innovative technologies pertaining to novel / innovative product or process to prove the techno-economic viabilities of commercially unproven technologies. This would encourage and promote innovation capabilities and bring high-risk technology innovations to the market in emerging technology areas for opening up new business opportunities. This Program gives TIFAC the opportunity to assess innovative technologies.

Collaborative Automotive Research (CAR): The TIFAC Governing Council, on reviewing the achievements by the CAR programme, observed that the programme was successful in bringing together different stakeholders and nucleating several R&D projects in a consortia mode. As the programme has matured to an extent that the funding requirements have gone up substantially, it was recommended that a separate agency/ institute be identified for funding of their projects conceptualized under CAR.

MSME upgradation: In its pursuit to upgrade the MSME sectors, 12 New Technology Gap Analysis Studies were commissioned in 11 MSME clusters in different parts of the country. Two earlier established Centres continued to provide technical support to respective clusters.

Bio-Products & Bio-processes: Under this sector, two projects were completed including an optimized process for producing stevioside from stevia leaves and a pilot process for producing prostaglandins, while other projects were pursued towards successful completion.

Patent Facilitating Centre (PFC) continued to create awareness about intellectual property rights in the country and support educational institutions in protecting their inventive works.

International Cooperation: Under the 'India-IIASA Programme' with International Institute for Applied Systems Analysis (IIASA), an independent non-governmental interdisciplinary research institution headquartered in Austria, collaborative research projects among scientists from Indian S&T organizations/academic institutions with IIASA researchers in the areas on mutual interests were undertaken.

With the past experience of pursuing studies and leveraging an expanding network of experts, TIFAC is looking forward to play a major role in technology foresight and technology assessment in the context of planned national development and providing technology information towards defining requirements and prioritization of areas for research and technology development.

(Anil Kakodkar)
Chairman TIFAC Governing Council

1 Foresight and Assessment Activities

1. Foresight and Assessment Activities

1.1 Technology Vision 2035 & Foresight

Towards reinitiating the foresight activities, a seminar on **Technology Foresight Methodologies** was organised on September 15, 2010, for sensitization of TIFAC scientists. Lectures were delivered by relevant field experts on forecasting techniques and case-studies from Jawaharlal Nehru University, Delhi, Indian Institute of Technology Madras, Chennai, Crafitti Technologies Pvt Ltd, Bangalore and others.

As a sequel to the Technology Vision 2020 exercise carried out by TIFAC during the period 1991-1996, TIFAC has initiated preparation of a Technology Vision 2035 document. The Vision document would be inclusive, accommodating regional aspirations, disparities and priorities.

Towards this, a major exercise — to comprehensively assess the technologies that would of interest to the country, map their status and trends, besides identification of the priorities, demand drivers, constraints & opportunities there in — is being embarked upon by TIFAC. As a run up to this, an array of meetings with noted scientists, economists, social scientists, academicians, researchers and experts from Indian industry is planned in different parts of the country.

Subsequently, the first of a series of brainstorming meetings on **‘Science and Technology Perspectives for Changing India’** was organized at TIFAC, Delhi on January 25, 2011, involving recipients of Swarna Jayanthi and Shanthi Swarup Bhatnagar Awards and other eminent experts from Industry, Academia and Research Institutions. During the meeting, four parallel panel sessions on Life Sciences, Medical





Sciences, Engineering and Physical Sciences and Chemical Sciences and Technology were conducted. The outcome was a document enlisting identified technology areas and recommendations thereof of each of the four panels.

The brainstorming series will continue with five regional brain storming meets scheduled at Chennai, Jammu, Kolkata, Mumbai and Varanasi. In these meetings, views on S&T perspectives for a developed India would be sought and discussed at length, to find out specific technology intervention areas, besides the methodology to carry out the exercise.

1.2 TIFAC Studies & Reports

TIFAC has been bringing out reports that assess the status and needs of a wide spectrum technology sectors, with a view to examine technology options for India in a fast changing economic environment. The reports intend to review the technology needs to support national development, status in India vis-à-vis global trends and assess market potential as well as technology development challenges. It is further envisaged bringing out technology foresight and analytical reports that could meet requirements of R&D institutions, scientific departments of government, etc.

Ongoing Studies:

Packaging Technology Study Series

Implementing Agency: SIES School of Packaging, Navi Mumbai; Consultant: S. Amrisha Bhargava.

A draft for the value added report for the study on packaging of Personal Care Products has been received

Pesticide Encyclopaedia

Implementing Agency: Jnana Prabodhini, Pune with Dr Vasant Gowariker as the Chief Editor

A set of draft entries for the document has been received.

Series of Studies on Determinants and Impact of FDI in R&D Sector

The following studies were ongoing during the period under the series:

i) **Centre for Global or local for Global? An examination of FDI in R&D Centres of IT MNEs in India**

Principal Investigator: Dr V Illavaresan, IIT Delhi, New Delhi

The revised report of the study has been received.

ii) **Impact of FDI in R&D on Indian Production and R&D Systems**

Principal Investigator: Dr M. Natesa, NISTADS, New Delhi

A revised report for the study has been received.

iii) **Determinants and Impact of FDI in R&D in Creation and Diffusion of Knowledge in Automobile Industry**

Principal Investigator: Dr. Stayaki Roy, Institute for Studies in Industrial Development, New Delhi

The study is in progress.



New Studies:

Manpower Needs Assessment for Science and Technology in India:

TIFAC has undertaken this study for assessment and projection of S&T manpower needs based on predominantly secondary sources of data and limited primary data and survey. The outcome of the study will be used as input to S&T Division of Planning Commission.

Integrated Technology Assessment Programme (iTAP):

This programme envisages undertaking technology assessment studies on specific technology areas/ sectors as well as assessment reports on project proposals. During this year, the following two studies were initiated:

- (i) 'Correlation of GDP growth and technology causes, if any, in select districts of few Indian States'
- (ii) 'Assessment of Solar Thermal Technologies' in specific areas

1.3 TIFAC Information Interfaces:

The Information Management Cell (IMC) maintains the following websites:

- TIFAC Website (<http://www.tifac.org.in>)
- Mission REACH (<http://www.missionreach.org.in>)

During the year, the hosting of the above websites was migrated to the National Informatics Centre (NIC) web server. As mandated by NIC, a comprehensive web auditing, for plugging possible security vulnerabilities, was conducted on both the sites as per the requirements of the NIC hosting. The revamped TIFAC website, launched early in 2009, was accessed by more than 20 lakhs users during the year. Additional features, such as provision for creation of an technology expert database interactively, were introduced in the website. The website also served as an interface for servicing queries received by some users. About 500 queries pertaining to various technology areas were received and serviced through the web-mail.

PFC Website: PFC has been maintaining its own website which can be accessed through domain name www.indianpatents.org.in and www.pfc.org.in. The Ekaswa databases (Ekaswa A, B and C) can be accessed free of cost through this website.



2 Innovation Support Programmes

2. Innovation Support Programmes

2.1 Patent Facilitating Centre (PFC)

PFC has been in the fore front of creating awareness about intellectual property rights (IPR) in the country, assisting scientists and technologists in protecting their inventive work, involving state governments for state-wise spread of IPR culture, evolving policies at the national level, providing technical input to the government on IPR related issues and interacting and supporting other government departments in protecting their innovations. Besides this, one year training on IPR for women scientists under the Women Scientist Scholarship Scheme (WOS-C) of the Department of Science & Technology is also being conducted. The Governing Council, on reviewing the activities of PFC, decided that role of PFC should be redrawn by moving away from filing of patents for other ministries, etc., and focus initiating policy studies and mapping technology trends in priority sectors.

Facilitation of IP Protection

PFC has been facilitating protection of various forms of intellectual property (IP) generated at the Indian universities, educational institutions and the public funded R&D agencies. PFC extends technical and financial assistance to the R&D institutes, universities, educational institutions and schools in protecting their inventions in India and abroad. These

institutions do not have the necessary financial resources and expertise to carry out this work.

During this period 135 fresh proposals from various universities, educational institutions and government agencies were evaluated for novelty and inventive step for patent filing in India and 91 cases were processed. This resulted in filing of about 35 patent / IP applications filings. PFC has also sent 70 cases for patent filing on behalf of DRDO out of which 30 have been filed and balance are in the process of being filed. In respect of inventions from DRDO, six patents have been granted in India, one patent has been granted in South Africa, four trademarks have been registered and one design has been registered during this period. Therefore, in all 161 applications for IP protection were processed by PFC and about 65 were filed.

One geographical indication (GI) was registered for Phulkari based on a filing made by the Patent Information Centre (PIC), Punjab with the assistance from PFC. 6 more request for filing of GI were received, three have been approved for filing of GI (2 were from state of Sikkim and 1 from UP).

Awareness creation

While continuing with its mandate of awareness creation in the area of IPR, PFC conducted 17 patent/IPR awareness workshops in various states, sensitizing about 2,500 scientists and technologists.

A list of the workshops is given below:

S. No	University/Institute	Date
1.	Calicut	August 12, 2010
2.	West Bengal University of Technology, Rajarhut	August 17-18, 2010
3.	Beant Singh College of Engineering & Technology	October 5, 2010
4.	JCDAV College, Dasuya	November 11, 2010
5.	Raichur	November 30, 2010
6.	Himachal Pradesh University	December 13, 2010
7.	Baba Farid University of Health Sciences, Faridkot	December 17, 2010
8.	Tezpur University, Tezpur	December 23, 2010
9.	Agartala Agricultural College, Agartala	January 21, 2011
10.	Tripura Institute of Technology, Tripura	January 22, 2011
11.	Lady Doak College, Madurai	February 8, 2011
12.	Upasi Tea Research Foundation, Valparai	February 23, 2011
13.	BLDEA College of Engineering & Technology, Bijapur	February 25, 2011
14.	Krishi Vishwavidhyalaya, Bikaner	February 25, 2011
15.	Vellore Institute of Technology (VIT), Vellore	March 4, 2011
16.	P D Patel Institute of Applied Sciences, Charotar University of Science & Technology (CHARUSAT), Changa, Gujarat	March 8, 2011
17.	Workshop on Geographical Indications (GI), Gangtok, Sikkim	March 11, 2011

Women Scientist Scholarship Scheme (WOS-C)

The fifth batch of the women scientists completed their one year training in IPR in May 2010. The training for the sixth batch of the 73 selected candidates started from May 10, 2010 at PFC-Delhi, CCSTDS-Chennai, IIT Kharagpur and URDIP-Pune. The candidates were selected through an all India examination followed by an interview. All selected candidates went through an extensive six-week long

orientation programme in Delhi conducted by PFC-TIFAC during May-June, 2010. During this programme they were exposed to various aspects of IPR by the most prestigious IPR faculty of the country. The programme had about 90 lectures on IPR for the candidates. They were given lectures on topics like historical aspects of IP, IP audit, FTOs, IP portfolio management, filing and prosecution procedures of different forms of IPR, compulsory licensing & working of patents, valuation & licensing of IPR, IPR management in publicly funded



institutions, provisions of TRIPS, IPR & traditional knowledge and many more. Hands on patent searches were also a component of the orientation. Subsequent to the orientation, the candidates were placed in different agencies involved in IPR for the on the job training for about 10 months as interns.



Training programmes

The following four training programmes on IPR were organized during the year:

Two days training on IPR for IPCUs (IPR Cells in Universities): This programme was organized at TERI Retreat on May 13-14, 2010. It was attended by the nodal officers of 30 IPCUs. PFC has so far established 53 IPR cells in 53 universities (IPCUs) in 12 states. The IPR cells in the universities have been created with the aim of guiding the university academicians in the matters related to IPR like patent searches, IP audit of the university and coordinating with PIC at the state level for filing and prosecution of the IP applications emanating from the research activities at the university.

International Advanced Training Course on IPR for NAM and other Developing Countries: This one week programme was

organized in collaboration with NAM S&T Centre from July 12-17, 2010. Representatives from 27 countries from Africa, South America and Asia participated in the programme. The course was designed and conducted by PFC.

Two training programmes on 'IPR and WTO issues': DST had entrusted the responsibility of conducting two training programmes on "IPR and WTO issues" for the scientists under its programme National Programme for Training of Scientist and Technologist. The first one was organized from September 6-10, 2010 at TERI Retreat and was attended by about 20 scientists from various scientific organizations. The second programme was organized from December 27-31, 2010 and was attended by 21 scientists from various scientific organizations.

IPR support to other Ministries

PFC has been guiding many ministries and government departments at the central and state level on IPR related matters. PFC is maintaining the IP portfolio of DRDO and is filing IP applications on its behalf. Similarly, PFC has provided direction and focused support to the Ministry of MSME in initiating programmes to help the medium and small enterprises to protect their innovations. Ministry of MSME has created Intellectual Property Facilitation Centre (IPFC) in many PICs to create IPR awareness in MSMEs and helping them in protecting their IPRs. Separate grants are being provided to them by the Ministry of MSME. PFC has been made the technical coordinating agency for all such IPFCs. Similarly, PFC has been helping and guiding the Department of Information Technology in implementing their IPR programmes.

2.2 Technology Refinement & Marketing Programme (TREMAM)

Technology Refinement and Marketing Programme (TREMAM) was initiated with an objective of pushing innovative products / prototypes up the commercialization cycle towards market through a network of Technology Commercialization Facilitator Agencies (TCFs).

During the current year, the network of Technology Commercialization Facilitator Agencies (TCFs) was further broadened and now been extended to the following eight institutions:

- i. STEP, IIT-Kharagpur
- ii. MCIIE, Institute of Technology, BHU
- iii. M.S. Ramaiah School of Advanced Studies, Bangalore

Ongoing Projects:

Sl. No.	Project Title (in brief)	TCF
1.	Side view mirror adjustment protection system	M S Ramaiah School of Advanced Studies, Bangalore
2.	Novel florescent reagent	-do-



Side view mirror adjustment & protection system

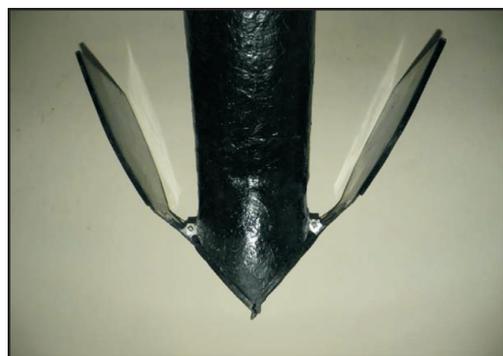


Fingerprint from novel fluorescent reagent

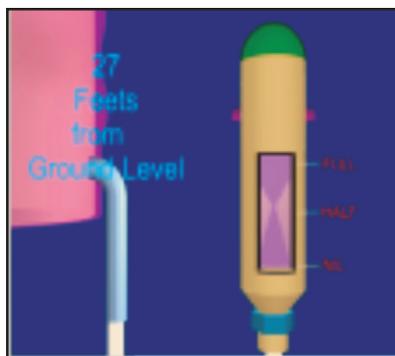


New Projects:

Sl. No.	Project Title (in brief)	TCF
1.	Automatic cashew nut decorticating machine	M S Ramaiah School of Advanced Studies, Bangalore
2.	Drop Catcher	-do-
3.	Low energy dental / medical aspirator	MCIIE, IT-BHU, Varanasi
4.	Non-electric water level indicator	-do-
5.	Multicrop Seed cum Fertilizer Drill	-do-
6.	Nimble Carpet Shearing Machine	-do-
7.	Sound Wave Airway Sensor	VIT-TBI, Vellore
8.	Innovative Harmonic Hybrid Filter	-do-



Drop Catcher



Non electric water level indicator



Sound wave Airway Sensor

The projects were monitored towards successful completion.

New Initiatives:

Under the planned scale up of the Programme, additions of two more components in TREMAP are under consideration. These components are:

(i) **Award to the patent holders towards encouraging technology commercialization**

To motivate the innovator community about making their innovations more

practicable and relevant to the industry needs, it is planned to institute a cash award of Rs. 10 lakhs for the patent holders of the selected technologies having high commercial potential. The cash award will be split in two parts: first part of Rs. 5 lakhs as an Award to the patent holder immediately on selection and balance Rs. 5 lakhs to be disbursed as commercialization incentive on commercialization of his technology. This is expected to drive the innovators / patent

holders to refine their product as per market demand and commercialize the same.

(ii) Training / awareness creation / capacity building on technology commercialization

As most of our innovators, researcher, academicians, consultants etc. are generally not well conversant about various aspects of technology commercialization, it is proposed to organize regular trainings and awareness programmes and undertake capacity building activities to establish and strengthen the technology commercialization infrastructure in our country.

2.3 TIFAC-SIDBI Revolving Fund for Technology Innovation Programme (SRIJAN)

A new programme named as SRIJAN (सृजन) was launched by TIFAC on November 1, 2010, as a joint TIFAC-SIDBI Technology Innovation initiative. Under the scheme, TIFAC would create a Revolving Fund of Rs. 30.00 crores with Small Industries Development Bank of India (SIDBI) initially for a period of ten years. TIFAC released an initial amount of Rs.10.00 crores to SIDBI for the Revolving Fund. The programme aims at facilitating industries particularly MSMEs for scaling up / commercialization of innovative technologies pertaining to novel / innovative product or process to prove the techno-economic viabilities of commercially unproven technologies. This would encourage and promote innovation capabilities and bring high-risk technology innovations to the market in emerging technology areas for opening up new business opportunities.

Programme Objectives

- To encourage scaling-up / commercialization of technology innovations pertaining to innovative / novel product or process development
- To bridge the gap of financing for up-scaling technology innovations, which are proven only at R&D level and not yet proven at scaled-up or commercial level
- To extend financial assistance as soft loan through SIDBI from Revolving Fund to industries particularly MSMEs for scaling-up of technology innovations either developed in-house or in collaboration with any technology know-how provider

The Revolving Fund would provide soft loan to industries for up-scaling technology innovations at an interest rate of not more than 5% per annum. The assistance from the Revolving Fund would be limited to maximum 80% of the estimated total project cost, which would normally be restricted to Rs.100.00 lakhs for each project. The industry would have to bring in at least 20% of the total project cost as their contribution.

TIFAC would carry out technology appraisal of project proposals to assess the innovation contents, novelty and technical feasibilities. SIDBI would carry out financial appraisals / due diligence of proposals and would manage the Revolving Fund on behalf of TIFAC for loan disbursement and its recovery. Thus, TIFAC and SIDBI would synergize each other's core strengths and capabilities towards scaling up of technology innovations by Indian industries.



Initiatives were made to disseminate information about the programme and efforts put in to generate project proposals based on technology innovations. To make awareness and to disseminate information about the programme and the scheme, TIFAC and SIDBI jointly conducted discussion meetings with incubating companies, innovators and technology developers, at various incubation and innovation centres of IITs, industry associations, national laboratories, etc. The details of the scheme were publicised through TIFAC and DST websites and advertisement inserts were made by TIFAC and SIDBI separately in leading national dailies. During the period of 2010-11, technology appraisals of the following two project proposals had been

completed and were technically recommended by TIFAC to SIDBI for further financial appraisals:

- (i) **Development and commercialization of Biodegradable Soluble Cutting / Coolant Oil (BSCO)** from M/s. Ecocare Biolube India Private Ltd, Coimbatore with technology support from IIP, Dehradun
- (ii) **RFID tagging for Solar PV Module Tracking** from M/s. IAITO Infotech Pvt. Ltd., SIDBI Incubation and Innovation Centre, IIT-Kanpur

Technology appraisals of other project proposals were in process and at different stages of technical recommendations.

3 Technology Development Programmes

3. Advanced Composites Programme (ACP)

Ongoing Project:

Filament wound composite pipes and pipe-fittings

The project was launched in partnership with M/s. EPP Composites Pvt. Ltd., Metoda (Dist. Rajkot). High-pressure filament wound glass-

reinforced epoxy (GRE) pipes have been developed as per the international standards (API 15 LR). The necessary production and laboratory facilities have been commissioned. Development of two critical equipment viz. long-term cyclic pressure test and hydrostatic collapse pressure test had been milestone achievements for the project. The entire range of tests (type & routine) is being carried out for the samples as per the guidelines for API certification.



4 Umbrella Scheme on Technology Vision 2020 Projects in Mission Mode (TV2020)

4. Umbrella Scheme on Technology Vision 2020 Projects in Mission Mode

4.1 Agriculture and Fisheries

4.1.1 Agriculture

Technology Vision 2020 document on Food & Agriculture prepared by TIFAC had envisaged the domestic demand for food grains in the range of 324 to 343 million tonne by the year 2020, corresponding to income growth rates of 5% and 7%, respectively. Towards this, technology demonstration projects were taken up on a limited scale in different parts of the country since 1999. Since then, several projects focusing on water resource management, enhancement of crop productivity, primary processing, value addition, nutrient management, etc. were completed. During the year 2010-2011, six projects were completed while two other projects were ongoing. The outcomes and progress of various project activities for the year are given below.

Completed Projects:

Improved Seed Production and Multiplication at Paliganj, Bihar

Implementing Agency: Paliganj Vitarni Krishak Samiti (PVKS), Paliganj
Location: Paliganj, Patna

The quality seed production activities of rice, wheat and pulses crop varieties, which started earlier, were continued in the Paliganj area with wider coverage. The farmers have shown great

interest in the certified seed as well as truthful seed production. The seed produced by farmers was sold through Patliputra Beez Utpadak Swablambi Sahkari Samiti, a farmers' cooperative. The farmers engaged in the seed production activities were also regularly trained through awareness camps as well as institutional trainings on various aspects of improved seed production activities.

During the year, 106 quintals certified paddy seed was produced by a group of 10 farmers. In addition, 150 farmers produced truthful pulse seed for own use. A total of 7 hectares of land was cultivated for certified seed production of wheat by eight farmers, whereas 516 farmers cultivated 37 hectares of land for truthful wheat seed production. Two institutional trainings were conducted for 39 participants, including five project personnel and 34 farmers. During this period, four training-cum-awareness camps on paddy and wheat seed production were organized in which 370 farmers from 21 villages participated. A Kisan mela was organized to disseminate the project success among larger farming community and it was attended by more than 1,000 farmers. As the project stands completed, the State agriculture department was approached for further sustenance of project activities and department has assured all possible help.

Promotion of Medicinal and Aromatic Plants in Paliganj Area, Patna (Bihar)

Implementing Agency: Gramin Vikas Pratisthan (GVP), Paliganj
Location: Paliganj, Patna

The rice and wheat are the two dominant crops of Paliganj area. To augment farmers' income, cultivation of aromatic plants in relatively less fertile soil was promoted in this area. The cultivation was linked with processing and marketing of oil. The farmers were also regularly trained through village level awareness camps as well as institutional trainings on various aspects of aromatic plant cultivation.

In the year, Lemon grass was cultivated in 16 acres of land, Mentha in 61 acres, Citronella in 5 acres, Artemesia in 1.5 acres, Coleus in 2 acres and Tulsi in 9.5 acres. Hence, a total of 95 acres of land was under aromatic plants cultivation. A total of 507 litres of essential oil was distilled and revenue of Rs.13,168 was earned by farmers society. The farmers' society has also succeeded in establishing market linkages for the sale of essential oil at Patna, Begusarai, Hyderabad etc. Four awareness camps on aromatic plant cultivation were organized in which 171 farmers from 15 villages participated. Similarly, seven training camps on 'improved cultivation technology of aromatic plants and their distillation techniques' were organized in which 328 farmers from 34 villages participated. As the project stands completed, the state agriculture department was approached for further continuation of activities and department has assured all the possible help.

Demonstration of Agriculture Diversification Through Aromatic Plant Cultivation at Deoria, U.P.

Implementing Agency: Bhanu Foundation Research & Development Society (BFRDS), Deoria (U.P.)

Location: Deoria and Bhalauni blocks of Eastern U.P.

To supplement farmers' income, initially

cultivation of aromatic plants in the region was undertaken especially in low fertile areas. With this intervention, the mentha crop has started becoming a popular cash crop amongst the farmers in Deoria district. The farmers have shown keen interest in planting mentha as a cash crop in paddy – potato - mentha crop rotation. Taking these facts into consideration, the project activities in terms of promotion of aromatic crops and distillation of essential oil techniques were continued in the year 2010 – 11.

During the year, mentha crop was cultivated in 98 acres of land and 1,430 liters of essential oil was distilled by farmers. Similarly, lemon grass was planted in 14 acre and 290 litres of lemongrass oil was distilled. Fresh plantation of vetiver crop was done in 2 acres of land and 14 litres of vetiver oil was distilled from earlier established plantation. A total of 120 acres land was cultivated for aromatic plants in the project area. A kisan mela was organized in the village Garer of Deoria district to disseminate the project success among larger farming community and it was attended by more than 1,000 farmers including women. The project is now completed. The State Agriculture Department has assured to provide help to the farmers associated with the project.

On Farm Demonstration Popularisation and Commercialisation & Processing of Mentha Cultivation in Barabanki District of Uttar Pradesh

Implementing Agency: Narendradeva Institute for Development of Agriculture and Rural Upliftment (NIDAR), Lucknow

Location: Masauli and Harak blocks of Barabanki district

The farmers of Barabanki district of Uttar Pradesh were already cultivating mentha as a



cash crop in paddy – potato – mentha crop rotation since long. However, the traditional mentha variety used by farmers was low yielding. In addition, agronomic practices followed by farmers and distillation technology of extracting essential oil needed improvement. Hence, Kosi variety of mentha, recommended by Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, was promoted in the region for large scale cultivation by the farmers mainly in Masauli and Harak blocks of Barabanki district. The training of farmers on cultivation and distillation aspects was an important component in the successful dissemination of the improved technology.

More than 150 farmers from 20 villages cultivated Kosi variety of mentha in 20 hectares land. This activity resulted in production of 170 litres of mentha oil. During the year, twelve training camps on various aspects of mentha i.e. irrigation schedules, plant protection measures, mentha processing and distillation technology were imparted to farmers. In these training camps, more than 650 farmers from around 20 villages participated. Based on the economic analysis of cultivating mentha in four different cropping sequences Paddy – Potato – Mentha cropping sequence was found to be more remunerative. The project is completed.

Enhancement of Farm Income of Farms of Eastern U.P. From Value Added Scented Rice (Kalanamak) Cultivation

Implementing Agency: Nand Education Foundation for Rural Development (NEFORD), Lucknow

Location: Siddharthnagar, Sant Kabirnagar, Mau and Azamgarh districts of U.P.

Kalanamak is one of the finest quality rice varieties of India grown since ancient times in the Tarai

districts of Eastern UP. However, the production and area of Kalanamak cultivation were declining rapidly. The project was taken up for large scale promotion of two Kalanamak lines, K-3131 and K-3119 for revival of Kalanamak rice crop towards improving farmers' income, enhancing their livelihood and generating additional employment.

During the year, the average yield of the Kalanamak rice varied substantially in the project area (Siddharthnagar, Sant Kabirnagar, Mau and Azamgarh districts of UP) and it was in the range of a minimum of 15 quintals/hectare in drought affected regions to a maximum of 37 quintals/hectare in the irrigated areas of the project. The crop demonstrations of Kalanamak in kharif were conducted in 82 hectares, whereas rabi crop demonstrations were taken-up in 108 hectares. Organic cultivation of Kalanamak was also taken up in about 3 hectares. Around 700 farmers, including women were trained on improved methods of Kalanamak cultivation. Major emphasis in these trainings was on farmers adopting new methods of crop establishment (e.g. Kalam method of seed establishment, direct seeding of rice and also zero-till sowing of wheat). In order to make farmers self-sufficient in seed requirement, the village-level seed production was taken up as an important component of the project.

About a dozen select farmers were trained in seed production and on-farm seed-health management and were encouraged to undertake large scale seed production activities. Through these, seed-producer farmers group, seed was made available locally to farmers and this facilitated more and more farmers to take up Kalanamak cultivation. More than 95 quintals seed was produced by this group and was distributed among the fellow farmers. Kalanamak being a long duration rice



variety gets harvested in the month of December; hence a short duration wheat variety 'Halna' was promoted for maximizing farmers income. The cropping system of Kalanamak followed by short duration wheat variety Halna has become popular and is being followed by many farmers in the region. Farmers were able to harvest wheat yield of 3 to 4 quintals/hectare, which is better than other late sown wheat varieties.

Support to training, employment and income generation programme for farmers and rural women through processing and value addition of agricultural produce

Implementing Agency: Citizen's Association for Rural Development (CARD), Behrampur, Ganjam district, Orissa

Location: Kukudakhandi and Rangeilunda blocks of Ganjam district, Orissa

The project was completed in January, 2010. However, training programmes on operation of processing machine for Ground nut power decorticator and dal mill, for women and farmer interest group, were continued as a follow-up activity.

Around 20 members of women and farmer interest group were trained and these members further trained another set of group. After completion of trainings, these groups are operating the processing machinery efficiently. Knowledge enhancement through trainings and direct selling provided extra support (Rs.1,500/pm for men and Rs.1,000/pm for women). Skill building mechanism helped farmers and especially women in developing confidence in operating processing machinery. With income enhancement through processing and value addition of farm produce and due to rise in

market price in case of processed pulses (Green gram) farmers especially women have benefitted substantially.

Ongoing Projects:

Quality Mode Production in Rice-Wheat Cropping System through Farmers Interest Groups

Implementing Agency: Banaras Hindu University, Varanasi

Location: Araziline, Pindra, Haruah and Badagaon blocks of Varanasi district

The project is aimed to create awareness through demonstrations and trainings on the improved cultivation technology so that the pesticide / insecticide residue levels in crops remain within the acceptable limits. With the technical intervention in the project area, pesticide / insecticide residue level in the cultivated produce has started reducing to acceptable limits in the wheat, paddy, okra, tomato and brinjal crops grown under quality mode production system.

In the year, paddy and wheat crops were grown in 21 and 31 hectors respectively. Similarly, vegetables (Okra, brinjal & tomato) were cultivated in an area of 18 hectors. A total of 120 farmers were involved in the quality mode production of crops viz. wheat, paddy, tomato, brinjal and okra. Different soil samples collected from farmer fields were analyzed for macro and micro nutrient levels. The farmers were advised to use optimum doses of fertilizers in the fields based on the soil testing results. The crops produced by farmers under quality mode production technology were also tested for pesticide / insecticide residue levels. It was observed that 98 % of rice and 90 % of okra samples were found to be safe for consumption,



as against a much less 57 % of rice and 26 % of okra samples were found to be safe from the non-adopted farmers. The pesticide / insecticide residue levels in paddy and okra crops grown under quality mode production protocols were found to be within the maximum permissible limits of Prevention of Food Adulteration Act (PFA, 2007, Ministry of Health, Govt. of India) standards.

On Farm Demonstration and Commercial Cultivation of *Trichoderma* as Bio-Pesticide & Growth Promoter.

Implementing Agency: Division of Plant Pathology, I.A.R.I., New Delhi

Location: In Jaipur (Samod & Chaksu Tehsils) and Kota (Digod Tehsil) Districts in Rajasthan

The project aims to demonstrate low cost techniques for effective crop protection measures through *Trichoderma* bio-formulations by incorporating Integrated Pest Management (IPM) techniques and also to develop replicable entrepreneurship model for commercial production of *Trichoderma* bio-formulation and its application in the field.

The field trials of the bio-formulation of *Trichoderma harzianum* Th3 strain were carried out in farmers' fields on crops such as wheat, barley, fenugreek, groundnut and vegetables in Jaipur district and wheat, soybean and rice in Kota district. With the project intervention, incidence of diseases, especially in Groundnut, was significantly reduced. Similar results were observed in wheat, barely, chilli, cauliflower, onion, etc., thereby increasing the crop yields.

Extensive field demonstrations were carried out in fields of all the farmers in Rabi and Kharif crops during respective seasons. Select farmers

were trained under the project for conducting demonstration trials with the provided bioformulation. A total of 188 farmers from 20 villages associated in the project employed these practices in around 488 hectares during Rabi and Kharif seasons.

Around 750 kg of *Trichoderma* bioformulation was prepared and distributed to farmers in the project area in both Rabi and Kharif seasons. A kisan mela was organized at village Digodh in Kota district to create awareness about IPM in general and *Trichoderma* in particular and also other crop protection activities and IPM products. A Kisan Goshthi (farmers interactive session) was also organised on November 3, 2010 in Jaipur District. An Entrepreneurship training programme on *Trichoderma* production technology was organized during September 27 to October 1, 2010 at Bio-control Lab, Division of Plant Pathology, IARI, New Delhi. Around 15 participants including farmers and entrepreneurs from project area attended the training programme.

4.2. Agro Food Processing Sector

4.2.1 Milk Sector

Ongoing Projects:

Clean Milk Production in West Bengal

Implementing Agency: West Bengal Co-operative Milk Producers' Federation, Kolkata

Location: 24 Parganas (North) District, West Bengal

To develop a demonstration model of productivity enhancement and clean milk production, the project Implementation is being continued towards completion in multiple milk societies.

Enhancing income of small and marginal farmers through clean milk production and value addition in the tribal districts of Jharkhand under public-private-people cooperation.

Implementing Agency: In association with Krishi Gram Vikas Kendra (KGVK), Ranchi
Location: Bundu & Patratu blocks of Ranchi & Ramgarh Districts, Jharkhand

The objective is to create awareness in farmer groups for introduction of appropriate technology for clean milk production through hygienic practices, enhancing productivity of cattle through improved breed and better management practices, enhancing quality of milk and volume of milk production through appropriate technologies, reducing wastage of milk by 20% due to efficient milking practices, increased income to farmers through clean milk production and value-addition for sustainability.

4.3 Health Care and Herbal/Natural Products

This sector aims to utilize the vast natural resources of herbal and natural products as well as develop and commercialize a few selected technologies, products & processes. A second objective is to develop and establish/demonstrate new approach towards health care system.

Ongoing Projects:

Standardization and international commercialization of Bacopa monnieri extract for its cognition enhancing activity

Implementing Agency: Natural Remedies, Bangalore

During the year, Bacopa extraction process was standardized through a novel, non-butanolic process. This has led to the launch of the product internationally under the brand name of BacoMind by the implementing agency.



Plasma Fractionation: Demonstration of Development and Commercialization of Plasma Products

Implementing Agency: National Plasma Fractionation Centre, Mumbai.

The project implementation is delayed.

4.4 Mission REACH

The Mission REACH programme (**R**elevance and **E**xcellence in **ACH**ieving new heights in educational institutions) was launched by TIFAC during October 2000, with the aim of developing human resources of international standards, imparting high quality education in chosen areas of high relevance to industry and society, by way of establishing sustainable academia industry linkages. Selected engineering, science and technical Institutions are supported to establish Centres of Excellence & Relevance (CORE) and the curriculum is



broadened in collaboration with relevant industries in order to meet the S&T manpower demand in the advanced and emerging areas.

During the year 2010-11, many projects were ongoing such as:

1. 'Machine Vision' at Rajalakshmi Engineering College, Chennai
2. 'Telematics', VR Siddhartha Engineering College, Vijayawada
3. 'Food Processing & Quality Control', Techno India, Kolkata
4. 'Technical Textiles' at Textile & Engineering Institute, Ichalkaranji
5. 'Aircraft Maintenance' at Hindustan Institute of Technology & Science, Chennai
6. 'Interventional Radiology' at Jawaharlal Nehru Medical College, Wardha
7. 'Environmental Geomatics', JNTU, Hyderabad
8. 'Automotive Electronics' at Vellore Institute of Technology, Vellore
9. 'Pharmacogenomics', Manipal University, Manipal
10. 'Power Transformer Diagnostics' at National Institute of Technology, Hamirpur
11. 'Digital Image Processing' at M S Ramiah School of Advanced Studies, Bengaluru
12. 'Diabetic Retinopathy' at Aravind Eye Hospital & PG Institute of Ophthalmology, Madurai

13. 'New Drug Delivery Systems' at MS University, Vadodara

14. A study on 'Preparation of Technology Roadmap for Indian Aluminium Industry' in association with Aluminium Association of India (AAI), Bengaluru

4.5 Collaborative Automotive R&D (CAR)

The technology programme is based on the CAR Technology Roadmap which had identified about 30 priority technologies of interest to Indian Automotive Industry. During the period 2005-2010, the programme funded 10 projects. Nine new Consortium Projects generated during 2010-11. These include four projects, in CAR-Fraunhofer Collaboration mode, and five new consortium projects, developed with the participation of core-group set up by the Automotive Component Industry association.

During 2010-11, TIFAC Governing Council reviewed the achievements by the CAR programme, and observed that the programme was successful in bringing together different stakeholders and nucleating several R&D projects in a consortia mode. As the programme has been matured to an extent that the funding requirements have gone up substantially, it was recommended that a separate agency/ institute be identified for funding of their projects conceptualized under CAR.

Completed Projects:

Tailor Welded Blank and Hydroforming Technology for Automotive Weight Reduction

Consortium Members: ARCI- Hyderabad, IIT-Bombay, Tata Motors Ltd., Mahindra & Mahindra Ltd., Tata Steel Ltd., ProSIM



Weight reduction of vehicles has been a concern for automotive industry world over to reduce fuel consumption and emission levels. TWB and Hydroforming technologies enable weight reduction and cost savings.

This project aims at developing competence groups for material selection and process design that result in maximum weight reduction at the same time meeting the performance criteria. Applications chosen were Door inner for Tailor-Welded Blank (~15% wt. reduction) and Chassis long member for Hydroforming (~20% wt. reduction). ARCI established a laser welding system, which is operational. Weld quality guidelines and knowledge-base were compiled. Experimental database was developed for Hydroforming of sheets and tubes.

Acoustic Diagnostics for 2 wheeler engine assembly line

Consortium Members: IIT Kanpur, IIT Delhi, IIIT- Allahabad, Kritikal, Knowledge Online, and TVS Motor Co.

In the cost sensitive two-wheeled vehicle industry, the quality control is currently implemented manually, by listening to the audio feedback during the running of the engine at various speeds. It is necessary to implement automated quality control tools to classify good and bad engines as well as predict possible type of the defect in engines. The project aimed to implement a low cost PC system to sense the audio signals & vibration patterns. A machine learning approach was used to build a robust prediction scheme for quality assurance.

The prototype successfully demonstrated at TVS Motors identified four noise signatures that indicate fault in engine - Tappet Noise, Cylinder Head Noise, Primary Gear Damage, and Cam

chain noise. TVS Motors test over 1000 engines using the test rig developed in the project.

Ongoing Projects:

Use of Straight Vegetable Oils (SVO) in IC Engines

Consortium Members: IIT Madras, IISc Bangalore, iCAT Manesar

Direct use of non-edible Straight Vegetable Oils and their blends in internal combustion engines have been unsatisfactory and problematic. The basic study of spray formation processes and adequate knowledge of SVO properties are necessary to control the combustion and emissions. The project is expected to result in a structured database on physico-chemical properties of Indian SVOs and their correlation to spray characteristics for engine applications; Property correlations for generic SVO-derived fuels for engine applications; and Spray structure and droplet size measurements of SVO sprays both at atmospheric pressure and higher pressures

Ultracapacitor for Electric and Hybrid Vehicles

Consortium Members: IISc Bangalore, IIT Kharagpur, NCL Pune, Kaptronics Pvt. Ltd., NED Energy Ltd.

Ultracapacitors have potential applications in energy storage system of electric drive vehicles, due to their high power density, high cycle life and suitability for regenerative braking.

During the year under the project, IISc developed several composites based on exfoliated graphite and activated carbon that can be used for supercapacitors and helped NED Energy to develop prototype hybrid capacitors. NCL has developed all solid state



supercapacitor prototypes with sulfonic acid functionalized carbon nanotubes based Nafion composite membrane as the electrolyte. IIT Kharagpur has developed mesoporous carbon materials.

Semisolid Forming and Squeeze Casting of Aluminium Alloy Components for Automobiles

Consortium Members: National Center for Semi-Solid Forming,, IISc, Bangalore; Sundaram Clayton Ltd.; TVS Motors Ltd. and Mahindra & Mahindra Ltd.

At present, the autocomponent castings have a rejection rate of 20%, due to air entrapment & dendritic microstructure. The industry is seeking advanced casting technologies to produce light weight components with superior mechanical properties, high integrity, and near net shape manufacturing. Semi-solid aluminium casting can give these properties. The process steps are: (a) production of non-dendritic microstructure billets and (b) casting of these special billets to make components.

A process for making “semi-solid billet” was established at pilot scale, at IISc. Prototypes products were developed through Squeeze casting (connecting rod) and Semisolid forming (wheel hub). Sundaram Clayton provided a complex die for use in semi-solid forming (cylinder epsilon rear component), and the company has highly appreciated the improved results with this new technology. Actual components provided by industrial partners are being taken up (using both the methodologies) to carry out field testing for commercial viability.

Low Cost Flexible Automation using Robotic Arms

Consortium Members: IIT Madras, M/s. Systemantics India Pvt. Ltd., IIT Bombay, Magtorq, TVS Motor Co., Mahindra & Mahindra, Sona Koyo Steering Systems, TVS Lucas, Bosch Ltd

Out of the 1 lakh robots sold worldwide, Indian installations average only about 600/ year, due to high cost of sophisticated robots. Through appropriate configuration and design, it is possible to bring down the cost to suit to the application requirement. In this project, the specification of the robots was made in consultation with automotive industry. The robot was designed mainly with off-the-shelf components and the architecture used minimal set of components.

Two fully functional robotic arm models, Direct Drive Scara (DDS) & Low cost Scara (LCS), were developed and tested for their performance. Fabrication of Articulated Six Axis Robot is underway. A few critical high-value components were developed indigenously, like speed reducer (cyclodrives), control systems and support systems.

Development of Automobile Components through Electromagnetic Manufacturing (EMM) Process

Consortium Members: Pulse Power Group BARC- Mumbai, AMPRI-Bhopal, IIT-Bombay, IIT-Delhi, Fleur-de-lis Technologies Pvt. Ltd., Bangalore, and other Automotive Companies

This project was recast with a new leadership and scaled up objectives of developing indigenous processes and equipments.



Electro-Magnetic-Manufacturing (EMM) is quick and economical method of shaping and joining a wide range of parts. EMM utilizes a high intensity magnetic pulse to produce the desired shapes in electrically-conductive metal work pieces. Welding by EMM requires high energy levels compared to forming process. EMM is particularly useful for forming light metal alloys (like Aluminium), which has high electrical conductivity, but is difficult to form with conventional processes.

Under the project, BARC developed prototype equipments of 10 KV, 20 kJ and 20 KV to carry out preliminary studies.

New Projects

During the year, the CAR nucleated a total of nine new projects. This included four projects formulated under the CAR-Fraunhofer Collaboration initiative. One project was transferred to the Technology Development Board (TDB) for possible implementation. The Department of Heavy Industries has evinced interest in funding fully one collaborative project with Fraunhofer. The other two CAR-Fraunhofer projects are under review by DST for making a final decision.

Five new consortia projects formulated were discussed with the Department of Heavy Industries (DHI) for project funding. DHI has agreed to fully fund one project, while agreeing for partial funding of two other projects. The funding of the rest of the two new projects will be decided by DST

Joining of Aluminium with Steel and Plastics (MultiJoin)

Consortium Members: Six Indian Partners lead by Advanced Research Centre for Powder

Metallurgy & New Materials (ARCI) along with four Fraunhofer Labs

Relevance: In order to improve fuel efficiency and reduce CO₂ emissions, automobile manufacturers are increasing the use of light weight materials like aluminium and plastics. Four joining techniques will be investigated - Cold Metal Transfer (CMT) Welding, Laser Brazing, Mechanical Joining and Adhesive Bonding. The project will be supported by the TDB.

Offline and Real-time Simulator for Electric Vehicle/ Hybrid Electric Vehicle Systems (EV Simulator)

Consortium Members: Four Indian Partners lead by Centre for Development of Advanced Computing (CDAC), Trivandrum along with a Fraunhofer Laboratory

Relevance: Electric and hybrid electric vehicles are complex systems with both mechanical and electrical components. Simulators with physical models of the components/ subsystems help in reducing the development time, as well as better design of the control system and component specifications. This project aims at developing dedicated offline simulators as well as real time and hardware-in-loop simulators for electric and hybrid electric vehicles.

Software Standards for Small Car (S3C)

Consortium Members: Eight Indian Partners lead by Centre Automotive Research Association of India (ARAI) along with three Fraunhofer Labs

Relevance: AUTOSAR, the emerging global automotive software standard was developed by a consortium of global vehicle, electronics & software companies. It covers a large electronics footprint, since many of the cars abroad can have



upto 70 microprocessors. The small cars in India will have less than 5 microprocessors, and the compliance with AUTOSAR will involve large overhead in terms of effort, money and time for development. The effort to develop “Software Standard for Small Cars” (S3C) is significant, as India is emerging as the leading small car manufacturing base. Export of small car has also risen.

3-Dimensional Automated Vision Inspection System (3D-AVIS)

Consortium Members:

Consortium Members: Four Indian Partners lead by Central Manufacturing Technology Institute (CMTI), Bangalore along with five Fraunhofer Labs

Relevance: Development of reconfigurable inspection systems is an important component of modern manufacturing paradigm which demands for flexibility to meet fast model changes and reduced cycle times. Automated visual inspection has the potential to provide such solutions.

The aim is to build a ‘reconfigurable’ visual inspection frame work (open source) that can be used for ‘3D inspection’ of various intricate parts encountered in the automobile industry. The system comprises of multiple reconfigurable sensors and lasers along with multi-axis robots for part / sensor handling so that a wide variety of inspections can be performed. The project also involves development of an inspection specification standard.

Online Casting Simulation

Consortium Members: Four Partners lead by IIT Bombay

Relevance: The project will meet the vision of automotive component industry to produce

castings with consistent good quality. If the foundry engineers can simulate the casting process, they will be able to predict and prevent potential defects even before tooling is fabricated. The proposed web-enabled automated casting simulation system is meant for wide-spread use by casting engineers at a very low cost. The applications include quality assurance, yield improvement, reduced casting trails and design for manufacturability. Such an on-line simulation system is not available anywhere, and it will give our manufacturers a significant competitive advantage. DHI has agreed to partially fund the project.

Rapid Casting Technologies (RCT)

Consortium Members: Five partners lead by NFTDC, Hyderabad

Relevance: The Automotive Component Industry has to improve the metallurgical quality of casting to obtain sound quality castings and to reduce the rejection rate from the current level of 20% defective castings. In this project, a “vacuum assist” casting process will be adopted to address the problem efficiently. Vacuum will be applied only to critical portions of the existing casting line. Overall aim of the project is to develop Cost Effective Vacuum Assist Casting Equipment for Auto Parts industry and to conduct Process Optimization Studies on the melt quality vis-à-vis casting. DHI has agreed to partially fund the project.

BEST Mumbai Telematics Pilot Project

Consortium Members: Six partners lead by IIIT Bangalore

Relevance: With ever increasing pressure on public transport, effective management of bus fleet becomes challenging for better customer satisfaction and benefits. Telematics can

enhance the existing management structure by adding intelligence to the infrastructure. DHI has agreed to fund the project

Develop design guidelines for light weight city transit bus (LiteCityBus)

Consortium Members: Four partners lead by I.I.T, Mumbai

Relevance: Light weighting of vehicles improves fuel efficiency and reduce CO₂ emissions. Since the vehicle body structure contributes 30-40 % weight of complete vehicle, the intelligent application of aluminium is one of the best possible methods of achieving vehicle mass reduction. The project will investigate structural designs, material selection, and manufacturing technologies for Aluminium intensive bus body conforming to Bus Body Code: AIS: 052.

Shared Transport Telematics – an attempt to reduce carbon foot print

Consortium Members: Eight partners lead by IIT Madras

Relevance: The project will develop and demonstrate – using 100 auto-rickshaws in Delhi – a high quality shared transport for the general public using the advanced telematics technologies.

The system will use the mobile phone for seat reservation and/or payment via interactive voice response systems, global positioning based vehicle tracking as well as routing protocols and algorithms for automating the service access and delivery. The Technology components include Onboard telemetry for vehicle control passenger interfacing via voice; Routing and tracking of vehicles; Mobile payment service interface; and System integration of above component sections Business component design.

4.6 Targeted Programmes in other Important Areas

4.6.1 Bioprocess & Bioproducts Programme

Bioprocess & Bioproducts Programme of TIFAC, launched in January 2007, aims to address critical technology needs for biotransformation and enzymatic processes towards development of active pharmaceutical ingredients, neutra-ceuticals, phyto-chemicals, value-added bio-products, bio-energy and bio-fuels, etc. Eight projects have been launched so far under the programme in the aforesaid sectors. The status of the projects during the year is given hereunder.

Completed Projects

Development of prostaglandins and advanced intermediates

Partner: Hygeia Laboratories, Pune

The project was launched to develop and optimize the pilot scale process for the biotransformed intermediate followed by the series of chemical conversions to arrive at the prostaglandins for the domestic & international markets. The pilot-plant commissioned with its equipment, utility systems, pipelines etc. for the manufacture of prostaglandins. The project was successfully completed after having met all its stipulated objectives in July 2010. Two batches for biotransformation trials were taken using the installed equipment & plant is in regular operation since August, 2010. Further, the company had successfully produced (~11kgs) & supplied five batches of 500gms (-) Corey Lactone Diol to a pharma company at Hyderabad. A few overseas customers were also contacted for export orders of the intermediate as well as racemic compound.



Development and optimization of enzymatic process for producing Stevioside from Stevia leaves

Partner : M/s. Stanpack Pharma Pvt. Ltd. at Baddi, Himachal Pradesh

The project aimed at developing know-how and optimizing the process parameters for producing stevioside from stevia rebaudiana leaves. Entire plant and machinery were fabricated, installed and commissioned and the production unit was made operational. The process for producing stevioside from stevia leaves had been successfully optimized in the project. The project progress was closely monitored and reviewed by an Advisory and Monitoring Committee constituted for the project. The project had achieved the targeted milestones and delivered the product after optimizing the process of extraction as envisaged. The project was declared successfully completed by the Advisory and Monitoring Committee in May 2010.



Ongoing Projects

Centre for Biofuels

The project was launched with National Institute for Interdisciplinary Science &

Technology (NIIST), Trivandrum for undertaking cutting edge research activities in bio-refinery related technologies. The Centre would evolve as the leading seat of knowledge and pedagogy. Activities encompassing other fields of bio-fuel R&D including biodiesel had been projected for the future. A bio-refinery pilot plant at NIIST has been designed and equipment specifications have been finalized. Compositional analysis for identified feedstocks viz., sugarcane bagasse, reed (bamboo), sugarcane tops, rice straw, cotton stalks, chilli waste were completed by NIIST. Optimization of pre-treatment and hydrolysis studies for rice straw and cotton stalks were completed and similar studies were underway for other identified four feedstock.

Process development for production of L-arginine by fermentation

Partners: Jawaharlal Nehru Technological University (JNTU) & M/s Celestial Labs Ltd., Hyderabad

The project aims to develop a process for L-arginine from the selected microorganisms. The strain would be improved by conventional mutagenesis and recombinant approaches. After production, L-arginine would be purified followed by its crystallization in packaging form. L-arginine, an amino acid considered as the most potent nutraceutical, has numerous functions in the body. It is needed to create urea, a waste product that is necessary for toxic ammonia to be removed from the body and also, it is needed to make creatine, which breaks down into creatinine at a constant rate, and it is cleared from the body by the kidneys. Three major activities were planned in the project viz. I. L-arginine production by mutant organisms II. L-arginine production by recombinant Escheria coli K12 strains III. Optimization of



process parameters for mutants and recombinant organisms. Four cultures viz., *Bacillus subtilis*, *Corynebacterium glutamicum*, *Serratia marcescens*, *Bacillus stearothermophilus* were procured by JNTU and classical mutagenesis was carried out using *B. subtilis* with NTG as mutagenic agent. Arginine by two cultures viz. *Bacillus subtilis* and *Corynebacterium glutamicum* were produced. Various parameters such as cell mass growth, L-arginine, and residual substrate concentration (XPS) were optimized. The studies on mutation, genetic engineering along with the molecular biology work for *B. subtilis*. & the reactor studies with *B. subtilis* for basic process optimization viz. pH, maximization of product, optimization of batch time, glucose fed batch temperature media constituents, reaction rate, yield etc. would need to be carried out in the project.

Efficient utilization of jatropha seed cake by detoxification

Partners: Osmania University (OU) & M/s. Naturol Bioenergy Ltd., Hyderabad

The project, aims to carry out studies for selection of suitable dioxygenase and alkane hydroxylases from isolated *Pseudomonas* and standard *Pseudomonas* culture. Further, efficient dioxygenase and alkane hydroxylases, cloning of dioxygenase and alkane hydroxylase in yeast and evaluation of toxic compound would also be carried out in the project.

An extensive literature survey for detoxification of jatropha seed cake was carried out by OU. Major toxicants in jatropha seed cake were analyzed and 32 *Pseudomonas* species with ability to degrade toxicants viz. phorbols, saponins and diterpenoids were isolated. Twelve different varieties of samples of jatropha (Indian

variety) seed cake of different combination of ages & accession had been procured and analyzed for major toxicants (phorbol ester, phytic acid, saponins, lectins, terpenes, trypsin inhibitor, curcumin etc.). The aforesaid jatropha seed cakes were also analyzed for their protein content. Detoxification studies of jatropha seed cake using commercial enzymes along with the microbial enzymes were carried out in the project. Detoxification of 94% of jatropha seed cake was observed by using culture isolated by OU with *Aspergillus niger* at optimized conditions in submerged fermentation. Cost comparison for detoxification was carried out to ascertain the economics of detoxified seedcake. Animal trials of detoxified seedcakes at small level were initiated by OU after ascertaining the minimum acceptable limits of toxicants in the seedcake.

Project Initiatives:

Development of biotransformation process for synthesis of chirally pure compounds

Partners: IIT- Bombay and M/s Sci Molecules India Pvt. Ltd., Pune as an industry partner

The project, launched in June 2010, aims to develop a technology for synthesis of (S) - Ibuprofen & (S)-Glycidol by biotransformation route. Ibuprofen is a non-steroidal anti-inflammatory drug used for relief of symptoms of arthritis, primary dysmenorrhea, fever, and as an analgesic, especially where there is an inflammatory component. Glycidol is widely used as starting materials for the synthesis of many interesting compounds, such as β -blocker drugs, anticancer drugs, protein synthesis inhibitors, as well as a 2-oxazolidinone derivative used against depression. On completion of optimization of enzymes



production & biotransformation process at the laboratory scale, the industry partner M/s Sci Molecules India Pvt. Ltd. would further scale up the process for commercialization. The biotransformation efficiency & the performance of enzymes were compared with the commercial enzymes (4 nos.) procured by IIT-Bombay with the lipases obtained from the company. Two types of assays viz. (i) spectrophotometry based (p-nitrophenyl palmitate) & (ii) titrimetric based (titrimetric tributyrin assay) had been standardized by IIT-Bombay under laboratory condition for estimation of lipase activity. Media optimization was also carried out for maximum production of lipase from different bacterial cultures.

Specialized Study:

‘Biomass Derived Bioproducts- Assessment of Technology Trends, Gaps & Opportunities for India’

A specialized study on Biomass derived Bioproducts – Assessment of Technology Trends, Gaps & Opportunities for India was commissioned by TIFAC. The study was carried out through a combination of primary and secondary research. As part of primary research in-depth interviews were conducted across many organizations viz. research laboratories, academic institutes as well as private companies working in the field of biomass and bio-chemicals and located in different parts of India. The report was published as a TIFAC specialized report for the benefit of the industries & other stakeholders.

The aforesaid report has been a comprehensive assessment of select bio-chemicals and bio-fuels towards understanding the technology trends,

identifying the gaps, R&D needs and technology linked business opportunities for their effective utilization in India. The report discusses at length the current status of technologies in India vis-à-vis advanced countries. It also indicates market size for a few high-value products. The report could be an effective technology dossier for the biotech industries and research organizations in India to identify potential bio-products and technological routes for pursuing projects in R&D, pilot, semi-commercial or commercial level.

4.6.2 Synergizing S & T with Judicial Processes

This programme seeks to enhance the level of interface of Science and Technology with Judicial processes by undertaking innovative technology demonstration projects in a collaborative mode with the Judiciary, investigating agencies, forensic laboratories and S& T organizations.

Completed Projects:

Court Case Document Tracking Information System using RFID Technology:

It was a joint project among TIFAC, Delhi High Court and M/s. Trinet Information Services Pvt. Ltd. to facilitate the court case document tracking system and prevent the unauthorized use of the case files by using RFID technology in the locations identified at the High Court of Delhi.

Tamperproof and Supervised collection of physical clues of Crime:

The project was jointly implemented by the Directorate of Forensic Science, Ministry of



Home Affairs, New Delhi and Forensic Science Laboratory, Gandhi Nagar with its technology provider M/s. Infinium India Ltd, Ahmeadabad. Physical clues from the scene of crime were collected under the supervised guidance of experts at forensic laboratory (through satellite link) and the chain of custody of physical clues was video recorded for future reference of forensic laboratory.

Ongoing Projects:

The following projects have been ongoing during the year:

- (i) e- Courtroom: Digital Recording and Retrieval System (e-DRRS)
- (ii) e –Courtroom: Document cum Evidence Management System (DEMS)
- (iii) Selection of Panel of SNP Markers for Forensic Analysis in Indian Population

The Governing Council, while reviewing the programme, agreed that further projects in the program would be demand driven.

4.6.3 Technology Up gradation of select MSME clusters

This ongoing program is focused towards providing R&D support to Micro Small and Medium Enterprises (MSME), on a sustainable basis and planned technological interventions in select MSME clusters. The approach is based on establishing and leveraging academia-industry interaction. The approach starts with a comprehensive assessment of technology needs with specific focus on technology status

(products & process) in the cluster, identification of gaps (in terms of competition and market equipments), and design and implementation of targeted interventions by the academic/ R&D Institutions that act as knowledge partners.

Completed Study:

Technology Gap Study for Sanganer Handmade Paper Industry Cluster

Knowledge Partner: Kumarappa National Handmade Paper Institute (KNHPI), Jaipur.

The report was finalized subsequent to a validation workshop for the study organized on January 27, 2011 at Sanganer, Jaipur.

Ongoing Study:

Technology Status, Gap Analysis Study and the possible remedial measures for the rubber processing units in Tripura – both rubber and rubber products manufacturing units

Knowledge Partner: National Institute of Technology, Agartala

The study made satisfactory progress during the report period.

New Studies:

During the year, 12 New Technology Gap Analysis Studies were commissioned in 11 MSME clusters in different parts of the country with nearby competent academic/ research



institutes, as detailed below:

Sl. No.	Name of the cluster	Knowledge Partner
1.	Mini Gas Cylinder Cluster, Meerut, UP	Meerut Institute of Engg. & Tech. (MIET) , Merrut
2.	Voltage Stabilizer Cluster, Meerut, UP	Meerut Institute of Engg. & Tech. (MIET) , Meerut
3.	Ready Made Garments Cluster, Tirupur, TN (Production/ Manufacturing Tech.)	PSG College of Technology, Coimbatore
4.	Ready Made Garments Cluster, Triupur, TN (Fashion Technology)	NIFT-TEA Knitwear Fashion Institute, Tripur
5.	Sewing Machine Cluster, Ludhiana, Punjab	Dr. B. R. Ambedkar National Institute of Technology (NIT), Jalandhar
6.	Bicycle Parts Cluster, Ludhiana, Punjab	Dr. B. R. Ambedkar National Institute of Technology (NIT), Jalandhar
7.	Plastic Cluster, Mumbai	Institute of Chemical Technology (UIC), Mumbai
8.	Ready Made Garment Cluster, Delhi/NCR	Technological Institute of Textiles & Sciences (TITS), Bhiwani
9.	Textile Cluster, Panipat	Technological Institute of Textiles & Sciences (TITS), Bhiwani
10.	Electronic Cluster, Mohali	Centre for Development of Advanced Computing (CDAC)
11.	Plastic Cluster, Delhi	CIPEAT, Panipat
12.	Auto Component Cluster, Jamshedpur	National Institute of Technology, Jamshedpur

Ongoing Projects

R& D and Innovation Centre for Howrah Foundry cluster

Salient highlights of new initiatives and ongoing activities undertaken by R& D and Innovation Centre for Howrah Foundry cluster are as below:

Casting Simulation Laboratory: The Cluster was introduced to casting simulation facilities. It has been made operational with the installation of imported ProE and ProCAST softwares. These facilities have resulted in cutting down wastage and reduction of time for preparing moulds. The facilities have enabled casting of much more value added products. The

R&D and Innovation Centre has delivered the complete casting simulation for three industrial jobs of the following foundries:

- Sett Iron Foundry
- Techno Aid Private Limited

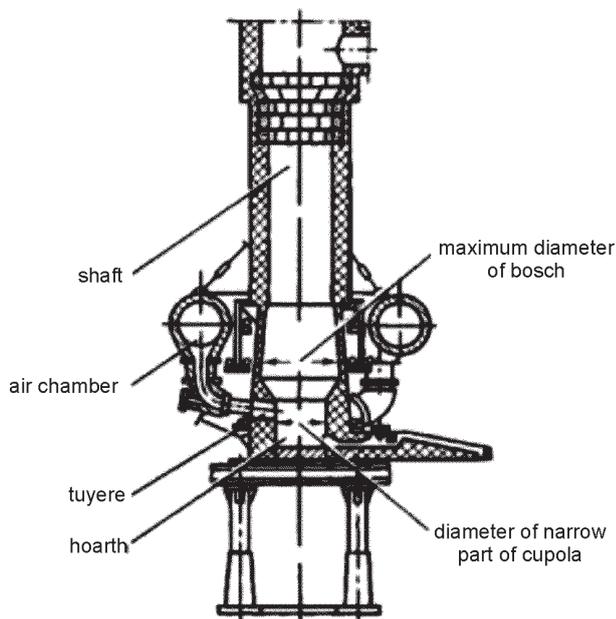
Towards wider usage and utilities of the software, they are being demonstrated to other foundries in the cluster. A workshop in this direction was conducted in December, 2010 involving luminaries of the Howrah Foundries and academicians.

R&D and Innovation Laboratory: Equipments for chemical/spectroscopic analysis, metallurgical/ metallographic testing and sand

testing facilities are being made operational. Metallurgical Microscope with all accessories has also been installed. These facilities are expected to generate additional revenue for the Centre.

Mobile Casting Clinic: The mobile casting clinic, an integral part of the Centre, houses equipments for carrying out sand testing. The mobile van goes around the cluster as per route, frequency and time schedule provided by the Industry Association and facilitates sand testing in different foundries. There are 100 foundries availing services of this mobile casting clinic. During the year the mobile van generated revenue of over Rs. 1.50 lakhs. The above revenue generation includes Membership Charges, Testing Charges and Consultation Charges.

Modification of Divided Blast Cupola (DBC): TIFAC has taken a lead in getting the cupolas of the cluster redesigned to make them



Sketch of conventional Cupola as existed at M/s. Dhang's Iron Foundry

more energy efficient. Towards this, earlier energy audits were carried out and a project was assigned to R&D and Innovation Centre to design energy efficient cupolas. Then industry puts its own resources to carry out the modification as per the design, under the supervision of the Centre. During the period, one cupola was converted with a few others in the pipeline.

Pictorial view of the divided blast cupola after modification



Production of the Documentary film on Howrah Foundry Cluster: A Documentary Film titled 'Casting India's Future....Work in Progress' highlighting the best practices in the foundry industry has been completed. Towards sensitizing the cluster with best practices, the film would be circulated amongst the cluster.

R& D and Innovation centre for Baruipur Surgical Instruments Industry cluster

The R&D and Innovation Centre for Baruipur Surgical Instruments Industry cluster is nearing completion with the installation of different testing equipments. The Centre has been active with regular interaction with the



cluster and leading surgeons. Some salient highlights are as below:

A number of units have availed the testing facilities at the R&D and Innovation Centre for commercial purpose as well as for technological feedback about their raw materials and products. The tests conducted so far include mechanical tests (hardness, strength etc.), surface finish tests and also dimensional accuracy tests. Design of milling cutter for articles like forceps/scissors and associated fixture has been successfully done and demonstrated at Common Facility Centre (CFC), Fultala, Baruipur, South 24 Parganas. Consultancy has been offered to few units regarding design & fabrication of suitable milling cutter. In some cases the composition of raw materials as well as finished products has been identified.

A Certificate course-cum-training program on 'Advancement in Manufacturing Techniques for Surgical Instruments' for 100 workers of the cluster in four batches have been taken up. School of Bio Science & Engineering, Jadavpur University has conducted the training of first batch for 25 nos. of participants in association with surgeons & other Departments of Jadavpur University. The training has helped the workers in getting acquainted with modern practices of forging, shaping etc. The course content has been finalized in consultation with the Industry Representatives and leading surgeons.

Malda Food Processing cluster

Earlier study by CISH, Lucknow had brought out the need for an Aseptic Packaging Plant at Malda to fully exploit the commercial potential of the mangoes and other fruits at Malda. Accordingly a feasibility study for establishing a 'Pulp Processing cum Aseptic Pulp Packaging Plant at Food Park, Malda' was carried out by

Deputy Director of Agriculture (Fruits), Department of Food Processing Industries & Horticulture, Government of West Bengal, Malda. The department provided information regarding availability of raw material, forward and backward linkages etc.

Subsequently, a Detailed Project Report (DPR) for 'Setting up an Aseptic Pulp Processing-cum-Packaging plant at Food Park, Malda' is being prepared jointly with Department of Food Processing Industries and Horticulture, Government of West Bengal. NABCONS, the consulting service subsidiary of NABARD, has been assigned to prepare the DPR.

Jalandhar Sports Goods cluster.

As a follow-up of recommendations of technology gap study for Jalandhar Sports Goods cluster, the Forest Product Division, Forest Research Institute (FRI), Dehra Dun was supported towards formulation the proposal 'Functional test evaluation the performance of cricket bat'. FRI has prepared the proposal and submitted for consideration of TIFAC.

4.6.4 Miscellaneous Projects

Demonstration of four ARUN160 Solar Thermal Concentrators of 169 sq.m each supplying steam for drying of Sodium Sulphate at Heavy Water Plant, Kota

Implementing Agency: Heavy Water Board, Mumbai

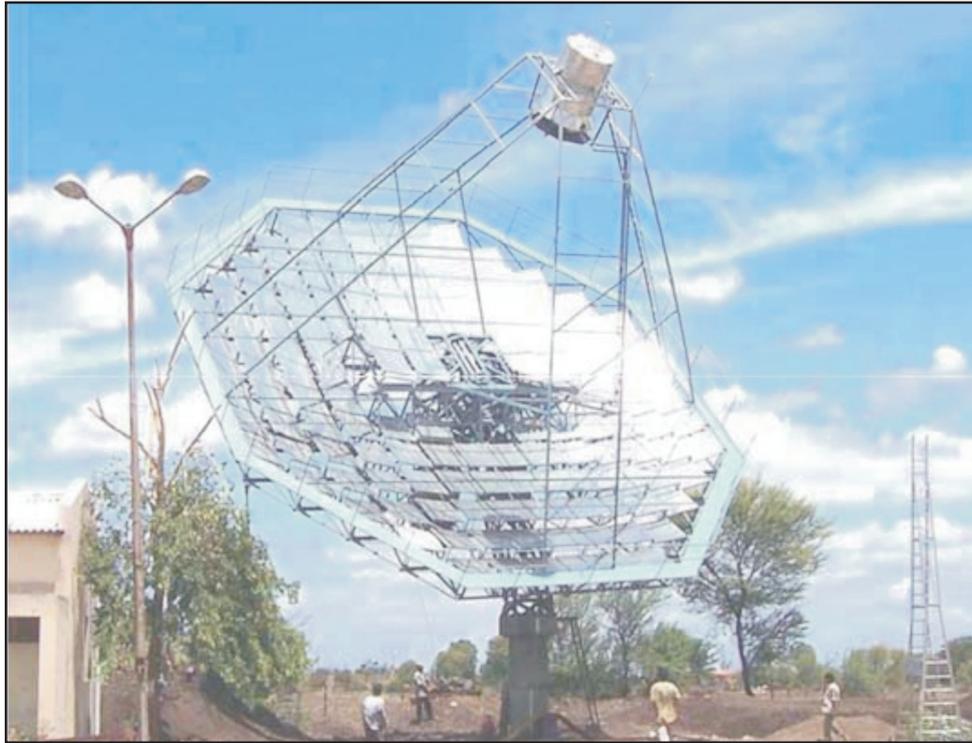
The objectives of this demonstration project are to study the load pattern of the drying of Sodium Sulphate (Na_2SO_4) at Heavy Water Plant (HWP), Kota; the site conditions, solar radiation, etc., to install and commission the complete solar concentrator – drying system designed for the above load; to monitor and evaluate the system

performance and establish the performance parameters of the solar industrial effluent / chemical evaporation system using Arun160 and to suggest further improvements and potential applications.

Establishing the suitability of ARUN solar concentrator system for drying of industrial chemicals and effluents and the commercial parameters of the solar industrial effluent / chemical evaporation system using Arun160 would be the secondary objectives.

The achievements during the year are;

1. Four units of Arun 160 solar concentrator along with integration system including piping and other accessories supplied installed and commissioned at HWP Kota.
2. Performance monitoring completed with analysis suggesting further improvements and establishing performance benchmark.
3. The system was inaugurated on December 11, 2010 at HWP Kota during the occasion of completing 25 years of existence of HWP, Kota.



ARUN Solar Dish



5 International Cooperation

5. International Cooperation

5.1 India-International Institute for Applied System Analysis (IIASA) Programme

International Institute for Applied Systems Analysis (IIASA) is an independent non-governmental interdisciplinary research institution headquartered in Austria. IIASA is sponsored by various scientific organizations from different member countries. India has been a member in IIASA since January 2007 with TIFAC as the Indian National Member Organization (NMO). TIFAC has been entrusted with implementing the 'India-IIASA Programme'. The programme activities are guided by an Indian National Committee of experts, Chaired by Dr Kirit Parikh, Former Member-Planning Commission. 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 Scientists' Programme (YSSP) and Postdoctoral Programme, which help strengthen their skills in advanced systems analysis and research techniques.

Capacity Building: Since India's membership with IIASA, eight Indian researchers have participated in the YSSP at IIASA jointly funded by IIASA and TIFAC. In addition, one

person is currently working as 'postdoctoral fellow' in IIASA. For the summer of 2010, IIASA had selected two YSSPiars from India and supported their living expenses for 3 months.

Collaborative Studies

A study has been initiated with the Integrated Research and Action for Development (IRADe), New Delhi on Indian Perspectives on Global Energy Scenarios Till 2050. The study attempts to identify India's energy mix in long term (2050), expected future energy technologies and investments in the context of climate change.

Study on Analyzing Forest Carbon Accounts for Sustainable Policy Options has been launched with Indian Institute of Forest Management (IIFM), Bhopal. The study aims to analyze the forestry and related land use policies in terms of their economic & social consequences which have bearing on forestry sector with reference to climate change.

Workshops/Seminars/Meetings organised in 2010-2011

TIFAC had been organizing a series of workshops in collaboration with the Indian institutes/ academia and IIASA for sharing the knowledge, learning new models and techniques and exchanging ideas on emerging problems among Indian researchers, scientists and policy makers. Five workshops were organized in partnership with IIASA during the year.

TIFAC-MSE-IIASA Modelling Workshop on



Land Use Planning was held at Madras School of Economics, Chennai during April 15-16, 2010 to deliberate on several cutting-edge methodological issues to develop modelling expertise to analyze issues related to food security.

An International workshop on Water Resource Management and Sustainability was organized by TIFAC during September 03-04, 2010. The workshop aimed at facilitating exchange of countries' experiences on the regulatory, institutional, technical and social and development aspects connected with the application and implementation of national policies/strategies and plans on water so as to realize the IIASA Strategic Plan in methodological, applied and integration aspects on water.

A five-day workshop with intensive training on Multi-state demography was organized in partnership with ISEC, Bangalore during November 09-13, 2010 to introduce multistate population projection methodology with PDE (Population-Development-Environment) projection software and demonstrate Visual Basics for Application (VBA) as a tool for developing multistate population projection model.

A workshop on Mainstreaming Disaster Risk Reduction into Development Strategies was held in partnership with Sardar Patel Institute of Economic and Social Research (SPIESR), Ahmedabad during January 20-21, 2011. The workshop discussed the tools and techniques for disaster risk reduction including issues related to mainstreaming the disaster risk reduction strategies into the development goal.

A workshop on Regional Air Pollution and Greenhouse Gas Mitigation was organized in

partnership with CEPT University, Ahmedabad during January 27-28, 2011. The workshop offered insight into the methodology and practical hands-on experience on IIASA's GAINS (Greenhouse Gas Air pollution Interactions and Synergies) model for integrated assessment of air pollutants & greenhouse gases, environmental control strategies for air pollutants and associated environmental & health impacts.

Presentations by TIFAC officials in Indian institutions: In order to reach out to a larger network of researchers in targeted Indian institutions for apprising them on the India-IIASA Programme, windows of opportunities available under the programme and for improved participation by Indian researchers in the programme, detailed presentations and discussions by TIFAC scientists were organized in various institutions at dispersed locations in India. Presentations on India-IIASA Programme were made at the following institutions:

- (i) Centre for Development Studies (CDS), Trivandrum
- (ii) Centre for Economic & Social Studies (CESS), Hyderabad
- (iii) National Academy of Agricultural Research Management (NAARM), Hyderabad
- (iv) Tata Institute of Social Sciences (TISS), Mumbai

The aforesaid presentations have resulted into generation of new study proposals and joint workshops/seminars as well as created very good response to YSSP of IIASA from Indian research organizations.



The India-IIASA collaboration has resulted in the publication of approximately 50 journal articles or reports & publications 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. In addition, TIFAC as the Indian NMO has worked with IIASA and its other NMOs to shape IIASA's future by providing input to the development of a new strategic plan (2011 to 2020) that will see IIASA focus its research in the areas of energy and climate change, food and water, and poverty and equity.

5.2 S & T Cooperation with ASEAN

TIFAC has been functioning as the nodal agency for 'initiating an internship programme on R&D and innovation Management' on behalf of DST in the context of ASEAN. In this connection, along with DST, TIFAC participated in the Meeting of the ASEAN-India Working group on Science & Technology at Krabi, Thailand during December 16-17, 2010. The components of the proposal for conducting the internship programme were discussed in the meeting.



6

Human Resources & Infrastructure Development

6.1 Training

- (i) Shri A.K. Ahuja, Manager, attended a three day training programme on 'RTI' held from during second week of April at Department of Personnel and Training, (DOPT).
- (ii) Dr. Neeraj Saxena, Science D, attended a five days training programme on 'Management & Leadership Disaster Management' held from June 14 - 19, 2010 at Lal Bhadur Sashtri National Academy of Administration, Mussoorie.
- (iii) Shri Ravinder Kumar, Manager (Establishment), attended five days training programme on 'Disciplinary Proceedings (Code AV-IV) for Officers of PSUs & Autonomous Bodies' held from September 20-24, 2010 at Institute of Secretariat Training & Management (ISTM), Delhi.
- (iv) Shri Ravinder Kumar, Asstt. Manager (Tech.) and Mrs. Indu Vermani, Scientific Asstt. ('C') attended a one day training programme covering CMS of the TIFAC website, held on November 10, 2010 at M/s Iridium Interactive Pvt. Ltd., Noida.
- (v) Shri Argya Sardar, Scientist D attended a training programme on 'Free Training Programme on Technology Valorization & Management' held from November 15-26, 2010 at ASCI, Hyderabad.

- (vi) Shri N.S. Nair, AO, Shri Deep Prakash, AO and Shri Ujjwal, Asstt. attended a one day training workshop on 'New Pension System (NPS)' held on December 16, 2010 at PFRA, New Delhi.

6.2 Participation in International Conferences, Training and Seminar

- (i) Shri B.K. Raichandani, Registrar, TIFAC and Shri T. Chandrasekhar, Scientist 'E' participated in the 'India Show', organized by the Dept. of Commerce, held from February 3 - 6, 2011 at Istanbul, Turkey.
- (ii) Ms. Jancy A. attended the 8th meeting of the ASEAN India Working Group on Science & Technology (AIWGST) held from December 16-17, 2010 at Krabi, Thailand.

6.3. Publications

Details of the publications may be seen in Annexure – I.

6.4. E-Resources

Subscription to E-resources, including Springer Link, Emerald Extra and Web of Knowledge, continued during the year and online desktop computer access were made available to the scientists. Steps were taken to access a wider range of E-resources such as Scopus, including the existing ones, through the CSIR-DST consortia.



6.5 Implementation of Official Language Policy

TIFAC continued efforts towards implementation of Official Language Policy under the guidance of in-house Official language Implementation Committee. Training programmes and workshops on the language were organized regularly. 'Hindi Day' and 'Hindi Week' were also observed in TIFAC in association with DST, during which language proficiency competitions including quiz, essay writing, elocution and poetry recitation in the language were conducted. An incentive scheme was introduced to promote use of Hindi while preparing official notes and drafts

6.6 TIFAC Library

In order to facilitate and foster the flow of the Scientific/Technical information, TIFAC Library continued to strengthen its holdings. The requirement, as per the changing needs of TIFAC scientists and users, were met by procuring scientific books/reports and journals/serials. During the year, a total of 28 Scientific, Technical books and reports, including publications in Hindi language, were procured, raising the total holding of TIFAC Library to 2322. In addition, 27 Scientific and Technical Journals and other magazines have been subscribed.

7 National Mission on Bamboo Applications

The National Mission on Bamboo applications (NMBA) has been pursuing development of bamboo technologies, products and processes and enhance value addition, with a view to improve the livelihoods of the people associated with it. NMBA's track record in emergency relief shelters, with low response and erection time, has been widely acclaimed. With a foray into collection studies, practices, etc., NMBA has virtually become a repository of information. Acceptance and recognition of bamboo as a viable, eco-friendly alternative to timber have made the role and activities of NMBA more challenging. Quality standards are being created and adhered to.

What follows is an account of major achievements of the year:

1. Disaster Relief

During the recent disaster in Leh, the Mission initiated construction of 60,000



IMAM BARA, PHYANG



HOUSING COLONY, PALAM



HOUSING COLONY

sqft. of housing and community space, a large portion of which was in the rural area, as far as Nubra Valley. These houses were specially designed to be erected without use of concrete and to withstand temperatures up to minus thirty degrees Celsius. This was completed within a short period of 2 ½ months, well before the onset of winter.

2. Technology Development:

Based on the success of the disaster relieve attempt in in Leh, the J&K Govt. has ordered construction of barracks for the police force in J&K at four locations. The Mission has been innovating on the designs to meet the requirements of the Para-military forces. The Mission, jointly with the CRPF and industry, has developed a barrack which can be assembled and dismantled in six hours.



Solar Light

The amalgamation of technology in various aspects with bamboo has been fruitful and over the years NMBA has collaborated with various agencies to develop new products and create innovations with bamboo. In this regard, NMBA has been in talks with SDR Technologies, Delhi and other agencies as well.

Products such as Bamboo microscope, bamboo kaleidoscope, and bamboo solar

garden light, bamboo speakers were developed with bamboo as a green alternative, replacing plastics, metals and wood etc. In term of initiating the fusion of electronics, bamboo solar light were developed. The prototypes of products have already been developed.

3. Hydroponics

Hydroponics is a method of growing plants using mineral nutrient solutions in water, without soil, using PVC pipes mounted on aluminium frame. M/s World Kids Inc, Mumbai is Developing Hydroponics unit made of Bamboo which will replace the plastic and aluminium version along with rooftop hydroponics demo garden.

4. Cellulose Nano Whiskers from Bamboo

NMBA is working towards development of Bamboo based cellulose nano whiskers with Institute of Wood Science and Technology (IWST), Bangalore. Work on extraction of nano-cellulose from bamboo fibers has been completed. The process of extraction has been standardized. Presently work on preparation of nano composites using the nano-cellulose is in process. The product can be used as the renewable food packaging material with its unique environment safe quality.

5. Value Addition to bamboo shoot

Under this project, NMBA is working towards value addition of bamboo shoots through processing for candies, chutneys etc., with subsequent standardization and shelf life study. This project is being carried



out with the help of Central Food Technological Research Institute (CFTRI) and the Department of Fruit and Vegetable, Mysore, for standardization of storage and package studies along with standardization of conditions for the preparation of value added products from bamboo shoots. This study would help us reach newer heights of advancement in technological advancement of bamboo sector.

6. IPRs

NMBA has filed the IPRs for products like 'bamboo Reinforced Thermoplastics', 'Bamboo mat board', 'Activated charcoal' and 'Quick erect shelters. NMBA supported units have filed IPR's for 'bamboo Polyhouse', 'Bamboo Jute Composite' and 'Bamboo Jute Igloo'. There are several other technologies on which NMBA is working on to make the bamboo sector all-inclusive.



8

Mission for Geospatial Applications

The Mission Mode project was initiated in 2007 as “Reinvigorating Indian Agriculture through S&T” at a total cost of Rs 4.90 crore for the 11th Plan. Over a period of three years the scope of the project widened to Flood modeling, building 3-D terrain model, development of communication equipments [SDRs & Wide band Surveillance Receiver]. Keeping in view the expansion the project was renamed as “Mission for Geospatial Applications” and the outlay for 11th Plan was revised to Rs.24.50 crore. Given below the technological innovations and their application made during last three years by the Mission.

I Development of three dimensional terrain models - Uses for Infrastructure Planning & Development and operational planning of security agencies:

Digital elevation models in combination with other spatial and non spatial data are an important database for topography-related analyses or 3D video animations (e.g. fly-throughs). Different geo-referenced 3D products can be derived and complemented by a coordinate system and presented in a 3D perspective view. Geographical information technology and digital image processing has become a rapidly expanding field in recent years with particular significance in the treatment of geo- and image information for operational applications in security and developmental projects. For most applications, digital elevation models (DEMs) are an important and indispensable tool.

The applications of 3-D Terrain models extends to almost every sphere of govt. activities i.e Agriculture, Archaeology, Cadastre and Land Records, Coastal Management, Defense Mapping, Engineering & Construction, Environmental Monitoring, Forestry, Geospatial, Global Warming, Internal security, Land Cover and Change Detection, Land Development, Mining, Natural Hazards, Oil & Gas Exploration and Development, Pipeline & Transmission Surveys, Sports and Tourism, Wildlife & Marine Conservation.

Mission for Geospatial Applications initiated 3-D modelling with the initiative of MHA. Security agencies in India hitherto were relying on printed maps for their tactical planning and field operations. Non availability of terrain slopes and other relief hindered them from having a better planning. To overcome the shortcoming, Mission for Geospatial Applications, with the initiative of MHA, developed digital elevation models by using Survey of India data and digital topo maps in a GIS Platform for use of Control Rooms of different government agencies dealing with security for better visualization and analysis of terrain, which could be useful in navigation and planning field operations.

Achievements: The Mission has developed 3-D models of the states like Jharkhand, Jammu & Kashmir,



Chhattisgarh, Orissa, Tripura, Bihar, parts of Madhya Pradesh, Manipur. The data developed have been shared with paramilitary forces and state police like CRPF, BSF, CISF, ITBP, Government of Jharkhand, Tripura Police, Government of J&K, Kolkata Police. Recently the Mission is associated with Government of Nagaland for planning and monitoring of developmental programmes, Government of Manipur for planning & monitoring of School construction. The Mission is also involved in planning and monitoring of roads under PMGSY for Ministry of Rural Development and is in discussion with the Ministry of Surface Transport.

II Flood Modelling and Forecast:

Flood modelling is an integral part of flood management. Models are used for planning and design as well as for forecasting floods so that mitigating measures can be taken in time. The Mission had started flood modeling at the request of Gujarat Disaster Management Authority for Tapi basin. The Mission is currently involved in flood modeling of Mahanadi and Krishna basins. This will enable warning and forecasting of flood event with possible damage three days in advance of actual event. Besides forecasting damage assessment as well as investing in flood protection works can be done very accurately. Recognizing Mission's capabilities in flood modeling it has been made a member in the Working Group for Flood Management in the Planning Commission for the 12th Plan.

Water Sensors: The Mission has also developed high accuracy ultrasonic water sensors. Traditional sensors used for

measuring water level are installed inside the water which is either being washed away during heavy flooding or sensors got damaged over a short period. Further as these are recorded manually operations in flood situations become difficult. Thus the Mission has developed non contact sensor which will be installed with holding structure at a certain height secured from flooding. These will be fitted with ultrasonic sensors with 5mm-1cm accuracy and battery operated based with solar charging capability. Data transfer can be real time or pre programmed via SMS or GPRS. In field programmability shall allow flexibility to the user. Non contact sensors will not be damaged in flood situation unless the holding structure is washed away. These water sensors are being installed for the Govt of Maharashtra on the Krishna and for Govt. of Orissa on the Mahanadi.

III Cadastral mapping:

Cadastral map is a basic component of Land management system in any state. The Mission is experimenting with new technologies for quicker and hassle free cadastral survey. Recently Department of Land Resources, Government of India has tasked this Mission with survey/resurvey of one district each in Haryana and Arunachal Pradesh using above noted technology. Once it becomes successful and meets the standards required, this would be extended to other areas. This technology can be used for North Eastern region to accelerate their Land Management System.

IV Tactical Communication Systems:

While engaged in terrain development, it



was felt that existing communication systems available to the forces are ill equipped to meet the challenges posed by anti social elements. Often obsolete communication systems failed to provide much needed information leading to loss of life and property. For successful handling of anti insurgency operations in disturbed areas, the Mission planned to put in place a more integrated system i.e to provide a sturdy state of the art communication system providing maximum flexibility in terms of frequency bands and waveforms for practically all services and platforms in secured networks along with high accuracy terrain models for planning and smooth operations. Thus the Mission has successfully developed two communication systems viz. Software Defined Radios and Wideband Surveillance Receiver.

Software Defined Radios (SDRs): The software defined radio family is a new generation of high-performance digital radios. It represents a revolutionary change, both technically and economically, in the tactical communications sector. As it is software defined it provides a lot of advantages over the communication instruments currently used. The advantages of SDRs over normal communication systems are - (a) The ability to

receive and transmit various modulation methods using a common set of hardware; (b) The ability to alter functionality by downloading and running new software at will; (c) The possibility of adaptively choosing an operating frequency and a mode best suited for prevailing conditions; (d) The opportunity to recognize and avoid interference with other communications channels; (e) Elimination of analog hardware and its cost, resulting in simplification of radio architectures and improved performance; and (f) The chance for new experimentation.

With assistance from Department of Science & Technology, 132 SDR sets have been developed and deployed in the headquarters and field locations of CRPF, BSF, CISF, ITBP Jharkhand Police, M.P. Police and Tripura Police. In most of the cases networks have been set up establishing uninterrupted communication between Delhi and North East and far off places.

The usability and advantages of these sets over systems available in the market have been certified by the paramilitary forces. These have been tested in the govt laboratories and have been certified to be better than available sets in the market. Because of its success para military forces and various state police have initiated process for inducting these sets in to their networks. These are under costing with the Ministry of Finance.



List of Publications

1. **‘Research & Technology Management - An Indian Experience’**, Nirmala Kaushik, country paper presented at the training Programme on Aspiring Leaders of Research Technology Organization under the Malaysian Technical Cooperation Programme (MTCP) at Selangor, Malaysia, May 31-June 04, 2010
2. **‘New Generation Biofuels - Technology & Economic Perspectives’**, Nirmala Kaushik, S Biswas and PR Basak, presented at conference on ‘Frontier Issues in Technology Development and Environment’ at Madras School of Economics, Chennai, March 19-21, 2010. and published in the journal of Indian Association of Social Science Institutions (IASSI), Vol.29, No 3&4 July-December 2010.
3. **‘Innovation Management - An Indian Experience’**, Soumitra Biswas and Nirmala Kaushik, Asia Pacific Tech Monitor, September-October 2010 issue.
4. **Bioprocess Technology Development - An Indian Experience**, Nirmala Kaushik and Soumitra Biswas presented at the 5th annual Pacific Rim Summit Industrial Biotechnology & Bioenergy at Honolulu, Hawaii, USA, December 11-14, 2010.
5. **Biomass Derived Bioproducts - Challenges & Opportunities**, PR Basak and Soumitra Biswas presented at the 25th Indian Engineering Congress organized by Institution of Engineers India held at Kochi on December 18, 2010
6. **‘Patent laws and research exemption imperatives - do scientists have enough freedom to operate?’** Suresh Kumar K, Aruna and Shikha, Current Science, Vol. 99, NO. 11, 10 December 2010, pp 1514-1529
7. **‘Foresight Analysis of Power Demand due to Plug-in Electric Vehicles’** ‘Arghya Sardar and Sajid Mubahsir, presented at the Symposium of International Automotive Technology SIAT 2011, and Published as SAE Paper No. 2011-26-0049 during Symposium of International Automotive Technology SIAT 2011 in January 2011.
8. **‘Transmission Technologies: Indian Perspectives’**, Mukti Prasad, Arghya Sardar and Sajid Mubashir, presented at the Symposium of International Automotive Technology (SIAT), January 2011 and published as SAE Paper number 2011-26-0083 during Symposium of International Automotive Technology SIAT 2011 in January 2011.



Auditor's Report

Auditor's Report

The Members,
Governing Body
Technology Information, Forecasting & Assessment Council,
New Delhi – 110 016

We have audited the attached Balance Sheet of TECHNOLOGY INFORMATION, FORECASTING AND ASSESSMENT COUNCIL (TIFAC), NEW DELHI as on 31st March 2011 and also the attached Income & Expenditure Accounts for the year ended on that date.

These financial statements are the responsibility of the management of the TIFAC. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in India. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management, as well as evaluating the overall presentations of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

Subject to our Audit objections as per Annexure AR-1, comments given in the following Notes on accounts as per schedule -32 & 33, Note No B-1-> Non – Accounting of Stock of Publication of TIFAC, Note No. B-2 -> Non-receipt of utilization statements in respect of grant utilized from the implementing agency in some cases, we report that :-

- 1) We have obtained all the information and explanation which to the best of our knowledge and belief were necessary for the purposes of our Audit.
- 2) In our opinion proper books of account as required by law have been kept by TIFAC.
- 3) The Balance sheet and Income and Expenditure Accounts dealt with by this report are in agreement with the books of account.
- 4) In our opinion and to the best of our information and according to the explanations given to us, the said accounts read with the schedules and notes thereto given the information required by Society Registration Act, in the manner so required and given a true and fair view :-
 - a) In case of Balance Sheet , of the state of affair of the TIFAC as at 31st March 2011.
 - b) In case of Income & Expenditure Account, of the excess of expenditure over income for the accounting year ended on that date.

For Chandiwala Virmani & Associates
(formerly, Chandiwala Gupta & Associates)

Date : 26th September 2011
Place : New Delhi

Sd/-
(Bharat Bhushan)
(Partner)
M.No-87365



**TECHNOLOGY INFORMATION FORECASTING AND ASSESSMENT COUNCIL
STATUTORY AUDIT FOR F/Y 2010-2011**

AUDIT OBJECTIONS

(A) TIFAC

1. As per the agreement of various Projects the Financial Assistance given by TIFAC will be refunded in instalments as per the specified period as mentioned in the agreement but it is analyzed that there are many companies have not repaid their instalments according to the agreements. The details are as under.

Out of which the following amount are overdue as on 31.03.2011

(Rupees in lakhs)

Name of the Projects	Overdue upto Six months	Overdue from more then six months upto 3 years	Overdue more than 3 years	Total
Home Grown Technology	9.36	170.23	2175.98	2355.57
Advanced Composite Programme	74.48	145.26	1043.51	1263.25
Fly Ash Utilization	0.00	0	58.13	58.13
Sugar Technology Unit	0.00	0	452.40	452.40
Agriculture and Agro Food Processing	0.00	21.25	85.00	106.25
Other Targetted Programme	24.00	27.00	0.00	51.00
Total	107.84	363.74	3815.02	4286.60

2. TDS is deducted on payment basis but as per Income Tax Act TDS is to be deducted at "credit or payment basis whichever is earlier"
3. It is observed in some cases that following current liabilities are still outstanding since long time. It should be ascertained whether these liabilities are to be paid or not. If not, then these should be written-off after obtaining proper approval:
- | | |
|---------------------------------------------------------------------------------------------------|--------------------|
| (1) Salary payable (Prof. Ganpathy) | - Rs. 1,800/- |
| (2) Earthquake – Surviving Nature's Fury | - Rs. 1,65,157/- |
| (3) Project (ICOSER) | - Rs. 132,02,152/- |
| (4) Fly Ash Large Scale Stowing of HWP (M) Pune Ash into the Underground Mines of SCCL (Manuguru) | - Rs. 82,94,830/- |
| (5) MSEB-Ash Utilisation / Management | - Rs. 6,00,094/- |
| (6) Indian – Myanmar S & T Friendship Library in Yangoon | - Rs. 9,59,659/- |



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4. A sum of Rs.50,55,194/- has been paid and booked as expense during the year while these expense relates to previous year 2009-2010 for which no provision has been made in previous year. Hence the surplus for the year has been shown as deflated to the extent of Rs.50,55,194/-
5. A sum of Rs.9,83,129/- has been paid in financial year 2011-2012 while these expense relates to current financial year i.e. 2010-2011 for which no provision has been made in current year. Hence the surplus for the year has been shown as inflated to the extent of Rs. 9,83,129/-.
6. Following balances are o/s for the last 2 to 3 years which have not been settled so far:-

	Debit balance.
(1) Sail NMPP	Rs. 19,736.55
(2) Security Deposit : Lease Accomodation	Rs. 9,500.00
(3) Security Deposit M/s Tata Tele Service Ltd	Rs. 16,000.00
7. Rs.50.00 lakhs outstanding with Income Tax office which was deposited against the demand under section 226 of Income Tax Act, 1961 is still outstanding to be received by TIFAC.
8. TIFAC has shown Rs.10 crore as expenditure (i.e Rs.10 crores disbursed to SIDBI) which is not expenditure but is an advance with SIDBI and no project disbursed till 31st March 2011. Hence inflate the expenditure and resulting increase the loss by Rs.10 crores.
9. Rs.5 crores has been increased to expenditure (Annexure 5) and shown under "Earmarked for release to SIDBI" (Revolving Fund), hence increase the expenditure and resulting increase the loss by Rs.5 crores.
10. An amount of Rs.6,85,000/- (shown under Current Liabilities) has been deducted from the salary of TIFAC staff / officials on account of medical insurance against which no medi claim policy has been taken from any insurance co., hence there may be uncertain liability on TIFAC.
11. Rs.27,53,088/- paid to M/s MM Active Sci-Tech Communication for rent @12000/- P.Sq meter for 5 days, which seems to be very exorbitant Price and no quotation/Tender were available on record. Rs.14,50,000/- plus taxes has been paid to M/s Jain Exposition Pvt Ltd, (1/5th Share born by TIFAC) for Fabrications without inviting any tenders/quotations.



Replies to Audit queries “Annexure AR 1” TIFAC

1. The cases of non-recovery of Technology Development Assistance are being vigorously monitored and pursued with the Companies. Legal action as per provisions of Agreements has been initiated in a number of cases.
2. The point has been noted for future compliance.
3. Matter has already been taken up with the concerned department/agency for reimbursement of due amount.
4. The point has been noted for future compliance.
5. The point has been noted for future compliance.
6. The liabilities pointed out will be paid during the year 2011-2012.
7. The matter is being pursued with Income Tax office.
8. The Revolving Fund is set up to fund the technology development/commercialization projects for which technical evaluation will be done by TIFAC and financial scrutiny by SIDBI alongwith its recovery. The CORE Fund of Rs.30 crores is to be financed by TIFAC from out of recoveries of Technology Development Assistance. As per agreement TIFAC was to disburse to SIDBI Rs.10 crores on signing of the agreement. Technical evaluation and financial scrutiny takes time due to which no project disbursement was done till 31st March 2011. However, the process of disbursement has already started.
9. Further release to SIDBI by TIFAC towards technology development / commercialization projects is also to be done for which TIFAC has to generate funds through recoveries from Technology Development Assistance funded by TIFAC. Repayments received in this financial year to the extent of Rs.5.00 crores is earmarked and taken in expenditure. Disbursement of funds would be done on the recommendations of Project Approval Committee as per the agreement.
10. Medical Scheme is extended to TIFAC staff/ officers on the basis of CGHS Scheme of Central Government as in other organizations for which a nominal amount is deducted from their salary. This amount of Rs.6,85,000/- is treated as income to TIFAC.
11. Approval related to release of Rs.27,53,088/- to M/s MM Active Sci-Tech Communications for rent for 5 days was given by DST for organising a fair at Chennai during Science Congress Session along with Rs.14,50,000/- plus tax to be paid to M/s Jain Exposition Pvt Ltd for Fabrications for which TIFAC was one of the 5 participants. Rs.14.50 lakhs plus tax was the total amount to be paid for the fair at Chennai which was to be equally distributed amount 5 organisations. Since Science Congress Session, an annual event is organized by Department of Science and Technology, the short listing of companies is decided by that Department.



Technology Information Forecasting And Assessment Council, (TIFAC)
Balance Sheet as on 31.03.2011

(Amount Rs.)

	Schedule	Current Year	Previous Year
CARPUS / CAPITAL FUND AND LIABILITIES			
Corpus / Capital Fund	Schedule 1	164145078.71	200517116.19
Reserves and Surplus	Schedule 2	0.00	0.00
Earmarked / Endowment Funds	Schedule 3	0.00	0.00
Secured Loans and Borrowings	Schedule 4	0.00	0.00
Unsecured Loans and Borrowings	Schedule 5	0.00	0.00
Deferred Credit Liabilites	Schedule 6	0.00	0.00
Current Liabilites and Provisions	Schedule 7	36957018.99	43607481.99
Total		201102097.70	244124598.18
Assets			
Fixed Assets (Net)	Schedule 8	100896272.63	110637513.35
Investments-From Earmarked / Endowment Funds	Schedule 9	0.00	0.00
Investments-Others	Schedule 10	0.00	0.00
Current Assets, Loans, Advances etc.	Schedule 11	100205825.07	133487084.83
Miscellaneous Expenditure (to the extent not written off or adjusted)			
Total		201102097.70	244124598.18
Significant Accounting Policies	Schedule 32		
Contingent Liabilities and Notes on Accounts	Schedule 33		

As per our report of even date Annexed herewith

For Chandiwala Virmani & Associates
(Formerly Chandiwala Gupta & Associates)
Chartered Accountants

Sd/-
(Bharat Bhushan)
Partner
M. No: 087365

Date :
Place : New Delhi

Sd/-
Registrar

Sd/-
Scientist-in-charge



Technology Information Forecasting And Assessment Council, (TIFAC) Income & Expenditure Account for the Year Ended 31.03.2011

(Amount Rs.)

Income	Schedule / Annexure	Current Year	Previous Year
Income from Sales / Services	Schedule 12	0.00	0.00
Grants / Subsidies	Schedule 13	171399700.00	172800000.00
Fees / Subscriptions	Schedule 14	6250.00	16065.00
Income from Investments	Schedule 15	0.00	0.00
Income from Royalty, Publication etc	Schedule 16	196383.00	413308.00
Interest Earned	Schedule 17	4609708.00	3282793.00
Other Income	Schedule 18	74087.00	350952.00
Increased/(Decrease) in stock of Finished Goods and Works-in-Progress	Schedule 19	0.00	0.00
Refund from Projects	Schedule 20	50984644.24	80514774.24
Total (A)		227270772.24	257377892.24
Expenditure			
Establishment Expenses	Schedule 21	79911962.00	71430039.91
Expenditure on Grant, Subsidies etc	Schedule 22	223698735.00	154661799.00
Interest	Schedule 23	0.00	0.00
Depreciation (Net Total at the Year end)	Schedule 8	11850057.53	12824522.77
Total (B)		315460754.53	238916361.68
Balance being excess of Income over Expenditure (A-B)			18461530.56
Balance being excess of Expenditure over Income (A-B)		88189982.29	
Transfer to Special Reserve (Specity each)			
Transfer to / from General Reserve			
Balance Being Surplus (Deficit) carried to Corpus/Capital Fund		88189982.29	18461530.56
Significant Accounting Policies & Notes on Accounts			
Contingent Liabilities			

As per our report of even date Annexed herewith

For Chandiwala Virmani & Associates
(Formerly Chandiwala Gupta & Associates)
Chartered Accountants

Sd/-
(Bharat Bhushan)
Partner
M. No: 087365

Sd/-
Registrar

Sd/-
Scientist-in-charge

Date :
Place : New Delhi



**Technology Information Forecasting And Assessment Council, (TIFAC)
Patent Facilitating Centre
Income & Expenditure for the year Ended 31.03.2011**

(Amount Rs.)

Income	Schedule / Annexure	Current Year	Previous Year
Grants / Subsidies	Schedule 24	10000000.00	15000000.00
Interest Earned	Schedule 25	2713.00	0.00
Other Income	Schedule 26	30100.00	163149.00
Refund from Projects			
Total (A)		10032813.00	15163149.00
Establishment Expenditure / Administrative Expenditure	Schedule 27	8508852.00	10548229.00
Project Expenditure	Schedule 28	2280154.00	3916309.00
Total (B)		10789006.00	14464538.00
Balance being excess of Income over Expenditure (A-B)			698611.00
Balance being excess of Expenditure over Income (A-B)		756193.00	0.00
Balance being Surplus/Deficit transferred to Corpus / Capital Fund		756193.00	698611.00

As per our report of even date Annexed herewith

**For Chandiwala Virmani & Associates
(Formerly Chandiwala Gupta & Associates)
Chartered Accountants**

Sd/-
(Bharat Bhushan)
Partner
M. No: 087365

Sd/-
Registrar

Sd/-
Scientist-in-charge

Date :
Place : New Delhi



**Technology Information Forecasting And Assessment Council, (TIFAC)
Scholarship for Women Scientists
Income & Expenditure for the year Ended 31.03.2011**

(Amount Rs.)

Income	Schedule / Annexure	Current Year	Previous Year
Grants / Subsidies	Schedule 29	15451000.00	15496000.00
Other Income	Schedule 30	0.00	0.00
Refund from Projects			
Total (A)		15451000.00	15496000.00
Expenditure			
Expenditure	Schedule 31	14289707.00	14685955.00
Total (B)		14289707.00	14685955.00
Balance being excess of Income over Expenditure (A-B)		1161293.00	810045.00
Balance being excess of Expenditure over Income (A-B)			
Balance being Surplus/Deficit transferred to Corpus / Capital Fund		1161293.00	810045.00

As per our report of even date Annexed herewith

**For Chandiwala Virmani & Associates
(Formerly Chandiwala Gupta & Associates)
Chartered Accountants**

Sd/-
(Bharat Bhushan)
Partner
M. No: 087365

Sd/-
Registrar

Sd/-
Scientist-in-charge

Date :
Place : New Delhi



**Technology Information Forecasting And Assessment Council, (TIFAC)
Schedules Forming Part of Balance Sheet as at 31.03.2011**

Schedule 1 - Corpus / Capital Fund

(Amount Rs.)

	TIFAC	Patent Facilitating Centre	Scholarship for Women Scientists	Current Year as on 31.03.2010	Previous Year as on 31.03.2009
Opening Balance	200129536.87	1267766.32	-880187.00	200517116.19	180558601.63
Earmarked for Release to SIDBI (Revolvig Fund)	50000000.00	0.00	0.00	50000000.00	0.00
Excess of Income over Expenditure	0.00	0.00	1161293.00	1161293.00	19970186.56
Year Adjustments	1412844.81	0.00	0.00	1412844.81	0.00
Total	251542381.68	1267766.32	281106.00	253091254.00	200528788.19
Excess of Expenditure over Income	88189982.29	756193.00	0.00	88946175.29	
Year Adjustments	0.00	0.00	0.00	0.00	11672.00
Total	88189982.29	756193.00	0.00	88946175.29	11672.00
Closing Balance	163352399.39	511573.32	281106.00	164145078.71	200517116.19



Technology Information Forecasting And Assessment Council, (TIFAC) Schedules Forming Part of Balance Sheet as at 31.03.2011

Schedule 2 - Reserve and Surplus

(Amount Rs.)

	Current Year	Previous Year
1. Capital Reserves :		
As Per Last Account	0.00	0.00
Addition during the year	0.00	0.00
Less : Deductions during the year	0.00	0.00
2. Revaluation Reserves :		
As Per Last Account	0.00	0.00
Addition during the year	0.00	0.00
Less : Deductions during the year	0.00	0.00
3. Special Reserve :		
As Per Last Account	0.00	0.00
Addition during the year	0.00	0.00
Less : Deductions during the year	0.00	0.00
4. General Reserve :		
As Per Last Account	0.00	0.00
Addition during the year	0.00	0.00
Less : Deductions during the year	0.00	0.00
Total	0.00	0.00



**Technology Information Forecasting And Assessment Council, (TIFAC)
Schedules Forming Part of Balance Sheet as at 31.03.2011**

Schedule 3 - Earmarked/Endowment Funds

(Amount Rs.)

	Current Year	Previous Year
a) Opening Balance of the Funds	0.00	0.00
b) Additions to the funds		
i) Donations / Grants	0.00	0.00
ii) Income from Investments made on account of Funds	0.00	0.00
iii) Other Additions (Specify)	0.00	0.00
Total (a+b)	0.00	0.00
c) Utilization / Expenditure towards objectives of funds		
i) Capital Expenditure	0.00	0.00
Fixed Assets	0.00	0.00
Other Additions (Specify)	0.00	0.00
ii) Revenue Expenditure		
Salary, Wages and allowance etc	0.00	0.00
Rent	0.00	0.00
Other Administrative Expenditure	0.00	0.00
Total c)	0.00	0.00
Net Balance as at the year end (a+b+c)	0.00	0.00

Note : 1 Disclosures shall be made under relevant heads based on conditions attached to the Grants

Note : 2) Plan Funds received from Central / State Governments are to be shown as separate Funds and not to be mixed up with any other funds



Technology Information Forecasting And Assessment Council, (TIFAC) (Regular)
Schedules Forming Part of Balance Sheet as at 31.03.2011

Schedule 4 - Secured Loans and Borrowings

(Amount Rs.)

	Current Year	Previous Year
1. Central Government	0.00	0.00
2. State Government (Specify)	0.00	0.00
3. Financial Institutions		
a) Term Loans	0.00	0.00
b) Interest accrued and dues	0.00	0.00
4. Banks :		
a) Term Loans	0.00	0.00
Interest accrued and due	0.00	0.00
b) Other Loans (Specify)	0.00	0.00
Interest accrued and due	0.00	0.00
5. Other Institutions and Agencies	0.00	0.00
6. Debentures and Bonds	0.00	0.00
7. Others (Specify)	0.00	0.00
Total	0.00	0.00

Note : Amounts due within one year



Technology Information Forecasting And Assessment Council, (TIFAC) (Regular)
Schedules Forming Part of Balance Sheet as at 31.03.2011

Schedule 5 - Secured Loans and Borrowings

(Amount Rs.)

	Current Year	Previous Year
1. Central Government	0.00	0.00
2. State Government (Specify)	0.00	0.00
3. Financial Institutions		
4. Banks :		
a) Term Loans	0.00	0.00
b) Other Loans (Specify)	0.00	0.00
5. Other Institutions and Agencies	0.00	0.00
6. Debentures and Bonds	0.00	0.00
7. Fixed Deposites		
8. Others (Specify)	0.00	0.00
Total	0.00	0.00

Note : Amounts due within one year

Schedule 6 - Reserve and Surplus

(Amount Rs.)

	Current Year	Previous Year
a) Acceptances secured by Hypothecation of Capital Equipment and other assets	0.00	0.00
b) Others	0.00	0.00
Total	0.00	0.00

Note : Amounts due within one year



Technology Information Forecasting And Assessment Council, (TIFAC) (Regular) Schedules Forming Part of Balance Sheet as at 31.03.2011

Schedule 7 - Current Liabilities And Provisions

(Amount Rs.)

	Current Year	Previous Year
A) Current Liabilities	0.00	0.00
1. Acceptances	0.00	0.00
2. Sundry Creditors		
For Goods	0.00	0.00
Others	0.00	0.00
3. Advances Received	0.00	0.00
4. Interest accrued but not due on :	0.00	0.00
Secured Loans / Borrowings	0.00	0.00
UnSecured Loans / Borrowings	0.00	0.00
5. Statutory Liabilities	0.00	0.00
Over Due	0.00	0.00
Others	0.00	0.00
6. Other Current Liabilities		
Salary Payable (Prof. Ganapathy)	1800.00	1800.00
7. Security Deposit		
Stale Cheque	2057373.06	1681285.06
Expenses Payable (As per Annexure - 12)	4861614.00	4103187.00
Project ICOSER (As per Annexure -13)	13202152.00	19107292.00
Indian Myanmar S&T Friendship library in yangon (Annex-14)	959659.00	959659.00
MSEB-Ash Utilization / Management (Annex-15)	600094.00	600094.00
FAM Large Scale Stowing of HWP Pond Ash into the Underground Mines of SCCL (M) Manugure (Annex-16)	8294830.00	8294830.00
Earth Quake Serving Nature's Fury (Annex-17)	165157.00	165157.00
	30142679.06	34913304.06



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(Amount Rs.)

	Current Year	Previous Year
Earnest Money : M/s Nimbus Harbour Pvt Ltd	20000.00	20000.00
Fly Ash Sponsorship for National Seminar-cum-Business meet	0.00	285268.00
DRDO-PFC (Annex-18)	78575.00	0.00
Earnest Money from Sugar Factories (Annex 19)	3600000.00	3600000.00
Earnest Money : M/s Sansanwal Travels	10000.00	10000.00
Earnest Money : M/s Yatrika Travels	10000.00	10000.00
Earnest Money : M/s Omni Teck Systems	0.00	10000.00
Earnest Money : M/s Bhagwati International	0.00	30000.00
CPF	321591.00	0.00
GSLIS	0.00	133.00
MPSEB use of Fly Ash in Agriculture Development Thermal Power Plants, Sarni (Annex-20)	356825.00	356825.00
Earnest Money : M/s Pink Housekeeping	15000.00	0.00
Medical Scheme	685000.00	284822.00
Security Deposit : Bhagwati International	0.00	18451.00
International Congress Seminal Expenses	0.00	2725412.00
IIASA TIFAC Joint Study	0.00	3519.00
Sundry Creditor : M/s Daikin Airconditioning India Pvt. Ltd	154645.00	0.00
Security Deposite : M/s Pink House Keeping	45206.00	0.00
Training Programme on IPR and WTO Issues for Scientists/ Technologists Working in Government Sector.	177750.00	0.00
TIFAC-World Bank Project (Annex-21)	1339747.93	1339747.93
Total (A)	6814339.93	8694177.93
Total (a+b)	36957018.99	43607481.99
B. Provision	0.00	0.00
For Taxation	0.00	0.00
Gratuity	0.00	0.00
Superannuation / Pension	0.00	0.00
Accumulated Leave Encashment	0.00	0.00
Trade Warranties / Claims	0.00	0.00
Others (Specify)	0.00	0.00
Total (B)	0.00	0.00
Total (A+B)	36957018.99	43607481.99



Technology Information Forecasting And Assessment Council, (TIFAC) (Regular) Schedules Forming Part of Balance Sheet as at 31.03.2011

Schedule 8-Fixed Assets

Amount – Rs)

	GROSS BLOCK				DEPRECIATION			NET BLOCK	
	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1. a) Freehold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b) Leasehold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2. BUILDING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
a) On Freehold Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b) On Leasehold Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c) Ownership Flats/Premises	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d) Superstructures on Land not belonging to the entity	117850000.00	0.00	0.00	117850000.00	55219678.15	6263032.19	61482710.34	56367289.66	62630321.85
e) Interior work of TIFAC Building	51172890.00	722017.00	0.00	51894907.00	9377644.54	4246257.80	13623902.34	38271004.66	41795245.46
3. PLANT MACHINERY & EQUIPMENT : Fire Alarm System at TIFAC Building & Fire Extinguishers	1004583.00	45675.00	0.00	1050258.00	113128.80	137143.76	250272.56	799985.44	891454.20
4. VEHICLES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5. FURNITURE & FIXTURES	1812469.60	14300.00	0.00	1826769.60	1241984.06	57763.55	1299747.61	527021.99	570485.54
6. OFFICE EQUIPMENT	21528599.77	576405.81	0.00	22105005.58	17041429.50	731631.31	17773060.81	4331944.77	4487170.27
7. COMPUTER/PERIPHERALS	5016642.28	704099.00	0.00	5720741.28	4754363.75	373971.92	5128335.67	592405.61	262278.53
8. ELECTRIC INSTALLATIONS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9. LIBRARY BOOKS	5454693.55	46320.00	0.00	5501013.55	5454136.05	40257.00	5494393.05	6620.50	557.50
10.TUBEWELL & W.SUPPLY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11.OTHER FIXED ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL OF CURRENT YEAR	203839878.20	2108816.81	0.00	205948695.01	93202364.85	11850057.53	105052422.38	100896272.63	110637513.35
PREVIOUS YEAR	199465094.20	4374784.00	0.00	203839878.20	80377842.08	12824522.77	93202364.85	110637513.35	119087252.12
B. CAPITAL WORK IN PROGRESS									
Cost of Assets on hire purchase basis included above									



Technology Information Forecasting And Assessment Council, (TIFAC) (Regular)
Schedules Forming Part of Balance Sheet as at 31.03.2011

Schedule 9 - Investments from Earmarked/Endowment Funds

(Amount Rs.)

	Current Year	Previous Year
1. In Government Securities	0.00	0.00
2. Other approved Securities	0.00	0.00
3. Shares	0.00	0.00
4. Debentures and Bonds	0.00	0.00
5. Subsidiaries and Joint Ventures	0.00	0.00
6. Others (to be Specified)	0.00	0.00
Total	0.00	0.00

Schedule 10 - Investments - Others

(Amount Rs.)

	Current Year	Previous Year
1. In Government Securities	0.00	0.00
2. Other approved Securities	0.00	0.00
3. Shares	0.00	0.00
4. Debentures and Bonds	0.00	0.00
5. Subsidiaries and Joint Ventures	0.00	0.00
6. Others (to be Specified)	0.00	0.00
Total	0.00	0.00



Technology Information Forecasting And Assessment Council, (TIFAC) (Regular) Schedules Forming Part of Balance Sheet as at 31.03.2011

Schedule 11 - Current Assets, Loans, Advances Etc

(Amount Rs.)

	Current Year		Previous Year	
A) Current Assets				
1. Inventories :				
Stores and Spares		0.00		0.00
Loose Tools		0.00		0.00
Stock-in-Trade		0.00		0.00
Finished Goods		0.00		0.00
Work-in-Progress		0.00		0.00
2. Sundry Debtors :				
Sundry Debtor - DST	0.00		2636440.00	
Sundry Debtors - MTNL	0.00	0.00	5357.00	2641797.00
3. Cash Balances in Hand (including Cheques / Drafts and Imprest)		5304.00		3524.00
4. Bank Balances :				
With Scheduled Banks : (Union Bank of India)				
On Current Accounts	0.00		0.00	
On Deposit Accounts (Short Term Deposites) (Annex-11)	0.00		30267745.00	
On Savings Accounts	89877934.52		86705099.28	
Short Term Deposite (Suspence Account)	0.00		1398597.00	
On Interest Receivable		89877934.52	0.00	118371441.28
With non-Scheduled Banks :				
On Current Accounts	0.00		0.00	
On Deposit Accounts	0.00		0.00	
On Savings Accounts	0.00	0.00	0.00	0.00
		89883238.52		121016762.28
5. Post Office - Savings Accounts		0.00		0.00
Loans, Advances and Other Assets :- 1) Loans				
Staff (Annex-1)		2832599.00		2479734.00
SAIL NMPP	19736.55	19736.55	19736.55	19736.55
Prepayments				



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(Amount Rs.)

	Current Year		Previous Year	
Others				0.00
Advance Franking Machine	8214.00		9422.00	
Security Deposit Lease Accommodation	9500.00		9500.00	
Security Deposit MTNL	52666.00	70380.00	67500.00	86422.00
Advance to BISR (Haldwani)	0.00		76173.00	
Construction of Reception Office (DST)	0.00		3259953.00	
Security Deposite : S.R.Enterprises	0.00		2700.00	
Secruity Deposite Tata Teleservices Ltd	16000.00	16000.00	16000.00	3354826.00
Income Accrude :-				
Advance : Sardar Patel Institute of Economic and Social Research, Ahmadabad	250000.00		0.00	
CPF	0.00		732.00	
Advance : DAVP	42822.00		0.00	
Sundry Debtor : DBT	0.00		15620.00	
Advance : Director, IIPS, Mumbai	0.00		500000.00	
Sundry Debtor : Central Institute of Road Transportation	0.00		10936.00	
Sundry Debtor : DST (IITF)	1462500.00		0.00	
TDS :CPF (FDR) UBI,SDA	321591.00			
TDS (FDR) Sarita Vihar, New Delhi	19726.00		0.00	
Advance : Hotel Janpath	0.00	2096639.00	599.00	527887.00
		5035354.55		6468605.55
DROD- PFC (Annex-16)	0.00		323411.00	
Asia India Workshop	0.00		66974.00	
Security Deposite :Rent Ms. Ititka Singal	50000.00		40000.00	
Security Deposite : Mrs. Prem Lata Vyas	105000.00		105000.00	
GSLIS	212.00		0.00	
Sundry Debtor : Geo Spatial Applications	0.00		208450.00	
Advance : M/s Daikin Airconditioning India Pvt Ltd	0.00		200382.00	
Advance : IIT-Delhi	57500.00		57500.00	
Income Tax for the F.Y 2004-2005	5000000.00		5000000.00	
Security Deposite : DST (IITF)	74520.00	5287232.00	0.00	6001717.00
Total		100205825.07		133487084.83



Technology Information Forecasting And Assessment Council, (TIFAC) (Regular) Schedules Forming Part of Income & Expenditure as at 31.03.2011

Schedule 12 - Income From Sales / Services

(Amount Rs.)

	Current Year	Previous Year
1. Income from Sales		
a) Sale of finished Goods	0.00	0.00
b) Sale of Row Material	0.00	0.00
c) Sale of Scraps	0.00	0.00
2. Income from Services		
a) Labour and Processing Charges	0.00	0.00
b) Professional / Consultancy Services	0.00	0.00
c) Agency Commissions and Brokerages	0.00	0.00
d) Maintenance Services (Equipment/Property)	0.00	0.00
e) Others (Specify)	0.00	0.00
Total	0.00	0.00

Schedule 13 - Grants / Subsidies (TIFAC Regular)

(Amount Rs.)

	Current Year	Previous Year
1. From Central Government		
A) TIFAC Grant		
a) Grants in Aid (Plan)	170699700.00	172,000,000.00
b) Grant in Aid (Non-Plan)	700000.00	800000.00
2. State Governmetn(s)	0.00	0.00
3. Governmetn Agencies	0.00	0.00
4. Institutions Organisatins	0.00	0.00
5. International Organisations	0.00	0.00
6. Other (Specify)	0.00	0.00
Total	171399700.00	172800000.00



**Technology Information Forecasting And Assessment Council, (TIFAC) (Regular)
Schedules Forming Part of Income & Expenditure as at 31.03.2011**

Schedule 14 - Fees / Subscriptions

(Amount Rs.)

	Current Year	Previous Year
1. Entrance Fees	0.00	0.00
2. Annual Fees / Subscriptions	0.00	0.00
3. Seminar / Program Fees	0.00	0.00
4. Consultancy Fee	0.00	0.00
5. Others (Specify)	0.00	0.00
RTIA Questions	250.00	565.00
Tender for Fire Alarm	0.00	6,000.00
Tender for Housekeeping at TIFAC	6,000.00	9,500.00
Total	6,250.00	16,065.00

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

(Amount Rs.)

Particulars	Investment from Earmarked Funds		Investment from Earmarked Funds	
	Current Year		Previous Year	
1. Interest				
a) On Govt. Securities	0.00	0.00	0.00	0.00
b) Other Bonds/Debentures	0.00	0.00	0.00	0.00
2. Dividends				
a) On shares	0.00	0.00	0.00	0.00
b) On Mutual Fund Securities	0.00	0.00	0.00	0.00
3. Rents				
4. Others (Specify)	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00



Technology Information Forecasting And Assessment Council, (TIFAC) (Regular) Schedules Forming Part of Income & Expenditure as at 31.03.2011

Schedule 16 - Income from Royalty, Publication Etc.

(Amount Rs.)

	Current Year	Previous Year
Income from Publications	196383.00	413308.00
Total	196383.00	413308.00

Schedule 17 - Interest Earned (Regular)

(Amount Rs.)

	Current Year	Previous Year
1. On Term Deposits		
With Scheduled Banks	1088928.00	835825.00
With Non-Scheduled Banks		0.00
With Institutions		0.00
Others		
2. On Savings Accounts		
With Scheduled Banks	3509942.00	2379442.00
With Non-Scheduled Banks		0.00
With Institutions		0.00
Others (Project Interest)		1582.00
3. On Loans :		
Employees / Staff (LTA, Scooter & Car)	10838.00	36045.00
Others		
H.B.A : Sh.N.S.Nair		0.00
H.B.A : Dr.D.N. Singh		29899.00
4. Interest on Debtors and Other Receivables		
Total	4609708.00	3282793.00
Note : Tax deducted at source to be indicated		



**Technology Information Forecasting And Assessment Council, (TIFAC) (Regular)
Schedules Forming Part of Income & Expenditure as at 31.03.2011**

Schedule 18 - Other Income

(Amount Rs.)

	Current Year	Previous Year
1. Profit on sale / disposal of Assets		
Owned assets		0.00
Assets acquired out of grants, or received free of cost		0.00
Export Incentives realized		0.00
Fees for Miscellaneous Services		0.00
Miscellaneous Income		
Other Receipts (Computers)	2100.00	7500.00
Other Receipts	22549.00	272618.00
Leave Salary & Pension Contribution	49438.00	0.00
Gratuity		70834.00
Total	74087.00	350952.00

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

(Amount Rs.)

	Current Year	Previous Year
a) Closing Stock		
Finished Goods	0.00	0.00
Work-in-Progress	0.00	0.00
b) Less : Opening Stock		
Finished Goods	0.00	0.00
Work-in-Progress	0.00	0.00
Total	0.00	0.00



Technology Information Forecasting And Assessment Council, (TIFAC) (Regular) Schedules Forming Part of Income & Expenditure as at 31.03.2011

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

(Amount Rs.)

	Current Year	Previous Year
Home Grown Technology (Annex-2)	13665000.00	17478500.00
Advanced Composites Programme (Annex-2)	17970464.00	20537600.00
Sugar Technology Mission (Annex-2)	9236046.00	29100000.00
TePP Project (Annex-2)	251699.00	254921.00
Fly Ash Utilisation Programme (Annex-2)	100000.00	50000.00
Refund from Projects (Vision 2020) (Annex 2)	9761435.24	13093753.24
Total	50984644.24	80514774.24

Schedule 21 -

(Amount Rs.)

	Current Year	Previous Year
Establishment Expenditure (TIFAC Regular) (Annex 3)	42799931.00	40588407.00
Administrative Expenses (TIFAC Regular) (Annex 4)	28240694.00	19755120.91
Establishment & Administrative Expenditure (Vision 2020)(Annex-6)	8871337.00	11086512.00
Total	79911962.00	71430039.91

Schedule 22 - Establishment on Grant, Syubsidies Etc.

(Amount Rs.)

	Current Year	Previous Year
Grants given to Institutions/Organisations		
Project Expenditure (TIFAC Regular) (Annex - 5)	175972101.00	17386311.00
Project Expenditure (Vision 2020)(Annex-6A)	47384008.00	137275488.00
Project Expenditure (Vision 2035) (Annex-7)	342626.00	0.00
Total	223698735.00	154661799.00



**Technology Information Forecasting And Assessment Council, (TIFAC) (Regular)
Schedules Forming Part of Income & Expenditure as at 31.03.2011**

Schedule 23 - Interest

(Amount Rs.)

	Current Year	Previous Year
On Fixed Loans (Including Bank Charges)	0.00	0.00
On Other Loans (Including Bank Charges)	0.00	0.00
c) Others (Specify)	0.00	0.00
Total	000.00	0.00



**Technology Information Forecasting And Assessment Council, (TIFAC)
Patent Facilitating Centre
Schedules Forming Part of Income & Expenditure for the year ended 31.03.2011**

Schedule 24 - Grants / Subsidies (Patent Facilitating Centre) (Irrevocable Grants & Subsidies Received)

(Amount Rs.)

	Current Year	Previous Year
From Central Government		
Patent Facilitating Centre Grants		
Grants in Aid (Plan)	10,000,000.00	15,000,000.00
Grant in Aid (Non-Plan)	0.00	0.00
State Governmetn(s)	0.00	0.00
Governmetn Agencies	0.00	0.00
Institutions Organisatins	0.00	0.00
International Organisations	0.00	0.00
Other (Specify)	0.00	0.00
Total	10,000,000.00	15,000,000.00

Schedule 25 - Interest Earned (Patent Facilitating Centre)

(Amount Rs.)

	Current Year	Previous Year
On Term Deposits		
With Scheduled Banks	0.00	0.00
With Non-Scheduled Banks	0.00	0.00
With Institutions	0.00	0.00
Others (Interest : Scooter Adv)	2713.00	0.00
Total	2713.00	0.00
Note : Tax Deducted at Source to be indicated		



**Technology Information Forecasting And Assessment Council, (TIFAC)
Patent Facilitating Centre
Schedules Forming Part of Income & Expenditure for the year ended 31.03.2010**

Schedule 26

(Amount Rs.)

	Current Year	Previous Year
Other Income (Annex-8)	30100.00	163149.00
Total	30100.00	163149.00

Schedule 27

(Amount Rs.)

	Current Year	Previous Year
Establishment & Administrative Expenditure (Annex-9)	8508852.00	10548229.00
Total	8508852.00	10548229.00

Schedule 28

(Amount Rs.)

	Current Year	Previous Year
Project Expenditure (Annex-10)	2280154.00	3916309.00
Total	2280154.00	3916309.00



**Technology Information Forecasting And Assessment Council, (TIFAC)
Scholarship For Women Scientists
Schedules Forming Part of Income & Expenditure for the year ended 31.03.2011**

Schedule 29 - Grants / Subsidies (Scholarship for Women Scientists) (Irrevocable Grants & Subsidies Received)

(Amount Rs.)

	Current Year	Previous Year
From Central Government		
Scholarship for Women Scientists Grants		
Grants in Aid (Plan)	15451000.00	15496000.00
Grant in Aid (Non-Plan)	0.00	0.00
State Governmetn(s)	0.00	0.00
Governmetn Agencies	0.00	0.00
Institutions Organisatins	0.00	0.00
International Organisations	0.00	0.00
Other (Specify)	0.00	0.00
Total	15451000.00	15496000.00

Schedule 30 - Interest Earned (Scholarship for Women Scientists)

(Amount Rs.)

	Current Year	Previous Year
Other Income	0.00	0.00
Total	0.00	0.00



**Technology Information Forecasting And Assessment Council, (TIFAC)
Scholarship For Women Scientists
Schedules Forming Part of Income & Expenditure for the year ended 31.03.2011**

Schedule 31

(Amount Rs.)

	Current Year	Previous Year
Expenditure on Scholarship for Women Scientist	14289707.00	14685955.00
Total	14289707.00	14685955.00



Technology Information, Forecasting & Assessment Council Schedules Forming Part of Accounts for the period ended 31.03.2011

Schedule - 32

ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDING 31ST MARCH, 2011

A) ACCOUNTING POLICIES

- 1 The Council has adopted Mercantile System of the Accounting.
- 2 Fixed Assets are shown at cost Less Depreciation.
- 3 Prior period and extra ordinary items and changes in accounting policies having material impact on the financial affairs of the Council are disclosed.
- 4 Depreciation has been calculated as per Income Tax Act, 1961. deviation are as per note B(1) below.
- 5 Amounts released under various projects are accounted 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 accounting year.
- 6 Unspent amount of grant received during the year for specific purposes has transferred to Capital Account.
- 7 The repayment of grant / assistance to TIFAC by the beneficiaries, as per condition stated in agreements with them shall be accounted on receipt basis.
- 8 All disbursements for projects are treated as expenditure during the Financial Year and assets created, if any, out of the said disbursements to the project, are not accounted for as assets in the books.
- 9 Contingent liabilities in respect of on-going Projects / Studies etc. are neither provided nor determined.
- 10 Total expenditure is not bifurcated in plan and non plan expenditures in financial statements.

B) NOTES TO THE ACCOUNTS

- 1 Stock of Publications and Studies, which are published and printed by the Council and distributed at a cost are not accounted for as Stock in hand at the end of the year.
- 2 Audited financial statements / utilization statements duly certified by Chartered Accountants in respect of grant utilized / released during the year has not yet been received in some cases from the implementing agencies.
- 3 There are no query / note by parliament / Department of Science and Technology outstanding in respect of previous audited accounts of TIFAC.
- 4 Previous year figures have been regrouped wherever necessary, to make them comparable with current year figures.
- 5 Accounts have been prepared as per New format provided by CAG for Non-profit organization. Previous year's figures have also been re-arranged as per new format. The format for Income & Expenditure A/cs has been changed in order to reflect all types of grants received by TIFAC in the account. The previous year's figures have been regrouped accordingly in the Income & Expenditure Account.
- 6 Liability towards gratuity payable on death / retirement of employees is not provided for.



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- 7 Provision for accumulated leave encashment benefit to employees is not provided for.
- 8 Grant from DST is received for TIFAC activities and no separate grant is received for Vision activities so all the receipts and expenditure incurred for the purpose of vision activities have been merged with TIFAC regular Income and Expenditure.
- 9 Expenses for Purchase of Capital Goods debited to grants utilized and not shown as fixed assets in the final statements are as below. Capital Expenditure of Patent Facilitating Centre.

	Current Year (Rs.)	Previous Year (Rs.)
Computer/Peripherals	0.00	1,08,588.00
Office Equipment	169344.00	0.00

- 10 Financial Statements of National Mission for Bamboo Application and Mission for GEO Spatial Application form part for TIFAC but the same has not been consolidated with the financial statements of TIFAC.
- 11 The Income Tax Department has raised a demand u/s 226 of Income Tax Act, 1961 for A/Y 2005-2006 amounting Rs.8,28,14,300/-. The TIFAC has not admitted this liability and filed an appeal with Commissioner of Income Tax Appeal XXI which was posted for 06th September 2010 and appeal was heard on 06th September 2010 in favour of TIFAC. The amount of Rs.50 lakhs deposited under protest against the said liability is being claimed from Income Tax department on receipt of the orders from CIT appeal XXI.
- 12 Current year adjustment of Rs.14,12,844.81 which is being shown in Corpus / Capital Fund (Schedule – 1) are few long standing amounts in TIFAC balance sheet which is now adjusted. The details are given below :-

	Debit	Credit
1. Advance : BSIR (Haldwani)	76,173.00	0.00
2. ASEAN India Workshop	66,974.00	0.00
3. Advance Hotel Janpath	599.00	0.00
4. Sundry Debtor : Central Institute of Road Transportation	10,936.00	0.00
5. Fly Ash Sponsorship for National-cum-Business Meet	0.00	2,85,268.00
6. International Congress Seminar Expenses	0.00	27,25,412.00
7. Short Term Deposite (Suspence Account)	13,98,597.00	0.00
8. Sundry Debtor : Geo Special Applications	44,556.19	0.00

As per our report of even date Annexed herewith

For Chandiwala Virmani & Associates
(Formerly Chandiwala Gupta & Associates)
Chartered Accountants

Sd/-
(Bharat Bhushan)
Partner
M. No: 087365

Date : 26 September 2011
Place : New Delhi

Sd/-
Registrar

Sd/-
Scientist-in-charge



Technology Information, Forecasting & Assessment Council Schedules Forming Part of Accounts for the period ended 31.03.2011

SCHEDULE 33 - CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS (Illustrative)

1. CONTINGENT LIABILITIES

1.1 Claims against the Entity not acknowledged as debts – Rs. ___NIL___ (Previous year Rs. ___NIL___)

1.2 In respect of

- Bank guarantees given by/on behalf of the Entity – Rs. ___NIL___ (Previous year Rs. ___NIL___)
- Letters of Credit opened by Bank on behalf of the Entity – Rs. ___NIL___ (Previous year Rs. ___NIL___)
- Bills discounted with banks Rs. ___NIL___ (Previous year Rs. ___NIL___)

Disputed demands in respect of :

Income-tax Rs. ___NIL___ (Previous year Rs. ___NIL___)

Sales-tax Rs. ___NIL___ (Previous year Rs. ___NIL___)

Municipal Taxes Rs. ___NIL___ (Previous year Rs. ___NIL___)

In respect of claims from parties for non-execution of orders, but contested by the Entity – Rs. ___NIL___

(Previous year Rs. ___NIL___)

2. CAPITAL COMMITMENTS

Estimated value of contracts remaining to be executed on capital account and not provided for (net of advances)
Rs. ___NIL___ (Previous year Rs. ___NIL___)

3. LEASE OBLIGATIONS

Future obligations for rentals under finance lease arrangements for plant and machinery amount to Rs. NIL
(Previous year Rs. NIL)

4. CURRENT ASSETS, LOANS AND ADVANCES

In the opinion of the Management, the current assets, loans and advances have a value on realization in the ordinary course of business, equal at least to the aggregate amount shown in the Balance Sheet.

5. TAXATION

In view of there being no taxable income under Income-tax Act 1961, no provision for Income Tax has been considered necessary.



Technology Information, Forecasting & Assessment Council
Schedules Forming Part of Accounts for the period ended 31.03.2011

SCHEDULE 33 – CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS (Illustrative)- Contd.

6. FOREIGN CURRENCY TRANSACTIONS	(Amount Rs.)	
	Current Year	Previous Year
6.1. Value of Imports Calculated on C.I.F. Basis:		
- Purchase of finished Goods	N.A.	N.A.
- Raw Materials & Components (Including in transit)	N.A.	N.A.
- Capital Goods	N.A.	N.A.
- Stores, Spares and Consumables	N.A.	N.A.
6.2. Expenditure in foreign currency:		
a) Travel	N.A.	N.A.
b) Remittances and Interest payment to Financial Institutions/ Banks in Foreign Currency	N.A.	N.A.
c) Other expenditure:		
- Commission on Sale	N.A.	N.A.
- Legal and Professional Expenses	N.A.	N.A.
- Miscellaneous Expenses	N.A.	N.A.
6.3. Earnings:		
Value of Exports on FO basis	N.A.	N.A.
6.4. Remuneration to auditors:		
As Auditors	30333.00	19413.00
- Taxation matters	0.00	0.00
- For Management services	0.00	0.00
- For certificate	0.00	0.00
Others		
7. Corresponding figures for the previous year have been regrouped/rearranged, wherever necessary.		
8. Schedules 1 to 40 are annexed to and form an integral part of the Balance Sheet as at 31.03.2011 and the Income and Expenditure Account for the year ended on that date.		



Staff Advances

(Amount Rs.)

A) Advances	Current Year	Previous Year
Staff Advances		
Sh.Ravi Dutt	0.00	1500.00
Sh. Bipin Kumar	3500.00	9500.00
Sh. Uma Shankar Mahto	0.00	8000.00
Anil Kumar Rai	6000.00	0.00
Sh.Surender Kumar	5000.00	0.00
Ms.Uma Daral	0.00	9000.00
Sh.Aneesh S	1000.00	7000.00
Sh. Bishram Bhakta	7000.00	8000.00
Sh.Ravinder Kumar (Manager)	10000.00	0.00
Sh.Ujjwal Kumar	0.00	1500.00
Sh.Sanjay Sundriyal	0.00	500.00
Sh.Mahipal Singh Rawat	0.00	1000.00
Sh.Deep Prakash	2500.00	8500.00
Sh.Pankaj Sundriyal	5000.00	10000.00
Ms.Asha Kumari	10000.00	0.00
Ms.Kunwar Singh	0.00	9000.00
Sh.Ravinder Kumar Sundriyal	0.00	3000.00
B) HBA Advance		
Sh.A.K.Ahuja	310000.00	430000.00
Ms. Sangeeta Baksi	445400.00	295800.00
Dr.Debabrata Majumdar	710000.00	0.00
Sh.P.R.Basak	429000.00	501000.00
C) Car Advance		
Sh.M. Thamaraiselvan	82500.00	172500.00
Sh.Suresh Kumar K	63000.00	84600.00
Dr.Gautam Goswami	84000.00	102000.00
Sh.Deep Prakash	65000.00	125000.00



	Current Year	Previous Year
Dr.S.K.Goel	90000.00	133200.00
Sh.T.Chandrasekhar	158400.00	169200.00
Ms.Sangeeta Baksi	136000.00	160000.00
	2623300.00	2249800.00
D) Leave Travel Concession		
Advance : LTC Sh.T.Chandrasekhar	10000.00	0.00
Sh.N.S.Nair	0.00	31878.00
Sh.P.R.Basak	0.00	19314.00
Mrs. Geeta Nair	0.00	15200.00
E) Tour Advance		
Sh.Sajid Mubashir	81042.00	81042.00
Dr.Debabrata Majumdar	13500.00	0.00
Sh.T.Chandrasekhar	49590.00	0.00
Sh.Sanjay Sundriyal	2667.00	0.00
Sh.Sanjay Singh	0.00	6000.00
Deepak Kumar	0.00	5000.00
F) Scooter Advance		
Sh.Shambhu Kumar	0.00	25500.00
Sh.T.Adarsh Mayya	25000.00	0.00
Sh.Samson George	0.00	500.00
Sh.Aneesh S	22500.00	28500.00
Sh.Sanjay Sundriyal	5000.00	17000.00
	209299.00	229934.00
Total (A+B)	2832599.00	2479734.00



REFUND FROM PROJECTS (TIFAC REGULAR ACCOUNT)

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
(A) Home Grown Technology :		
Establishment of Detonation Spray Coating Job Shop for coating of various components.	400000.00	400000.00
Pilot Plant for Production of Silicon Iron Casting	140000.00	0.00
Manufacturing Process for Ceramic Crucibles used for carbon & Sulfer Analysis	150000.00	0.00
A Novel method for the Preparation of Low molecular weight heparin	420000.00	1010000.00
Technology Development & Commercialization of Haemoconcentrators for open Heart Surgical Applications	450000.00	450000.00
Cortico Steroid Project Beclamethas one Depropionate	0.00	2100000.00
Flexible Machining Centre	300000.00	0.00
Commercially Attractive Hydrogen Generator Based on reforming of Natural Gas/methanol in small and Medium capacity range.		0.00
Manufacturing Plant for Heat Pipe Based Heat Sinks	1400000.00	0.00
Development of Wett Type Synthetic Friction Material for 2/3 Wheeler Chutch Application	60000.00	600000.00
Pilot Plant for Production of Omega 3 Fish oil	0.00	1100000.00
Eco-Friendly Lac Dye From Shellac Waste Water Effluent	0.00	500000.00
Componentization of Human Blood towards optimization of Its utilization & Exploitation Bio Medic	2500000.00	0.00
Isolation and Characterazation of Probiotics & Formulation of Symbiotic Preparation	2000000.00	2000000.00
Establishing A D-Gum Job Shop	0.00	162500.00
Clinical Decision Support System	2880000.00	2160000.00
Manufacture of Nutan Himveer Bukhari	600000.00	796000.00
Commercialisation of Pelletisation Technology for Biomass & Combustible Waste	250000.00	250000.00
Compeonentization of Human Blood & Its Derivatives for Biomedical Applications	0.00	2100000.00
Manufacture of Red Mud/Fly Ash Polymer Door Shutters	265000.00	100000.00
Pilot Scale Manufacture of Bio-Reactors	600000.00	600000.00
Extraction of Flacouring compounds from Hops using Lequid CO2 under High Pressure	1250000.00	3125000.00
Manufactur eof Unsaturated Polyester Resin	0.00	25000.00
Sub Total (A)	13665000.00	17478500.00



(Amount Rs.)

PARTICULARS	Current Year	Previous Year
(b) Advanced Composites Programme		
Composite Interiors for Drivers Cabin in Diesel Locomotive	700000.00	859280.00
Development of Composite Modular Acoustic Enclosure	400000.00	1100000.00
Development of Composite Sky Bus Coaches	150000.00	0.00
Development of Composite House Boats	864000.00	1728000.00
High Speed Planing Type Composite Boats	1804800.00	1804800.00
Development of Composite Filament Wound Pressure Vessel	776000.00	1500000.00
	4694800.00	6992080.00
Development of GRP Grid and Gratings by Compression Moulding	0.00	612000.00
Development of Composite Components for High End Passenger Buses	1361520.00	1361520.00
Development of Filament wound composite Road Tanker	2496000.00	1248000.00
Composites Interiors for Railways Passenger Coaches	2448000.00	4672000.00
Development of Filament Wound Pipes & Pipe Fitting for oil & Gas Sector	3072000.00	3072000.00
FRP Bracket Assembly for Railways Electric Traction	1318144.00	0.00
Development of Filament Wound Venturi Scrubber along with the Accessories	2580000.00	2580000.00
Sub Total (b)	17970464.00	20537600.00
(C) Sugar Technology Mission		
Ethyl Lactate Project	8300000.00	8300000.00
Automotion of Condensing & Cooling System at our Sakthi Nagar Unit	936046.00	8400000.00
Ethandl from Secondary Juice		11000000.00
Distillary Effluent Treatment System		1400000.00
Sub Total (C)	9236046.00	29100000.00
(D) Tepp Project		
Development of Low Cost Wide Field Digital Camara for Fundus Photography	20579.00	0.00
All Purpose Cleaning Machine	49500.00	0.00
Improved Escalator	320.00	0.00
Opto - Electronic Diameter Controller	6300.00	0.00
Outreach Centre (TUC)	0.00	167447.00
Temper Proff Seal for Disposable Bottels & Jars	175000.00	75000.00
Sketching Device for use by a visually challenged Person		12474.00
Sub Total (D)	251699.00	254921.00



(Amount Rs.)

PARTICULARS	Current Year	Previous Year
(F) Fly Ash Utilization Programme		
Bulk Production of Fly Ash Bricks	100000.00	50000.00
Sub Total (F)	100000.00	50000.00
(G) REFUND FROM PROJECT TECHNOLOGY VISION 2020		
Development of Rapier Shuttleless Loom (Weaving Machine) 4 Colour	0.00	378000.00
Processing & Export of Loin & Steak of Yellow Fin Tuna	126192.24	1206192.24
Design, Development and Manufacture of Continuous Bleaching Range	0.00	51280.00
Technology Gap Study and Possible Remedial Measures for Sports Good Cluster of Jalandher.	2010.00	0.00
Study for Food Processing Cluster of Malda	162576.00	0.00
	290778.24	1635472.24
Module of Training of Post Harvest Management of Fruits & Vegetable	73418.00	0.00
Enhancement of Farm Income of Farmers of Eastern UP from value Added Rice (Kalanamak) Cultivation	40000.00	0.00
Standardization of Bacopa Monnieri Extract for its Cogniting	1380000.00	0.00
Bio Transformation of Meso Cyclopents 14 Diacetate to 4-Rhydrozycyclopent -ENE-1-(S) Acetate	924000.00	0.00
Non Destructive Testing of zari in silk Fabrics	0.00	240000.00
Degin and Development of Shettlessweaving machines & ancillaries	0.00	856684.00
Manufacture of Micro Encapsulated Omega 3 Powder	1939000.00	1939000.00
Primary Processing & Packageing of Certified Vegetable in Shimla District	0.00	215250.00
Development & Demonstration of A Technology Package on Low Grade Raw Material & Biomass (Pottery)	0.00	2323952.00
Design & Development of Pilling Tester using Tigital image Processing Technology	0.00	276587.00
A6.6 MW Power Plant & Generated Electrical From Processe Municipal Solid Waste	0.00	300000.00
Establishment of integrated clean milk production network at village level for manuf.value add product	914239.00	2088000.00
Development of Pharmaceutical Grade Chitosan & Value Added	0.00	2100000.00
Quality Assurance Condition Monitoring & Fault Diagnosis Using Intelligenet Control Methodologies	0.00	1118808.00
Enzymatic Conversion of Reemic Molecules to Obtain stercopecific Active Pheamaculical	4200000.00	0.00
Sub Total (G)	9761435.24	13093753.24
Total	50984644.24	80514774.24



ESTABLISHMENT EXPENDITURE (TIFAC REGULAR)

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
a) Salaries	32342121.00	27892260.00
Salary - Consolidated	3714310.00	3378305.00
Salary (6th Pay Commission)	0.00	6214926.00
Ad-hoc Bonus	137473.00	0.00
b) TIFAC Contribution to Provident Fund	2795852.00	0.00
c) Others (Specify)		
Hospitalisation Expenses	275795.00	0.00
Consultancy Charges	0.00	50578.00
Honorarium	56000.00	121700.00
Medical Expenses	1667314.00	1632021.00
Leave Travel Concession	861127.00	497763.00
Gratuity 0.00	0.00	
Leave Encashment	310769.00	146407.00
Children Education Allowance	243590.00	360005.00
Honorarium (Incentive Scheme for Hindi Language)	79100.00	0.00
Tuition Fee	316480.00	42000.00
Leave Salary and Pension Contribution	0.00	252442.00
Total	42799931.00	40588407.00



Annexure - 4

ADMINISTRATIVE EXPENSES (TIFAC REGULAR)

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Repair and Maintenance	956556.00	479126.00
Rent, Rates and Taxes	747860.00	690972.00
Car hire Charges	1524039.00	1755166.00
Postage, Telephone and Communication Charges	2359568.00	2596194.00
Printing, Stationary & Printing of Publications	1314549.00	1197641.00
Travelling and Conveyance Expenses	268990.00	196581.00
Subscription Expenses	233225.00	305364.00
Auditors Remuneration	47871.00	35596.00
Advertisement and Publicity	631024.00	144599.00
Others (Specify)		
Bank Charges	9090.00	33334.91
Misc. Office Expenses	1046047.00	1457539.00
Membership Fee	60122.00	35646.00
Maintenance of Vishwakarma Bhavan	0.00	9003033.00
Legal Charges	629375.00	114025.00
WAITRO Membership	20000.00	23518.00
Rajabhasha Committee Meeting	2000.00	2700.00
Court Fee	261410.00	0.00
India-IIASA Membership Fee	17567693.00	0.00
Interest : TDS	9430.00	0.00
TIFAC Software Development	0.00	1162850.00
Housekeeping of TIFAC Building	551845.00	521236.00
Total	28240694.00	19755120.91



PROJECT EXPENSES (TIFAC REGULAR ACCOUNT)

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Follow-Up Action/Special Initiatives		
Commissioning of Technology Status, Gap Analysis Study & the Possible Remedial Measures for the Rubber	253608.00	0.00
Pesticide Encyclopedia	2615978.00	1367500.00
Study on Indian Chemical Industry Technology Imperatives & Business Opportunities covering Knowledge	2992218.00	463260.00
IIASA - TIFAC joint Workshop (TIFAC)	1246048.00	1124931.00
IIPS-IIASA-TIFAC Joint Seminar on Demography : International Perspective & Challenges for India	477190.00	0.00
Initiating Technology Road Map Exercise for Indian Aluminium Sector	400000.00	0.00
TIFAC-IIASA Study on Indian Perspectives on Global Energy Scenarios till 2050	721661.00	400000.00
Demonstration of Four Arun 160 Solar Thermal Concentrators of 165 M2 Each Supplying Steam for drying of Sod	1762500.00	2937500.00
TIFAC - IIASA Study : Analyzing Forest Carbon Accounts for Sustainable Policy Opt. Special Ref. Livelihood	800000.00	0.00
TIFAC - IIASA workshop on Regional Air Pollution and Greenhouse Gas Mitigation	430745.00	0.00
Determinants and Impact of FDI in R&D in creation & Diffusion of Knowledge in Automobile Industry	0.00	500000.00
Sub Schedule Total	11699948.00	6793191.00
HOME GROWN TECHNOLOGIES		
Project related expenses	156627.00	0.00
Sub Schedule Total	156627.00	0.00
TePP PROJECTS		
Project related expenses	0.00	21150.00
Design & Development of Rubber Type Tube Protection Device	0.00	44164.00
Design and Development of Indigenous Drug on Diabetes - II	64505.00	70000.00
Powdered Biomass Fired Burner	70000.00	120000.00
Scientific Experimentation of Homoeo Plant Nutrients & PlantProtectors.	19755.00	0.00
Sketching Device for use by a visually challenged Person	0.00	165000.00
In Vivo Dielectric Measuring Instrument for Detection of Cancer	0.00	175000.00



(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Wound Healing in Animals	0.00	100000.00
Retention of Placenta in Animals with SRISTI	0.00	100000.00
Treatment of Pests in Cotton	0.00	100000.00
Treatment of Bloat & Flatulence in Animal	0.00	100000.00
Treatment of Blood Pressure, Arthritis and Heart Problems	0.00	100000.00
	154260.00	1095314.00
Treatment of Diarrhoea in Animals	0.00	100000.00
Trolley with Jack for Disabled Persons	0.00	80000.00
Human Powered Mobile Charger	0.00	196604.00
Single Degree of Freedom Rated Table	0.00	220000.00
Novel Internal Combustion Engine	177109.00	326311.00
Development of Pulse Thresher	0.00	25575.00
Development of Commercial Prototype of Plant Oil Stove	0.00	48357.00
New Process of Palleting Poultry Feed in Mini Plant	192500.00	0.00
Whole stail Paddy Thresher	75704.00	0.00
Resq-eye (Viction Location system)	103681.00	0.00
Complete Fluorescent Lamp	12200.00	0.00
Design & Development of Rubber Type Tube Protection Device	29442.00	0.00
Sub Schedule Total	744896.00	2092161.00
Technology Refinement Marketing Programme (TREMAP)		
TREMAP Expenditure	273623.00	62734.00
TREMAP TCFA at VIT-TBI, Vellore	425075.00	400000.00
TREMAP TCFA at APTDC, Hyderabad	398000.00	400000.00
TREMAP TCFA at MSRSAS, Bangalore	700000.00	400000.00
TREMAP TCFA at FITT, IIT Delhi	0.00	400000.00
TREMAP at IT-BHU, Varanasi	798000.00	400000.00
TREMAP at TCFA at IIT-Kharagpur	710000.00	400000.00
TREMAP : Low Energy Dental / Medical Aspirator	80000.00	0.00
TREMAP : Automatic Cashew Decortication Machine	165000.00	0.00
TREMAP : Non Electric Water Level Indicator	180000.00	0.00
TREMAP : TCFA at Techno Park - Technology Business Incubator, Trivandrum	400000.00	0.00



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(Amount Rs.)

PARTICULARS	Current Year	Previous Year
TREMAP : Study at TCFA at CTE Udaipur, Rajasthan	400000.00	0.00
TREMAP : TCFA at KIIT - BI, Bhubaneswar	400000.00	0.00
TREMAP : Sound Wave Airway Sensor	105000.00	0.00
TREMAP : Drop Catcher	200000.00	0.00
TREMAP : On Passive Hybrid Harmonic Filter	168000.00	0.00
TREMAP : Multi Crop Seed Cum Fertilizer Drill	200000.00	0.00
TREMAP : Nimble Carpet Shearign Machine	210000.00	0.00
Novel Fluorescent Reagent for Detecting Fingerprints	0.00	56000.00
Side view mirror adjustment and protection system	0.00	80000.00
Sub schedule Total	5812698.00	2598734.00
Sugar Technology Unit		
Preparation of Project Report (STM)	0.00	440628.00
Sub Scheduled Total	0.00	440628.00
Revolving Fund (SIDBI)		
Funds Released to Revolving Fund (SIDBI)	100000000.00	0.00
Earmarked fund to be released to SIDBI	50000000.00	
Sub Scheduled Total	150000000.00	0.00
Project Related Expenditure	7557932.00	5461597.00
Sub schedule Total	7557932.00	5461597.00
Total	175972101.00	17386311.00



Annexure - 6

EXPENDITURE OF VISION 2020

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Establishment & Administrative Expenditure		
Misc Office Expenses	79593.00	79575.00
Periodical & Magazine Charges	9575.00	16409.00
Printing of Publications	0.00	124300.00
Printing Charges	9070.00	0.00
Repair and Maintenance	33090.00	0.00
Telephone / Internet Charges	150668.00	123479.00
Car Hire Charges/ Conveyance	165819.00	304518.00
Ad-hoc Bonus	27632.00	0.00
Medical Reimbursement	368417.00	842389.00
Salary 7472128.00	7451883.00	
Leave Travel Concession	4640.00	70865.00
Honorarium	291500.00	408400.00
Advertisement Expenses	12572.00	0.00
Internship	5000.00	0.00
Children Education Allowance	129753.00	93580.00
Encashment of Leave	67626.00	0.00
Leave Encashment	7979.00	13936.00
Legal Charges	7875.00	43250.00
TIFAC Membership	28400.00	0.00
Stationery	0.00	3578.00
Salary (6th Pay Commission)	0.00	1510350.00
Total	8871337.00	11086512.00



PROJECT EXPENDITURE OF VISION 2020

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Agriculture Sector		
Agriculture Project in Deoria Project	0.00	372830.00
Promotion of Medicinal and Aromatic Plants in Paliganj Area, Patna	211720.00	340892.00
Demonstration of Agriculture Diversification through Aromatic Plant Cultivatio at Deoria	470077.00	346590.00
Agricultural Deversification for Enhancing Productivity of Acidic upland of Eastern India	18000.00	708470.00
Enhancing Water Productivity in Deep Water Rice Area	121418.00	426407.00
Demonstration of system Approach in selected low Productivity Regions of Deoria, District	53813.00	82206.00
Strengthening Levelihoods of Small and Marginal Farmers in Organic Farming of Lower Palni Hills	0.00	610744.00
Support t Training, Employment and Income Generation Programme for Farmer and Rural Women Processing & Value Addition of Agriculture Produce	0.00	370160.00
Agriculture, Quality Mode Production in Rice wheat Cropping System Through Farmers, BHU, Varanasi	654000.00	752788.00
On Farm Demonstration, Popularizaion, Commerciatization & Processing of Mentha Cultivation in Barabanki District of U.P	708740.00	663176.00
Enhancement of Farm Income of Farmers of Eastern Uttar Pradesh from Added Scented Rice (Kalanamak)	2142327.00	303746.00
Improved seed Production and Multiplication at Paliganj, Patna	397247.00	1134864.00
On Farm Demonstration, Commercial Cultivation of Trichoderma as bio pesticide & growth Promoter	1443912.00	1253000.00
Transfer of IPM Technology Package to Farmers fields through Training & Demonstration against insect pests, Wild Fungus & Root Knot Nematocle Diseases Infecting tomato	9158.00	208773.00
Enhancing Income of Small And	242000.00	0.00
Value Additon of Low Value Marine Pelagic Fishes	502250.00	855000.00
Sub Total	6974662.00	8429646.00
Health Care Equipment		
Standardization & international commercialization of Bacopa Monnieri extract for its cognition enhancing activity	0.00	5750000.00
Sub Total	0.00	5750000.00
Targeted Programme in Other Important Area		
Technology Gap Study and Possible Remedial Measures for the select Sports Goods	0.00	38159.00
Technology Gap Analysis Study for food Processing Industry Cluster	0.00	145026.00
Functional Test for Evaluating the performance of cricket bat	0.00	37500.00
Temper proof & Secure Courtroom Digital Recording & Video Conferencing		
	94	



(Amount Rs.)

PARTICULARS	Current Year	Previous Year
System	0.00	2557000.00
Pottery Study	0.00	274179.00
Development of the competence to Develop Automobile Components using Electro Magnetic Forming (EMF)	0.00	492000.00
Quality Assurance condition monitoring and Fault Diagnosis using Intelligent Control Methodologies	0.00	2105000.00
Efficient Utilization of Jatropha seed cake by Detoxigation & Recovery of Residual Hydrocarbon	2400000.00	0.00
Setting up an Aseptic Pulp processing cum packaging plant at malda	91688.00	0.00
Fashion Design Technology Gap analysis study of readymade garments cluster in Tirupar, Tamilnadu	165000.00	0.00
	2656688.00	5648864.00
Tehchnology Status gap Analysis Study & the possible remedial measures for the auto components manufacture unit	250000.00	0.00
Technology Gap Analysis Study in readymade garmetn industries cluster in Delh/NCR Region	275000.00	0.00
Technology Gap Analysis Study in Production/Manf. Processes as well as environment aspects of Readymade Garments	450000.00	0.00
Technology Gap Analysis Study for the plastics cluster in Delhi	400000.00	0.00
Technology Gap Analysis Study in Textile Cluster, Panipat	475000.00	0.00
Technology Gap Analysis study for the Mini Gas Cylinder Cluster in Meerut	175000.00	0.00
Technology Gap Analysis Study for the sewing machine cluster in Ludhiana	500000.00	0.00
Technology Gap Analysis Study for the voltage stabilizer cluster in Meerut	175000.00	0.00
Technology Gap Analysis Study of Plastic Cluster in Mumbai	475000.00	0.00
Technology Gap Analysis study for the Bicycle parts cluster in Ludhiana	500000.00	0.00
Technology Gap Analysis study for the Electrncs Cluster in Mohali	175000.00	0.00
Interactive Virtual reality Simulator Software for crime scene training and proficiency testing	0.00	2405000.00
Selection of a panel of SNP markets for forensic analysis in Indian Population	0.00	2800000.00
Software standard for small car	0.00	2500000.00
Development of Enzymatic Process for producing Slevioside from Stevia Leaves & Lycopena from Tometoo	0.00	8000000.00
Bio Transformation of Meso-Cycoopent-1, 4 Diacetate to 4-R-Hydro oxycyelopent Ene-1 (S)	0.00	5300000.00
Process Development in semisolid Forming & Squeeze Casting of Aluminium Alloy Components for Automobile	9220000.00	350000.00
3 Dimensional Automated Vision Inspection Statin (3D Vision) - Initiation of Seed Phase Project	2000000.00	0.00
Ultracapacitor for electric and Hybred Electric Vehicles	1500000.00	0.00
Development of Biotransformation Process for syntesis of Chirally Pure Componds	2700000.00	0.00



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(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Court Case Document Tracking Information system using RFID	1400000.00	0.00
Centre for Biofuels	0.00	10000000.00
Vehicle Tracking System and control system at Koyembedu Bus Terminal, Chennai 0.00	4263000.00	
E-Court Room Digital Recording & Retrieval System (E-DRRS)	3500000.00	0.00
Low Cost Flexible Automation (LCFA) using Robotic Arm	0.00	14086000.00
Study on Biomass Derived Bioproducts Assessment of Technology Trends, Gaps & opportunities for India	214000.00	856000.00
Establishing a Pulp Processing cum aseptic pulp packaging plant at food park, Malda	0.00	30000.00
Technology Gap Analysis Study for Handmade Paper Industry Cluster (Jaipur)	0.00	494040.00
Panel on IC Engine & Drivetratation Study on NOZ control Technology	0.00	40000.00
Workshop on advance technologies for Baruipar surgical instruments cluster for meeting market requirements.	0.00	115616.00
Process Development for Production of L-arginine by Fermentation	900000.00	900000.00
Sub Total	27940688.00	57788520.00
Upgradation of Engineering College		
TIFAC-CORE in Digital Image Processing	3706000.00	0.00
Designing Developing & Maintaining Mission REACH Website and Enabling Web Based Services	1651070.00	1941691.00
TIFAC-CORE in Wireless Technologies		13000000.00
	5357070.00	14941691.00
TIFAC-CORE in Interentional Radiology	0.00	3700000.00
TIFAC-CORE in E-Outreach	1649000.00	0.00
TIFAC-CORE in the area of Pervasive Computing Technologies	0.00	5000000.00
M.S University, Vadodara	0.00	4446000.00
TIFAC-CORE in Industrial Biotechnology	0.00	717434.00
TIFAC-CORE in the area of Pharmacogenomics	0.00	4730000.00
TIFAC-CORE in the area of Textile Technology & Machinery	0.00	4600000.00
TIFAC-CORE in the area of Machine Vision	0.00	4250000.00
TIFAC-CORE in the area of Telematics	0.00	15600000.00
Sub Total	7006070.00	57985125.00
Textile Machinery		
To Assess S&T Gaps in Textile and Assessment of Education institutional Capacity Building	204000.00	274000.00
Sub Total	204000.00	274000.00
Project Related Expenditure	5258588.00	7048197.00
Sub TotalL	5258588.00	7048197.00
TOTAL	47384008.00	137275488.00



Annexure - 7

TECHNOLOGY VISION 2035

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
A) Balance Brought Forward	0.00	0.00
B) Income :		
Grant in Aid	0.00	0.00
Interest Earned	0.00	0.00
Other Income	0.00	0.00
Sub total	0.00	0.00
Total A+B	0.00	0.00
C) Expenditure :		
i) Capital Expenditure : Fixed Assets	0.00	0.00
ii) Revenue Expenditure :	0.00	0.00
iii) Project Expenditure	342626.00	0.00
Total (i+ii+iii) 'C'	342626.00	0.00
Balance carried forward to next year (A+B-C)	342626.00	0.00

Annexure - 8

PATENT FACILITATING CENTRE

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Other Income		
Other Receipts	100.00	71950.00
Patent Search Charges	18000.00	3000.00
CD ROM Ekaswa A & B	12000.00	88199.00
Total	30100.00	163149.00



PATENT FACILITATING CENTRE

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Establishment & Administrative Expenditure		
Salary	2914302.00	2991808.00
Salary Consolidated	808619.00	932243.00
Salary (6th Pay Commission)	0.00	501185.00
Medical Reimbursment	86258.00	62363.00
Advertisement Expenses	0.00	194215.00
Honorarium	21000.00	7500.00
Children Education Allowance	43492.00	98153.00
Leave Travel Consession	20319.00	119414.00
Printing & Publications	6300.00	0.00
Printing Charges	20640.00	28875.00
Miscellaneous Office Expenses	102455.00	348983.00
Conveyance	18347.00	8463.00
Computer/Peripherals	0.00	108588.00
Telephone & Telex	59677.00	66395.00
Ad-hoc Bonus	17270.00	0.00
Tution Fee	6000.00	0.00
Leave Encashment	5167.00	26822.00
Office Equipment	169344.00	0.00
Filing of Patent	3857030.00	4893758.00
Ekaswa A&B CD ROM	0.00	8570.00
Car Hire Charges, Annual Subscription, Periodicals & Magazines Stationery, Meeting Expenses, Traveling Expenses, Membership Etc	344088.00	146794.00
Repair & Maintenance	8544.00	4100.00
	8508852.00	10548229.00



Annexure -10

PATENT FACILITATING CENTRE

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Project Expenditure	0.00	
Patent Information Centre TSCST	0.00	618000.00
Patent Information Centre (PSCST)	0.00	117000.00
Patent Information Centre (KSCST)	0.00	332000.00
Patent Information Centre (Shimla)	0.00	701047.00
Patent Information Centre (HSCST)	0.00	725365.00
Patent Information Centre (Imphal)	0.00	80000.00
Patent Information Centre (Thiruvandram)	0.00	315000.00
Patent Information Centre (Gandhinagar)	0.00	100500.00
Project related Expenditure (including patent workshop expenses)	2280154.00	927397.00
Total	2280154.00	3916309.00

Annexure -11

SHORT TERM DEPOSITS WITH BANKS

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Short Term Deposits		
TIFAC	0.00	30267745.00
Total	0.00	30267745.00

Annexure -12

EXPENSES PAYABLE

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Salary Payable	4292294.00	3747013.00
M/s. Sansanwal Travels	151482.00	107288.00
M/s. MTNL	68123.00	69461.00
M/s Bhagwati International	0.00	40376.00
M/s Chandiwala Gupta & Associates	30333.00	19413.00
M/s Pink House Keeping	54232.00	0.00
M/s Yash Tour & Travels	25685.00	26379.00
M/s Water Point	36673.00	30371.00
M/s Omni Traders	19713.00	19755.00
M/s JMD Tourist Transport Co.	0.00	28333.00
M/s Yatrika Travesl	0.00	14798.00
Income Tax Payable	183079.00	0.00
Total	4861614.00	4103187.00



Annexure - 13

PROJECT ICOSER

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
A) Balance Brought Forward	19107292.00	19107292.00
B) Income	0.00	0.00
Sub total	0.00	0.00
Refund from Project		0.00
Sub total	0.00	0.00
Total A+B	19107292.00	19107292.00
C) Expenditure:		
i) Capital Expenditure: Fixed Assets	0.00	0.00
ii) Revenue Expenditure	5905140.00	0.00
Total (i+ii) 'C'	5905140.00	0.00
Balance carried forward to next year (A+B-C)	13202152.00	19107292.00

Annexure - 14

GRANT INDIAN-MYANMAR
S&T FRIENDSHIP LIBRARY IN YANGON

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
A) Balance Brought Forward	959659.00	959659.00
B) Income	0.00	0.00
Sub total	0.00	0.00
Total A+B	959659.00	959659.00
C) Expenditure :		
i) Capital Expenditure : Fixed Assets	0.00	0.00
ii) Revenue Expenditure :	0.00	0.00
Project Expenses	0.00	0.00
Total (I+ii) 'C'	0.00	0.00
Balance carried forward to next year (A+B-C)	959659.00	959659.00



Annexure - 15

MSEB – ASH Utilization / Management

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
A) Balance Brought Forward	600094.00	3578194.00
B) Income :		
Grant in Aid	0.00	0.00
Interest Earned	0.00	0.00
Other Income	0.00	0.00
Sub total	0.00	0.00
Total A+B	600094.00	3578194.00
C) Expenditure :		
i) Capital Expenditure : Fixed Assets	0.00	0.00
ii) Revenue Expenditure :	0.00	0.00
iii) Project Expenditure	0.00	0.00
MSEB Fly Ash in Agriculture	0.00	2978100.00
MSEB Fly Ash In Brick Manufacture	0.00	0.00
Total (i+ii+iii) 'C'	0.00	2978100.00
Balance carried forward to next year (A+B-C)	600094.00	600094.00

Annexure - 16

GFAM Large Scale Stowing of HWP Pond Ash into the underground Mines of SCCL(Manuguru)

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
A) Balance Brought Forward	8294830.00	8294830.00
B) Income :		
Grant in Aid	0.00	0.00
Interest Earned	0.00	0.00
Other Income	0.00	0.00
Sub total	0.00	0.00
Total A+B	8294830.00	8294830.00
C) Expenditure :		
i) Capital Expenditure : Fixed Assets	0.00	0.00
ii) Revenue Expenditure :	0.00	0.00
iii) Project Expenditure	0.00	0.00
Total (i+ii+iii) 'C'	0.00	0.00
Balance carried forward to next year (A+B-C)	8294830.00	8294830.00



Annexure - 17

EARTHQUAKE SERVING NATURE'S FURY

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
A) Balance Brought Forward	165157.00	142557.00
B) Income :		
Grant in Aid	0.00	72600.00
Interest Earned	0.00	0.00
Other Income	0.00	0.00
Sub total	0.00	72600.00
Total A+B	165157.00	215157.00
C) Expenditure :		
i) Capital Expenditure : Fixed Assets	0.00	0.00
ii) Revenue Expenditure :	0.00	0.00
iii) Project Expenditure :	0.00	50000.00
Production of Film on Earth Quake	0.00	0.00
Total (i+ii+iii) 'C'	0.00	50000.00
Balance carried forward to next year (A+B-C)	165157.00	165157.00

Annexure - 18

DRDO - PFC

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
A) Balance Brought Forward	-323411.00	17291.00
B) Income :		
Grant in Aid	19918429.00	13634052.00
Interest Earned	0.00	0.00
Other Income	0.00	0.00
Sub total	19918429.00	13634052.00
Total A+B	19595018.00	13651343.00
C) Expenditure :		
i) Capital Expenditure : Fixed Assets	0.00	0.00
ii) Revenue Expenditure :	0.00	0.00
iii) Project Expenditure :	19516443.00	13974754.00
Total (i+ii+iii) 'C'	19516443.00	13974754.00
Balance carried forward to next year (A+B-C)	78575.00	-323411.00



EARNEST MONEY FROM SUGAR FACTORIES

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
Earnest Money: Sakthi Gugars Ltd	100000.00	100000.00
Earnest Money : Pratappur Sugar Industry Ltd	100000.00	100000.00
Earnest Money : RBN Sugar Mills	100000.00	100000.00
Earnest Money : L.H.Sugar	100000.00	100000.00
Earnest Money : Riga Sugar	100000.00	100000.00
Earnest Money : Jind Coop-Sugar	100000.00	100000.00
Earnest Money : Vishnu Sugar	100000.00	100000.00
Earnest Money : DSM Sugar	100000.00	100000.00
Earnest Money : Valsad Sugar	100000.00	100000.00
Earnest Money : Budhewal Co	100000.00	100000.00
Earnest Money : Palwal Sugar Ltd	100000.00	100000.00
Earnest Money : Godawari Sugar Mill	100000.00	100000.00
Earnest Money : Padamashri Dr.Vithalrao Vikho Patil SSK Ltd	100000.00	100000.00
Earnest Money : Mawana Sugar	100000.00	100000.00
Earnest Money:EID Parry, Pugalur	100000.00	100000.00
Earnest Money : Vishwas Rau Naik SSK Ltd	100000.00	100000.00
Earnest Money : M/s Terna SSK Ltd	100000.00	100000.00
Earnest Money : Shakumbani Sugar Ltd	100000.00	100000.00
Earnest Money : Shri Talabu Taluka SKM	100000.00	100000.00
Earnest Money : Bileshwar Khurd Udyog Khedut Sahakari Mandal Ltd	100000.00	100000.00
Earnest Money : Sanjavani SSK Ltd	100000.00	100000.00
Earnest Money : Rahuri S.S.K Ltd	100000.00	100000.00
Earnest Money : Ashok SSK Ltd	100000.00	100000.00
Earnest Money : Simbhaoli Sugar	300000.00	300000.00
Earnes Money : Jagadamba SSK	100000.00	100000.00
Earnest Money : Rana Sugar Ltd	100000.00	100000.00
Earnest Money : Dharani Sugar & Chemical Ltd	100000.00	100000.00
Earnest Money : Triveni Engg. Industries Ltd	200000.00	200000.00
Earnest Money : Uttam Sugar Ltd	100000.00	100000.00
Earnest Money : Chamundeswari Sugar Mills	200000.00	200000.00
Earnest Money : Mansurpur Sugar Mills	100000.00	100000.00
Earnest Money : Bharat Sugar Ltd	100000.00	100000.00
Total	3600000.00	3600000.00



MPSEB – Use of Fly Ash in Agriculture Development Thermal Power Plant, Sarni

	(Amount Rs.)	
PARTICULARS	Current Year	Previous Year
A) Balance Brought Forward	356825.00	1023250.00
B) Income :		
Grant in Aid	0.00	0.00
Interest Earned	0.00	0.00
Other Income	0.00	0.00
Sub total	0.00	0.00
Total A+B	356825.00	1023250.00
C) Expenditure :		
i) Capital Expenditure : Fixed Assets	0.00	0.00
ii) Revenue Expenditure :	0.00	0.00
iii) Project Expenditure	0.00	666425.00
Total (i+ii+iii) 'C'	0.00	666425.00
Balance carried forward to next year (A+B-C)	356825.00	356825.00

TIFAC-World Bank Project

(Amount Rs.)

PARTICULARS	Current Year	Previous Year
A) Balance Brought Forward	1339747.93	1339747.93
B) Income :		
Grant in Aid	0.00	0.00
Interest Earned	0.00	0.00
Other Income	0.00	0.00
Sub total	0.00	0.00
Total A+B	1339747.93	1339747.93
C) Expenditure :		
i) Capital Expenditure : Fixed Assets	0.00	0.00
ii) Revenue Expenditure :	0.00	0.00
iii) Project Expenditure	0.00	0.00
Total (i+ii+iii) 'C'	0.00	0.00
Balance carried forward to next year (A+B-C)	1339747.93	1339747.93



Technology Information Forecasting & Assessment Council Receipts & Payments for the Period the Year Ended 31.03.2011

Receipts	Current Year	Previous Year
1 Opening Balances		
Cash in hand	3524.00	8587.00
Bank balances		0.00
In Current Accounts		0.00
In Deposit Accounts	86705099.28	36074546.95
Savings Accounts	30267745.00	51442454.00
Advance for Franking Machine	9422.00	5251.00
2 Grants Received		
From Government of India - Plan (TIFAC)	170699700.00	172000000.00
From Government of India - Non Plan (TIFAC)	700000.00	800000.00
From State Government	0.00	0.00
Scholarship for Womet Scientist	15451000.00	15496000.00
3 Income from Investments		
Earmarked/Endow Funds		0.00
Own Funds		0.00
4 Interest Received		
On Bank Deposits (TIFAC)	1088928.00	835825.00
On Bank Savings (TIFAC)	3509942.00	2381024.00
Loans Advances etc. (Staff advances)	10838.00	65944.00
Interest from Vision 2020		0.00
5 Other Income (Specify)		
Refund from HGT Project (Annexure 5)	13665000.00	17478500.00
Refund from Advance Composite Programme	17970464.00	20537600.00
Refund from Vision 2020	9761435.24	13093753.24
Other Income (Annexure 18)	74087.00	350952.00
Refund from Sugar Technology Mission		
Refund from TePP Project	251699.00	254921.00
Refund from Fly Ash Utilization Programme	100000.00	50000.00
6 Receipts fro Patent Facilitating Centre		
Grant in Aid	10000000.00	15000000.00
Patent Search Charges	18000.00	3000.00



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Receipts	Current Year	Previous Year
Ekaswa A&B CD RoM	12000.00	88199.00
Interst Scooter Advance	2713.00	
Other Receipts	100.00	71950.00
7 Amount Borrowed		0.00
8 Other Receipts (Give Details)		
Nominal Charges for Dissemination of TIFAC Reports	196383.00	413308.00
Tender for Car Hiring Accounts		0.00
RTIA Questions	250.00	565.00
Tender Form for Stationery Items		0.00
Tender for Fire Alarm		6000.00
Tender for Housekeeping at TIFAC	6000.00	9500.00
Stale Cheque Received	376088.00	914330.00
DRDO - PFC	19918429.00	13634052.00
Advance : Ashok Hotel		200000.00
Advance : Iridium Interactive Ltd		178900.00
Advance : DAVP		219797.00
Advance : TIFAC Core in Wireless Technology		13000000.00
Advance : Agro And Industrial Bio Technology, TIET, Patiala		717434.00
Advance : Dr. Sharma's Nursing Home		73800.00
Advance : IIT Kharagpur		250000.00
Advance : SINE-TePP Fund		22700.00
Sundry Debtor : Prof. Anand Patwardhan		29427.00
International Congress Seminar Expenses		0.00
Refund from Sugar Technology Mission	9236046.00	29100000.00
Earth Quake Serving Nature's Fury		22600.00
IIASA - TIFAC Joint Study		0.00
Advance Mobilisation (HVAC)		0.00
	390034892.52	404830920.19
Earnest Money : M/s Sansanwal Travels		10000.00
Earnest Money : M/s Pink House Keeping	15000.00	0.00
Sundry Creditor : M/s Daikin Airconditioning India Pvt Ltd	154645.00	0.00
Security Deposite : M/s Pink House Keeping	45206.00	0.00
Training Programme on IPR and WTO Issues for Scientists/ Technologists Working in Government Sector.	177750.00	0.00



Receipts	Current Year	Previous Year
Earnest Money : Yatrika Travels		10000.00
Earnest Money : Omni Tech Systems		10000.00
Earnest Money : M/s Bhagwati International		30000.00
Earmarked for Release to SIDBI (Revolving Fund) Capital Fund	50000000.00	0.00
Sh.Samson George (LTA Loan & Scooter Loan)		0.00
Capital Fund	1412844.81	0.00
Medical Scheme	400178.00	70085.00
Sundry Debtor - DST	2636440.00	3240.00
Security Deposit : Bhagwati International	0.00	18451.00
Security Deposite : MTNL	14834.00	0.00
Advance to BISR (Haldwani)	76173.00	0.00
Construction of Reception Office (DST)	3259953.00	0.00
CPF	322323.00	0.00
Sundry Debtor : DBT	15620.00	0.00
Advance : Director, IIPS, Mumbai	500000.00	0.00
Sundry Debtor : Central Institute of Road Transportation	10936.00	0.00
Advance : Hotel Janpath	599.00	0.00
Asia India Workshop	66974.00	0.00
Advance : M/s Daikin Airconditioning India Pvt Ltd	200382.00	0.00
Sundry Debtor : MTNL	5357.00	0.00
Short Term Deposit : (Suspence Account)	1398597.00	0.00
Security Deposite : S.R.Enterprises	2700.00	0.00
Sundry Debtor : Geo Spatial Application	208450.00	0.00
TDS (on Consultacy)	0.00	13125.00
Short Term Depoite : Fly Ash Mission	0.00	22970.00
Short Term Depoite : TIFAC	0.00	1375627.00
	60924961.81	1563498.00
	450959854.33	406394418.19



**Technology Information Forecasting & Assessment Council
Receipts & Payments for the Period the Year Ended 31.03.2011**

Payment		Current Year	Previous Year
1 Expenses			
a Establishment Expenses (Corresponding to Schedule 21)	42799931.00		
Add : Opening Expenses Payable	2768059.00		
Less : Expenses Payable	4292294.00	41275696.00	40313421.00
b Administrative Expenses (Corresponding to Schedule 21)	28240694.00		
Add : Opening Expenses Payable	326375.00		
Add : Loss of sale of Fixed Assets	0.00		
Less : Payables	569320.00	27997749.00	22295584.91
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)		175972101.00	15162223.00
2 Payments made against funds for various projects			
Grant Utilisation - Patent Facilitating Centre	10789006.00		
Add : Opening Expenses Payable	324971.00		
Less : Expenses Payable	0.00	11113977.00	14359513.00
Grant Utilisation - Vision 2020	56255345.00		
Add : Opening Expenses Payable	683782.00		
Less : Expenses Payable	0.00	56939127.00	148226869.00
Grant Utilisation - Scholarship for Women Scientist		14289707.00	14685955.00
Grant Utilisation - Technology Vision 2035		342626.00	0.00
Addition in Fixed Assets			
Office Equipment		576405.81	581478.00
Furniture		14300.00	155072.00
Library Book		46320.00	10967.00
Computer & Peripherals		704099.00	140976.00
Fire Alarm System at TIFAC Building		0.00	1004583.00
Fire Extinguisher		45675.00	
Rufund of Surples Money / Loans			
Advance paid to staff		352865.00	517192.00
3 Other Payments (Specify)			
Security Deposit : Eco Rel Multitech System		0.00	0.00



Payment		Current Year	Previous Year
Sh. Samson George (Scooter Advance)		0.00	0.00
TIFAC World Bank Project		0.00	0.00
Sundry Creditor : M/s Subraminiam, Natraj & Associates		0.00	212945.00
Internatinal Congress Seminar Expenses		0.00	3058201.00
BASIC : Building & Strengtaning Institutional Capacity for Climit Change		0.00	0.00
Development of Project for High Purity Magnesia		0.00	0.00
Nominal Charges for Disseminatin of TIFAC Report		0.00	0.00
Earnest Money : Mannu Lal and Sons		0.00	0.00
		0.00	
INDO - ISREAL Workshop		0.00	0.00
DRDO - PFC		19516443.00	13974754.00
MSEB-Ash Utilization / Management		0.00	2978100.00
MPSEB - Use of fly ash in Agriculture Development Thermal Power Plant, Sarni		0.00	666425.00
Advance : TIFAC CORE in Wireless Technology		0.00	0.00
DST - BMBF (Germany)		0.00	0.00
Sundry Debtor : DBT		0.00	15620.00
Sundry Debtor : Central Institute of Road Transportation		0.00	500000.00
Project ICOSER		5905140.00	0.00
Capital Fund		0.00	0.00
Security Deposite : Matrix Power Products		0.00	0.00
Security Deposite : Union Tech India Pvt Ltd		0.00	0.00
Security Deposit : Apex Peripherals India Pvt Ltd		0.00	0.00
Security Deposit : System Technology		0.00	0.00
Security Deposit : Mannu Lal & Sons (Electrical Works)		0.00	0.00
Security Deposit : Graphic Systems Pvt Ltd		0.00	0.00
		355092230.81	278859878.91
Earnest Money : M/s Omni Tech Systems		10000.00	0.00
Earnest Money : M/s Bhagwati International		30000.00	0.00
GSLIS		345.00	0.00
Security Deposite : M/s Bhagwati International		1845.00	0.00
Advance : Sardar Patel Institute of Economic and Social Research, Ahmadabad		250000.00	0.00



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Payment		Current Year	Previous Year
Sundry Debtor : DST (IITF)		1462500.00	0.00
TDS (FDR) Sarita Vihar, New Delhi		19726.00	0.00
Security Deposite :Rent Ms. Ititka Singal		10000.00	
Fly Ash Sponsorship for National Seminar		285268.00	0.00
Security Deosit : DST (IITF)		74520.00	0.00
International Congress Seminar Expenses		2725412.00	0.00
IIASA TIFAC Joint Study		3519.00	0.00
TDS : CPF (FDR) UBI, SDA		321591.00	0.00
Interior Work of TIFAC Building		722017.00	2481708.00
Advance : DAVP		42822.00	0.00
Advance : M/s Daikin Airconditioning India Pvt Ltd		0.00	200382.00
Advance : IIT-Delhi		0.00	57500.00
Implemmentation Programme : Fiji Sugar Industries		0.00	293.00
Income Tax for the F.Y 2004-2005		0.00	5000000.00
Capital Fund		0.00	11672.00
Short Term Deposite (Suspence Account)		0.00	1398597.00
Closing Balance			
Cash in Hand		5304.00	3524.00
Cash at Bank		89877934.52	86705099.28
Short Term Deposite		0.00	31666342.00
Franking Machine		8214.00	9422.00
	0.00	95867623.52	127534539.28
	0.00	450959854.33	406394418.19

As per our report of even date Annexed herewith

**For Chandiwala Virmani & Associates
(Formerly Chandiwala Gupta & Associates)
Chartered Accountants**

Sd/-
(Bharat Bhushan)
Partner
M. No: 087365
Date : 26.9.2011
Place : New Delhi

Sd/-
Registrar

Sd/-
Scientist-in-charge



Auditor's Report

The Trustees,
TIFAC C.P. Fund Trust,
New Delhi-110016.

We have audited the attached Statement of Affairs of TIFAC C.P. Fund Trust as on 31st March 2011 with the books of accounts, maintained at New Delhi. The compliance of the provision of Provident Fund and Miscellaneous Provision Act., also been examined.

On the basis of such examination of the books of accounts, we state that

1. The Statement of Affairs dealt with by this report are in agreement with the books of accounts of the Trust.
2. In our opinion and to the best of our information and according to explanation given to us, the said accounts give a true and fair view.
 - a) In the case of Statement of Affairs, the state of the affairs of the Trust as at 31st March 2011.

For Chandiwala Virmani & Associates
(formerly, Chandiwala Gupta & Associates)
Chartered Accountants

Sd/-
(Bharat Bhushan)
(Partner)
M.No-87365

Date :

Place : New Delhi



Contributory Provident Fund- TIFAC Trial Balance as on 31st March, 2011

(Amount Rs.)

S.NO.	PARTICULARS	DEBIT AMOUNT	CREDIT AMOUNT
1	EMPLOYEES SUBSCRIPTION A/C		16,492,102.93
2	EMPLOYER'S CONTRIBUTION A/C		14,756,379.00
3	INTEREST A/C		16,093,643.70
4	CPF ADV: SHRI ANIL KUMAR RAI	91,475.00	
5	CPF ADV: SHRI ARGHYA SARDAR	120,750.00	
6	CPF ADV: SHRI AWADH KISHORE	24,000.00	
7	CPF ADV: MS. MALA SARPAL	83,450.00	
8	CPF ADV: MS. GEETA TOMER	194,000.00	
9	CPF ADV: SHRI MAHIPAL SINGH RAWAT	1,630.00	
10	CPF ADV: DR. GAUTAM GOSWAMI	842.00	
11	CPF ADV. SH. SURENDER PRASAD	27,600.00	
12	CPF ADV: SMT. KAVITA TYAGI	100,000.00	
13	CPF ADV: SHRI S.K. MUNESHWAR	95,800.00	
14	CPF ADV: DEEPAK KUMAR	91,000.00	
15	CPF ADV: SH. SURESH BABU M	65,000.00	
16	CPF ADV.: ANEESH S.	12,000.00	
17	CPF ADV: RENU BALI	15,800.00	
18	CPF ADV.: UMA DARAL	45,300.00	
19	CPF ADV. SH. DEEP PRAKASH	35,600.00	
20	CPF ADV. RACHNA BHATT	23,400.00	
21	CPF ADV. SH. SUSHIL KUMAR JHA	41,400.00	
22	CPF ADV. P.R. BASAK	80,000.00	
23	CPF ADV. MR. MUKESH MATHUR	131,600.00	
24	CPF. ADV. MR. SURINDER KUMAR	66,400.00	
25	CPF ADV. SH. PANKAJ SUNDRIYAL	5,360.00	
26	BANK CHARGES	149,529.00	
27	FLEXI DEPOSIT-UBI	395,117.00	
28	SHORT TERM DEPOSIT (UBI)	41,491,164.00	
29	SPECIAL DEPOSIT (RBI) A/C	520,330.00	
30	TIFAC TDS A/C	321,591.00	
31	CASH AT BANK	3,111,987.63	
	Total	47,342,125.63	47,342,125.63

For CHANDIWALA VIRMANI & ASSOCIATES
(Formerly Chandiwalla Gupta & Associates)
Chartered Accountants

Sd/-
Bharat Bhushan
Partner
M.No. 87365

Date:
Place: New Delhi



Contributory Provident Fund- TIFAC Statement of Affairs as on 31st March, 2011

Previous Year as 31.03.2010	Particulars	Current Year 31.03.2011	Previous Year As on 31.03.2010	Particulars as	Current Year As on 31.03.2011
	Interest Accrued		1121080.54	Balance with UBI	9436067.40
10673065.70	Last Balance 12375346.70			Deposits	
	Interest Accrued		9436067.4	Balance with UBI	3111987.63
12375346.70	Last Balance 14204606.70			Deposits	
	Add: Received during the year		520330.00	Special deposit with RBI	520330.00
1829260.00	Accrued during the year 2018152.00		26836108.00	Short Term deposit with UBI	41491164.00
			370433.00	Flexi Deposit- UBI	395117.00
				TIFAC TDS A/C	321591.00
14204606.70	16222758.70			Loan/ Advances to staff members	
0.00	Less: Paid during the year 129115.00	16093643.70	71975.00	Shri Anil Kumar Rai	91475.00
14204606.70			81250.00	Shri Arghya Sardar	120750.00
	Employees Contribution		68450.00	Ms. Mala Sarpal	83450.00
8712493.84	Last Balance 12658016.70		14000.00	Ms. Promila Khilani	0.00
5960192.86	Add: Received during the year 8074516.23		21430.00	Sh. Mahipal Singh Rawat	1630.00
			30842.00	Dr. Gautam Goswami	842.00
2014670.00	Less: Paid during the year 4240430.00	16492102.93	0.00	Sh. Awadh Kishore	24000.00
12658016.70			0.00	Ms. Geeta Tomer	194000.00
			44400.00	Sh. Sundender Prasad	27600.00
			0.00	Smt. Kavita Tyagi	100000.00
	TIFAC Contribution		0.00	Sh. S.K. Muneshwar	95800.00
7101538.00	Last Balance 11707901.00		1100.00	Sh.S.Basu	0.00
4628051.00	Add: Received during the year 3651165.00		41600.00	Sh. T. Chandrasekhar	0.00
			21600.00	Sh. Ranbir Singh	0.00
21688.00	Less: Paid during the year 602687.00	14756379.00	4400.00	Ms. Poonam Nagpal	0.00
11707901.00			151000.00	Sh. Deepak Kumar	91000.00
			0.00	Sh. Suresh Kumar M	65000.00
			24000.00	Sh. Aneesh S.	12000.00
			36200.00	Ms. Renu Bali	15800.00
			22000.00	Ms. Uma Daral	45300.00
			69200.00	Sh. Deep Prakash	35600.00
			40200.00	Ms. Rachna Bhatt	23400.00
			66600.00	Sh. Sushil Kumar Jha	41400.00
			140000.00	Mr. P.R. Basak	80000.00
			200000.00	Mr. Mukesh Mathur	131600.00
			100000.00	Sh. Surinder Kumar	66400.00
			8000.00	Sh. Pankaj Sundriyal	5360.00
			149339.00	Bank Charges	149529.00
38570524.40	Total	47342125.63	38570524.4	Total	47342125.63

**For Chandiwala Virmani & Associates
(Formerly Chandiwala Gupta & Associates)
Chartered Accountants**

Sd/-
(Bharat Bhushan)
Partner
M. No: 087365

Sd/-
Chairman

Sd/-
Trustee

Date :
Place : New Delhi



Contributory Provident Fund- TIFAC Statement of Affairs as on 31st March, 2011

Pervious Year as 31.03.2010	PARTICULARS	Current Year As n 31.03.2011
9,436,067.40	Balance with UBI Deposit	3,111,987.63
520,330.00	Special deposit with RBI	520,330.00
26,836,108.00	Short Term deposit with (UBI)	41,491,164.00
370,433.00	Flexi Deposit -UBI	395,117.00
	TIFAC TDS A/C	321,591.00
	Loan/ Advances to staff members	
71975.00	Shri Anil Kumar Rai	91475.00
81250.00	Shri Arghya Sardar	120750.00
68450.00	Ms. Mala Sarpal	83450.00
14000.00	Ms. Promila Khilani	0.00
21430.00	Sh. Mahipal Singh Rawat	1630.00
30842.00	Dr. Gautam Goswami	842.00
0.00	Sh. Awadh Kishore	24000.00
0.00	Ms. Geeta Tomer	194000.00
44400.00	Sh. Surender Prasad	27600.00
0.00	Ms. Kavita Tyagi	100000.00
0.00	Sh. S.K. Muneshwar	95800.00
1100.00	Sh.S.Basu	0.00
41600.00	Sh. T. Chandrasekhar	0.00
21600.00	Sh. Ranbir Singh	0.00
4400.00	Ms. Poonam Nagpal	0.00
151000.00	Sh. Deepak Kumar	91000.00
0.00	Sh. Suresh Kumar M	65000.00
24000.00	Sh. Aneesh S.	12000.00
36200.00	Ms. Renu Bali	15800.00
22000.00	Ms. Uma Daral	45300.00
69200.00	Sh. Deep Prakash	35600.00
40200.00	Ms. Rachna Bhatt	23400.00
66600.00	Sh. Sushil Kumar Jha	41400.00
140000.00	Mr. P.R. Basak	80000.00
200000.00	Mr. Mukesh Mathur	131600.00
100000.00	Mr. Surinder Kumar	66400.00
8000.00	Mr. Pankaj Sundriyal	5360.00
149339.00	Bank Charges	149529.00
38,570,524.40	Total	47,342,125.63

For CHANDIWALA VIRMANI & ASSOCIATES
(Formerly Chandiwala Gupta & Associates)
Chartered Accountants

Sd/-
Bharat Bhushan
Partner
M.No. 87365

Date:
Place: New Delhi