



Annual Report 2011-2012



SARDAR SWARAN SINGH
NATIONAL INSTITUTE OF RENEWABLE ENERGY
(An Autonomous Institution of Ministry of New and Renewable Energy)

**12 K.M. Stone, Jalandhar- Kapurthala Road, Wadala Kalan,
Kapurthala-144 601 (Punjab)**

**ANNUAL REPORT
2011-2012**



SSS-NIRE

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NATIONAL INSTITUTE OF RENEWABLE ENERGY
(SSS-NIRE)**

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1. INTRODUCTION

Sardar Swaran Singh National Institute of Renewable Energy, Kapurthala is an autonomous Institution of the Ministry of New and Renewable Energy, Govt of India devoted to Bioenergy Research, Design and Development. The Governing Council under the Chairmanship of Secretary, MNRE has been monitoring the Construction, Financial, Administrative and R&D programs of the Institute. The Institute has 10 nos. of sanctioned posts only, all of which are occupied at present. The Institute has prepared vision documents for research and created five research divisions including all aspects of biofuel and bioenergy research. The 16th meeting of the Governing Council approved the vision document and creation of 16 nos. of new Scientific posts for smooth running of the R&D activities under different divisions. The proposal has been submitted to MNRE for necessary Administrative and Financial Approval.

2. OBJECTIVES AND FUNCTIONS

VISION:

To establish the Institute as an apex R&D institution for carrying out **state-of-the-art** research and developmental activities in the area of bio-energy, including human resource development at all levels, post-doctoral research and research leading to commercialization of renewable energy technologies.

MISSION:

- To be a knowledge based R&D Institution of high quality and dedication.
- Providing services and seeks to find optimum solutions for the major stakeholders across the entire spectrum of the bio-energy sector.
- To support the Rural Energy sector in developing the knowledge for promoting new technology.

OBJECTIVES:

- To carry out and facilitate research, design, development, testing, standardization and technology demonstration eventually leading to commercialization of RD&D output with a focus on:
 - a. Bioenergy, biofuels and synthetic fuels in solid, liquid and gaseous forms for transportation, portable and stationary applications; and
 - b. Development of hybrid/integrated energy systems;
- To undertake and facilitate human resource development and training including post-doctoral research in the area of bioenergy.
- To create facilities for operationalization of the Institute for the benefit of the masses.

FUNCTIONS:

- Conduct resource surveys and Assessment of potential across the country in the bioenergy sector.
- In-house R&D programmes in all emerging fields of bioenergy.
- Joint technical programmes with other national institutions and testing centres.
- Testing and certification of devices and systems.
- Techno-economic evaluation of bioenergy equipments and systems.
- Creating data base for bioenergy including information on patents.
- Compilation and dissemination of information on resources, technologies, products and applications.

- Providing technical support to industry on new product design and development and upgradation of products and manufacturing processes.
- Providing technical support to the biomass energy project in achieving and sustaining quality such that systems of highest quality and reliability are installed.
- Organization of training programmes, seminars and workshops.
- Cooperation with scientific and technical Institutions abroad under bilateral and multilateral agreements and MoU.
- Assistance in curriculum development in renewable energy and undertaking concrete programmes for human resource development.
- Consultancy and advisory services in the bioenergy sector.
- Providing technical support to MNRE in policy planning and implementation.

The Institute has the objectives of developing its laboratories with the *state-of-the-art* facilities in the area of biodiesel, biogas, bioethanol, thermochemical conversion and biomass management for R&D works and human resources development. In addition to that the Institute will utilize its human resources for organizing training programs from time to time and commercial utilization of lab-scale facilities. The Institute is to disseminate the technologies developed to the actual users and stake holders at state/national level.

Research Divisions and Laboratory setup

The R&D laboratories of the Institute and facilities are subdivided under the following headings as per application point of view.

- i R&D Block-I (Biochemical Energy Lab viz Biodiesel, Bioethanol and Biogas)
- ii R&D Block-II (Biomass Gasification Lab viz Pyrolysis, Fuel Cell and New Energy System)
- iii R&D Block-III (Biomass Cookstove Testing and Research Lab, Biomass Assessment and Management Lab including GIS and Remote Sensing).
- iv Common Facility Building (Computer Lab, Library, Conference Hall and Canteen)
- v Workshop (Common Workshop Machines & Tools and Test Engines)
- vi Gasifier shade (Biomass Gasification and Testing Facilities)

Scientific Activities to be started

- i Cookstove testing, certification and research centre
- ii Gasifier testing and research centre
- iii Biodiesel production and its utilization in engines
- iv Bioethanol production using ligno-cellulosic materials
- v Assessment of biomass availability especially, the agricultural crop residues for energy purpose.
- vi Installation of a biogas plant and cleaning of biogas and its bottling
- vii Briquetting of biomass and gasification (demonstration plant)
- viii Generation of hydrogen from biogas & producer gas and application of gas in fuel cell for electricity generation
- ix Biomass pyrolysis to generate wood oil.
- x Installation of Solar Thermal and PV Devices as demonstration cum R&D unit and performance evaluation.
- xi Energy plantation inside the campus of the Institute.

Research related Objectives

i Short Term

- Training to the scientific staff.
- Development of core laboratory (cookstove, biogas, and gasifier).
- Development of *State-of-the-art* Laboratories.
- Development of library facilities (subscription of appropriate journals and purchase of books).
- Development of conceptual technologies in all research areas based on Laboratory experimental work.
- Installation of NRE Gadgets.
- Collaboration with other Teaching, R&D installations and Industries.

ii Medium Term

- Laboratory development units (LDU) of the technologies developed in labs to assess their technical viability.
- Training programmes to stack holders such as operators, engineers, research scientists, Govt. officers etc.
- Seminar/workshop to disseminate recent knowledge and to facilitate interaction among the Bioenergy Researcher, Scientist, Entrepreneur and Industries (BPPs).
- Consultancy to the industries using biomass based energy source.
- Extension of Laboratory facilities for commercial purpose.
- Start of Fellowship programme for Ph.D.

iii Long Term

- Testing and certification centre for biomass cookstove
- Cookstove dissemination through carbon financing
- Design & development of efficient biomass cookstove
- Testing and certification centre for gasifier
- Pilot plant studies on the technologies for economic, technical, social appraisal & to conduct Engineering modifications.
- All activities as listed under medium term will be further strengthened.
- A cell will be created to provide information on design, operation, and trouble shooting in the Industries in NRE devices.

3. CHARTER

With a view to manage, administer, direct and control the affairs of SSS-NIRE, an environment and culture conducive to achievement of excellence, will be created by ensuring:

- Commitment to the mission:** sense of purpose and direction to policies, programmes & activities to achieve the aims and objectives;
- Commitment of staff members:** liberal, positive and people-sensitive personnel policies, training and management development with special reference to advance technologies equipment and result orientation;
- Commitment to excellence:** professional competence, encouragement to creativity, innovation, initiative and career development; and
- Commitment to society:** application of the state-of-the-art research and development to national/social priorities.

4. MAJOR SCIENTIFIC ACTIVITIES

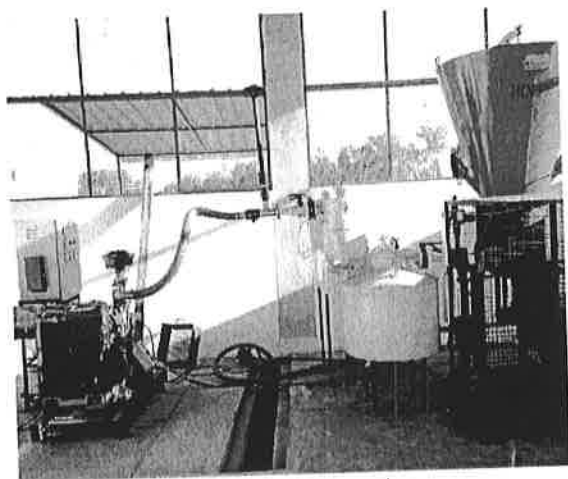
- Establishment of *state-of-the-art* Laboratory facilities for Chemical, Bio-Chemical and Thermo-Chemical Conversion of biomass.
- Establishment of Workshop facilities for fabrication and modification/repair of experimental setups.
- Development/furnishing of conference room, Laboratories, guest house, hostels, offices etc.
- Rate contract for the purchase of
 - ✓ Glass wares for laboratories
 - ✓ Chemicals for laboratories
 - ✓ Plastic wares for laboratories
 - ✓ Furniture and fixtures
- Writing of research projects and their submission for funding
- Street lighting on the campus
- Landscaping and horticultural activities
- Energy plantation
- Development of Web page of SSS-NIRE

5. LABORATORY DEVELOPMENT

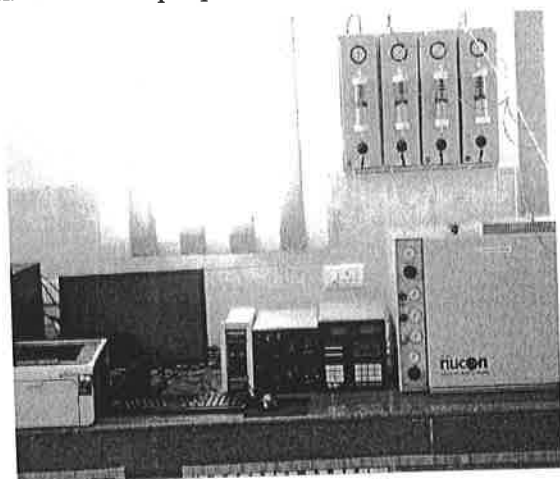
The *state-of-the-art* research facility is being developed for biodiesel, bio-ethanol, gasification, biogas, cook stoves. About 25 laboratory equipments worth Rs 1.5 Crores have been installed during this period. The consumables including chemicals, glass wares and plastic wares have also been procured for experimental work in the laboratories.

Thermochemical Conversion

The facilities have been created for thermochemical conversion of biomass including gasification, combustion and pyrolysis. Some important equipments viz Gas Chromatograph for gas analysis, Carbon monoxide Indicator, Gas Flow Meters, Suspended Particulate Matter Meters, Automatic Sieve, Differential Scanning Calorimeter, etc. have been procured and installed. A biomass gasifier of 10 KW has been installed at the Institute for demonstration and research purposes.



10kW Biomass Gasifier



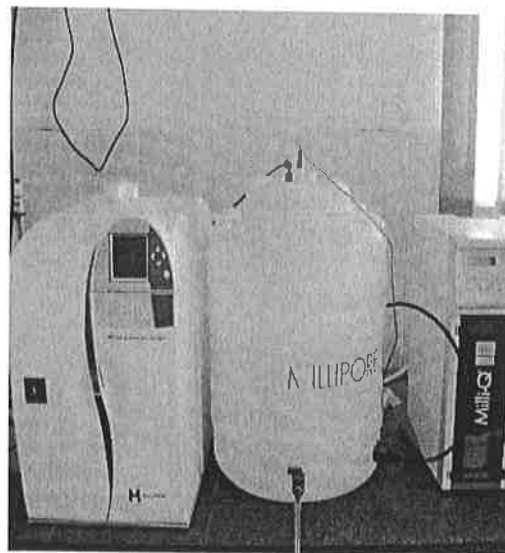
Gas chromatograph

Biochemical Conversion

The facilities have been created for biochemical conversion of biomass including bioethanol, biogas, biobutanol, biohydrogen, etc. Some important equipments viz Chromatograph for gas analysis, HPLC, UV-vis spectrophotometer, Water purification system, BOD Incubator, Micro Disintegrator (Homogenizer), Circulatory Water Bath, Vacuum oven, Gel Documentation System, Lyophilizer (Freeze Dryer), Fibre Tech, etc. have been procured and installed.



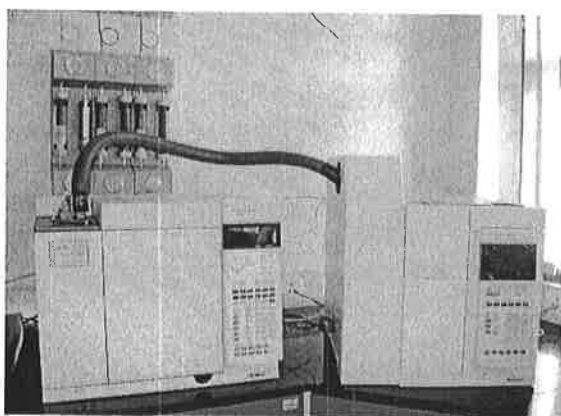
HPLC System



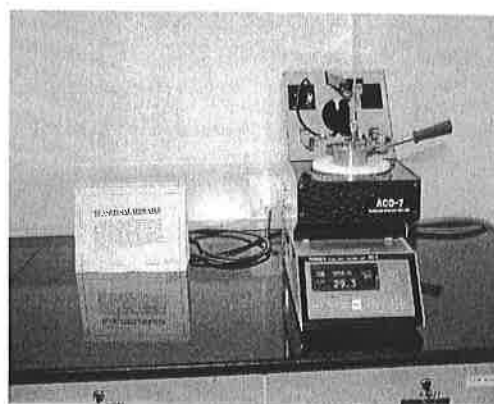
Water purification system

Chemical Conversion

The facilities have been created for chemical conversion of biomass including biodiesel, hydro-processing, etc. Some important equipments viz Gas Chromatograph dedicated for biodiesel analysis, Rams bottom Carbon Residue, Oxidation Stability Apparatus, High Pressure and High Temperature Reactor, True Boiling Point Distillation, etc. have been procured and installed.



Gas Chromatograph with biodiesel analyzer



Flash Point Apparatus

Energy plantation

- 10,000 Jatropha plants have been planted over 3 hectares of land for structural studies.
- 200 Bamboo plants have been planted on the campus
- 3,000 forestry and oil bearing plants have been planted alongwith the boundary wall of the Institute.

6. DOCUMENTATION CENTRE

A documentation centre having collection of large number of recently published books, journals, periodicals, newsletters, reports, conference proceedings, etc. on various aspects, relating to renewable energy has been established. Further strengthening of the documentation centre is in progress. About 183 Books and 70 Scientific Journals have been purchased for Documentation Centre:

✓ Scientific Books	:	160
✓ Administrative & Accounts Books	:	23
✓ Scientific Journals	:	70

7. INSTITUTE WEBSITE

The Institute has developed an independent website www.nire.res.in. All the latest news & events relating to the Institute are being provided at the website. All the employees of the Institute have been facilitated to use their e-mail IDs on the website. Hindi version of the website is under development.

8. RESEARCH ACTIVITIES

On-going projects

- Integrated Technology Development for Biodiesel Production using Heterogeneous Catalyst

Projects taken-up

- Biocrude Production: Hydrocracking of non-edible Vegetable Oil
- Process development for bioethanol production from agricultural residues, Phase-I: Development of process for co-fermentation of hexose and pentose sugars of agricultural residues

Projects submitted for funding

- Establishment of Biomass Cookstove Testing and R&D Center at SSS-NIRE
- Biogas production, purification and utilization for heat and power generation applications using potential alternative feed-stocks
- Development of Testing Centre for Biomass Gasifier

A brief outline of the Ongoing R&D activities

Technology Development for Biodiesel Production using Heterogeneous Catalyst

The work under this project is going on full swing. The term of Research Associate has been extended till November, 2012 based on his performance in the last year. A comprehensive review article on heterogeneous catalysis for biodiesel production including reported literature till date has been published in "Renewable and sustainable energy Review" journal with an impact factor 4.56. This review gives us a clear picture for the development and use of heterogeneous catalyst for future use. The article has already got the status of most read article. A few experimental works based articles will be communicated for publication.

Two types of noble heterogeneous catalyst derived from waste biomass has been identified ; one derived from underground root of banana tree (*Musa bilbisiana colla*), while the other derived from an unwanted small aquatic plant *Lemna Perpusilla Torrey*. The first catalyst derived from *musa bilbisiana colla* has high (27%Wt) amount of

potassium present in its ash as compared to the ash of *Lemna Perpusilla Torrey* and both are found promising as catalyst for transesterification. The detail physical characterization of the catalysts has been completed (XRD, BET Surface, metallic and nonmetallic concentration etc). The use of these catalysts for transesterification and process optimization is ongoing. The kinetic study for biodiesel degradation using three different methods and its volatility properties are also evaluated using TG- DTA. The engine testing and application of biodiesel for long term application will be carried out after the purchase of equipments in the coming months. For complete fuel quality testing including cetane number R&D lab, IOCL, Faridabad is being contacted. The process for purchase of biodiesel testing CI engine and mechanical oil expeller has been processed. At present, a Post Doctorate Fellow has been working with dedication and an M. Tech. student (sponsored from NIT Jalandhar) completed her project work on the topic thermal analysis of biodiesel using different kinetic processes. A Ph.D. student sponsored from NIT Jalandhar has been pursuing his work on hybrid catalyst development.

Biocrude production: Hydrocracking of non-edible vegetable oil

The work activities under this project have been initiated with effect from 1/12/2011, just after the appointment of Senior Research Fellow. Initially the two vital equipments required for R&D have been procured. The literature survey works have been completed and the process layout for proceeding to the next step of work has been worked out. The experimental works are likely to be initiated by August, 2012 onward after the completion of installation of the equipments.

Process development for bioethanol production from agricultural residues

A research project on 'Process development for bioethanol production from agricultural residues, Phase-I: Development of process for co-fermentation of hexose and pentose sugars of agricultural residues' has been funded by MNRE on dated January 25, 2012. The total cost of the project is Rs. 132.19 Lakhs for two years. For implementation of project, the vacancies were advertised for selection of manpower. The tender for procurement of laboratory equipments under the projects was also floated.

Dissemination of Cookstoves through Carbon Financing

The Clean Development Mechanism (CDM) of the United Nations Framework Convention on Climate Change (UNFCCC) is a mechanism under the Kyoto Protocol that binds developed countries to promote projects in developing countries that reduce greenhouse gas (GHG) emissions. By taking advantage of the CDM, a developing country could gain benefits in areas that would not have received support without the CDM, creation of job opportunities and new markets, and strengthening of ties between developed and developing countries. For a project to qualify under the Clean Development Mechanism (CDM) it must lead to GHG emission reduction and it must promote a sustainable development in the beneficiary developing country. Some examples of the projects that qualify for carbon credit revenues under the CDM are related to renewable energy and energy efficiency.

Sourcing of firewood for cooking fuel is a major contributor to depletion of the forest cover in India. The unsustainable use of biomass for wood leads to several direct and indirect burdens on the population as a whole, like the distances travelled to collect firewood have increased as a result of depletion of the nearby sources, health problem

due to emission of CO and other gases. Thus the Improved Biomass Cookstove (ICS) disseminated under the program will significantly reduce GHG emissions while simultaneously offering co-benefits to families and community institutions in the form of relief from high fuel costs and improved health. Specifically the PoA envisages contributing to the sustainable development of the host country by:

- Reduction in unsustainable wood harvest and the accompanying deforestation;
- Reduction in Indoor Air Pollution and associated diseases from wood smoke;
- Diminishing the fuel wood bill for households, and save fuel collection time;
- Creation of job opportunities for local population and business opportunities for local entrepreneurs
- Creation of a platform for people to own, use and benefit from the stoves by reduction of the stove cost
- Improvement in local forest cover and environment by contribution to the preservation of wood resources

With the above objectives, the Ministry of New & Renewable Energy (MNRE) and GIZ, Germany under Indo-German Renewable Energy (IGEN-RE) Cooperation has initiated the Clean Development Mechanism under this Program of Activities (CDM-PoA) for disseminating the Improved Biomass Cookstove (ICS) through Carbon Financing. The purpose of this Program of Activities (PoA) is the dissemination of improved biomass cookstoves in India by making them available to the households and community institutions across India at lower prices. The Program will promote stove categories that replace existing less efficient cookstoves. The improved cookstoves (ICS) to be made available are more efficient in transferring heat from the fuel to the cooking utensil when compared to the stoves typically being used in the country. By replacing inefficient stoves, the PoA will save on consumption of woody biomass, which is the dominant fuel used for cooking in the country.

The goal of the PoA is to enable a sustainable large-scale deployment of high efficiency improved cookstoves in India by means of support in the form of end user price reduction, training, marketing and awareness programs and the provision of maintenance services. The PoA will have multiple benefits of reducing global GHG emissions, reducing pressure on forests and woody biomass resources, reducing indoor air pollution associated with use of traditional stoves as well as saving the local population from their efforts undertaken for procurement of fuel-wood.

The Institute has been designated as the Coordinating and Managing Entity (CME) by the Ministry for cookstove PoA to coordinate the efforts of different CPA implementers to distribute improved cookstoves in the boundary of the PoA and comply with the requirements of this PoA. CPA implementers can be manufacturers, retailers, distributors or other organizations engaged in cookstove dissemination.

Each CPA implementer will sell improved cookstoves and will ensure that correct procedures are followed during distribution of improved cookstoves. This shall also include the correct recording of data required for monitoring activities. The CME will provide training and guidance documents on the correct distribution and monitoring procedures to each CPA implementer. Each CPA implementer will act individually by implementing the relevant CPA(s) in accordance with local conditions. When purchasing an improved cookstove, the customer will provide certain information that will be recorded along with the unique stove serial number to enable tracking of the stove during monitoring. This information will form part of the CPA Implementation Record. The

customer will also release the legal rights of the carbon credits generated by the improved cookstoves.

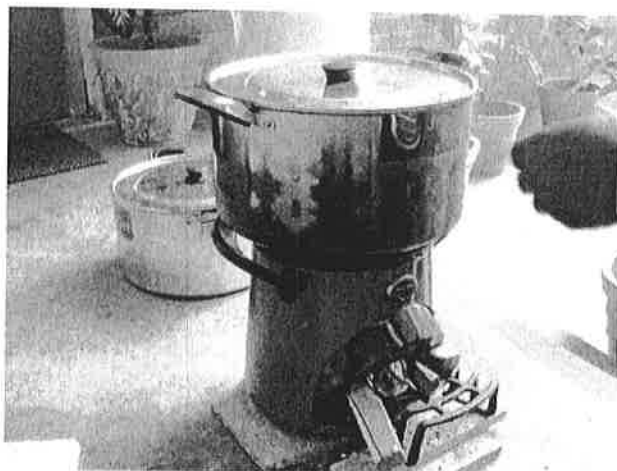
The CME will use the carbon credits proceeds to help the CPA implementers make the stove technology more affordable by reducing the cost of improved cookstoves sold to end users and the development of end user micro credit solutions. Furthermore, carbon revenues shall be used to increase technology, business and marketing capacities of stove producers and distributors, provide maintenance and after-sale services, and raise awareness among users about the benefits and correct long-term utilization of the improved stove products. Socio-cultural mobilization of communities will be the key for increasing the acceptance and long-term use of the new cookstove technologies.

In this regard, a Program of Activities (PoA) on National Program on Improved Cookstoves in India alongwith the very first CPA (CPA₁) has been prepared in coordination with MNRE, GIZ, New Delhi and South Pole Carbon Consultant, New Delhi. SAMUHA an NGO in the Koppal District of North Karnataka has been chosen as the first CPA implementer due to its experience in such activities as it has already two registered projects in this area.

All the necessary documents have been completed and submitted to Designated Operational Entity (DOE) selected through tendering process for the validation purpose of the above PoA as per UNFCCC guidelines for registration purposes. The first audit of the PoA and CPA₁ has been carried out during 13-16 June, 2012 at the Institute and at SAMUHA, Koppal, North Karnataka. The findings from DOE on PoA and CPA₁ related to CDM were received on 28th June, 2012 while the findings related to GS were received on 6th July, 2012 and the required modifications in PoA and CPA₁ are under process.

Biomass Cookstove Testing and Development

Seven number of different models of cookstove have been tested in the laboratory using Bureau of Indian Standard (BIS) water boiling test. Four models namely Harsha, Vikram, Envirofit and Mangla (Two pot) received from MNRE and three different models (SPRERI 1.1, SPRERI 2.1 and SPRERI 3.1) were received from Sardar Patel Renewable Energy Research Institute (SPRERI), Gujarat. The burning rate of each cookstove was determined using BIS WBT. The thermal efficiency which denotes the thermal performance under controlled laboratory conditions was also determined.



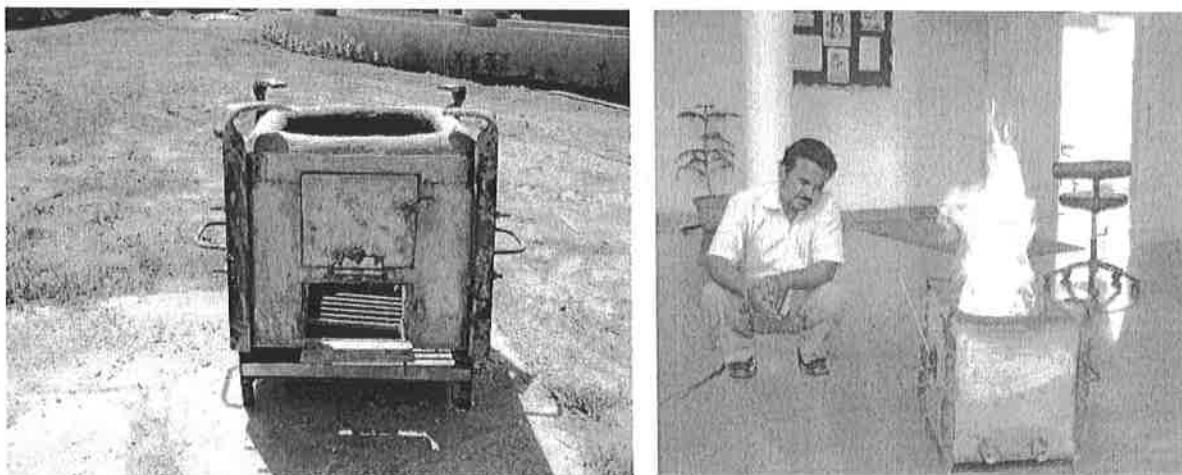
ENVIROFIT



SPRERI 1.1

Besides, a cookstove model (NIRE 01) has also been designed and fabricated in the Institute using standard design principles. This is unique model developed so far in the

country because it has an option to cook Chapati (Roti) with direct contact to the fire coming from the combustion chamber. The burning capacity has been calculated and the testing of this particular model is under process using standard protocols. The photographic view of the designed and fabricated cookstove is shown below:



Cookstove model designed and fabricated at the Institute (NIRE-01)

Bioenergy Promotion Fellowship

Two nos. of SRF and one JRF has been selected under the Bioenergy Promotion Fellowships. They have been working on different areas such as Biogas, Biodiesel and Cookstoves.

Collaborations with Other Institutions/Universities

The institute has taken up scientific collaboration with the following Institute/Universities

- ✓ NIT, Jalandhar
- ✓ PAU, Ludhiana
- ✓ Punjab University, Chandigarh

9. PUBLICATIONS

- S.K. Tyagi, A.K. Pandey, V. Bajala, S. Sahu and J.P.S. Rajput, Experimental study and performance evaluation of various cook stove models based on energy and exergy analysis. Journal of Thermal Analysis & Calorimetry (DOI 10.1007/s10973-012-2348-9).
- S.K. Tyagi, A.K. Pandey, P.C. Pant and V.V. Tyagi, Prediction potential and control of visible plume from wet cooking towers in commercial building using different heating sources: A review. Renewable and Sustainable Energy Reviews, 16, 3409-3429 (2012).
- R. Kothari, D.P. Singh, V.V. Tyagi and S.K. Tyagi, Fermentative hydrogen production: An alternative clean energy source. Renewable and Sustainable Energy Reviews, 16, 2337-2346 (2012).
- A. K. Pandey, V. Bajala, S. Shahu, J.P.S. Rajput and S. K. Tyagi, Performance evaluation of different types of cook stoves using energy and exergy analyses, Int. Conference on Green Technologies for Environmental Rehabilitation, Gurukul Kangri University, Haridwar, Feb. 11-13, 2012.

- A.P.S. Chouhan and A.K. Sarma, Modern Heterogeneous Catalyst for Biodiesel Production: A Comprehensive review, *Renewable and Sustainable Energy Reviews*, 15, 4378-99 (2011).
- A.K. Sarma and A.P.S. Chouhan, Green technology for biodiesel production using waste material based heterogeneous catalysts, National Conference on Recent Advances in Bioenergy research (25-26 November, 2011, SSS-NIRE).
- S. Kumar, Ethanol Production from Syn-gas, Recent Advances in Bio-energy Research held on November 25-26, 2011 at SSS National Institute of Renewable Energy, Kapurthala (India).
- S. Kumar, P. Dheeran and D.K. Adhikari, Lignocellulosic ethanol production through continuous process, World Congress for Man and nature 2011 (WCMANU 2011): Global Climate Change and Diversity Conservation held on November 11-13, 2011 at Gurukul Kangri Vishwavidyalaya, Haridwar (India).
- S. Kumar, S.P. Singh, I.M. Mishra and D.K. Adhikari, Kinetics of Acid Hydrolysis of Sugarcane Bagasse, AIChE International Congress on Energy 2011 held on October 16-21, 2011 at Minneapolis, USA.

Participation in seminars/symposia

- Dr. A.K. Jain participated in the National Seminar on Green Energy for Empowering Rural India at RGIIT 14–16 April, 2011.
- Dr. A.K. Jain and Dr. S.K. Tyagi attended first meeting of the Sub-Group on Bioenergy Mission at MNRE, New Delhi on 10th June, 2011.
- Dr. A.K. Jain and Dr. S.K. Tyagi attended a meeting regarding the review of activities at SSS-NIRE at MNRE, New Delhi during 4 – 5 July, 2011.
- Dr. A.K. Jain attended a meeting regarding the review of activities at SSS-NIRE at MNRE, New Delhi on 15th and 17th August, 2011.
- Dr. A.K. Jain delivered key note address in the one day seminar at Doaba Group of Institutions Chokran, Punjab on 11th November, 2011.
- Dr. A.K. Jain gave a presidential address in the national Conference on Recent Advances in Bio-Energy Research sponsored by Ministry of New and Renewable Energy (Govt. of India) at SSS-NIRE, Kapurthala on 25th & 26th November, 2011.
- Dr. A.K. Jain as **Guest of Honour** attended one day workshop on recent advances in Chemical Engineering Bio-Energy and Environmental Studies at Government Polytechnical College for girls, Jalandhar, 28th November, 2012.
- Dr. A.K. Jain as **Chief Guest** attended National conference on Waste Management & Recycling (WMR-2011) organized by Department of Chemical Technology, SLIET, Longowal, Punjab on 9th December, 2011.
- Dr. S.K. Tyagi attended a Local Stakeholder Consultation meeting for the 1st CPA for Cookstove PoA at Koppal, North Karnataka on 19th March, 2012.
- Dr. S.K. Tyagi attended one day training program on CDM (Clean Development Mechanism) and PoA (Program of Activities) on Cookstove at GIZ, New Delhi on 21th December, 2011.
- Dr S.K. Tyagi attended the 3rd International Conference on Green Technologies for Environmental Rehabilitation (GTER-2012) at Gurukul Kangri University, Haridwar (UK) during 13th -15th February, 2012.
- Dr. S.K. Tyagi attended one day training program on Capacity Building cum Training Program as CME for PoA on Cookstove at GIZ, New Delhi on 2nd February, 2012.
- Dr. Sachin Kumar delivered a Guest Lecture at IITT College of Engineering, Pojewal, Punjab (India) on 23th March, 2012.

- Dr. Sachin Kumar delivered a Lecture in National Training Program on 'Bio-energy Technology' at SSS-NIRE, Kapurthala on 16th and 17th March, 2012.

10. IMPORTANT EVENTS

The Institute has organized few events of National importance such as Hindi Day and Hindi Fortnight, Vigilance Awareness Week, National Conference on Recent Advances in Bioenergy Research, National Training Program on Bioenergy Technologies, etc. The details of these important events are given as below:

Celebration of Hindi Diwas and Hindi Pakhwada

The Institute has celebrated Hindi Day and Hindi Fortnight during 14-28 Sept. 2011. The program was coordinated by Hindi Officer, Dr. S. K Tyagi and Ms. Suchi Shahu, Technical Assistant. The Chief Guest of the function was Dr. A. K. Jain, Director, SSS-NIRE. The speakers Dr. A. K. Sarma, Dr. Sachin Kumar, Mr. Abhishek Gupta, R. A. Singh, Sanjay Chauhan, Rupesh Verma, APS Chauhan including the Chief Guest besides, others speakers emphasis on the importance of Hindi and suggested to increase the use of Hindi in the office matters, technical and scientific discussions in and outside the Institute. The Hindi Officer of the Institute has encouraged and convinced all the staff members of the Institute to start using Hindi in all official, technical and scientific matters at least by 70% which was appreciated by all staff members and has been implemented at SSS-NIRE.



Celebration of Hindi Day and Hindi Fortnight at the Institute

Observance of Vigilance Awareness Week

The Institute has observed the Vigilance Awareness Week during Oct. 31st to Nov. 05th, 2011. The pledge was taken by all the employees of the Institute at 11:00 hrs on Oct. 31st, 2011 in the conference hall of the Institute to bring the integrity, transparency and eradication of corruption in all spheres of our activities. Awareness among the college students of Kapurthala was created by organizing an essay competition on the topic 'Corruption eradication leads to National Development' both in Hindi and English. More than 190 people including students, staff, and faculty members from different colleges in Kapurthala and SSS-NIRE staff members participated in the essay writing competition. The program was coordinated by Vigilance Officer, Dr. S. K. Tyagi and Ms. Suchi Shahu and Mr. Vajay Bajala Technical Assistant, SSS-NIRE. The Chief Guest of the function was Dr. A. K. Jain, Director, SSS-NIRE, Kpt. The speakers were invited from various colleges of Kapurthala including Anand College of Engineering & Management, Kapurthala, Governemnt Randhir College, Kapurthala, Kanya College, Kapurthala, DSP

Vigilance, Kapurthala, besides, the Scientists from SSS-NIRE including Dr. A. K. Sarma, Dr. Sachin Kumar. All the speakers emphasis on the urgency, need and importance of Vigilance Awareness by giving detailed aspects and causes of corruption. The prizes were distributed to the top five participants by Chief Vigilance Officer of the Institute on the closing ceremony of the Vigilance Awareness Week held on Nov. 05, 2011, at the Institute.



राष्ट्रीय मुकाबले में प्रथम रती अंशदीप को समर्पित करते हुए डॉ. ए.के. जैन व अन्य एवं (दाएँ) उपस्थित व्यक्तियों। (10/11/11)

समाज को खोखला कर रहा भ्रष्टाचार : जैन

कपूरथला, 5 नवम्बर (गल्लोरो): स्वयं शिक्षा वैश्वीकरण हेतु प्रो. जैन ने कहा कि भ्रष्टाचार समाज को खोखला कर रहा है। उन्होंने विचारियों से कहा कि वे घर-घर जाकर ईमानदारी बना लें।

राष्ट्रीय मुकाबले में प्रथम रती अंशदीप को समर्पित करते हुए डॉ. ए.के. जैन व अन्य एवं (दाएँ) उपस्थित व्यक्तियों। (10/11/11)

विजिलेंस जागरूकता सप्ताह सम्पन्न

समाज, आमंत्रित विचारियों के द्वारा विचारों में भाग लिया। इस दौरान कर्तव्य विचारियों में राष्ट्रीय प्रतियोगिता कराई। प्रो. जैन ने कहा कि विजिलेंस जागरूकता बनाने का मुख्य संकेतक देश में से भ्रष्टाचार को खत्म कर देना है। उन्होंने कहा कि आज देश में फैला भ्रष्टाचार समाज को खोखला कर रहा है। उन्होंने विचारियों से कहा कि वे घर-घर जाकर ईमानदारी बना लें।

Observance of Vigilance Awareness Week at the Institute

National Conference

A two day national conference was organized at the Institute on "Recent Advances in Bioenergy Research" during 25-26 November, 2011. The conference was started with a glittering inaugural function in which Prof B.S. Pathak, former Director, SPRERI inaugurated the event as the Patron lighting lamp followed by the Chairman of the conference, Prof A.K. Jain, Director, SSS-NIRE. A few other notable personalities present over the function were also invited for lighting the lamp. The prominent among them were Prof. S. K. Das, Director, NIT Jalandhar, Dr. R. Grover, Director, Pushpa Gujral Science City, Kapurthala, Dr A. R. Shukla, Former Adviser, MNRE, Dr Murari Shyam, Director, SPRERI, Sh M. L. Bamboriya, Director, MNRE, Prof I.M. Mishra, Department of Chemical Engineering, IIT Roorkee, Sh M.P. Singh, Joint Director, PEDDA etc. The Organizing Secretary, Dr A. K. Sarma, delivered welcome address and emphasized the objective of the conference. Prof. B S. Pathak elaborated the need and importance of Bioenergy research in the country. Prof A.K. Jain, Director, SSS-NIRE highlighted the energy scenario of the country especially, Punjab and elaborated the importance of bioenergy for the economic development of the Nation. Out of several significant issues and recommendations the eminent personalities present over there recommended to organize this National conference as Annual Event at the Institute.



Inaugural session



Valedictory Function



Delegates at a glance in the Conference



Few snaps and press release of National Conference held during 25-26 Nov. 2011

11. IMPORTANT MEETINGS

Few important meetings including Review Meeting by the Secretary, MNRE, R&D Committee Meeting, Headed by the Director, SSS-NIRE, Finance Committee Meeting chaired by the Additional Secretary & Financial Advisor, MNRE, Governing Council Meeting chaired by the Secretary, MNRE etc. were held. The details of different meetings held during the last one year are given as below:

Review Meeting

A review meeting under the chairmanship of Secretary, MNRE was held at the Institute on 15/07/2011. The senior officials of the Ministry along with the Scientists from SSS-NIRE participated in the meeting and shared their thoughts and appreciated the progress made by SSS-NIRE during a short period of one year. The Secretary also reviewed the progress of construction work through Building and Works Committee Meeting with the CPWD officials. The Administrative Block of the Institute was inaugurated by the Secretary, MNRE on this occasion. During this occasion senior officers from MNRE, CPWD, PEDDA etc. also planted the saplings of Sagwan in the campus.



Review Committee meeting held at the Institute

Research & Development Committee Meeting

A meeting of the R&D Committee chaired by the Director of the Institute was held on 25/08/2011 at the Institute. The members of the committee while appreciating the overall progress made by SSS-NIRE during a span of one year emphasised to strengthen the Scientific and Technical manpower and to focus on the entrusted areas of Bioenergy having collaborative work with other organizations of National importance and pride.

Finance Committee Meeting

A meeting of the Finance Committee chaired by the Additional Secretary & Financial Advisor, MNRE was held at the Institute on 06/09/2011. During this meeting different aspects of Finance such as adjustment of financial matters of previous financial year and the budget for the current financial year were discussed.



Finance Committee meeting held at the Institute

Governing Council Meetings

A meeting of the Governing Council of the Institute under the chairmanship of Secretary, MNRE was held on 19/09/2011 at MNRE. During the meeting various agenda items were discussed in detail along with the Vision Document and requirement of Scientific and Technical manpower.



Governing Council meeting held at MNRE

Workshops/Trainings/Seminars

A two days project launching workshop and a two days National training program on bioenergy research technologies were organized during the FY 2011-12. The details are given as below:

Project Launching Workshop

A two days project launching workshop sponsored by MNRE was held at the Institute during 13-14 March, 2012. The objective of the workshop was to discuss the various aspects of the Clean Development Mechanism (CDM) of the United Nations Framework Convention on Climate Change (UNFCCC) and to prepare a Project of Activity (PoA) on National Program on Improved Cookstove in India. The goal of this PoA is to enable a sustainable large-scale deployment of high efficiency improved cookstoves in India by through Carbon Financing (CF). The PoA will have multiple benefits of reducing global GHG emissions, reducing pressure on forests and woody biomass resources, reducing indoor air pollution associated with use of traditional stoves as well as saving the local

population from their efforts undertaken for procurement of fuel-wood. The representatives from GIZ, New Delhi, MNRE, South Pole Carbon Consultant, New Delhi, besides, the Scientists and Staff members from SSS-NIRE, Kapurthala participated in the workshop.

National Training Program on Bioenergy Technology

A two day National training programme was organized at the Institute on the theme "Bioenergy Technology" during 15-16th March, 2012. The training programme was started with an inaugural session chaired by Prof A.K. Jain, Director, SSS-NIRE. 25 nos. of participants attended the training program from various organizations such as PEDDA, PTU, NIT Jalandhar and representatives from several companies and NGO's from all over the country. The courses were divided into four sections including training and demonstration at R & D laboratories. All the scientist and scientific staff were directly involved in delivering lectures during this period. The importance and need for future training programs in the subject were unveiled from the feedback received from the trainees.



Inaugural session **Group photo of the trainees and experts**
National Training Program on Bioenergy Technology during 15-16th, March, 2012.

12. PROGRESS OF CONSTRUCTION

The construction activities are likely to be completed by December, 2012.

13. HORTICULTURE ACTIVITIES

Forestry & horticulture development in SSS-NIRE campus follows an integrated approach, paying attention technical as well as institutional issues and targeting social acceptance as well. At NIRE the forestry & horticulture is developing at a unique & high speed since 2011. At present, NIRE has taken strong steps with specific focus to promote and support the development of the horticulture & silviculture. More than three thousand plants of different types have been planted at the Institute during the year 2011-2012. The Institute has also purchased the necessary machinery and agricultural tools for the development of campus with the following objectives:

Objectives

- a) Forestry
 - To be self-sufficient in the production of oil-seeds for bio-energy project development.

- To reduce soil degradation by covering it with permanent tree cover.
 - To augment the green cover of local area in order to protect environment.
 - To enhance rural lively- hood security of local unemployed people.
- b) Horticulture
- To established nutritional garden by planting of fruit plant and vegetable cultivation in backyards of housing and nearby areas.
 - To augment floriculture development in and around the technical block, Administrative and R&D blocks.

Statistical data

a) Total area cleaned (Weed eradication)	10 acres
b) Area levelled & prepared for plantation	10 acres
c) Area covered under road side plantation	800 meters
d) Number of trees planted along the road & around buildings	3,000
e) Number of flower-pots with ornamental plants	150
f) Number of trees planted along boundary wall	500
g) Grass (Korean)	1,000 Kg
h) Grass selection no. 1	300 Kg
i) Flowering Plant saplings (seasonal)	1000

Bamboo and Jatropha for biofuel applications



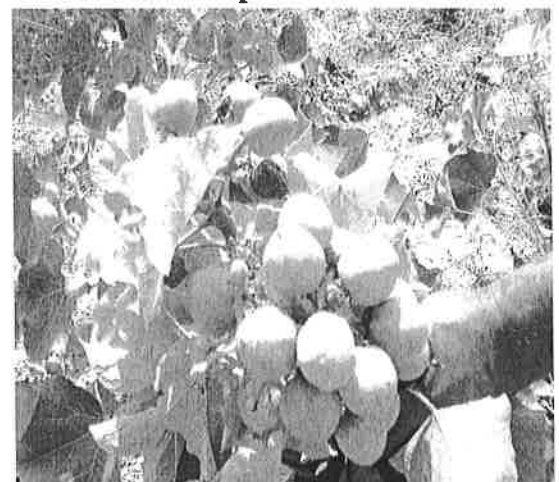
Bamboo field



Bamboo plants in full bloom



Jatropha Field



First Jatropha fruits

14. ADMINISTRATIVE ACTIVITIES

- 17th Meeting of the Governing Council of SSS-NIRE was held on 19th September, 2011 at MNRE, New Delhi.
- The 3rd Finance Committee meeting was held on 6th September, 2011 at SSS-NIRE, Kapurthala in that meeting the budget for the current financial year was discussed.
- The 4th Finance Committee meeting of the Institute was held on 31st March, 2012 at MNRE, New Delhi.
- The 6th purchase committee meeting held on 25th July, 2011.
- The 7th purchase committee meeting held on 9th September, 2011.
- The 8th purchase committee meeting held on 9th December, 2011.
- The 9th purchase committee meeting held on 24th February, 2012.
- The 10th purchase committee meeting held on 19th March and 22nd March, 2012.

Maintenance & security services outsourced

S. No.	Description	Duties	No. of persons outsourced
1.	Security	Security In-charge/Security Guard	1 + 6
2.	Housekeeping	Sweeper/ Office Attendant	3 + 2
3.	Horticulture	Gardener/Agriculture Helper	1 + 6
4.	Supporting office staff	Driver (Office Car)	1
5.	Office Staff	Store Assistant/ Accounts Asst	1
6.	Laboratory Facilitator	Technician	2
7.	Laboratory Facilitator	Electrician, Mechanic, Plumber, Tractor Operator	4
8.	Assistant to Scientist/Officers	Office Assistant	3
	TOTAL		30

15. ANNUAL AUDITED ACCOUNTS AND AUDITOR'S REPORT FOR THE FINANCIAL YEAR 2011-12

Accounts of the Institute for the Financial Year 2011-12 have been prepared and duly audited by Internal Auditor. The Statutory Audit has been carried out by duly appointed Auditor M/s S. Jain & Co., The Mall, Ludhiana (Punjab). The Auditor's Report has been received and its approval of Finance Committee has been obtained, the audited expenditure for 2011-12 is Rs. 456.42 Lakhs and the cumulative expenditure up to 31st March 2012 is about Rs. 3404.12 Lakhs. The details of the Accounts, Auditor's Report, and Expenditure of the Institute for the Financial Year 2011-12 are given at **Appendix-I**.



FORM NO. 10 B

[RULE 17 B]

AUDIT REPORT U/S 12 (A) (b) OF THE INCOME TAX ACT, 1961

We have examined the Balance Sheet of **SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY (SSS NIRE), KAPURTHALA** as at 31.03.2012 and Receipts & Payments account as on that date which are in agreement with the books of accounts maintained.

We have obtained all the information and explanation which to the best of our knowledge and belief were necessary for the purpose of audit. In our opinion, proper books of accounts have been kept by the Society so far as appear from our examination of books subject to notes to accounts annexed herewith.

In our opinion and to the best of our information and according to explanations given to us,

- i) In the case of the Balance Sheet of the state of affairs of the above named Society as at 31.03.2012.
- ii) In the case of Receipt & Payment of the transaction of the Society for the period ended on

Place : Ludhiana

Date : 06.09.2012

FOR SHAMMI GARG & CO.
Chartered Accountants

Pawan Baira
(Pawan Baira)
Partner
M.No. 501203



SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY
(An Autonomous Institution of Ministry of New & Renewable Energy)
Kapurthala (Punjab) - 144601

BALANCE SHEET AS AT MARCH 31, 2012

PARTICULARS	SCHEDULE	AS AT 31.03.2012	AS AT 31.03.2011
A <u>CORPUS/CAPITAL FUND & LIABILITIES</u>			
a) Corpus/Capital Fund	I	3,769,155	3,769,155
b) Reserve & Surplus	II	429,329,494	351,737,025
c) Current Liabilities & Provisions	III	10,971,277	8,051,560
TOTAL >>		444,069,926	363,557,740
B <u>ASSETS</u>			
a) Fixed Assets	IV	312,792,649	231,373,136
b) Current Assets, Loans & Advances	V	131,277,277	132,184,604
TOTAL >>		444,069,926	363,557,740
NOTES ON ACCOUNTS	VI		

This is the Balance Sheet referred
to in our report of even date

Place : Ludhiana

Date : 06.09.2012

FOR SHAMMI GARG & CO.
Chartered Accountants

Pawan Batra
(Pawan Batra)
Partner
M.No. 501203



**FOR SARDAR SWARAN SINGH NATIONAL
INSTITUTE OF RENEWABLE ENERGY**

G.B. Pradhan
(G.B. Pradhan)
Chairman

A.K. Jain
(A.K. Jain)
Director

Abhishek Gupta
(Abhishek Gupta)
Administrative-cum-Accounts Officer

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY
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Kapurthala (Punjab) - 144601

RECEIPT & PAYMENT ACCOUNT FOR THE YEAR ENDED MARCH, 31 2012

RECEIPTS	AS AT 31.03.2012	AS AT 31.03.2011
I. Opening Balance	7,374	19,925
(a) Cash in Hand		
(b) Bank Balances :	49,208,731	8,721,312
(i) In Deposit A/c	16,834,338	66,339,093
(ii) In Saving A/c	1,769,706	-
(iii) In Current A/c	628	16
(c) Postal Stamps	7,396,532	260,592
(d) Less Cheque issued but not presented	60,424,245	74,819,754
II. Grant Received	4,000,000	4,413,000
(a) Bio-Diesel Production Project	-	700,000
(b) Bio-Mass Power Project	40,000,000	40,000,000
(c) From Govt of India	4,400,000	-
(d) Bio Crude Project	34,582	-
(e) ICRISAT Project	143,207	-
(f) NREP Project	6,400,000	-
(g) Bio Ethanol Project		
III. Interest Received on	4,561,339	4,483,342
(a) Deposits	239,881	4,433
(b) Savings		
IV. Any Other Receipts	35,000	60,000
(a) Securities Received	31,750	53,893
(b) Sale of Car	-	5,621
(c) Advance from Staff	7,000	-
(d) Tender Fees	46,775	-
(e) License Fees	534	-
(f) Other Income		
TOTAL >>	120,324,312	124,540,043

This is Receipt & Payment a/c referred to in our report of even date

Place : Ludhiana

Date : 06.09.2012

FOR SHAMMI GARG & CO.
Chartered Accountants

Pawan Balra
(Pawan Balra)
Partner
M.No. 501203



FOR SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY

G.B. Pradhan
(G.B. Pradhan)
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SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY
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Kapurthala (Punjab) - 144601

RECEIPT & PAYMENT ACCOUNT FOR THE YEAR ENDED MARCH, 31 2012

PAYMENTS	AS AT 31.03.2012	AS AT 31.03.2011
<u>I. Expenditure on Fixed Assets & CWIP</u>		
(a) Capital WIP (As per List-A)	8,141,450	15,617,199
(b) Fixed Assets	29,383,658	8,722,602
<u>II. Expenditure out of Grants for Projects</u>		
(a) Expenses Under Bio-Diesel Project	367,995	275,728
(b) Expenses Under Bio-Mass Project	324,025	375,975
(c) Expenses Under Bio Ethanol Project	39,694	-
(d) Expenses Under ICRISAT Project	25,155	-
(e) Expenses Under NREP Project	92,792	-
(f) Expenses Under Bio-Crude project	1,583,158	-
<u>III. Other Payments</u>		
(a) Exe.Engineer CPWD	2,336,200	38,800,000
(b) Outstanding Exp	595,027	324,294
(c) Security Deposit	55,000	-
<u>IV. Closing Balance</u>		
(a) Cash in Hand	3,834	7,374
(b) Bank Balances :		
(i) In Deposit A/c	74,713,463	49,208,731
(ii) In Saving A/c	41,075	16,834,338
(iii) In Current A/c	13,045,776	1,769,706
(c) Postal Stamps	326	628
(d) Cheque Deposited but not credited	55,000	0.00
(e) Less Cheque issued but not presented	10,479,316	7,396,532
	77,380,158	60,424,245
TOTAL >>	120,324,312	124,540,043

This is Receipt & Payment a/c referred to in our report of even date

Place : Ludhiana

Date : 06.09.2012

FOR SHAMMI GARG & CO.
Chartered Accountants

Pawan Batra
(Pawan Batra)
Partner
M.No. 501203



FOR SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY

(G.B. Pradhan)
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Abhishek Gupta

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY
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Kapurthala (Punjab) - 144601

PARTICULARS	AS AT 31.03.2012	AS AT 31.03.2011
I		SCHEDULE - I
<u>CORPUS/CAPITAL FUND</u>		
Opening Balance	3,769,155	3,769,155
TOTAL >>	3,769,155	3,769,155
II		SCHEDULE - II
<u>RESERVE & SURPLUS</u>		
Capital Reserve		
Grant from Govt of India Ministry of New & Renewable Energy		
Opening Balance	347,000,000	307,000,000
Add : Grant Received during the Year	65,047,499	40,000,000
Sub Total	412,047,499	347,000,000
Grant Received for Bio Diesel Power Project		
Opening Balance	4,413,000	-
Add : Grant Received during the Year	4,000,000	4,413,000
Less Expenses Incurred (excluding fixed assets)	367,995	-
Sub Total	8,045,005	4,413,000
Grant Received for Bio Crude Project		
Grant Received during the Year	4,400,000	-
Less Expenses Incurred (excluding fixed assets)	1,583,158	-
Sub Total	2,816,842	-
Grant Received for Bio Ethenol Project		
Grant Received during the Year	6,400,000	-
Less Expenses Incurred (excluding fixed assets)	39,694	-
Sub Total	6,360,306	-
Grant Received for ICRISAT Project		
Grant Received during the Year	34,582	-
Less Expenses Incurred (excluding fixed assets)	25,155	-
Sub Total	9,427	-
Grant Received for National Energy Renewable Programme Project		
Grant Received during the Year	143,207	-
Less Expenses Incurred (excluding fixed assets)	92,792	-
Sub Total	50,415	-
Grant Received for Bio Mass Production Power Project		
Opening Balance	324,025	-
Add : Grant Received during the Year	-	700,000
Less Expenses Incurred (excluding fixed assets)	324,025	375,975
Sub Total	-	324,025
TOTAL >>	429,329,494	351,737,025



SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY
(An Autonomous Institution of Ministry of New & Renewable Energy)
Kapurthala (Punjab) - 144601

PARTICULARS	AS AT 31.03.2012	AS AT 31.03.2011
III CURRENT LIABILITIES & PROVISIONS		SCHEDULE - III
Cheque issued but not presented		
- SBOP, Jal	9,580,524	7,396,532
- UBI, Jal	91,512	-
- OBC, Mand	807,280	-
Salary Payable	109,857	156,088
Office Exp Payable		
- Electricity Exp	75,996	33,860
- Telephone Exp.	10,308	15,054
- Other Exp.	-	70,358
- Travelling Exp.	1,300	8,843
Proff. Fee Payable		
- Internal Audit Fee	-	2,120
- Statutory Audit Fee	7,750	7,750
Security	40,000	60,000
Godrej & Boyce	-	300,955
Fairdeal Agency	1,494	-
Department of Publication	17,778	-
Employment News New Delhi	15,820	-
TDS Payable	12,610	-
The Indian Express Ltd.	78,938	-
Rental Hiring & Proff. Fees	89,120	-
Office Expenses	200	-
Stationary including Software Expenses	210	-
Horticulture Expenses	30,580	-
TOTAL >>	10,971,277	8,051,560



SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY
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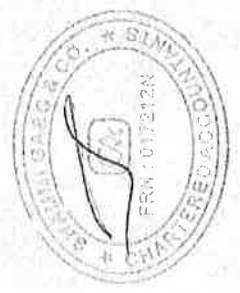
FIXED ASSETS

SCHEDULE IV

PARTICULARS	GROSS BLOCK -		DEDUCTIONS/		TOTAL COST AS ON 31.03.2012	DEP. UP TO 31.03.2011	DEP. FOR THE YEAR	WRITTEN BACK	TOTAL AS ON 31.03.2012	W.D.V. AS ON 31.03.2012	NET BLOCK W.D.V. AS ON 31.03.2011
	COST AS ON 31.03.2011	ADDITIONS MORE THAN 180 DAYS	LESS THAN 180 DAYS	ADJUSTMENT							
Land	7,500,000	-	-	-	7,500,000	-	-	-	-	7,500,000	7,500,000
Land & Site Related Dev Works	1,285,066	-	-	-	1,285,066	-	-	-	-	1,285,066	1,285,066
Plant Mach & Equip Office-I	657,280	-	-	-	657,280	451,077	30,930	-	482,008	175,272	206,203
Plant & Machinery Equipments											
Air Compressor Machine	29,672	-	-	-	29,672	-	4,451	-	4,451	25,221	29,672
Fixed Drill Machine R/f 20mm	38,191	-	-	-	38,191	-	5,729	-	5,729	32,462	38,191
Gas cutting Set	42,358	-	-	-	42,358	-	6,354	-	6,354	36,004	42,358
Grinder Angle 100mm (Hand Grinder)	5,064	-	-	-	5,064	-	760	-	760	4,304	5,064
Hydrolic Power Hacksaw Machine	58,447	-	-	-	58,447	-	8,767	-	8,767	49,680	58,447
Lath Machine	401,047	-	-	-	401,047	-	60,157	-	60,157	340,890	401,047
Pana Machine (Arc Welding Set)	80,180	12,565	-	-	92,745	-	13,912	-	13,912	78,833	80,180
Pedestal Grinder 300mm	36,397	-	-	-	36,397	-	5,460	-	5,460	30,937	36,397
Tractor, Italy & Equipments	900,000	8,224	-	-	908,224	-	136,234	-	136,234	771,990	900,000
Borewell with 2HP Submersible Pump	-	49,800	-	-	49,800	-	3,735	-	3,735	46,065	-
Drill Machine (GBM 10 MM Heavy)	-	4,431	-	-	4,431	-	665	-	665	3,766	-
Fire Extinguisher	-	58,013	-	-	58,013	-	8,702	-	8,702	49,311	-
Grass Moving Machine	-	1,900	-	-	1,900	-	285	-	285	1,615	-
Hmpy Filling Lamp	-	70,980	-	-	70,980	-	10,647	-	10,647	60,333	-
Leveller	-	9,700	-	-	9,700	-	728	-	728	8,973	-
Projector	-	177,975	-	-	177,975	-	26,696	-	26,696	151,279	-
Tiller	-	13,500	-	-	13,500	-	1,013	-	1,013	12,488	-
Vehicle Car Ambassador	433,594	-	-	433,594	-	380,009	-	380,009	-	489,441	53,585
Vehicle Car Ambassador (New)	-	575,813	-	-	575,813	-	86,372	-	86,372	489,441	-
Workshop Tools	-	336,648	-	-	336,648	-	54,518	-	54,518	335,739	-
Drill Hammer Rotary 26(hand Grinder)	17,555	-	-	-	17,555	-	2,633	-	2,633	14,922	17,555
Gas & Four Cylinders	-	11,333	-	-	11,333	-	850	-	850	10,483	-
Electrical Equipments	-	21,033	-	-	21,033	-	4,740	-	4,740	37,433	-
Guest Houses Asses/ Office Equipment.	-	156,908	-	-	156,908	-	15,691	-	15,691	141,217	-
Ledger	-	33,908	-	-	33,908	-	3,391	-	3,391	30,517	-
Plant Mach & Equip Office-II	40,414	-	-	-	40,414	32,269	814	-	33,084	7,330	8,145
Scientific & Laboratory Equipments											
Air Oven (250 degree)	47,250	-	-	-	47,250	-	7,088	-	7,088	40,163	47,250
Bomb Calorimeter	594,731	-	-	-	594,731	-	89,210	-	89,210	505,521	594,731
Circ. Refrig. 6L STD (Auto Clave)	129,231	-	-	-	129,231	-	19,385	-	19,385	109,846	129,231
Data Acquisition System	400,858	-	14,760	-	415,618	-	61,236	-	61,236	354,382	400,858
Digital Ph. Meter	58,212	-	-	-	58,212	-	8,732	-	8,732	49,480	58,212
Incubator Bacteriological	49,162	-	-	-	49,162	-	7,374	-	7,374	41,788	49,162
Kem Analytical Balance (220gm)	57,499	-	-	-	57,499	-	8,625	-	8,625	48,874	57,499
Laboratory Refrigerator	126,000	-	-	-	126,000	-	18,900	-	18,900	107,100	126,000
Laminar Airflow Horizontal	61,149	-	-	-	61,149	-	9,172	-	9,172	51,977	61,149
Magnetic Stirrer	38,137	-	-	-	38,137	-	5,721	-	5,721	32,416	38,137
Platform Scale (Platform Balance)	18,000	-	-	-	18,000	-	2,700	-	2,700	15,300	18,000
Precision Laboratory Balance (610gm)	16,200	-	-	-	16,200	-	2,430	-	2,430	13,770	16,200
Water Bath	15,750	-	-	-	15,750	-	2,363	-	2,363	13,388	15,750
Automatic Sieve	322,843	-	-	-	322,843	-	24,213	-	24,213	298,630	-
Bio-Diesel Preparation Unit (England)	748,911	-	-	-	748,911	-	56,168	-	56,168	692,743	-
Bio-mass Gossifier	986,278	-	-	-	986,278	-	73,971	-	73,971	912,307	-
CHN Analyzer [Germany]	-	2,213,974	-	-	2,213,974	-	332,096	-	332,096	1,881,878	-



PARTICULARS	GROSS BLOCK				DEPRECIATION			NET BLOCK			
	COST AS ON 31.03.2011	ADDITIONS		DEDUCTIONS/ADJUSTMENT	TOTAL COST AS ON 31.03.2012	DEP. UP TO 31.03.2011	DEP. FOR THE YEAR	WRITTEN BACK	TOTAL AS ON 31.03.2012	W.D.V. AS ON 31.03.2012	W.D.V. AS ON 31.03.2011
		MORE THAN 180 DAYS	LESS THAN 180 DAYS								
Biretech Apparatur incubator Shaker(USA)	-	856,900	234,772	-	234,772	-	17,608	-	17,608	217,164	-
Micropipette	-	64,611	-	-	64,611	-	9,692	-	9,692	728,365	-
Refrigerated Centrifuge (Germany)	-	394,165	-	-	394,165	-	59,125	-	59,125	54,919	-
IG DTA (STA-6000)Singapore	-	1,227,747	-	-	1,227,747	-	184,162	-	184,162	335,040	-
Jifra Low Freezer(Deep Freezer)(USA)	-	466,927	-	-	466,927	-	70,039	-	70,039	1,043,585	-
J V Vis Spectrophotometer(Singapore)	-	-	659,152	-	659,152	-	49,436	-	49,436	396,888	-
Autoclave	-	-	144,776	-	144,776	-	10,858	-	10,858	609,716	-
Auto Emission Analyzer	-	-	432,581	-	432,581	-	32,444	-	32,444	133,918	-
3OD Incubator	-	-	590,598	-	590,598	-	44,295	-	44,295	400,137	-
Carbon Monoxide Indicator	-	-	17,600	-	17,600	-	1,320	-	1,320	16,280	-
Circulatory Water Bath	-	-	214,512	-	214,512	-	16,088	-	16,088	198,424	-
Gas Chromatography	-	1,030,851	-	-	1,030,851	-	154,628	-	154,628	876,223	-
Microscope	-	-	199,091	-	199,091	-	14,932	-	14,932	184,159	-
Muffle Furnace 1200 (1400)	-	55,125	-	-	55,125	-	8,269	-	8,269	46,856	-
Muffle Furnace 1100 (1400)Degree	-	40,950	-	-	40,950	-	6,143	-	6,143	34,808	-
Vacuum Oven	-	-	190,800	-	190,800	-	14,310	-	14,310	176,490	-
Water Purification System	-	-	662,317	-	662,317	-	49,674	-	49,674	612,643	-
Scientific & Laboratory Equipments (For Bio-Diesel Project)											
Flash Paint Apparatus	579,707	-	-	-	579,707	-	86,956	-	86,956	492,751	579,707
Kinematic Viscosimeter	433,709	-	-	-	433,709	-	65,056	-	65,056	368,653	433,709
Mechanical Stirrer	63,224	-	-	-	63,224	-	9,484	-	9,484	53,740	63,224
Petroleum Density Meter	1,164,611	-	-	-	1,164,611	-	174,692	-	174,692	989,919	1,164,611
Rotary Vacuum Evaporator	548,570	-	-	-	548,570	-	82,286	-	82,286	466,285	548,570
Soxhlet	90,952	-	-	-	90,952	-	13,643	-	13,643	77,309	90,952
Furniture & Fixture	2,585,647	2,460,993	10,462,187	-	15,508,827	433,018	984,472	-	1,417,490	14,091,337	2,152,629
Computer/Peripherals	1,949,799	1,050	263,737	-	2,214,586	1,665,770	250,169	-	1,915,938	298,648	284,029
Library Books	24,337	126,390	1,507,104	-	1,657,831	8,838	134,316	-	143,154	1,514,677	15,499
Cycle	2,890	-	-	-	2,890	2,562	49	-	2,611	279	328
Misc Equipments (Cellphone)	59,400	-	-	-	59,400	59,395	3	-	59,398	2	5
Misc Fixed Assets	58,937	-	-	-	58,937	43,094	1,584	-	44,678	14,259	15,843
Misc Fixed Assets Porta Cabin	487,700	-	-	-	487,700	487,700	-	-	487,700	-	-
SPV Power Plant	2,442,924	-	-	-	2,442,924	2,442,924	-	-	2,442,924	-	-
Guest House Misc Assets	192,938	-	-	-	192,938	139,099	5,384	-	144,483	48,455	53,839
Guest House Equip Mach-I	156,741	-	-	-	156,741	140,293	2,467	-	142,760	13,981	16,448
Guest House Equip Mach-II	729	-	-	-	729	573	16	-	589	140	156
Land Site Related Dev Tubewell	250,000	-	-	-	250,000	203,593	6,961	-	210,554	39,446	46,407
Civil Works Building & Built Up Space	120,564,000	-	1,174,476	-	121,738,476	-	-	-	-	121,738,476	120,564,000
Mobile	6,850	-	-	-	6,850	1,464	808	-	2,272	4,578	5,386
Capital WIP (As per List-B)											
Expenditure on Bio Diesel Production Project During Construction Period (As per List-C)											
Total	144,801,109	10,398,081	18,985,577	433,594	173,751,173	6,491,679	3,913,515	360,009	10,025,185	312,792,649	231,373,136
Previous Year	136,078,507	649,316	8,073,286	-	144,801,109	5,780,144	711,535	-	6,491,679	138,309,430	130,298,363



SARDAR SWARAN SINGH NATIONAL INSTITUTE OF RENEWABLE ENERGY
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PARTICULARS	AS AT 31.03.2012	AS AT 31.03.2011
V CURRENT ASSETS, LOANS & ADVANCES		SCHEDULE - V
A CURRENT ASSETS		
Cash in Hand	3,834	7,374
Bank Balances :		
-- In Deposit A/c	74,713,463	49,208,731
-- In Saving A/c	41,075	16,834,338
-- In Current A/c	13,045,776	1,769,706
TOTAL (A) >>	87,804,148	67,820,149
B LOANS, ADVANCES & OTHER ASSETS		
Advances Recoverable in Cash or in kind or for value to be received		
- On Capital A/c		
Deposit with CPWD	29,239,000	54,858,000
- Pre Payments		
M/s Casa, New Delhi	300,000	300,000
M/s Medilab Enterprise	-	40,950
M/s Macro Scientific Works P Ltd	-	144,776
M/s Airport Handling Service, New Delhi	-	71,758
M/s Ankur Scientific Energy Tech. Pvt. td	-	493,139
M/s Chitti H/w Fitting & Boring Works	-	49,800
M/s Dada Motor Ltd.	-	538,455
M/s Deejay Corporation	269,853	784,153
M/s Delhi book store	-	85,492
M/s Elementar Analysensystem Gmbh	-	1,854,404
EPF Recoverable	-	199,809
M/s Eppendorf India Ltd	-	1,602,104
M/s Fairdeal Agencies	-	117,392
M/s Guru Nanak Iron & Steel Mfg. Co.	-	26,375
M/s Inkarp Instruments Pvt. Ltd.	-	199,091
M/s Nova Trading Co.	333,439	69,735
M/s PEDA Chandigarh	1,742,000	435,000
M/s Perkinelmer Singapore Ltd. arh	-	1,203,098
M/s Redlays(England)	-	693,837
M/s Shankar Book Agency Pvt. Ltd.	72,887	297,812
M/s TERI New Delhi	-	7,141
M/s Godrej Boyce	-	177,975
M/s Atlantis (India) Application Engineerings	96,694	-
M/s Indian Journals Com	105,225	-
M/s Central News Agencies	51,485	-
M/s MTS Eng. Pvt. Ltd.	185,258	-
M/s In Touch Computers	3,900	-
M/s Retsch Gmbh	498,281	-
M/s Varun Associates	186,260	-
M/s Manohar Auto Diesel	134,997	-



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PARTICULARS	AS AT 31.03.2012	AS AT 31.03.2011
- Others		
Postal Stamps in Hand	326	628
Income Tax Refund Due AY 2009-10	106,531	106,531
TDS	1,563	-
- Securitiles		
Telephone	2,000	2,000
Gas	7,100	-
Advance to Staff	31,330	5,000
Seminar Conference Exp Receivable	50,000	-
Cheque Deposited but not cleared	55,000	-
Grant Receivable from MNRE	10,000,000	-
TOTAL (B) >>	43,473,129	64,364,455
GRAND TOTAL (A+B) >>	131,277,277	132,184,604



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PARTICULARS	AS AT 31.03.2012	AS AT 31.03.2011
<u>CAPITAL WIP AS PER RECEIPT & PAYMENT A/C</u>		LIST-A
Total Capital Expenditure during the year as per List-B	45,812,548	51,070,466
Less : Expenditure done by CPWD during the year	27,955,200	43,239,000
Less : Depreciation during the year	3,913,515	711,535
Less : Outstanding Liabilities	451,961	595,028
Less : Loss on sale of car	21,835	-
Less : Advances Paid/Adjusted during the year	5,328,587	9,092,296
Total	<u>8,141,450</u>	<u>15,617,199</u>



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STATEMENT OF EXPENDITURE DURING CONSTRUCTION PERIOD

LIST-B

PARTICULARS	BALANCE AS ON 31.03.2011	ADDITION DURING THE YEAR	BALANCE AS ON 31.03.2012
Architect Fees	5,474,820	-	5,474,820
Meeting, Seminars, Workshop & Conference	2,354,482	310,725	2,665,207
Misc & Unforeseen Exp	57,427	-	57,427
Office Exp	2,803,665	109,311	2,912,976
Land & Site Related Development Work	70,441,070	27,955,200	98,396,270
Printing & Publications	575,671	132,909	708,580
Rentals, Hiring of Proff. Services	1,279,894	3,486,292	4,766,186
Repair & Maintenance	133,988	111,572	245,560
Salaries	13,034,413	6,218,061	19,252,474
Inauguration Exp	32,296	-	32,296
Rent	352,000	-	352,000
Transport Expenses & POL	611,174	-	611,174
Travelling Exp	620,666	231,917	852,583
Visiting Faculty/Experts/Consultants	16,629	-	16,629
Annual Maintenance Exp	18,235	-	18,235
Depreciation	6,491,679	3,913,515	10,405,193
Bank Charges	2,629	27,451	30,080
Horticulture Exp	251,873	464,641	716,514
Audit & Legal Fees	-	108,860	108,860
Consumable Laboratory workshop Exp.	-	1,324,214	1,324,214
Electricity & POL	-	872,103	872,103
Freight Charges	-	9,790	9,790
Library, Newspaper & Journal Exp.	-	4,312	4,312
Loss on Old Car	-	21,835	21,835
Seminar/Conference/Workshop/Training Prog	-	-	-
Stationary (including Software Exp.)	-	267,211	267,211
Telephone & Internet Exp.	-	242,629	242,629
TOTAL >>	104,552,611	45,812,548	150,365,159
Less Misc Income	53,893	54,309	108,202
Less Expenses overbooked in earlier years	455,000	-	455,000
Less Interest Received during the year	11,255,740	4,802,783	16,058,523
Add Interest Conversion into Grant in Aid (Pri	-	15,047,499	15,047,499
Net CAP WIP	92,787,978	56,002,955	148,790,933

STATEMENT OF EXPENDITURE FOR BIODIESEL PRODUCTION PROJECT DURING CONST

LIST-C

PARTICULARS	BALANCE AS ON 31.03.2011	ADDITION DURING THE YEAR	BALANCE AS ON 31.03.2012
Manpower (Salaries)	99,000	-	99,000
Contingency, Consumables, office material	174,832	-	174,832
Travel Expenses	1,896	-	1,896
TOTAL >>	275,728	-	275,728

INTEREST EARNED

LIST-D

From Scheduled Banks

- On Term Deposits
- On Saving A/c

4,562,902
239,881

4,539,447
4,433

