Azadi Ka Amrit Mahotsav

ANNUAL REPORT 2021-22

Sardar Swaran Singh National Institute of Bio-Energy

(An Autonomous Institution of Ministry of New and Renewable Energy, Govt. of India)

Annual Report
2021-22

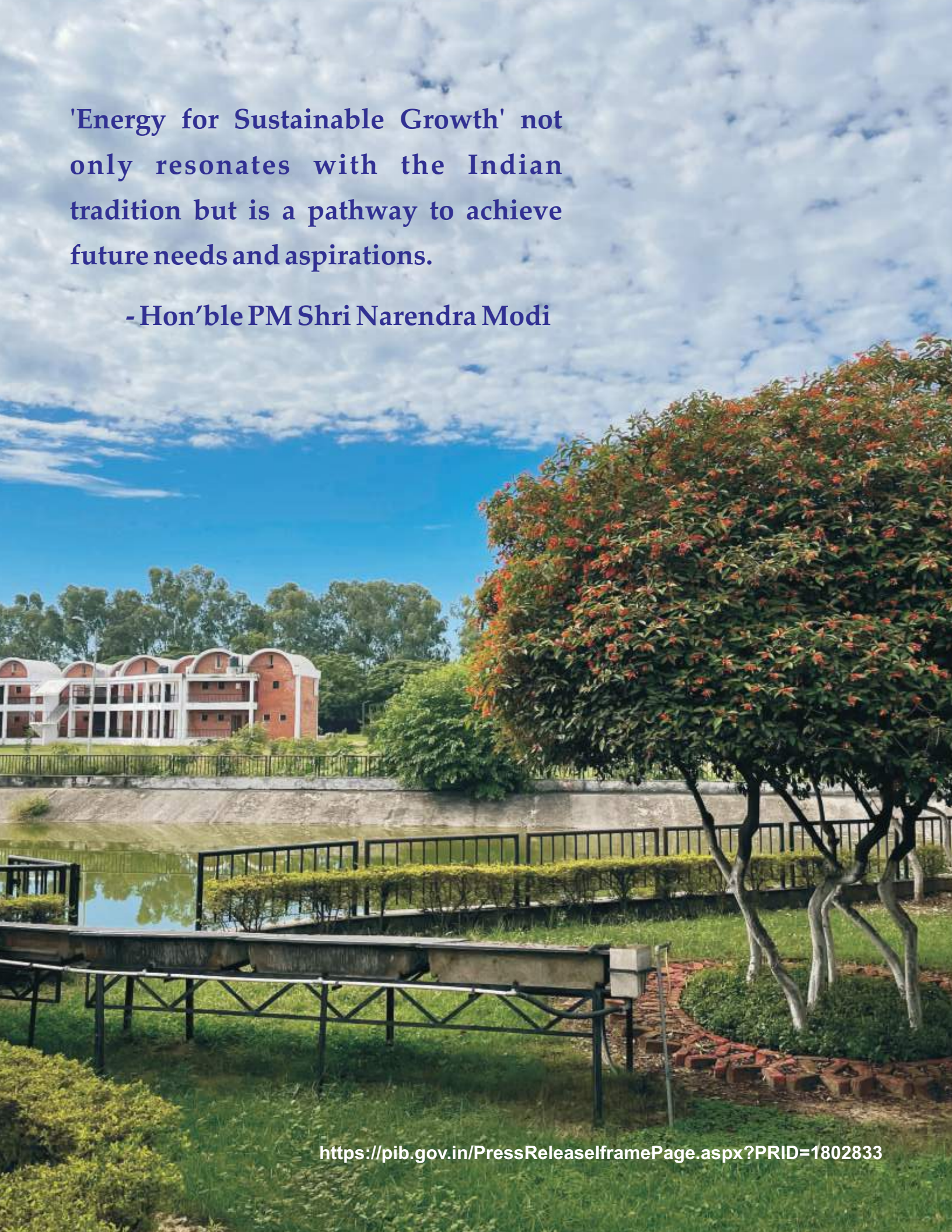
SARDAR SWARAN SINGH
NATIONAL INSTITUTE OF BIO-ENERGY

An Autonomous Institution of
Ministry of New and Renewable Energy, Govt. of India
Kapurthala – 144603, India

Inside the Report

'Energy for Sustainable Growth' not only resonates with the Indian tradition but is a pathway to achieve future needs and aspirations.

- Hon'ble PM Shri Narendra Modi



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Preamble

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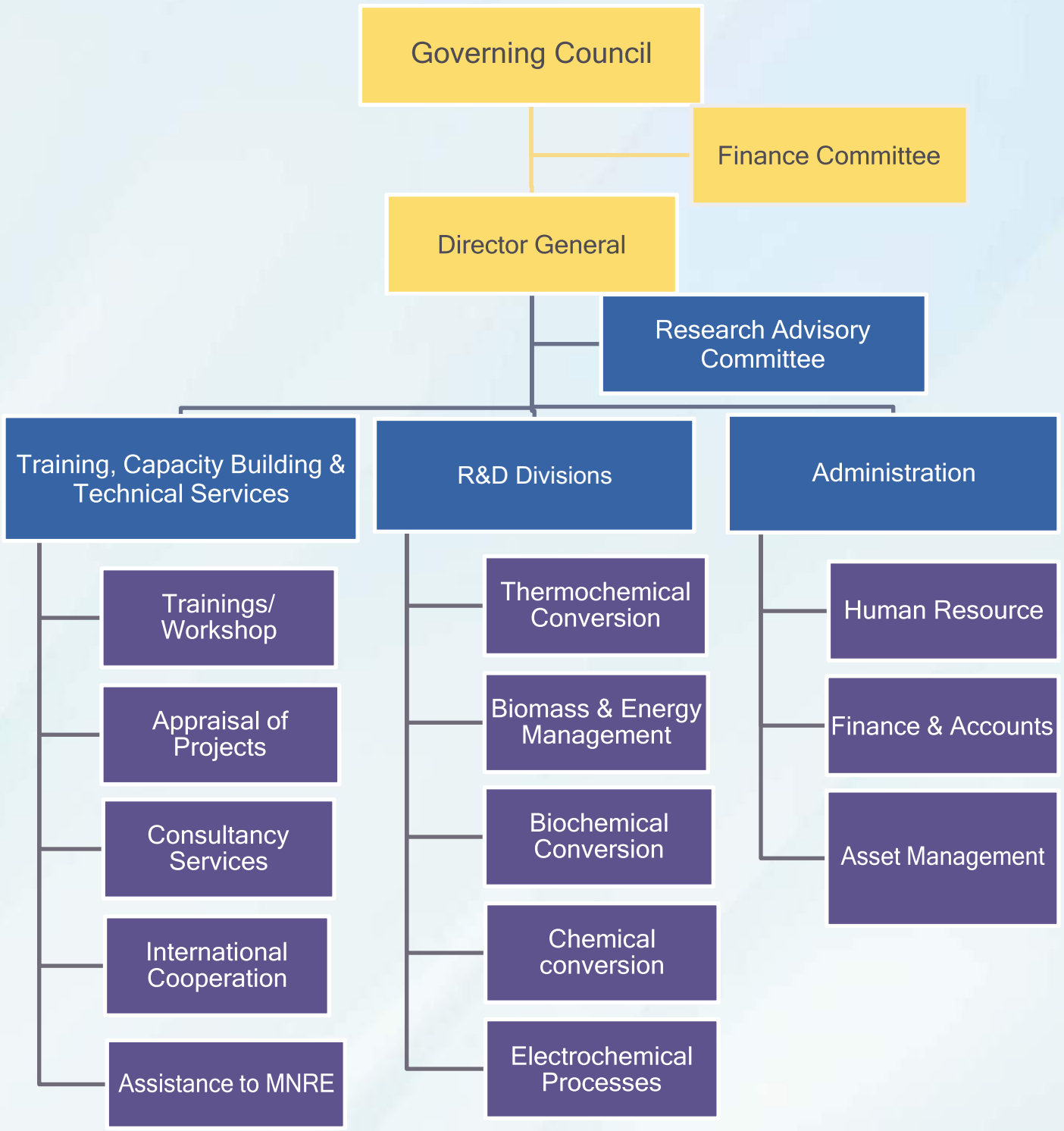
Functional Structure



From the Desk of Director General

With India committed to cut its emissions to net zero by 2070, the role of renewable energy has gained tremendous impetus through several initiatives undertaken by the government of India. Biomass or bio-energy, a traditional form of renewable energy, has largely remained untapped, contrary to its immense potential in the country. As per recent estimates, India generates over 230 million tonnes of surplus biomass, largely composed of agro-residues, which is equivalent to a power potential of over 28 GWe against the currently installed capacity of about 10 GWe (including cogeneration). So, with such huge potential, a revolution in the bio-energy industry is necessary for providing sustainable energy and bioproducts and assisting India in achieving the goal of Carbon neutrality.

Biomass is a versatile resource that could be used in solid or densified form for electricity production (say, pellets for co-firing in large power stations) or in advanced biomass cookstoves/combustors; in its existing form in digesters for the production of biogas or CBG for power generation; or as fuel for the transport sector. Similarly, in liquid format, bioethanol from second-generation biomass can be blended with petroleum products for the transportation sector. In gaseous form, biomass could be converted to producer gas via biomass gasification for process heat or electricity production; this technology, though technically viable, is limited to thermal applications due to economic reasons. Similarly, biorefinery is an emerging concept where value-added products could also be derived from biomass apart from energy, which is aimed toward a sustainable bioeconomy.

Many of the aspects mentioned above are being actively pursued at the Sardar Swaran Singh National Institute of Bioenergy, which has well-established R&D facilities and trained scientific manpower. During this year, the institute has taken up key initiatives to further extend R&D activities in bio-energy and bioproducts. I am glad to share that the first batch of students has successfully completed the Master of Technology programme in Renewable Energy and has been placed in industry or academia. The institute has successfully conducted training programmes on biogas and renewable energy. It also conducted the 3rd 'International Conference on Recent Advances in Bio-energy Research' (ICRABR-2022), which was attended by participants from all over the country.

The institute also actively participated in contributing to technical programmes and meetings relating to bio-energy entrusted to MNRE. The prominent ones are the related preparation of standards and guidelines for biogas and the development of standards and guidelines for densified biomass, as well as my role as a sub-committee member under the SAMARTH mission of the Ministry of Power.

The institute was also able to secure four sponsored R&D projects, one from ministry of new and renewable energy (MNRE), New Delhi and three from Central power research institute (CPRI), Bengaluru that will be executed in the following financial years. In terms of publications, 16 journal or conference papers have been published, along with 2 patents.

In the coming years, the institute aims to focus on building our core research strength in developing technologies and solutions that have societal relevance and thereby enhance the contribution of bio-energy to India's attainment of net zero target by 2070.

I appreciate the efforts of all the staff at the institute for successfully completing their tasks and am delighted to release the annual report for 2021–22.

Dr. G. Sridhar
Director General

THE CHARTER

The Sardar Swaran Singh National Institute of Bio-Energy (SSS NIBE), Kapurthala was established in 1998 as an autonomous R&D institute under MNRE, Government of India. SSS NIBE is managed by a Governing Council headed by Secretary, MNRE and the Director General is the head of the institute. The Institute is situated in a campus of 75 acres with a unique solar passive structure office building at the 12th km Milestone, Jalandhar-Kapurthala national highway.

SSS NIBE was established to serve as a focal point of excellence for carrying out R&D, testing, evaluation, and training in bio-energy. The Institute has five research divisions, which are Biomass and Energy Management, Thermochemical, Biochemical, Chemical, and Electrochemical conversion, and all the divisions are working on approaches to enhance the usage of biomass, creating the right awareness and technology demonstrations. The institute is well equipped with the research infrastructure and an eco-friendly research environment. The broad spectrum of these divisions includes biomass resource assessment & management, biomass characterization, gasification, combustion, pyrolysis, solid waste/solid-state bio-methanation, biohydrogen production, compressed bio gas, municipal solid waste (MSW) to power generation, hybrid biomass systems, testing & standardization, and training for skill development in the bio-energy sector.

MISSION

SSS NIBE, a knowledge-based R&D institution of high quality and dedication, offers services and seeks to find optimum solutions for the major stakeholders across the entire spectrum of the bio-energy sector. It will support bio-energy sector in developing the knowledge for promoting new technologies. It will develop Human Resources for the bio-energy sector at all levels by imparting the training and allied activities to professionals of bio-energy sector

OBJECTIVES

- To establish "Sardar Swaran Singh National Institute of Bio-Energy" as an apex R&D institution responsible for conducting state-of-the-art research and development activities in all the areas relating to renewable / bio-energy sources, including human resource development at all levels, post-doctoral research and research leading to commercialization of bio-energy technologies and the activities entailing:

    1. Technology assessment, resource surveys and potential assessment.
    2. In-house R&D in all emerging bio-energy areas.

3. Sub-contracting of R&D activities.
4. Joint technical programmes with other national institutions and testing centres.
5. Setting up of specialized centres at SSS-NIBE and in different parts of the country for specific bio-energy areas.
6. Testing and certification of devices and systems.
7. Techno-economic evaluation of bio-energy equipment and systems.
8. Creating database for bio-energy including information on patents.
9. Compiling and dissemination of information on resources, technologies, products and applications.
10. Providing technical support to industry on new product design and development, and upgradation of product and manufacturing process.
11. Organizing training programs, seminars and workshops.
12. Cooperation with scientific and technical institutions abroad under bilateral and multilateral agreements.
13. Economic studies on bio-energy technologies and their environmental impact.
14. Assistance in curriculum development in bio-energy and undertaking concrete programmes for human resource development.
15. Consultancy services in the renewable energy sector with specialization in Bio-energy.
16. Providing technical support to MNRE in policy, planning and implementation.

- To promote and develop requisite expertise and capabilities in regard to such technologies and applications, as may be deemed appropriate, to improve applied R&D skills and provide, organize, manage scientific, technical, engineering, management and other related assistance in promotion, development, demonstration, dissemination, and adoption of appropriate environment friendly technologies.

- To provide various services including:

1. Planning, formulation, appraisal and monitoring.
2. Assessment, evaluation, implementation and management.
3. Development of projects, products, technology, management, reliability, maintenance, testing, design and other scientific technical and engineering inputs.
4. Management service, training, information, market development, etc.
5. Organizing training, study tours, seminars, workshops, etc.
6. Applied research & development.
7. Technical, scientific, managerial and engineering consultancy services.

SSS NIBE'S COMMITTEES

Governing Council (re-constituted in 2021)

PRESIDENT OF THE SOCIETY & CHAIRMAN

Secretary
Ministry of New and Renewable Energy, New Delhi

MEMBERS

Joint Secretary & Finance Advisor
Ministry of New and Renewable Energy, New Delhi

Secretary, Department of Bio Technology,
New Delhi

Secretary, Department of Science & Technology

Principal Secretary, Department of Science, Technology & Environment, Govt. of Punjab

Chief Executive Officer,
Punjab Energy Development Agency, Chandigarh

Scientist-in-Charge,
Centre of Excellence for Farm Machinery, CSIR-CMERI
Ludhiana

Chief Executive Officer,
Skill Council for Green Jobs, New Delhi

Director, Dr B. R. Ambedkar National Institute of Technology
Jalandhar

Prof (Dr.) S. Dasappa Center for Sustainable Technologies, IISc
Bangalore

Chairman, Indian Biogas Association
Gurugram

MEMBER SECRETARY

Director General, SSS-NIBE &Joint Secretary
Ministry of New and Renewable Energy, New Delhi

SSS NIBE's Committees

Finance Committee (re-constituted in 2021)

CHAIRMAN

Joint Secretary & Finance Advisor
Ministry of New and Renewable Energy, New Delhi

MEMBERS

Chief Controller of Accounts
Ministry of New and Renewable Energy, New Delhi

Joint Secretary (Bioenergy)
Ministry of New and Renewable Energy, New Delhi

Director General
Sardar Swaran Singh National Institute of Bio-Energy

Director, PEDA
Punjab Energy Development Agency, Chandigarh

Director (Bioenergy)
Ministry of New and Renewable Energy, New Delhi

Deputy Secretary, IFD
Ministry of New and Renewable Energy, New Delhi

Head of Department
Center for Energy and Environment
Dr B R Ambedkar National Institute of Technology, Jalandhar

MEMBER SECRETARY

Head of Office
Sardar Swaran Singh National Institute of Bio-Energy

Building & Works Committee

CHAIRMAN

Director General
Sardar Swaran Singh National Institute of Bio-Energy

MEMBERS

Director, (Bio-Energy)
Ministry of New and Renewable Energy, New Delhi

Executive Engineer (Civil)
CPWD, Jalandhar Circle

Assistant Engineer (Electrical)
CPWD, Jalandhar Circle

MEMBER SECRETARY

Assistant Engineer (Civil)
Sardar Swaran Singh National Institute of Bio-Energy

Research Advisory Committee (re-constituted in 2021)

CHAIRMAN

Director General
Sardar Swaran Singh National Institute of Bio-Energy

MEMBERS

Joint Secretary (Bioenergy)
Ministry of New and Renewable Energy, New Delhi

Prof. Ashok Gadgil
Lawrence Berkeley National Laboratory, USA

Prof. Ajay K Dalai
University of Saskatchewan, Canada

Prof Rajesh K Sani
South Dakota School of Mines, USA

Prof. K. A. Subramanian
HoD ESE, IIT Delhi

Director (Technical)
NISE, Gurugram

Director (Technical)
NIWE, Chennai

Industry representatives

Representative from DBT

Science & Technology Dept.
Govt. of Punjab

MEMBER SECRETARY

Scientist
Sardar Swaran Singh National Institute of Bio-Energy

Technological Highlights

- Laboratory Facilities
- Division Wise Progress
- Research and Development
- Academic Program

LABORATORY FACILITIES

The institute has three working divisions and during the FY 2021-22, state-of-the-art research facilities were developed and upgraded for research in bioethanol, biomass gasification, biogas, cookstove research & testing, and other related areas of bio-energy. The upgradation included annual maintenance, calibration of equipment's, procurement of consumables including chemicals, glassware, and plasticwares, spare parts and other required items.

A. Facilities available in Chemical Conversion Division (R&D-I)

The equipment facilities available in Chemical Conversion division include:

• Gas Chromatograph	• Flashpoint apparatus (automatic open cup)
• Rams bottom Carbon Residue	• Rotary Vacuum Evaporator
• Oxidation Stability Apparatus	• Computerized Diesel Engine Test Rig
• High-Pressure High-Temperature Reactor	• Exhaust gas analyzer
• True Boiling Point Distillation Apparatus	• FTIR
• Automatic Density Meter	• Low-temperature Autoclave
• Radleys Reactor	• Fuel analyser for diesel index/cetane no

Researchers working on the Fourier Transform Infrared Spectrometer and Gas Chromatograph

B. Facilities available in Biochemical Conversion Division (R&D-II)

The biochemical Conversion Division has been established in R&D-II with the facilities of Analytical, Bioprocess, Microbiology, and Molecular Biology Laboratories. The equipment facilities available in Biochemical Conversion division include:

- High Pressure Liquid Chromatography
- Gas Chromatography
- UV-vis spectrophotometer
- Fibertech
- Bioreactor (3.0 & 7.5 L)
- Refrigerated Centrifuge
- Water Purification System
- Lyopholizer
- Micro-disintegrator
- Water Bath
- Autoclaves
- Environmental Shaker
- Bio photometer
- SDS-PAGE
- Microscope with a camera
- Incubator
- CO2 Incubator-cum-shaker
- BOD Incubator
- Hot Air Oven
- Horizontal Laminar Flow
- Automatic Colony Counter
- Deep Freezer
- Refrigerators
- Gradient PCR
- Real-Time PCR
- Horizontal Gel Electrophoresis
- Gel Documentation
- Electroporation Unit
- 2-D gel Electrophoresis

Researchers working on the Titrator and High-Pressure Liquid Chromatography Chromatograph

C. Facilities available in Thermo-chemical Conversion Division (R&D-III)

The Thermochemical Conversion Division has been established in R&D-III with the facilities for biomass characterization, biomass gasification, and Cookstove testing, etc. The equipment facilities available in Thermochemical Conversion division include:

- Differential Scanning Calorimeter
- Online Gas Analyzer
- Stack Monitoring System (for SPM measurement)
- Testing Hood for biomass Cookstove
- Solar Concentrator Training System (Parabolic Trough Collector Based)
- Solar PV Grid-Tied Training System
- Solar Thermal Training System (Flat Plate Collector Based System)
- CHNS analyzer
- TG-DTA
- Bomb Calorimeter
- Muffle Furnace
- Multi Gas Analyser
- Solar PV Emulator
- Solar PV Training & Research System (Stand Alone System)
- Wind Turbine Emulator
- Wind Energy Training System

The division also has 'National Cookstove Test Centre' for R&D and testing of biomass cookstoves.

Researchers working on the Thermal Energy Storage and Solar PV Training & Research System

DIVISION WISE PROGRESS

1. Biomass and Energy Management Division

During FY 2021-22, the institute received three R&D projects from CPRI, aiming for effective utilization of paddy straw biomass pellets in thermal power plants. The projects are in line with the Ministry of Power's SAMARTH mission. The details of the projects are:

Project title	Funding Agency	Project Cost	Start w.e.f.	Project duration
Composition analysis of different types of pellets/briquettes received from unknown sources	Central Power Research Institute, MOP	Rs 37,00,000	Mar 2022	1 year
Complete heating and emission analysis of raw biomass and pellets during combustion		Rs 66,00,000	Mar 2022	2.5 years
Complete Ash Analysis of biomass pellets and co-combusted fuels		Rs 2,70,00,000	Mar 2022	3 years

For successful implementation of the project Memorandum of Understanding (MoU) was signed between SSS NIBE and CPRI, Bengaluru

2. Biochemical Conversion Division

During FY 2021-22, several in-house R&D projects were developed by the scientists and research fellows in the division. Key research areas include bio-refining of sugarcane bagasse, scale-up for biogas production using thermophilic anaerobic digestion, Biogas upgradation to BioCNG etc. The detailed research analysis and findings are discussed below.

2.1 Exploration of lignocellulolytic enzymes producing thermophiles from hot springs of Western Himalayan region for biorefinery applications

Thermophiles and their metabolites have immense applications in different industries. In the research work, thermophilic aerobic bacterial strains with cellulose and xylan degrading activities were isolated from hot springs of Western Himalayan Range, Himachal Pradesh. The research emphasis on the production of indigenous enzymes for the bioconversion of complex lignocellulosic biomass into value added beneficial products. The thermophilic bacterial strains were isolated, qualitatively tested at 55˚C and washed with chemicals. Initial results showed that all bacterial strains gave a clear zone indicating the production of cellulase enzyme. The specific activity of the cell free and cell bound enzymes were calculated. The biochemical characterization of the bacterial strains was performed.

Sample collection by the researcher from Hot Springs in Himachal Pradesh

2.2 Techno-economics and life cycle assessment of biogas production from lignocelluloses

During testing cumulative biogas and methane yield obtained were 654.6 and 403.7 L/kg raw biomass, respectively with average CH_4 content of 61.67%. Further, the effect of minerals supplementation was evaluated on biogas production from Napier grass, which did not show any significant effect to the biogas production but resulted into enhanced CH_4 content. Further, a biogas plant set-up was designed for crop residues mainly paddy straw with a feeding capacity of 100 kg per day with 18 m^3 digester volume, 5,400 m^3 biogas plant based on municipal solid waste (MSW) with a feeding capacity of 42 ton per day, anaerobic digester for 1 ton (dry) crop residues to bio-CNG and biofertilizer with 200 m^3 digester and a pilot plant of integrated biorefinery for 2 ton (dry) lignocellulosic biomass to biofuels and other renewable chemicals was designed with 6.25 m^3 digester's volume. In the next course of action, it is planned to develop process for biogas production in a 50-L thermophilic biogas digester for commercialization.

2.3 Upgradation of Biogas to BioCNG

In this research work, biogas potential of feedstocks i.e., Corn Cob and Corn Stover was studied by using developed consortium. The experiment included Proximate and elemental analysis of the biomass samples. After analysis, lab scale biogas plants were set up for Corn Cob and Corn Stover by using developed consortium providing thermophilic conditions. Different techniques such as Water Scrubbing, Pressure Swing Adsorption, Chemical absorption, Cryogenic Separation, Membrane Separation, Biological Techniques etc. were used for the upgradation. The division has selected Microbial Electromethanogenesis technique for the Upgradation of biogas on the basis of the advantages of the technique over the others. In Microbial Electromethanogenesis methane is produced by reducing carbon dioxide by the biocatalysts in the presence of imposed potential. In this, the system consists of an anodic and cathodic chamber typically divided by a proton exchange membrane (PEM) for the transport of ions i.e., protons. The protons are generated in the anodic chamber and are carried to the cathodic chamber through PEM where reduction reaction takes place leading to the production of methane. In this way, CO_2 present in the raw biogas can be utilised along with the Upgradation of the biogas.

50-L Anaerobic digester at SSS-NIBE

2.4 Thermophilic anaerobic consortium enrichment for enhanced biogas/biomethane production

During the research work, the samples were collected from different sources to enrich the developed thermophilic consortium. The effect of different waste samples on thermophilic consortia in comparison to control for enhancing biogas or biomethane production using water hyacinth as a feedstock was studied. Lab-scale biogas plants were set up at a controlled temperature of 52˚C and a hydraulic retention time (HRT) of 25 days. All the digesters containing enriched consortium showed improved biogas yield corresponding to 6 to 18 % higher yield than the control. It was observed that the consortium amended with distinct samples showed a significant increase in biogas yield by enriching the microbial diversity inside the digester.

3. Chemical Conversion Division

During FY 2021-22, several in-house R&D projects were developed by PhD students registered at Dr. B. R. Ambedkar, NIT, Jalandhar. During this year, equipment related to Electrochemical testing were procured to boost the research in Fuel Cells. The detailed research analysis and findings are discussed below.

3.1 Appraising the availability of biomass residues in India and their bio-energy potential

Bio-energy production in India can be a vital component of long-term development. During this research work, the bio-energy potential of biogas and cellulosic ethanol to satisfy India's energy needs utilizing residues and wastes as feedstock, were examined. For the assessment, the biomass resources were categorized as: (i) residues from crops, (ii) excreta of animals, and (iii) municipal solid wastes (MSW). The data on annual crop production, livestock, and the human population was primarily obtained from the Department of Animal Husbandry and Dairying (GoI), Ministry of Fisheries (GoI), and the Report on Sustainable Solid Waste Management in India, respectively. The assessment were done for:

- Estimation of Crop residues and their energy potential
    - o Potential for biogas generation
    - o Potential for bioethanol generation
- Estimation of energy potential from Animal manure
- Estimation of energy potential from MSW

During the research work, it was calculated that India has potential of 2.31×10^4 Mm^3/yr of biogas or 3.49×10^4 Ml/yr of bioethanol. In order to achieve long-term viability, it is imperative to initiate projects in India that seek to produce biogas or bioethanol.

3.2 Impact of torrefaction on thermal behavior of Wheat Straw and Groundnut Stalk biomass: Kinetic and thermodynamic study

In this work, a quantitative investigation on the thermal conversion behavior of two agricultural leftovers, namely Wheat Straw and Groundnut Stalk, was carried out. The TGA studies were carried out using a variety of heating rates, ranging from 20 to 50 degrees Celsius per minute (°C/min) up to 800 degrees Celsius. In addition, activation energies during the torrefaction of agricultural residues (Wheat Straw and Groundnut Stalk) were examined by adopting two iso-conversional methods, the Flynn–Wall–Ozawa (FWO) and Starink methods, based on the results that were obtained from the TGA. The activation energies were also used to calculate many thermodynamic parameters, such as the change in entropy, enthalpy, and Gibbs energy, in order to get a knowledge of the behavior of torrefaction.

			
Raw biomass (mustard color)	Torrefaction at 200°C for 2 hr. (light brown color)	Torrefaction at 250°C for 2 hr. (dark brown color)	Torrefaction at 300°C for 2 hr. (black color)

Torrefied Biomass at different temperature

3.3 Rice husk based hierarchical porous activated carbon for efficient oxygen evolution reaction

The division also carried out research on efficient porous activated carbon from waste rice husk with hierarchical pore architecture for oxygen evolution. This activated carbon was made from waste rice husk following oxygen evolution reaction which generated clean energy. After the fabrication, samples testing and analyses were carried out in order to investigate the physicochemical characteristics of the activated carbon material. The impressive results show that activated carbon made from rice husk has far higher potential than other noble metal or graphene-supported metal oxide materials.

3.4 Synthesis of Quintinite-3T nanocatalyst for biodiesel production

Quintinite-3T (Q-3T), a novel and efficient nano-catalyst was synthesized by co-precipitation and employed as a heterogeneous catalyst totransesterifyJatropha curcas oil (JCO) and used cooking oil (UCO). In this research work, the synthesized Q-3Tnanocatalyst was characterized via, XRD, TEM, HRTEM and EDS analysis. It was observed that the biodiesel's characteristics were in good conformity with ASTM D6571 fuel specifications. It is pertinent that the use of Q-3T nanocatalyst as a heterogeneous catalyst for biodiesel production from Jatropha curcas oil and used cooking oil could be beneficial.

4. Thermo-Chemical Division

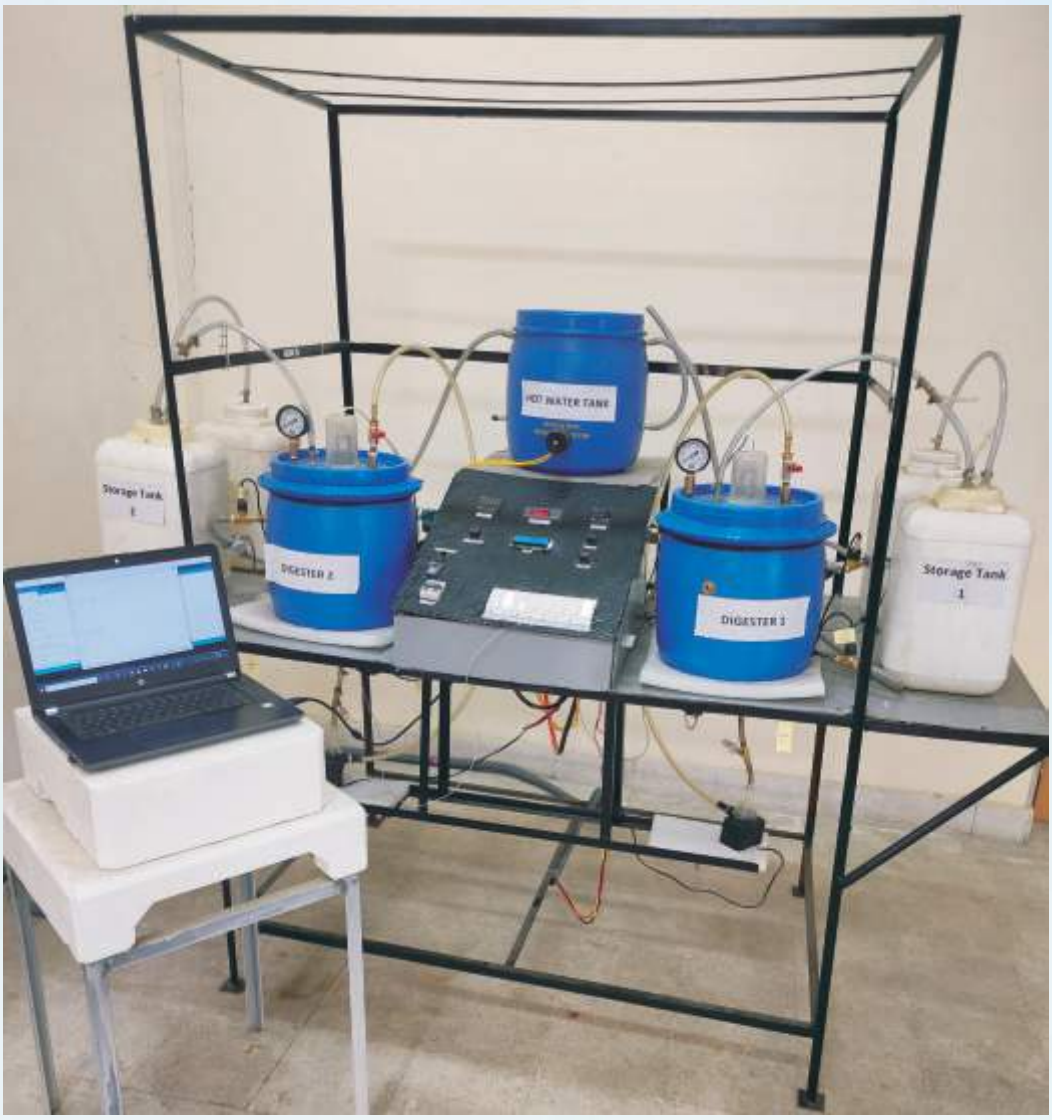
During this year, the biomass cookstove testing laboratory is partially upgraded with the collaboration of LBNL, USA. The Quality Assurance Plan was developed and it was planned to finish the upgradation by next year. During the FY 2021-22, research on improved biomass cookstove was carried to improve the performance of in-house developed biomass cookstoves. Further testing was carried out to integrate improved cookstoves with biomass-based dryers. The division also fabricated designed cookstoves with the help of Bharat Heavy Electrical Ltd, Goindval (Punjab).

4.1 Densification of agro-waste and assessment for its application in the gasifier

During 2021-22 the division secured research projects worth Rs 40.45 lakhs from MNRE for 2.5 years on the research area of Densification of agro-waste and assessment for its application in the gasifier. The objectives of the project include detailed characterization of six agro-residue to identify its potential for briquetting in gasification. Under this project, one Junior Research Fellow is hired and activities have started as planned.

4.2. Efficient biogas digester heat supply mechanism

During this year, research was carried out to estimate thermal energy management of biogas digester. For the same, a lab scale model of biogas digester was fabricated to evaluate the heat required for digester. The experimental testing is going on to provide effective thermal energy to the digesters.



Anaerobic Digestion thermal analyser

4.3 Standardization of Pellets and Briquettes

In FY 2021-22, the institute collaborated with Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ), Delhi to develop standards on pellets and briquettes. For the same, initial inception meetings were held and the work was taken to develop the standards and guidelines for densified biomass in India. For the same, DBFZ (Deutsches Biomasse forschungszentrum gemeinnützige GmbH, joined hands for developing the compendium (Review of international standards for densified biomass). The second phase of the work is taken up by ASCI, Hyderabad for developing the Indian standards for densified biomass. During the end of FY, DBFZ submitted the final report on 'Developing the compendium and recommendations based on the review of international standards and guidelines for densified biomass.

4.4 Biomass Dryer for Vegetable drying

During the year, SSS NIBE developed Biomass Hybrid dryer for drying of vegetables in collaboration with Bharat Heavy Electricals Ltd. The dryer was connected with biomass cookstove which provides thermal energy for drying. During the initial testing, drying of Onions, Spinach and Curry Leaves were carried out and which showed positive results. It is planned to take up the work for further commercialization.

Biomass Hybrid dryer developed at NIBE

RESEARCH AND DEVELOPMENT

SSS-NIBE is playing a key role in research and development of bio-energy sector in the country. During 2021-22, a number of technology demonstration projects have been taken up by MNRE for bio-energy promotion. The institute also worked upon various technological demonstration project and the key features of the project are discussed below.

1. Projects Granted

- Composition analysis of different types of pellets/briquettes received from unknown sources; PI: Dr. Anil K Sarma, Co-PI: Dr Nikhil Gakkhar, Date of start: March 2022; Funded by CPRI under SAMARTH mission; Project cost: INR 37 Lakhs; Date of completion: March 2023.

- Complete heating and emission analysis of raw biomass and pellets during combustion; PI: Dr Nikhil Gakkhar, Co-PI: Dr. Anil K Sarma, Date of start: March 2022; Funded by CPRI under SAMARTH mission; Project cost: INR 66 Lakhs; Date of completion: September 2024.

- Complete Ash Analysis of biomass pellets and co-combusted fuels; PI: Dr. Anil K Sarma, Co-PI: Dr Nikhil Gakkhar, Date of start: March 2022; Funded by CPRI under SAMARTH mission; Project cost: INR 270 Lakhs; Date of completion: March 2025.

- Densification of agro-waste and assessment for its application in the gasifier; PI: Dr Nikhil Gakkhar, Co-PI: Dr. Sachin Kumar, Date of start: March 2022; Funded by MNRE; Project cost: INR 40.45 Lakhs; Date of completion: September 2024.

2. New Projects Submitted

- An integrated process development with heterogeneous catalysts for thermochemical conversion of lignin biomass into biofuel additives and aromatics, submitted to SERB NPDF. INR 18 Lakhs. (PI: Dr. Uplabdhi Tyagi, Mentor: Dr. A.K. Sarma)

- Development of lignolytic enzymes cocktail for depolymerization and transformation of lignocellulosic biomass into valuable chemicals, submitted to SERB NPDF. INR 18 Lakhs. (PI: Dr. Harmanpreet Meehnian, Mentor: Dr. Sachin Kumar)

- Design and Development of Air Filtration Tower using Solar Assisted Activated Carbon, submitted to SERB NPDF. INR 18 Lakhs. (PI: Mr. Ashish Pawar, Mentor: Dr. Nikhil Gakkhar)

- Development of self-reliant and clean energy system for cooking and heating in tribal communities. Establishment of Science Technology and Innovation (STI) Hubs for

Development of Scheduled Caste (SC) and Scheduled Tribe (ST) Communities. Project cost: INR 89.03 lakhs. (Dr Nikhil Gakkhar and Dr Sachin Kumar)

- Fabrication of catalytic nano-bio-composite materials for enhanced production and upgradation of methane in landfill site. BIRAC under Biotechnology Ignition Grant BIG Scheme. Project cost INR 50.00 lakhs (Dr Sachin Kumar)

- Development of indigenous lignocellulolytic enzymes cocktail for efficient saccharification of lignocelluloses (DST WOS-A by Dr. Baljinder Kaur under Dr Sachin Kumar)

- Valorizing municipal solid waste to produce bio-energy, organic fertilizer and high value – added chemicals: An integrated sustainable bio - refinery approach for circular bio – economy (INSPIRE Faculty by Ms. Shivali Sahota)

- Enrichment of microbial consortium for dark fermentation of lignocellulosic biomass to biohydrogen (DBT RAship under Dr Baljinder Kaur under Dr Sachin Kumar)

- Sustainable management of agro-residues for bio-energy production. DST under Scheme for Young Scientists and Technologists (SYST) (Ms. Meenu Hans under Dr Sachin Kumar).

3. Ongoing Projects

Exploration of lignocellulolytic enzymes producing thermophiles from hot springs of Western Himalayan region for biorefinery applications. Under DST Women Scientist Scheme: WOS-B (KIRAN Division). Project Cost: INR 32,16,072; Duration: 3 years

4. Progress of R &D activities:

- Two Patents filed:

  - o Sachin Kumar, Meenu Hans, Richa Singh, Nidhi Sahni and Pratibha Dheeran, Method of producing biogas from lignocellulosic biomass; (Application No.: TEMP/E1/27176/2022-DEL (Ref. No.: 202211024777); Dated: 27.04.2022; Country: India).

  - o Sachin Kumar, Richa Arora, Nilesh K Sharma and Shuvashish Behera, Simultaneous Saccharification and Co-Fermentation of Paddy Straw for Bioethanol Production; (Application No.: 202211001560; Dated: 11.01.2022; Country: India)

- Total of 16 publications in FY 2021-22

5. In house projects/studies

- Thermophilic anaerobic consortium enrichment for enhanced biogas/ biomethane production
- Upgradation of biogas to BioCNG
- Scale-up and techno-economic study of biogas production using thermophilic anaerobic digestion
- Biogas/BioCNG plant design standardization
- Scale-up of lignocellulosic biorefinery
- Design and Development of Solar Biomass Hybrid Air Dryer
- Biomass Characterization for standardization of pellets and briquettes
- Purification of Hydrogen from Syn gas
- Development of biomass-based electrode for fuel cells
- Fuel cell development from biomass
- Biomass based livelihood activities
- Solar Pyrolyser for biochar production

ACADEMIC PROGRAM

The institute started an academic course for Masters in Technology of Renewable Energy, in joint collaboration with Dr. B. R. Ambedkar National Institute of Technology (NIT) Jalandhar in Sept, 2020. The program and National Renewable Energy (NRE) fellowship for the students were approved by Hon'ble Minister, NRE. The course is floated in the 'Centre for Energy and Environment', Dr. B. R. Ambedkar NIT Jalandhar. The intake capacity under the program is for 20 students, which includes 5 sponsored candidates. The first batch of M. Tech program (2020-2022) has successfully completed their course work. All the eligible students are placed in reputed industries working in Renewable Energy. The second batch of M Tech in Renewable Energy (2021-22) finished their First year of the program and industrial training. Currently the students are carrying out their dissertation work

The courses (Renewable Energy) taken by institute's scientists are:

- Introduction to Renewable Energy systems
- Fundamentals of Energy and Environment
- Bio-Energy and Biofuels
- Renewable Energy Lab
- Solar Thermal Technologies & Applications
- Waste to Energy Conversion processes
- Fuels & Combustion Technology
- Fuel cell and hydrogen energy

SSS-NIBE Lecture Hall

Skill Development and Outreach

- Training programs
- International Conference
- Collaborations
- Events organized
- Publications

TRAINING PROGRAMS

The SSS NIBE is committed for promotion of bio-energy. With this mandate, the institute is organizing outreach programs and events on various aspects of bio-energy. During 2021-22, the institute had organized two training programs (online mode) and one international conference (physical and virtual).

1. **National training program on Biofuel Production & Application for Transportation – Recent Advances and Future Prospects – 1st Oct 2021**

A one-day virtual National training program on "Biofuel Production & Application for Transportation – Recent Advances and Future Prospects" was held on 1st Oct 2021 at SSS-NIBE under the umbrella of *"Azadi ka Amrit Mahotsav"*. During the training program various topics including Bio-diesel, Bio CNG & CBG, Hybrid Biofuels, Green Diesel, Pyrolysis oil, Ethanol, Hands on display of working with production plants, process and analytical equipment were elaborately covered. The training program was conducted with 43 participants including M. Tech, PhD Scholars, stakeholders from industry, academia etc. The key speakers in the program were from Indian Biogas Association, TERI, CSIR-CMERI, Ludhiana and Dr. B. R. Ambedkar NIT Jalandhar.

2. National training program on Biogas Technology and its implementation

A two days national training program on 'Biogas Technology and its Implementation' was organizing during 25-26 Nov 2021 in a virtual mode in collaboration with Indian Biogas Association (IBA). The participants from all over the country participated through online mode. The training programme was organized in four modules: Biogas Process and Design; Biogas Operation & Maintenance; Biogas Upgradation; Policy & Financing. During the two days, the various experts including Prof. PMV Subbarao, IIT Delhi; Dr. Shanmugham, CSIR-CLRI, Chennai; Dr. Vivekanada, MNIT, Jaipur; Dr. Ram Chandra, IIT Delhi; Sh. Gaurav Kedia, IBA; Sh. Abhijeet Mukherjee, IBA; Sh. Srinivas Kasulla, Arka Brenstech Pvt. Ltd., Gurugram; Sh. Dhruv, Spectrum Energy Ltd., Gurugram; Sh. SR Meena, MNRE; Ms. Kanchan Bhalla, IREDA; Sh. Bikram Kumar Singh, SBI; Sh. Siddharth Prabhakar, Canara Bank delivered their lectures through online mode. The certificates were distributed to all the participants on successful completion of the 2-day national virtual training program.

The training was conducted in collaboration with Indian Biogas Association (IBA). The training programme was arranged with key note lectures on relevant topics delivered by the invited experts.

दैनिक भास्कर

कपूरथला फगवाड़ा 27-11-2021

सरदार स्वर्ण सिंह राष्ट्रीय अक्षय ऊर्जा संस्थान में बायोगैस प्रौद्योगिकी व कार्यान्वयन पर राष्ट्रीय प्रशिक्षण प्रोग्राम

Role of biogas in current energy scenario discussed

Research is being conducted for the purification of the biogas, its bottling and commercial application of both carbon dioxide and methane

INTERNATIONAL CONFERENCE

3rd International Conference on Recent Advances in Bio-Energy Research – 9th -11th March2022

A Three days International Conference on Recent Advances in Bio Energy Research was held from 9-11 March 2022 in hybrid mode at Sardar Swaran Singh National Institute of Bio-Energy, Kapurthala, Punjab. The conference was inaugurated by Hon'ble Minster of States for Chemicals and Fertilizers, New and Renewable Energy, Sh Bhagwant Khuba, on 9th March 2022 at SSS NIBE. The conference covered sessions on original research, review papers, case studies etc. from academicians, researchers, research scholars, students and industry in the area. The sessions covered government policies, field experiences, and R&D efforts in the development and promotion of bio-energy in India.

दैनिक भास्कर

कपूरथला फगवाड़ा 11-03-2022

रिसेंट एडवांस इन बायो-एनर्जी रिसर्च (आईसीआरएबीआर-2022) पर चर्चा

सरदार स्वर्ण सिंह नेशनल इंस्टीट्यूट ऑफ बायो-एनर्जी में तीसरा अंतरराष्ट्रीय सम्मेलन करवाया

भास्कर न्यूज | कपूरथला

तीसरे अंतरराष्ट्रीय सम्मेलन का उद्घाटन करने के दौरान भगवंत खुबा तथा (दाएं) रिसेंट एडवांस इन बायो एनर्जी रिसर्च को लेकर विचार-विमर्श करते हुए। -भास्कर

सरदार स्वर्ण सिंह नेशनल इंस्टीट्यूट ऑफ बायो एनर्जी (एसएसएस-एनआईबीई) कपूरथला पंजाब में माननीय राज्य मंत्री रसायन और उर्वरक राज्य नवीन और नवीकरणीय ऊर्जा भारत सरकार भगवंत खुबा द्वारा 'रिसेंट एडवांस इन बायो-एनेर्जी रिसर्च' (आईसीआरएबीआर-2022) पर तीसरे अंतर्राष्ट्रीय सम्मेलन का उद्घाटन किया गया। खुबा ने प्रतिनिधियों को देश में बायोमास आधारित जैव ईंधन के विशाल दायरे के बारे में संबोधित किया।

उन्होंने संस्थान में विकसित प्रौद्योगिकीय की भी प्रशंसा की और उद्योगों के सहयोग से वर्तमान विकसित प्रयोगशाला स्तर की प्रौद्योगिकी के व्यावसायीकरण पर जोर दिया। उन्होंने इस बात पर भी जोर दिया कि "हमें अक्षय ऊर्जा के दोहन में प्रगति करने के लिए अनुसंधान के क्षेत्र में एनआईबीई, हमारे शोधकर्ताओं और वैज्ञानिकों जैसे संस्थानों के संदर्भ में अपने ज्ञान बैंक का बहुत अच्छा उपयोग करना होगा। जगदाले ने दुनिया भर में ऊर्जा की मांग को पूरा करने के लिए बायो एनर्जी में अनुसंधान के महत्व को संबोधित किया। उन्होंने प्रयोगशाला पैमाने के अनुसंधान के व्यावसायीकरण की आवश्यकता पर भी जोर दिया। प्रो. कनौजिया ने अक्षय क्षेत्र में अनुसंधान गतिविधियों को और बढ़ाने के लिए एनआईटी जालंधर और एसएसएस-एनआईबीई के सहयोग पर अपने विचार साझा किए।

उद्घाटन के बाद डॉ. सचिन कुमार, वैज्ञानिक/उप निदेशक, एसएसएस एनआईबीई ने जैव-ऊर्जा के क्षेत्र में संभावित औद्योगिक भागीदारों, हितधारकों, सलाहकार के साथ उद्योग और अनुसंधान के व्यावसायीकरण के लिए इंटरएक्टिव उद्योग-संस्थान इंटरफेस मीट का आयोजन किया। डॉ. कुमार ने संस्थान की उपलब्धियों, उद्योगों के साथ सहयोग की गुंजाइश, परामर्श आदि की जानकारी दी। उद्योगों के कर्मचारी प्रश्न उठाते हैं, जिनका उत्तर खुबा और जगदाले द्वारा दिया गया। उद्घाटन सत्र का समापन एसएसएस-एनआईबीई के निदेशक डॉ. एके शर्मा आभार व्यक्त करके किया गया। उन्होंने समिति के सभी सदस्यों, शोधार्थियों और कार्यक्रम के सभी प्रतिभागियों के प्रति हार्दिक आभार व्यक्त किया।

COLLABORATIONS

During 2021-22 SSS NIBE has signed MoU with different organizations to operate a collaborative venture for the development and dissemination of bio-energy through academic and research. The lists of MoUs signed are given as:

S. No.	MoU (with)	Date of MoU Signed	Date of MoU valid up to
1.	SSS NIBE & CSIR-CMERI Ludhiana	31 July 2021	30 July 2026
2.	SSS NIBE & Association of Renewable Energy Agencies of States, Delhi	27 Aug 2021	26 Aug 2026
3.	SSS NIBE & Punjab Energy Development Agency, Chandigarh	8 Sept 2021	7 Sept 2026
4.	SSS NIBE & Central Power Research Institute, Bengaluru (Project 1)	24 March 2022	23 March 2023
5.	SSS NIBE & Central Power Research Institute, Bengaluru (Project 2)	24 March 2022	24 Sept 2024
6.	SSS NIBE & Central Power Research Institute, Bengaluru (Project 3)	24 March 2022	23 March 2025

ਪੱਤਰਕਾਰ ਬਣੋ

ਲੁਧਿਆਣਾ ਲਹਿਰ ਨੂੰ ਜਿਲ੍ਹਾ, ਬਲਾਕ, ਤਹਿਸੀਲ ਅਤੇ ਵਾਰਡ ਪੱਧਰ ਤੇ ਪੱਤਰਕਾਰਾਂ ਦੀ ਲੋੜ ਹੈ ਸੰਪਰਕ ਕਰੋ

98070-28000
97795-21366

ਆਮ ਜਨਤਾ ਦੀ ਆਵਾਜ਼

PUNJABI, HINDI, ENGLISH,

ਲੁਧਿਆਣਾ ਲਹਿਰ

ਲੁਧਿਆਣਾ ਲਹਰ

R.N.I No. PUNMUL/2018/75919

ਮੁੱਖ ਸੰਪਾਦਕ : ਜਸਬੀਰ ਸਹਿਦੇਵ, ਲੁਧਿਆਣਾ ਤਾਰੀਖ 31 ਜੁਲਾਈ 2021, ਸਾਲ 3, ਕੁਲ ਪੇਜ 12, ਕੀਮਤ 5 ਰੁਪਏ

ਸੀਐਸਆਈਆਰ-ਸੀਐਮਈਆਰਆਈ ਨਾਲ ਸਮਝੌਤੇ ' ਤੇ ਹਸਤਾਖਰ ਕੀਤੇ ਖੋਜ ਸਹਿਯੋਗ ਲਈ SSS-NIBE

Press note of signing of MOU with CSIR-CMERI Ludhiana in local newspaper

EVENTS ORGANIZED

1. Recruitment drive for hiring of DG NIBE and Scientist at the institute

The institute organized recruitment drive for hiring of 11 new scientists at SSS NIBE. For one post of Scientist B, three posts of Scientist C, four posts of Scientist D and three posts of Scientist F, the interviews were held under the Chairmanship of Secretary, MNRE during February and March 2022. The drive was successful with selection of 8 new scientists.

The recruitment of regular Director General of the institute was also finalized in FY 2021-22.

2. Hindi Divas and Pakhwada

The Institute observed Hindi Pakhwada from 14th-28th September 2021. The program was coordinated by the Hindi Officer of the Institute. Many banners and posters were displayed at the Institute in all the primary locations so as to disseminate the information among all-level-workers. Activities were conducted with the motive to enhance the language skills and make learning more enjoyable. Quiz, Essay and Debate Competitions held during Hindi Divas Week from 14th September to 28th September, 2021.

Glimpse of Hindi Divas

3. Vigilance Week

An online Talk/Discussion on Public Interest Disclosure and Protection of Informers was organized in the Institute on 26th October 2021. The Deputy Secretary, CVC was invited as expert speaker to deliver a talk

Glimpse of the Vigilance Week

4. 32nd Governing Council Meeting

The 32nd Governing Council Meeting of Sardar Swaran Singh National Institute of Bio-Energy (SSS-NIBE), Kapurthala, Punjab was held on 24th July 2021, at 11:00 AM via video conferencing under the Chairmanship of Shri Indu Shekhar Chaturvedi, Secretary, MNRE & Chairman, GC, SSS-NIBE.

5. 19th Finance Committee Meeting

The 19th Meeting of the Finance Committee of SSS-NIBE was held on 3rd Nov 2021 at 12:00 PM in the office of JS&FA, Ministry of Civil Aviation, Jor Bagh, New Delhi.

6. 33rd Governing Council Meeting

The 33rd Governing Council Meeting of SSS-NIBE was held on 11th December 2021, at 11:30 AM via video conferencing under the Chairmanship of Shri Indu Shekhar Chaturvedi, Secretary, MNRE & Chairman GC, SSS-NIBE.

7. 3rd Annual General Meeting

The 3rd Annual General Meeting of the institute was also held on 11th December 2021, at 12:00 PM via video conferencing, under the Chairmanship of Shri Indu Shekhar Chaturvedi, Secretary, MNRE & Chairman GC, SSS-NIBE.

8. Punjab Skill 2021 (State Level Competition)

The institute conducted State Level Competition on Punjab Skill 2021 in Renewable Energy on 23 Aug 2021 organized by Punjab Skill Development Mission. The event witnessed the participation from candidates all over the state for skill competition.

9. Other Activities

- Anti-Terrorism Day was organized in the institute on 21 May 2021.
- Swachchta Pakhwada was celebrated from 1-15th June 2021.
- International Yoga Day was celebrated from our respective homes on 21st June 2021 following COVID protocols.
- Independence Day was celebrated in the Institute on 15th August 2021.
- Participation of staff members in Rashtra gaan under Azadi Ka Amrit Mahotsav
- Vigilance Awareness week from 26th October, 2021 to 1st November, 2021.
- Constitution Day was celebrated on 26th November, 2021.
- Lohri Celebration among staff members on 13th Jan 2022
- Republic Day was celebrated in the Institute on 26th January 2022 and Dr. Anil Kumar Sarma, Scientist-E, SSS-NIBE hoisted the flag and graced the occasion.

- Industry- Institute Interface meeting was held on the topic 'Role of NIBE in supporting the growth of the Bioenergy Sector and facilitating Bioenergy Industries' on 9th March 2022.

Glimpse of Independence day Celebrated in SSS NIBE

Glimpse of women's day Celebrated in SSS NIBE

PAPER AND PUBLICATIONS

During 2021-22, a total of 16 publications across various journals, conferences, books, etc. were brought out by scientists working in the Institute.

Key research papers published in reputed journals

H Kumar, AK Sarma, P Kumar, Experimental investigation of 2-EHN effects upon CI engine attributes fuelled with used cooking oil-based hybrid microemulsion biofuel, (Wiley) International Journal of Environmental Science and Technology, 1-18,

H Kumar, AK Sarma, P Kumar, Renewable Energy: Alcohol based hybrid biofuel from used cooking oil (UCO) fueled in a CI engine, FIRST INT. CONF. ON BLENDS, COMP., BIOCOMP., & NANOCOMPOSITES (ICNC-2020),Published 2021-07-31,1 (4), 4-4

H Kumar, AK Sarma, P Kumar, Experimental investigation of CI engine fueled with renewable heterogeneous catalyst-based biodiesel, FIRST INT. CONF. ON BLENDS, COMP., BIOCOMP., & NANOCOMPOSITES (ICNC-2020) Published 2021-07-31, 1 (4), 9-9.

Sani AM, Savla N, Pandit S, Mathuriya AS, Gupta PK, Khanna N, Babu RP, Kumar S (2021) Recent advances in bioelectricity generation through the simultaneous valorization of lignocellulosic biomass and wastewater treatment in microbial fuel cell. Sustainable Energy Technologies and Assessments, 48, 101572. Doi: 10.1016/j.seta.2021.101572. (IF: 5.353)

Hans M, Pellegrini VO, Filgueiras JG, de Azevedo ER, Guimaraes FE, Chandel AK, Polikarpov I, Chadha BS, Kumar S (2022) Optimization of Dilute Acid Pretreatment for Enhanced Release of Fermentable Sugars from Sugarcane Bagasse and Validation by Biophysical Characterization. BioEnergy Research (In-press). (IF: 3.852)

Garg S, Behera S, Ruiz HA and Kumar S (2022) A Review on Opportunities and Limitations of Membrane Bioreactor Configuration in Biofuel Production. Applied Biochemistry and Biotechnology (In-press). (IF: 3.094)

Kumar, H., Aslam, M., Sarma, A. K., & Kumar, P. (2022). Performance, Combustion, and Emission Analysis of Green Diesel Derived from Mesua ferrea L. Oil on a CI Engine: An Experimental Investigation. In Green Diesel: An Alternative to Biodiesel and Petrodiesel (pp. 325-338). Springer, Singapore.

Graham, N.T., Gakkhar, N., Sarma, A., Evans, M., Stelmach, T., Durga, S., Singh, A.D., Godara, R., Gajera, B. and Wise, M.A., 2021, December. Bioenergy and Sustainability in India: A Capacity Building and Integrated Assessment Experiment. In Fourteenth IAMC Annual Meeting 2021. Integrated Assessment Modeling Consortium.

Evans, Meredydd, Neal Graham, Anil Sarma, Nikhil Gakkhar, Akash Deep Singh, Rakesh Godara, Bhautik Gajera, Tanner Stelmach, Siddarth Durga, and Marshall Wise. "Sustainable bioenergy in India: Mitigating the impacts of increased bioenergy on water use, emissions, and food prices." In AGU Fall Meeting Abstracts, vol. 2021, pp. GC21D-05. 2021

Choudhary, K., Jakhar, S., Gakkhar, N., & Sangwan, K. S. (2022). Comparative Life Cycle Assessments of Photovoltaic Thermal Systems with Earth Water Heat Exchanger Cooling. Procedia CIRP, 105, 255-260

Tyagi, U., Aslam, M., & Sarma, A. K. (2022). Characterization of Green Diesel: Existing Standards and Beyond. In Green Diesel: An Alternative to Biodiesel and Petrodiesel (pp. 249-263). Springer, Singapore.

Kaur, J., Aslam, M., Jha, M. K., & Sarma, A. K. (2022). Green Diesel: Integrated Production Processes, Future Perspectives and Techno-Economic Feasibility. In Green Diesel: An Alternative to Biodiesel and Petrodiesel (pp. 205-217). Springer, Singapore

Tyagi, U., Aslam, M., & Sarma, A. K. (2022). Characterization of Green Diesel: Existing Standards and Beyond. In Green Diesel: An Alternative to Biodiesel and Petrodiesel (pp.249-263). Springer, Singapore.

Aslam, M., Kumar, H., Sarma, A. K., & Kumar, P. (2022). Current Status of the Green Diesel Industry. In Green Diesel: An Alternative to Biodiesel and Petrodiesel (pp. 265-283). Springer, Singapore

Graham, Neal T., Nikhil Gakkhar, Akash Deep Singh, Meredydd Evans, Tanner Stelmach, Siddarth Durga, Rakesh Godara, Bhautik Gajera, Marshall Wise, and Anil K. Sarma. "Integrated analysis of increased bioenergy futures in India." Energy Policy 168 (2022): 113125.

Vaish, Sunny, Gagandeep Kaur, Naveen Kumar Sharma, and Nikhil Gakkhar. "Estimation for Potential of Agricultural Biomass Sources as Projections of Bio-Briquettes in Indian Context." Sustainability 14, no. 9 (2022): 5077.

The Annual Report of the year 2021-22 was published and laid in the Lok Sabha and Rajya Sabha during March 2022.

Support Service

- Lab Development
- Finance & Administration
- SSS NIBE's Team

LAB DEVELOPMENT

During the year, under M. Tech. program, labs were developed for the demonstration and testing of renewable energy technologies of students. During the development, following facilities were added in R&D III

A. Development of Solar PV Lab

- Solar PV Training and Research system
- Solar PV Grid Tied Training System
- Solar PV Emulator
- Solar PV Grid Tied Training System

B. Development of Solar Thermal Lab

- Solar Thermal Training System
- Solar Concentrator Training System
- Thermal Energy Storage Training System

C. Development of Wind Energy Lab

- Wind Turbine Emulator
- Wind Energy Training System

Thermal energy storage system and wind energy training system

FINANCE AND ADMINISTRATION

Serving as the artery connecting the scientific divisions of the institute, the activities of Finance and Administrative divisions are briefed as under:

- Budget & revised estimates for grant-in-aid, allocation & re-appropriation of funds, expenditure management& budget control, project financial management.
- Statutory compliances on GST and income tax etc., dealing with audits, drawing up balance sheet, laying of audited accounts on the table of Parliament.
- Framing of rules, schemes and grievance redressal, management of outsourcing agency, legal issues, court cases & RTI, recruitment, hiring of research staff and promotions.
- Statutory compliances on EPF, societies registration, bills of establishment, facility management, activities related to the official language, maintenance of vehicle, security, horticulture activities, and housekeeping.
- Store & purchase, procurement of goods and services, GEM, contracts etc.

SSS NIBE'S TEAM

Director General Office

Sh Dinesh D Jagdale	JS, MNRE& DG NIBE

Chemical Conversion Division

Dr Anil K Sarma	Scientist E & Head of Office
Sh Vijay Bajala	Technical Assistant
Sh Akash Deep Singh	Research Scholar
Sh Bhautik Gajera	Research Scholar
Dr Sujit Guchchait	Research Associate
Sh Amrik Singh	Multi-Tasking Staff

Biochemical Conversion Division

Dr Sachin Kumar	Scientist C
Ms Meenu Hans	Research Scholar
Ms Nisha Yadav	Research Scholar
Dr Shivali	Research Associate
Mr Ajay	Multi Tasking Staff
Ms Parminder Dutta	Lab Assistant
Smt. Shuchi Sahu	Technical Assistant

Thermochemical Conversion Division

Dr Nikhil Gakkhar	Scientist C
Sh Gopal Sharma	Technical Assistant
Dr Ashish Pawar	Research Associate
Sh Rakesh Godara	Research Scholar
Mr Gaurav Singh	Research Scholar
Sh Arshdeep Singh	Multi-Tasking Staff

Civil and Maintenance division

Sh Ram Anuj Singh	Assistant Engineer (Civil)
Sh Nirmal Jeet Singh	JE (Electrical)
Sh Puneet Sharma	Technician
Sh Manpreet Singh	Technician
Sh Baljit Singh	Technician

Administrative division

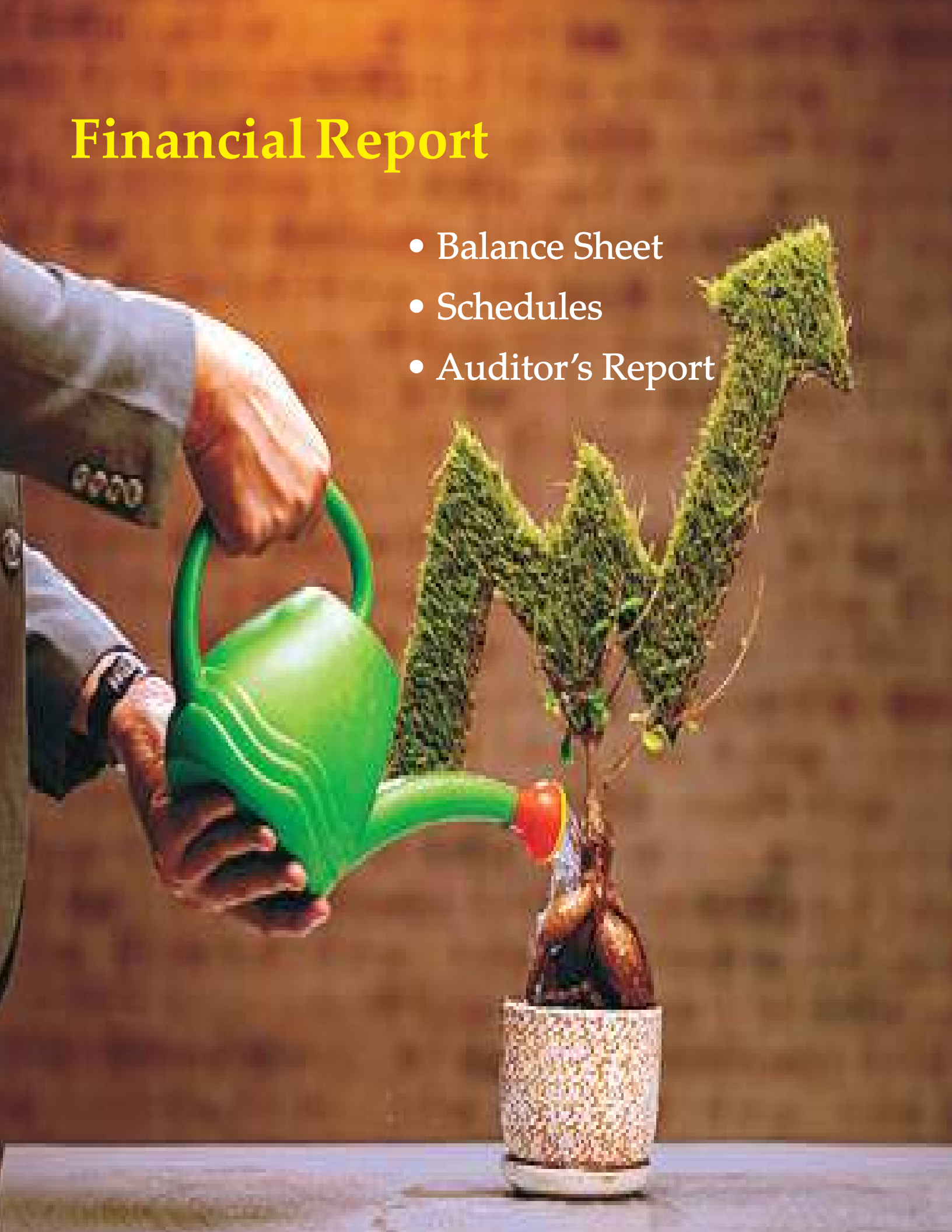
Sh Abhishek Gupta	CPIO
Sh Rupesh K Verma	Junior Executive Assistant
Sh Hitesh Sharm	Office Assistant (Admin)
Sh Mukesh Banga	IT Assistant
Sh Harkeerat Singh	Driver
Sh Amrjit Singh	Tractor Driver

Finance Division

Sh Sanjay Chauhan	Junior Executive Assistant
Sh Amandeep	Office Assistant (Accounts)

Financial Report

- Balance Sheet
- Schedules
- Auditor's Report



BALANCE SHEET

The annual audited account of the Institute for the year 2021-22 has been prepared and duly audited by Internal Auditors M/s. Puri & Gupta Chartered Accountant, Jalandhar and Statutory Auditor M/s. K. Bhagat & Co., Jalandhar. The detailed Auditor's Report, Balance Sheet, Income, Expenditure, Receipts & Payment Accounts Schedules are attached herewith.

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY
(An Autonomous Institution of Ministry of New & Renewable Energy)
Kapurthala (Punjab)- 144603

BALANCE SHEET AS AT 31ST MARCH, 2022

FUND AND LIABILITIES	Schedule	31st March, 2022	31st March, 2021
CAPITAL ASSET FUND	1	345,876,152.31	333,357,920.00
RESERVES AND SURPLUS	2	187,391,361.18	232,397,483.02
CURRENT LIABILITIES AND PROVISIONS	3	10,687,726.61	4,612,270.92
TOTAL		**543,955,240.10**	**570,367,673.94**
ASSETS			
FIXED ASSETS			
(a) Created out of Central Governments Grants	4	178,708,485.86	180,531,247.13
(b) Out of Internal Generation Grants		0.00	0.00
INVESTMENTS		302,944,611.00	302,294,611.00
CURRENT ASSETS, LOANS AND ADVANCES	5	62,302,143.24	87,541,815.81
TOTAL		**54,39,55,240.10**	**57,03,67,673.94**
SIGNIFICANT ACCOUNTING POLICIES	13		
NOTES ON ACCOUNTS	14		

For Sardar Swaran Singh National Institute of Bio-energy

Finance & Accounts Officer

Director General

As per our Report attached
K. Bhagat & Co.
Charted Accountants

Partner
FRN 006769N

Place : Jalandhar
Date: 21-09-2022
UDIN: 22017902ATPVXB7397

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR'2022

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2022

(Amount in Rs.)

INCOME	Schedule	IE 31/03/2022	IE 31/03/2021
Income from Services	6	753,625.00	340,125.00
Income from publication	7	-	-
Interest Earned	8	9,855,702.69	12,961,981.00
Other Income	9	847,780.57	186,606.79
Interest Earned & Other Income (Grant)	3.1	-	-
Grants from Government of India allocatedfor Revenue expenditure during the year		32,600,000.00	37,900,000.00
Grants - Adjustment previous year payment		-	-
Add: EMD, SD, PG Received		-	-
Closing stock		-	-
TOTAL (A)		**44,057,108.26**	**51,388,712.79**
EXPENDITURE		-	-
Opening stock		-	-
Establishment Expenses	10	9,271,228.00	11,444,873.00
Consultancy Project Expenses	11 (b)	-	-
Other Administrative Expenses	11 (a)	26,418,721.10	15,748,603.87
		-	-
Expenditure from Grants		-	-
On Advances/Deposits/ Prepaid /EMD,SD,PG's etc.,		-	-
Refunded to Ministry		-	-
Depreciation		20,853,915.00	19,512,310.00
In house project expenditure		-	-
Expenditure out of Previous Year Advance		-	-
TOTAL (B)		**56,543,864.10**	**46,705,786.87**
Balance being excess of Income overExpenditure (A-B)		(12,486,755.84)	4,682,925.92
EMD, Performenc Guarnatee, Security DepositReturned		-	-
Add: Opening Balance B/f (C)	3.1	-	-
Prior period adjustment	12	-	-
Transfer to Capital Asset Fund (D)	4	-	-
Transfer to Welfare Fund		-	-
BALANCE BEING SURPLUS TRANSFERRED TO GENERAL RESERVE FUND {A- (B+D) }		(1,24,86,755.84)	46,82,925.92
UN-UTILIZED GRANTS OUT OF GOVT. GRANTS FOR REVENUE EXPENDITURE { (C+A)-B }		-	-
SIGNIFICANT ACCOUNTING POLICIES	13	-	-
NOTES ON ACCOUNTS	14	-	-

For Sardar Swaran Singh National Institute of Bio-energy

Finance & Accounts Officer

Director General

As per our Report attached
K. Bhagat & Co.
Charted Accountants
Partner
FRN 006769N

Place : Jalandhar
Date: 21-09-2022
UDIN: 22017902ATPVXB7397

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31S MAR'2022

(Amount in Rs.)

SCHEDULE 1 - CAPITAL ASSET FUND	Canteen	IE	31.03.2022	31.03.2021
Opening Balance	-	-	-	-
Balance as at the beginning of the year	-	311,385,520.00	311,385,520.00	304,289,811.61
ADD : Prior period adjustment	-	-	-	-
ADD : Addition from Capital Grant	-	17,000,000.00	17,000,000.00	9,100,000.00
Add : Addtion from Internal Revenue Generation prior years	-	-	-	-
Add : Addtion from Interest on FDR (CORPUS)	-	3,968,232.31	3,968,232.31	7,095,708.39
Add: IREDA NIBE Award	-	12,872,400.00	12,872,400.00	12,322,400.00
Add: Interest on IREDA Fund	-	650,000.00	650,000.00	550,000.00
Less: Deletion from Capital Grants	-	-	-	-
Less: Deletion from Internal Revenue Generation	-	-	-	-
Less: Deletion from Capital Grants SRRA	-	-	-	-
Less: Depreciation on assets purchased out of Grants MNRE	-	-	-	-
Less: Depreciation on assets purchased out of Internal generation	-	-	-	-
Less: Depreciation on assets purchased out of Grants SRRA	-	-	-	-
TOTAL	**-**	**34,58,76,152.31**	**34,58,76,152.31**	**33,33,57,920.00**

As per our Report attached
K. Bhagat & Co.
Charted Accountants

Partner
FRN 006769N

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR' 2022

(Amount in Rs.)

SCHEDULE 2 - RESERVES AND SURPLUS	Guarantees	IE	31st March, 2022	31st March, 2021
General Reserve Fund				
Balance at the beginning of the year		226,369,621.32	**226,369,621.32**	**212,586,695.40**
Less during the year being deficit		12,486,755.84	12,486,755.84	**4,682,925.92**
			-	**-**
Less : Grant Refunded		43,691,093.00	43,691,093.00	**-**
Sub total		**170,191,772.48**	**170,191,772.48**	**217,269,621.32**
RESERVE & SURPLUS- COMPLETED PROJECTS				
Bio Diesel Project		4,472,153.00	4,472,153.00	4,472,153.00
ICRISAT Project		13,929.00	13,929.00	13,929.00
Bio Crude Project		2,383,061.00	2,383,061.00	2,383,061.00
National Renewable Energy Program Project		50,415.00	50,415.00	50,415.00
Bio Ethenol Project		5,441,996.70	5,441,996.70	5,441,996.70
Bio Gas Project		59,929.00	59,929.00	59,929.00
Sub Total		**12,421,483.70**	**12,421,483.70**	**12,421,483.70**
Opening Biorefinery Approach for generation of platformchemicals and bioethanol		153,075.00	153,075.00	240,920.00
Add: Grant Received from MNRE during the year		-	-	-
Less: Expenses Biorefinery Approach for generation ofplatform chemicals and bioethanol		-	-	87,845.00
Sub Total		**153,075.00**	**153,075.00**	**153,075.00**
Fellowship Grant Dr. Sachin Kumar		220,300.00	220,300.00	220,300.00
Less: Advance Given to Dr. Sachin Kumar		-	-	-
Sub Total		**220,300.00**	**220,300.00**	**220,300.00**
Opening Balance Indo Brazil project		2,333,003.00	2,333,003.00	1,458,325.00
Add: Grant Received from MNRE during the year		(751952.00)	(751,952.00)	1,360,741.00
Add: Advance Recovered from Meenu Hans		-	-	-
Less: Expenses for Project (Excluding Fixed Assets)		-	-	1,812,862.00
Less: Advance to GNDU		-	-	1,326,799.00
Add: Advance Recovered from GNDU		-	-	-
Sub Total		**1,581,051.00**	**1,581,051.00**	**2,333,003.00**
Opening balance of Project MNRE(GIA)		-	-	**-**
Add: Grant Received from MNRE during the year		601,760.00	601,760.00	**-**
Sub Total		**601,760.00**	**601,760.00**	**-**
Opening balance of Project MNRE (Capital)		-	-	**-**
Add: Grant Received from MNRE during the year		1,263,400.00	1,263,400.00	**-**
Sub Total		**1,263,400.00**	**1,263,400.00**	**-**

Opening balance of Project WOS		-	-	-
Add: Grant Received from MNRE during the year		**1,337,800.00**	1,337,800.00	-
Less : Expenses of Project		**379,281.00**	379,281.00	-
Sub Total		**958,519.00**	**958,519.00**	-
Grand Total		**18,73,91,361.18**	**18,73,91,361.18**	**23,23,97,483.02**

As per our Report attached
K. Bhagat & Co.
Charted Accountants

Partner
FRN 006769N

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR'2022

(Amount in Rs.)

SCHEDULE 3 - CURRENT LIABILITIES AND PROVISIONS:	SCHEDULE	IE	Total IE	31st March, 2022	31st March, 2021
A. CURRENT LIABILITIES					
Sundry Creditors for expenses:		6,835,902.00	6,835,902.00	6,835,902.00	1,277,476.00
Expenses payable		1,483,686.00	1,483,686.00	1,483,686.00	746,345.00
Salary Payable		628,225.00	628,225.00	628,225.00	615,380.00
Security Deposit, EMD & PG		559,075.00	559,075.00	559,075.00	488,895.00
Advances Received on Projects		-	-	-	-
Statutory Liabilities		422,531.60	422,531.60	422,531.60	184,919.92
Other Current Liabilities		758,307.01	758,307.01	758,307.01	1,299,255.00
Other Payables		-	-	-	-
NIWE-IREDA Award Fund		-	-	-	-
Welfare Fund Payable		-	-	-	-
Branch Division Payables		-	-	-	-
TOTAL (A)		**10,687,726.61**	**10,687,726.61**	**10,687,726.61**	**4,612,270.92**
UN UTILISED GRANTS					
a) Central Finance Assistance MNRE (Grants-in-Aid)	**3.1**	**-**	**-**	-	-
Earmarked Projects SRRA USP		**-**	**-**	-	-
IREDA NIBE FUND		**-**	**-**	-	-
			-		
TOTAL (B)		**-**	**-**	**-**	**-**
TOTAL { (A)+(B) }		**10,687,726.61**	**10,687,726.61**	**10,687,726.61**	**4,612,270.92**
B. PROVISIONS					
Gratuity		-	-	-	-
Leave Encashment		-	-	-	-
Bonus & Ex-gratia		-	-	-	-
TOTAL (C)		**-**	**-**	**-**	**-**
GRAND TOTAL { (A)+(B)+(C) }		**1,06,87,726.61**	**1,06,87,726.61**	**1,06,87,726.61**	**46,12,270.92**

As per our Report attached
K. Bhagat & Co.
Charted Accountants

Partner
FRN 006769N

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR'2022

(Amount in Rs.)

SCHEDULE 3.1 - UNUTILISED GRANT - CFA	CFA-CAPITAL	CFA REVENUE	As on 31.03.2022	As on 31.03.2021
Funds				
Balance as at the beginning of the year	-	-	-	-
Add : Grants received during the year (GIA Capital)	17,000,000.00		17,000,000.00	9,100,000.00
Add : Grants received during the year (GIA General)	-	21,600,000.00	21,600,000.00	26,400,000.00
Add : Grants received during the year (GIA Salary)	-	11,000,000.00	11,000,000.00	11,500,000.00
Add :Misc. Income on Grants	-	-	-	-
Add :Interest Earned on Grants	-	-	-	-
Add: Interest Accrued on Grants	-	-	-	-
Add: Profit on Sale of Assets	-	-	-	-
Add: Transferred from Earmarked Projects	-	-	-	-
Add: SNA Refund	-	-	-	-
Add:EMD,SD,PG Received	-	-	-	-
Total (A)	**17,000,000.00**	**32,600,000.00**	**49,600,000.00**	**47,000,000.00**
Less : Refunds				
Interest earned on Grants refunded to Ministry	-	-	-	-
Other Income Earned refunded to Ministry	-	-	-	-
Refund of Unutilized Grants	-	-	-	-
Total (B)	**-**	**-**	**-**	**-**
Total Fund Available (C= A-B)	**17,000,000.00**	**32,600,000.00**	**49,600,000.00**	**47,000,000.00**
Less: Expenditure				
Grants from Government of India allocated for Capital	-	-	-	-
Grants from Government of India allocated for Revenue expenditure	-	-	-	-
Grants from Government of India allocated for NER	-	-	-	-
Grants from Government of India allocated for SRRA	-	-	-	-
Expenditure relating to Grants from Government of India for the in house projects during the year	-	-	-	-
Transfer to capital asset fund	17,000,000.00	-	17,000,000.00	9,100,000.00
Transfer to Income & Expenditure	-	32,600,000.00	32,600,000.00	37,900,000.00
Excess of Expenditure out of Previous Year Advance	-	-	-	-

EMD,Performenc Guarnatee, Security Deposit Returned	-	-	-	-
Sub Total (i)	**1,70,00,000.00**	**3,26,00000.00**	**4,96,00000.00**	**4,70,00000.00**
Less: Payables				
Expenses Payable	-	-	-	-
Security Deposits & Performance Guarantee	-	-	-	-
Sundry Creditors	-	-	-	-
Other Current Liabilities	-	-	-	-
Advances received	-	-	-	-
Salary Payable / EPF Payable	-	-	-	-
Sub Total (ii)	**-**	**-**	**-**	**-**
Less: Advances & Deposits				
Less: Advances paid	-	-	-	-
Less: Deposits	-	-	-	-
Less: Prepaid Expenses	-	-	-	-
Sub Total (iii)	-	-	-	-
Total (D) [i+ii+iii]	**1,70,00000.00**	**3,26,00000.00**	**4,96,00000.00**	**4,70,00000.00**
UNUTILIZED GRANT (Refundable to Ministry)	-	-	-	-
UNUTILIZED GRANTS (Receivable from Ministry)	-	-	-	-
UNUTILIZED GRANTS / Funds (Others)	-	-	-	-

As per our Report attached
K. Bhagat & Co.
Charted Accountants

Partner
FRN 006769N

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR'2022

(Amount in Rs.)

SCHEDULE 5 - CURRENT ASSETS, LOANS & ADVANCES	IE	Welfare Fund	Guarantees	Canteen	IE	31st March, 2022	31st March, 2021
A. CURRENT ASSETS:							
Sundry Debtors	145,037.00	-	-	-	-	145,037.00	32,694.00
Inventories	-	-	-	-	-	-	-
Stock of Stationery	-	-	-	-	-	-	-
Stock of Stores and Spares	-	-	-	-	-	-	-
Stock of Wind Atlas Book	-	-	-	-	-	-	-
Cheques in hand	-	-	-	-	-	-	-
Stamps in hand	3,356.00	-	-	-	-	3,356.00	3,356.00
Closing Stock	-	-	-	-	-	-	-
Bank Balances:							
With Scheduled Banks:							
In Current Account	2,387,229.70	-	-	-	-	2,387,229.70	538,455.70
In Savings Bank Account	11,474,865.05	-	-	-	-	11,474,865.05	3,902,226.54
In Cash	2,880.00	-	-	-	-	2,880.00	7,502.00
In Deposit Account	37,633,764.00	-	-	-	-	37,633,764.00	75,292,600.00
Branch Division Receivables	-	-	-	-	-	-	-
TOTAL (A)	**51,647,131.75**	-	-	-	-	**51,647,131.75**	**79,776,834.24**
B. LOANS, ADVANCES AND OTHER ASSETS							
Advances and other amounts recoverable in cash or in kind or for value to be received:							
a) On Capital Account	-	-	-	-	-	-	-
a) Prepayments	68,364.00	-	-	-	-	68,364.00	4,470.00
b) Interest accrued on term deposits	650,991.00	-	-	-	-	650,991.00	515,724.00
c) Advances	6,882,579.49	-	-	-	-	6,882,579.49	6,003,068.57
d) Interest accrued on security deposit	330,618.00	-	-	-	-	330,618.00	268,834.00
e) Balance with Govt. Authority - TDS	2,722,459.00	-	-	-	-	2,722,459.00	972,885.00
TOTAL (B)	**10,655,011.49**	-	-	-	-	**10,655,011.49**	**7,764,981.57**
GRAND TOTAL { (A)+(B) }	**6,23,02,143.24**	-	-	-	-	**6,23,02,143.24**	**8,75,41,815.81**

As per our Report attached
K. Bhagat & Co.
Charted Accountants

Partner
FRN 006769N

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR'2022

(Amount in Rs.)

SCHEDULE 6 - INCOME FROM SALES / SERVICES	CANTEEN	GUANRANTEES	WELFARE FUN	IE	31st March, 2022	31st March, 2021
Income from Services						
Testing Fee	0	0	0	97,000.00	97,000.00	26,250.00
Training Fee	0	0	0	12,450.00	12,450.00	
NIT Course Fee	0	0	0	602,175.00	602,175.00	313,875.00
Registration Fee	0	0	0	42,000.00	42,000.00	0
TOTAL	0	0	0	**753,625.00**	753,625.00	340,125.00
SCHEDULE 7 - INCOME FROM PUBLICATION						
Sale of Books & Reports	0	0	0	0	-	-
TOTAL				**0**	**-**	**-**
SCHEDULE 8 - INTEREST EARNED						
On Term Deposits with Scheduled Banks (Corpus)	0	0	0	6,843,912.69	6,843,912.69	10,014,000.00
On Savings Bank account/MOD with Scheduled Banks	0	0	0	3,011,790.00	3,011,790.00	2,947,981.00
TOTAL	0	0	0	**9,855,702.69**	**9,855,702.69**	**12,961,981.00**
SCHEDULE 9 - OTHER INCOME						
Rent Received	0	0	0	27,966.07	27,966.07	3,644.00
Sponsorship fee	0	0	0	235,170.00	235,170.00	0
Overhead charges of WOS Project	0	0	0	80,000.00	80,000.00	0
Hostel fee	0	0	0	30,708.50	30,708.50	6,000.00
Overhead charges of Indo Brazil Project	0	0	0	0	0	50,000.00
Overhead charges of Project Biorefinery Approach	0	0	0	0	0	50,000.00
Discount/Rebate	0	0	0	5,673.00	5,673.00	2.79
Other Misc Income	0	0	0	403,763.00	403,763.00	0
Licence fee	0	0	0	64,500	64,500.00	76,960.00
Application Fees	0	0	0	0	0	0
TOTAL	0	0	0	**847,780.57**	**847,780.57**	**186,606.79**
SCHEDULE 10 - ESTABLISHMENT EXPENSES						
ADMINISTRATION AND R&D STAFF						
Salaries and Allowances	-	-	-	7,955,643.00	7,955,643.00	9,710,354.00
Bonus & Ex-gratia	-	-	-	-	-	-
Contribution to Provident Fund (EPF)	-	-	-	867,474.00	867,474.00	1,110,813.00
Contribution to Pension & Gratuity (With LIC)	-	-	-	90,111.00	90,111.00	45,632.00
Leave travel concession	-	-	-	45,699.00	45,699.00	352,544.00
Children Education Allowance	-	-	-	216,000.00	216,000.00	168,000.00
Medical reimbursement	-	-	-	42,000.00	42,000.00	-
LTC Leave Encashment	-	-	-	54,301.00	54,301.00	37,530.00
Honorarium to staff	-	-	-	-	-	20,000.00
TOTAL	-	-	-	**9,271,228.00**	**9,271,228.00**	**11,444,873.00**

As per our Report attached
K. Bhagat & Co.
Charted Accountants
Partner
FRN 006769N

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MAR'2022

(Amount in Rs.)

SCHEDULE 11 - OTHER ADMINISTRATIVE EXPENSES	IE	31st March, 2022	31st March, 2021
Advertisement and Publicity	130,588	130,588	283,604
Audit & Legal fee	159,853	159,853	106,950
Consumable laboratory workshop exp	484,384	484,384	203,827
Electricity and Power	3,373,262.00	3,373,262.00	2,425,330.00
Expenses on Books, Data & Periodicals	4,920.00	4,920.00	0.00
Stipend	4,037,291.00	4,037,291.00	512,298.00
Expenses on Seminar, Meetings, workshop & conference	1,226,996.00	1,226,996.00	388,568.00
Hospitality Expenses(other)	517,099.88	517,099.88	272,592.00
Computer software exp	9,109.00	9,109.00	28,909.79
Other Expenses	90,083.66	90,083.66	52,280.80
Computer hardware exp	113,925.00	113,925.00	76,505.21
Late Fee (CGST/SGST)	0.00	0.00	100.00
Printing and Stationery	53,337.99	53,337.99	5,912.00
Repair & maintenance	1,086,230.93	1,086,230.93	221,538.00
Newsletter/Newspaper exp	4,203.00	4,203.00	0.00
Refreshment	144,283.00	144,283.00	57,599.00
Machinery & Equipment Exp	3,625,534.72	3,625,534.72	632,996.63
Research & Development Exp	5,650.00	5,650.00	0.00
Other Deduction Recovery	0.00	0.00	11,874.00
Contingency exp	3,821.00	3,821.00	1,969.00
Telephone and Communication Charges	464,250.00	464,250.00	1,703,539.91
Manpower & hiring of professional services	10,426,754.12	10,426,754.12	8,524,063.16
Reports exp	127,241.00	127,241.00	0.00
Travel & Conveyance and Taxi hire	93,534.00	93,534.00	26,200.00
Vehicles Running and Up Keeping	115,635.00	115,635.00	111,610.00
Horticulture exp	120,734.80	120,734.80	100,337.00
TOTAL (A)	**26,418,721.10**	**26,418,721.10**	**15,748,603.87**
CONSULTANCY PROJECT EXPENSES			
Expenses on In Consultancy Projects (B)	-	-	-
GRAND TOTAL { (A)+(B) }	2,64,18,721.10	2,64,18,721.10	1,57,48,603.87

As per our Report attached
K. Bhagat & Co.
Charted Accountants

Partner
FRN 006769N

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MAR'2022

(Amount in Rs.)

SCHEDULE 12 - PRIOR PERIOD ADJUSTMENT	CANTEEN	GUANRAN TEES	WELFARE FUND	IE	31st March, 2022	31st March, 2021
Prior Period Expenses/ Income			0			-
TOTAL	**-**	**-**	**-**	**-**	**-**	**-**

As per our Report attached
K. Bhagat & Co.
Charted Accountants

Partner
FRN 006769N

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(An Autonomous Institution of Ministry of New & Renewable Energy) Kapurthala (Punjab)- 144603

(Amount in Rs.)

PARTICULARS		31st MARCH, 2022	31st MARCH, 2021
VI. INVESTMENTS (Corpus Fund)			
A	Fixed Deposits with Banks	289,422,211.00	289,422,211.00
B	IREDA- NIBE Award Sweep Account	12,872,400.00	12,322,400.00
	Interest under MOD of NIBE Award	650,000.00	550,000.00
	(Transferred from Deposit A/c)		
	TOTAL	**30,29,44,611.00**	**30,22,94,611.00**

As per our Report attached
K. Bhagat & Co.
Charted Accountants

Partner
FRN 006769N

SARDAR SWARAN SINGH NATIONAL INSTITUTE OF BIO-ENERGY

(A Society Registered Under the Registration of the Societies Act, 1860)

IV: Fixed Assets and Depreciation Schedule as on 31.03.2021								
RATE	PARTICULARS	WDV	ADDITIONS	LESS THAN	DEDUCTIONS/	WDV		W.D.V.
OF		AS ON	MORE THAN	180 DAYS	ADJUSTMENT	AS ON	Depreciation	AS ON
DEP		31.03.2021	180 DAYS			31.03.2021		31.03.2022
-	Land	7,500,000.00	-	-	-	7,500,000.00	-	7,500,000.00
-	Land & Site Related Dev Works	1,285,066.00	-	-	-	1,285,066.00	-	1,285,066.00
0.15	Plant Mach & Equp Office-I	40,596.00	-	-	-	40,596.00	6,089.00	34,507.00
	FURNITURE, FIXTURE,OFFICE & HOSTEL EQUIPEMENTS							
0.4	Computer & Printrer	6,955.00	196,245.00	516,569.93	0	719,769.93	184,594.00	535,175.93
0.1	Furniture & Fixtures	1,613.00			-	1,613.00	161	1,452.00
0.15	Office Equipments	889,571.00				889,571.00	133,436.00	756,135.00
0.15	Refrigerator	31,315.00				31,315.00	4,697.00	26,618.00
	Project Bio Crude Assets							
0.15	TBP Bio-Crude project	581,409.00			-	581,409.00	87,211.00	494,198.00
0.15	Gas Regulator	7,605.00			-	7,605.00	1,141.00	6,464.00
0.15	Hydrogen Gas Cylinder	5,991.00		-	-	5,991.00	899	5,092.00
	Project Bio Diesel Assets							
0.15	Diesel Engine Test Rig	377,576.00			-	377,576.00	56,636.00	320,940.00
0.15	Foundation Stone	21,520.00			-	21,520.00	3,228.00	18,292.00
0.15	Oxyen Gas Cylinder	2,016.00			-	2,016.00	302	1,714.00
0.15	Flash Point Apparatus	114,129.00			-	114,129.00	17,119.00	97,010.00
0.15	Kinematic Viscometer	85,386.00			-	85,386.00	12,808.00	72,578.00
0.15	Mechanical Stirrer	12,447.00			-	12,447.00	1,867.00	10,580.00
0.15	Petroleum Density Meter	229,282.00			-	229,282.00	34,392.00	194,890.00
0.15	Rotary Vaccume Evaporator	107,999.00			-	107,999.00	16,200.00	91,799.00
0.15	Soxhelt	17,906.00			-	17,906.00	2,686.00	15,220.00
	Prroject Bio Ethonal Assets							
0.15	Bio reactor	837,359.00			-	837,359.00	125,604.00	711,755.00
0.15	Gel Electrophoresis	63,786.00			-	63,786.00	9,568.00	54,218.00
0.15	Real Time PCR	362,958.00			-	362,958.00	54,444.00	308,514.00
0.15	SDS Page Electrophoresis	80,883.00			-	80,883.00	12,132.00	68,751.00
0.15	Gas Cylinder	3,735.00			-	3,735.00	560	3,175.00
0.15	Water Jacket Vessel	34,964.00				34,964.00	5,245.00	29,719.00
	Prroject Bio Gas Assets							
0.15	Infrared Thermometer	3,015.00	-		-	3,015.00	452	2,563.00
0.15	Equipments	20,208.00				20,208.00	3,031.00	17,177.00
	Project Bio Mass Cookstove Assets							
0.15	Gas Cylinder	29,456.00	-		-	29,456.00	4,418.00	25,038.00
0.4	Computer & Printrer	188				188	75	113
0.15	Office Equipments	29,848.00				29,848.00	4,477.00	25,371.00
	Project Indo Brazil Assets							
0.15	Equipments	944,588.00				944,588.00	141,688.00	802,900.00

	Scientific & Laboratory Equipments (12-13)							
0.15	Cook Stove	121			-	121	18	103
0.15	Fume Hood	22,396.00			-	22,396.00	3,359.00	19,037.00
0.15	Photo Bioreactor	3,527.00			-	3,527.00	529	2,998.00
0.15	Weight Scale 100 kg	1,844.00			-	1,844.00	277	1,567.00
0.15	Weight Scale 30 kg	1,317.00			-	1,317.00	198	1,119.00
	Plant & Machinery Equipments							
0.15	Air Compresser Machine	5,841.00			-	5,841.00	876	4,965.00
0.15	Fixed Drill Machine R/f 20mm	7,519.00			-	7,519.00	1,128.00	6,391.00
0.15	Gas cutting Set	8,339.00			-	8,339.00	1,251.00	7,088.00
0.15	Grinder Angle 100mm(Hand Grinder)	997			-	997	150	847
0.15	Hydrolic Power Hacksaw Machine	11,506.00			-	11,506.00	1,726.00	9,780.00
0.15	Lath Machine	78,956.00			-	78,956.00	11,843.00	67,113.00
0.15	Pana Machine(Arc Welding Set)	18,258.00			-	18,258.00	2,739.00	15,519.00
0.15	Pedestal Grinder 300mm	7,165.00			-	7,165.00	1,075.00	6,090.00
0.15	Tractor,Trolly & Equipments	180,264.00				180,264.00	27,040.00	153,224.00
0.15	Borewell with 2HP Submersible Pump	10,669.00			-	10,669.00	1,600.00	9,069.00
0.15	Drill Machine (GBM 10 MM Heavy)	872			-	872	131	741
0.15	Fire Extinguishar	29,510.00			-	29,510.00	4,427.00	25,083.00
0.15	Grass Moving Machine	374			-	374	56	318
0.15	Hmpv Fitting Lamp	13,974.00			-	13,974.00	2,096.00	11,878.00
0.15	Leveller	2,078.00			-	2,078.00	312	1,766.00
0.15	Projector	72,241.00			-	72,241.00	10,836.00	61,405.00
0.15	Tiller	2,893.00			-	2,893.00	434	2,459.00
0.15	Vehicle Car Ambessador (New)	113,363.00			-	113,363.00	17,004.00	96,359.00
0.15	Workshop Tools	104,295.00			-	104,295.00	15,644.00	88,651.00
0.15	Drill Hammer Rotary 26(hand Grinder)	3,456.00			-	3,456.00	518	2,938.00
0.15	Gas & Four Cylinders	2,428.00			-	2,428.00	364	2,064.00
0.15	Electrical Equipments	87,834.00			-	87,834.00	13,175.00	74,659.00
0.1	Guest Houes Assest/ Office Equipment.	60,268.00			-	60,268.00	6,027.00	54,241.00
0.1	Leddger	11,821.00			-	11,821.00	1,182.00	10,639.00
0.1	Plant Mach & Equp Office-II	2,839.00			-	2,839.00	284	2,555.00
	Scientific & Laboratory Equipments							
0.15	Air Oven (250 degree)	9,302.00			-	9,302.00	1,395.00	7,907.00
0.15	Bomb Calorimeter	117,087.00			-	117,087.00	17,563.00	99,524.00
0.15	Circ,Refrig,6Lt,STD(Auto Clave)	25,442.00			-	25,442.00	3,816.00	21,626.00
0.15	Data Acquisition System	82,081.00			-	82,081.00	12,312.00	69,769.00
0.15	Digital Ph.Meter	11,461.00			-	11,461.00	1,719.00	9,742.00
0.15	Incubator Bacteriological	9,679.00			-	9,679.00	1,452.00	8,227.00
0.15	Kern Analytical Balance (220gm)	11,320.00			-	11,320.00	1,698.00	9,622.00
0.15	Laboratory Refrigerator	138,506.00			-	138,506.00	20,776.00	117,730.00
0.15	Laminar Airflow Horizontal	12,039.00				12,039.00	1,806.00	10,233.00

0.15	Megnetic Stirrer	7,508.00				7,508.00	1,126.00	6,382.00
0.15	Platorm Scale(Platform Balance)	3,544.00				3,544.00	532	3,012.00
0.15	Precision Laboratory Balance(610gm)	6,464.00				6,464.00	970	5,494.00
0.15	Water Bath	28,026.00				28,026.00	4,204.00	23,822.00
0.15	Automatic Sieve	69,168.00				69,168.00	10,375.00	58,793.00
0.15	Bio-Diesel Preparation Unit(England)	160,451.00				160,451.00	24,068.00	136,383.00
0.15	Biomass Gassifier	211,306.00				211,306.00	31,696.00	179,610.00
0.15	CHN Analyzer (Germany)	435,875.00				435,875.00	65,381.00	370,494.00
0.15	Fibretech Apparatur	50,299.00				50,299.00	7,545.00	42,754.00
0.15	Incubator Shaker(USA)	168,701.00				168,701.00	25,305.00	143,396.00
0.15	Micropipette	12,720.00				12,720.00	1,908.00	10,812.00
0.15	Portable Biogas plant	19,257.00				19,257.00	2,889.00	16,368.00
0.15	2 Gel Electrophrosis	239,936.00				239,936.00	35,990.00	203,946.00
0.15	Automatic Colony Counter	338,717.00				338,717.00	50,808.00	287,909.00
0.15	Bio Photometer	124,749.00				124,749.00	18,712.00	106,037.00
0.15	Co2 Incubator Shaker	294,805.00				294,805.00	44,221.00	250,584.00
0.15	Gas Flow Meter	253,450.00				253,450.00	38,018.00	215,432.00
0.15	Dry Bath	19,921.00				19,921.00	2,988.00	16,933.00
0.15	Electroporation Unit	59,600.00				59,600.00	8,940.00	50,660.00
0.15	Filter Paper Type SMP Sysytem	68,881.00				68,881.00	10,332.00	58,549.00
0.15	Flue Gas Analyser	576,660.00				576,660.00	86,499.00	490,161.00
0.15	FTIR Spectometer (FTIR 660)	545,168.00				545,168.00	81,775.00	463,393.00
0.15	Gradient PCR (Mastercycler Nexus GX2)	156,988.00				156,988.00	23,548.00	133,440.00
0.15	Hot Plate Cum Magnetic Stirrer	16,317.00				16,317.00	2,448.00	13,869.00
0.15	Precision Microbalance	48,782.00				48,782.00	7,317.00	41,465.00
0.15	Ultrasonic Cleaner	11,261.00				11,261.00	1,689.00	9,572.00
0.15	Refrigerated Centrifuge (Germany)	106,323.00				106,323.00	15,948.00	90,375.00
0.15	TG DTA (STA6000)Singapore	241,712.00				241,712.00	36,257.00	205,455.00
0.15	Ultra Low Freezer(Deep Freezer)(USA)	91,926.00				91,926.00	13,789.00	78,137.00
0.15	U V Vis Spectrophotometer(Singapore)	141,222.00				141,222.00	21,183.00	120,039.00
0.15	Autoclave	38,163.00				38,163.00	5,724.00	32,439.00
0.15	Auto Emission Analyzer	92,679.00				92,679.00	13,902.00	78,777.00
0.15	BOD Incubator	126,532.00				126,532.00	18,980.00	107,552.00
0.15	Carbon Monoxide Indicator	3,771.00				3,771.00	566	3,205.00
0.15	Circulatory Water Bath	45,958.00				45,958.00	6,894.00	39,064.00
0.15	Gas Chromatography	794,384.00				794,384.00	119,158.00	675,226.00
0.15	Microscope	42,654.00				42,654.00	6,398.00	36,256.00
0.15	Muffle Furnace 1200 (1400)	10,853.00				10,853.00	1,628.00	9,225.00
0.15	Muffle Furnance 1100 (1400)Degree	8,061.00				8,061.00	1,209.00	6,852.00
0.15	Vaccum Oven	40,878.00				40,878.00	6,132.00	34,746.00
0.15	Gas Regulator	2,082.00				2,082.00	312	1,770.00

0.15	Water Purificati0n System	217,688.00				217,688.00	32,653.00	185,035.00
0.15	Equipments	17,120.00				17,120.00	2,568.00	14,552.00
0.15	Automatic cell counter	162,545.00			-	162,545.00	24,382.00	138,163.00
0.15	Fluorescence Microscope	536,883.00				536,883.00	80,532.00	456,351.00
0.15	Hot air oven	199,568.00				199,568.00	29,935.00	169,633.00
0.15	incubator 104	39,134.00				39,134.00	5,870.00	33,264.00
0.15	irox diesel	868,434.00				868,434.00	130,265.00	738,169.00
0.15	Micro balance	698,835.00				698,835.00	104,825.00	594,010.00
0.15	Moisture analyzer	220,908.00				220,908.00	33,136.00	187,772.00
0.15	Muffle Furnance 1400	157,844.00				157,844.00	23,677.00	134,167.00
0.15	phase contrastmicroscope	361,547.00				361,547.00	54,232.00	307,315.00
0.15	Shaking Water Bath	144,559.00				144,559.00	21,684.00	122,875.00
0.15	Staked Enviroment Shaker	945,842.00				945,842.00	141,876.00	803,966.00
	Scientific & Lab. Equipments (For Bio-Dieseal Project)							
0.15	Circular Saw Ma chine	6,302.00				6,302.00	945	5,357.00
0.15	Differntail Scanning Calormiter	840,182.00				840,182.00	126,027.00	714,155.00
0.15	Gel Documents	275,694.00				275,694.00	41,354.00	234,340.00
0.15	High Mast Light	1,115,338.00				1,115,338.00	167,301.00	948,037.00
0.15	Homogenizer	126,235.00				126,235.00	18,935.00	107,300.00
0.15	HPLC	489,242.00				489,242.00	73,386.00	415,856.00
0.15	Lyophilizer	222,975.00				222,975.00	33,446.00	189,529.00
0.15	Oxidation Stabilty Apparatus	282,808.00				282,808.00	42,421.00	240,387.00
0.15	Ramsbotton Carbon Residue Apparatus	246,151.00				246,151.00	36,923.00	209,228.00
0.15	Street Light	1,232,038.00				1,232,038.00	184,806.00	1,047,232.00
0.1	Furniture & Fixture	9,062,662.00	29,842.00			9,092,504.00	909,250.00	8,183,254.00
0.4	Computer/Peripherals	20,892.06				20,892.06	8,357.00	12,535.06
0.15	Library Books	916,537.00	5,117.00	78,071.00	15,746.00	983,979.00	141,742.00	842,237.00
0.15	Cycle	65				65	10	55
	Misc Eqiupments (Cellphone)				-			
0.1	Misc Fixed Assets	39,112.00				39,112.00	3,911.00	35,201.00
0.1	Guest House Misc Assets	18,772.00				18,772.00	1,877.00	16,895.00
0.15	Guest House Equip Mach-I	3,238.00				3,238.00	486	2,752.00
0.1	Guest House Equip Mach-II	54				54	5	49
0.15	Land Site Related Dev Tubewell	210,617.00				210,617.00	31,593.00	179,024.00
0.1	Civil Works Building & Built Up Space	133,639,058.00	90,796.00	1,809,866.00	0	135,539,720.00	13,463,479.00	122,076,241.00
0.15	Mobile	1,060.00				1,060.00	159	901
0.1	Inaugration of Gate	6,457.00				6,457.00	646	5,811.00
0.15	Air Conditions	688,160.00				688,160.00	103,224.00	584,936.00
0.15	Hair refrigerator 601 Ltr	17,711.00				17,711.00	2,657.00	15,054.00
0.15	Digital Electronic Balance ML 204	27,208.00				27,208.00	4,081.00	23,127.00

0.15	Helium Gas Cylinder with Regulator	8,273.00				8,273.00	1,241.00	7,032.00
0.15	Online UPS 15KVA	62,843.00				62,843.00	9,426.00	53,417.00
0.1	Development of Gate	1,125,086.00				1,125,086.00	112,509.00	1,012,577.00
0.15	Panasonic Fax	2,283.00				2,283.00	342	1,941.00
0.15	Washing Machine	7,295.00				7,295.00	1,094.00	6,201.00
0.15	Gas Purification	20,900.00				20,900.00	3,135.00	17,765.00
0.15	Liquid Nitrozen	21,914.00				21,914.00	3,287.00	18,627.00
0.15	Bike Passion	16,124.00				16,124.00	2,419.00	13,705.00
0.15	Machinery (Assets)	16,552.07	2,025,429.80	9,863,163.00	0	11,905,144.87	1,046,035.00	10,859,109.87
0.15	Process Equipment	96,900.00				96,900.00	14,535.00	82,365.00
0.15	LG refrigerator	**21,936.00**				21,936.00	3,290.00	**18,646.00**
0.1	Sign Board	45,437.00				45,437.00	4,544.00	40,893.00
0.15	Water Purifiers	42,127.00				42,127.00	6,319.00	35,808.00
0.1	Stainless steel Doors	133,423.00				133,423.00	13,342.00	120,081.00
0.15	Rear Disk Rod	2,339.00				2,339.00	351	1,988.00
0.15	Sheet Cutting Machine	13,241.00				13,241.00	1,986.00	11,255.00
0.1	Water tank	10,800.00				10,800.00	1,080.00	9,720.00
0.15	Sheet Rolling Machine	19,852.00				19,852.00	2,978.00	16,874.00
0.1	Construction	747,893.00				747,893.00	74,789.00	673,104.00
0.15	Audio Video Conferencing Sys	1,053,840.00				1,053,840.00	158,076.00	895,764.00
0.4	Scanner	199				199	80	119
0.1	Office Buildings (W	2,264,415.00				2,264,415.00	226,442.00	2,037,973.00
0.15	Plant Assets	9,096.00				9,096.00	1,364.00	7,732.00
0.15	CCTV Camera	0	0	721000	0	721,000.00	54,075.00	666,925.00
0.4	Software	0	1575000	2135800	0	3,710,800.00	1,057,160.00	2,653,640.00
	Sub-Total	1,80,53,12,47.13	2,34,74,29.80	1,22,67,669.93	15,746.00	1,95,13,06,00.86	2,08,53,915.00	1,78,70,84,85.86

AUDITOR'S REPORT

The annual audited accounts of the Institute for the year 2021-22 has been prepared and duly audited by Internal Auditors M/s. Puri& Gupta Chartered Accountant, Jalandhar and Statutory Auditor M/s. K. Bhagat & Co., Jalandhar

Sardar Swarna Singh National Institute of Bio-Energy
(An autonomous institution of ministry of new and renewable energy)
Kapurthala punjab-144603

1. Accounting Convention

The Financial statements are prepared on the basis of historical cost conversion in accordance with the generally accounting principles and on the accrual method of accounting.

2. Interest on Corpus

Institute has received interest on corpus fund which has been kept in FDR with bank. The total amount of Interest received during FY 2021-2022 on FDR is Rs. 1,08,12,145.00/- out of which Rs. 68,43,912.69 has been transferred to income and expenditure account under the head Interest on FDR (Corpus Fund) and the same has been utilized for expenses of institute.

3. FIXED ASSETS

Fixed Assets are valued at cost of acquisition inclusive of inward freight, duties and taxes and incidental and direct expenses related to acquisition.

4. DEPRECIATION

Depreciation on fixed assets has been provided on Written down Value method as per rates specified in the Income Tax Act, 1961.

5. GOVERNMENT GRANTS

Governments of India, Ministry of New & Renewable Energy has sanctioned the establishment of Sardar Swaran Singh National Institute of Renewable Energy [SSS-NIRE] as an autonomous Institute of Ministry under the Societies Registration Act, 1860. During the year 2021-22, Rs. 1.10 Crores has been received for Salary.Rs.1.70 Crores has been received for creation of Capital Asset and Rs.2.16 Crores has been Grant received for General Expenses. Total Grant received during the Year Rs.4.96 Crores. This makes a total grant of Rs. 94.91 Crores received from Ministry. Year wise Grants received along with Interest earned which had been converted from Capital Fund to Grant –in-Aid has been given in following table:

YEAR WISE DETAILS GRANT RELEASED FROM MNRE TO SSS-NIRE

FINANCIAL YEAR	GRANT RECEIVED (In Rs)	CUMMULATIVE GRANT (In Rs)
1998-1999	75000000	75000000
1999-2000	2000000	77000000
2000-2001		77000000
2001-2002	10000000	87000000
2002-2003	20000000	107000000
2003-2004	30000000	137000000
2004-2005	28300000	165300000
2005-2006		165300000
2006-2007		165300000
2007-2008	36700000	202000000
2008-2009	35000000	237000000
2009-2010	70000000	307000000
2010-2011	40000000	347000000
2011-2012	50000000	397000000
2011-2012 [Int. Utilized]	15047499	412047499
2012-2013	150000000	562047499
2013-2014 [Int. Utilized]	7466375	569513874
2013-2014	80000000	649513874
2014-2015	120000000	769513874
2015-2016	46858799	816372673
2015-2016[Int.Utilized]	91,41,201	825513874
2017-2018	1,00,00,000	83,55,13,874
2018-2019	1,00,00,000	84,55,13,874
2019-2020[Int.Utilized]	70,00,000	85,25,13,874
2020-2021	4,70,00,000	89,95,13,874
2021-2022	4,96,00,000	94,91,13,874

6. TAXATION

In view of there being no taxable income under Income Tax Act, 1961, provision for Income Tax has not been considered necessary. However, it is found from the Income Tax portal that the organization has pending outstanding liability of Income Tax which is as under: -

S No	Assessment Year	Amount (in Rs)
1	2015-2016	30565450.00
2	2016-2017	547460.00

Appeal for the A.Y 2015-16 has been filed before Commissioner of Income Tax (Appeals) decision of which is still pending. In connection to A.Y 2016-17, assessment has been made under section 143(3) vide order 27.11.2018 with nil demand but demand of Rs.5,47,460/- has been still reflected in Income Tax Portal.

Further, Portal is also showing default w.r.t. TDS payments also, details of which are as under: -

S No	Financial Year	Amount (in Rs)
1	2015-2016	130.00
2	2017-2018	180.00
2	2018-2019	6248.00
3	2019-2020	48124.00
4	2020-2021	22102.50
5	2021-2022	86980.00
	TOTAL	**163764.50**

7. BALANCE CONFIRMATION FROM VENDORS

Balance confirmation from the various vendors is not available. To avoid the unnecessary incidences, it is essential to get the account statements of all the vendors at regular intervals. Submission of the account's statements should be made mandatory for all the vendors in the future.

8. CURRENT ASSETS

Following is the list of Debtors/Loans & advances where in advances have been given for more than a year and have not been adjusted during the years.

Particulars	Date of Advance	Balance as on 31.03.2022(In Rs)
M/s. Casa New Delhi	17.07.2003	3,00,000.00
Sundry Advances	31.03.2015	41,055.49
Deejay corporation	2012	63,279.00
B.N. Construction	21-10-2014	5,00,000.00

The above advances are outstanding since long time, we recommend that proper action should be taken up for recovery from above parties and there should be regular review of the all the advances and to ensure that vendors are fulfilling their commitments as per the terms of work orders.

9. CURRENT LIABILITIES

Following is the list of creditors which are not paid for more than a year.

Particulars	Detail	Bal. as on 31.03.2022
Chemicot Scientific Gases	31.03.2016	3,810.00
Arora Vikram & Associates	16.12.2019	18880.00
Statutory Audit Fees Payable	31.03.2017	9660.00

OTHER OBSERVATIONS

- In most of cases, GST Number of the Institute is not mentioned on the bills.
- The amount of expenditure has exceeded the amount of Grants received this time hence the

amount of Interest earned out of corpus fund has been utilized this time for funding these expenditures. While amount of Rs 24,64,024.73 has been utilized out of Interest for Capital (Rs 1,70,00,000-1,94,64,024.73), Similarly with respect to GIA general expenses ,the amount of Grant received is Rs 2,16,00,000, the amount expended is Rs.2,59,79,887.96. The same of Rs 43, 79,887.96 has been utilized from interest of Corpus Fund.

- Bank reconciliation should be conducted at regular interval.
- Internal Audit should be conducted at regular interval instead of at the end of the year.
- Bill register is not maintained during the year. It is recommended that separate register should be maintained for bills.
- TDS has not been deducted on internal Audit Fee Payable of Rs.59000.00

10. Following is the detail of cheque issued but not presented as on 31.03.2022:

S.No.	Particulars	Instrument/Demand Draft No.	Amount
1.	M/s Dhawan Cateres and Decorators/ Dr Nikhil Gakkhar	BP No.399	116512.00
2.	M/s Khajuria Sales Corpoartion	BP No.398	9000.00
3.	M/s Jai Maa Durga Nursery Plant	BP No.398	6000.00
4.	Other (Repair & Renovation)	BP No.422	4380.00
5.	DPL Wages	BP No.403	4080.00
6.	Board & Committee Meeting Exp	BP No.414	4000.00
7.	Board & Committee Meeting Exp	BP No.417	6400.00
8.	Damp 2 Decor	BP No.421	18000.00
9.	Pritika International	BP No.425	8550.00
10.	Board & Committee Meeting Exp	BP No.423	16328.00
11.	Board & Committee Meeting Exp	BP No.416	17578.00
		Total	**210828.00**

As per our Report attached
K. Bhagat & Co.
Charted Accountants

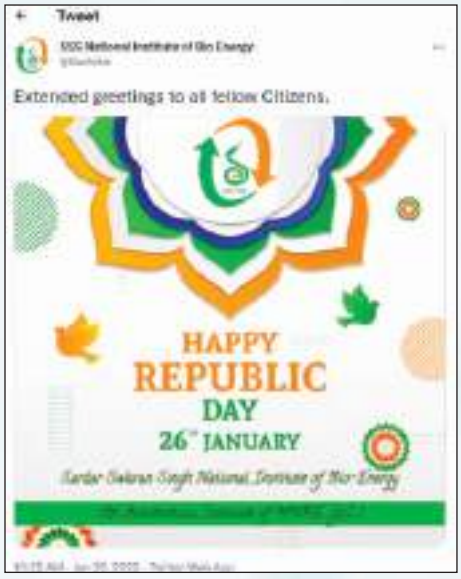
Partner
FRN 006769N

Place : Jalandhar
Date: 21-09-2022
UDIN: 22017902ATPVXB7397

Reply of Observations of Statutory Auditor as per Audit Report for F.Y.2021-22

Sr No	Auditors Observations (Clause 10 of Report)	Action Taken by NIBE
1	In most of cases, GST Number of the Institute is not mentioned on the bills.	The matter is taken up with the respective divisions. The GST number has been also circulated to the vendors for inclusion in bills.
2	The amount of expenditure has exceeded the amount of grants received this time hence the amount of Interest earned out of corpus fund has been utilized this time for funding these expenditures. While amount of Rs 24,64,024.73 has been utilized out of Interest for Capital (Rs. 1,70,00,000-1,94,64,024.73), Similarly with respect to GIA general expenses, the amount of Grant received is Rs. 2,16,00,000, the amount expended is Rs. 2,59,79,887.96. The same of Rs. 43,79,887.96 has been utilized from interest of Corpus Fund.	The excess utilization of grants was post facto approved by Governing Council. The efforts are being done to utilize the available GIA grants
3	Bank reconciliation should be conducted at regular interval.	The matter has been noted and is taken up with Internal Auditor as well.
4	Internal Audit should be conducted at regular interval instead of at the end of the year.	The matter has been noted and is taken up with Internal Auditor as well.
5	Bill register is not maintained during the year. It is recommended that separate register should be maintained for bills.	The matter has been noted and is taken up with Internal Auditor as well. It is proposed to sort the issue within FY 22-23
6	TDS has not been deducted on internal Audit Fee Payable of Rs.59,000.00	The matter has been noted and is taken up with Internal Auditor as well. It is proposed to sort the issue within FY 21-22

ONLINE PRESENCE

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