नैनो विज्ञान एवं प्रौद्योगिकी संस्थान

INST

Institute of Nano Science and Technology

INSTITUTE OF NANO SCIENCE AND TECHNOLOGY, MOHALI

ANNUAL REPORT 2012-13

नैनो विज्ञान एवं प्रौद्योगिकी संस्थान, मोहाली

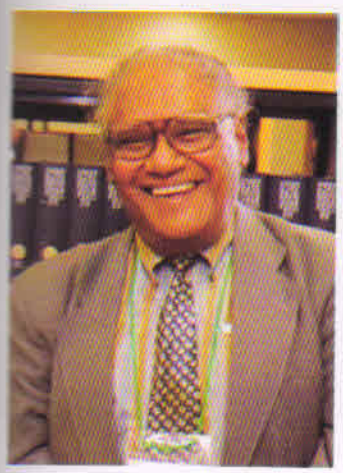
वार्षिक प्रतिवेदन 2012 - 13

ANNUAL REPORT 2012-13

INSTITUTE OF NANO SCIENCE & TECHNOLOGY

MOHALI (PUNJAB)

CONTENTS



INSTITUTE OF NANO SCIENCE AND TECHNOLOGY

CHAIRMAN - Board of Governors
Professor C N R Rao

Professor Rao obtained his bachelors degree from Mysore University in 1951, obtaining a masters from Banaras Hindu University two years later, and obtained his Ph.D. in 1958 from Purdue University. He has received Honorary Doctorates from many Universities such as Bordeaux, Colorado, Liverpool, Northwestern, Novosibirsk, Oxford, Purdue, Universite Joseph Fourier, Wales, Notre Dame, Uppsala, IIT-Bombay, IIT Kharagpur, IIT Delhi and more than a dozen other institutes.

He is a recipient of several awards including the Hughes Medal by the Royal Society in 2000, the first recipient of the India Science Award instituted by the Government of India in 2004, the Dan David prize in 2005 and the top Science award of China in 2013.

He is a fellow of the American Academy of Arts and Sciences, the Royal Society (London), French Academy, Japanese Academy, Serbian Academy of Sciences and Arts, the Pontifical Academy and many others.

He was conferred the title Chevalier de la Légion d'honneur (Knight of the Legion of Honour) by the French Government. He has also been awarded the Padma Shri and the Padma Vibhushan by the Government of India and the Karnataka Ratna by the Government of Karnataka.

Prof. Rao has published around 1500 papers (400 in Nanoscience and Technology). He has an H-Index of 108 and total citations of 58000.

He has been responsible for creating many scientific institutions including SSCU, IISc Bangalore, JNCASR Bangalore and ICMS, Bangalore.

Professor C N R Rao

Dlitt (HC), FRS, FNA, FASc, Hon. FRSC
National Research Professor
Linus Pauling Research Professor
International Centre for Materials Science
Jawaharlal Nehru Centre for Advanced Scientific Research
Jakkur, Bangalore - 560064 (INDIA)
Chairman, Scientific Advisory Council to the Prime Minister of India
Chairman, Nano Mission, Dept. of Science and Tech, Govt. of India

FOREWORD

It gives me immense pleasure to present the first Annual Report of Institute of Nano Science and Technology (INST). It is an autonomous institution set up by Department of Science and Technology, Government of India, registered under the Societies Registration Act, to promote research in the field of nanoscience and technology with emphasis in the areas of agricultural nanotechnology, biosensors, drug delivery, online diagnostics, photovoltaics, photo catalysis and water purification.

Land for INST has been allotted by Punjab Government adjacent to Indian Institute of Science and Education Research (IISER) in Sector 81, Mohali. The institute has started its activities from – Habitat Centre in Sector – 64, Phase - X, Mohali, with effect from January 3, 2013, the day Director took over charge. INST will move to its own building at the allotted land after construction of state-of- the-art campus in the next 3-4 years.

INST is the first and the only institute funded by Government of India with a mandate of pursuing primarily nanoscience and technology and we will strive to make it known as one of the best institutes of the country recognized globally. This institute owes its creation to Prof. CNR Rao, FRS (Chairman, Nano Mission, DST). I also wish to place on record the support and efforts of Dr. T Ramasami, Secretary, DST and Dr. P Asthana, Scientist 'G' and Head (AI), DST for setting up the institute. I look forward to continued support and encouragement from them which will allow us to bring to fruition the dream of the founders of this unique institute.

I am proud to write this foreword for INST's first Annual Report which is effectively for January – March 2013, and I am quite sure next year there will be many more items to report.

Ashok K Ganguli
Director, INST

INTRODUCTION

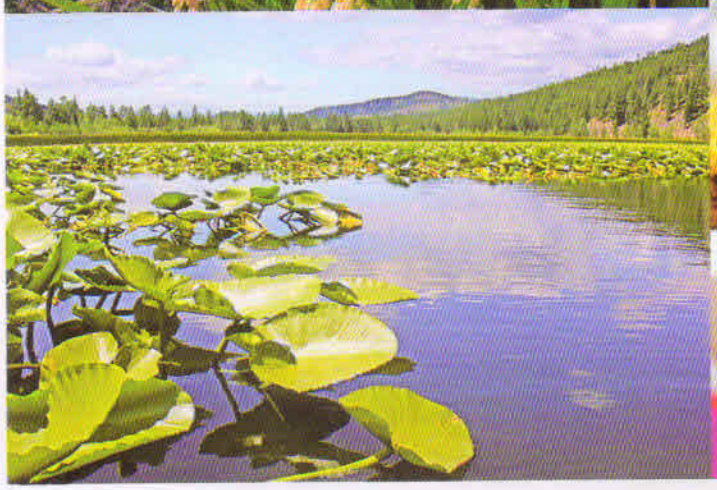
ABOUT INST

INST is an autonomous institution set up by the Government of India, Department of Science and Technology, registered under the Societies Registration Act, to promote research in the area of Nano Science and Technology in the country.

THRUST AREAS OF INST

- Agriculture
- Energy
- Medicine
- Environment






KEY ELEMENTS OF LOGO OF INST

Nano technology and the newness of the institute and its growth objectives.

1. **Hexagon :** depicts nanoparticles where size of the hexagons is linked to the different colours of the nanoparticles – blue for smaller and green for larger particles (seen in gold nanoparticles). The hexagons also depict the chemical aspect of nanoscience as the chain of hexagons indicate chemistry.

2. **Half Gear :** depicts the mechanical aspect of nano technology. It can also be seen as a rising sun and denotes the newness of the institute.

3. **Ring around the half gear :** depicts the interdisciplinary nature of the subject with connectivity between the mechanical/engineering aspects to the chemicals and life processes.

4. **Cantilever :** is associated with nano technology as it is the heart of the Atomic Force Microscope, which is considered one of the key inventions to fuel the growth of nanoscience and technology.

5. **Leaves :** depict the biological aspect of nanoscience and technology. They also depict the avenues of growth and the care that this field will receive at the institute.

- The **colours** give a feel of the national flag of India

What is Nano Science and Technology?

The word 'nano' in Greek literally means 'dwarf' and scientifically refers to objects or processes which are in the nanometre dimensions (1nm = 10^{-9}m). In the scientific and technical field the range of 1 - 100nm is considered to be the nano regime or the nano scale.

Nanoscience refers to all phenomena and processes in the natural world or in the man-made (artificial) objects which occurs due to the nano size; for example, the colours of butterflies are due to the interaction of light with the scales (which have nanostructures) on the wings of the butterflies. Similarly, the formation of water droplets on lotus leaves is due to the surface properties of the leaf which has nanostructures (visible under microscope).

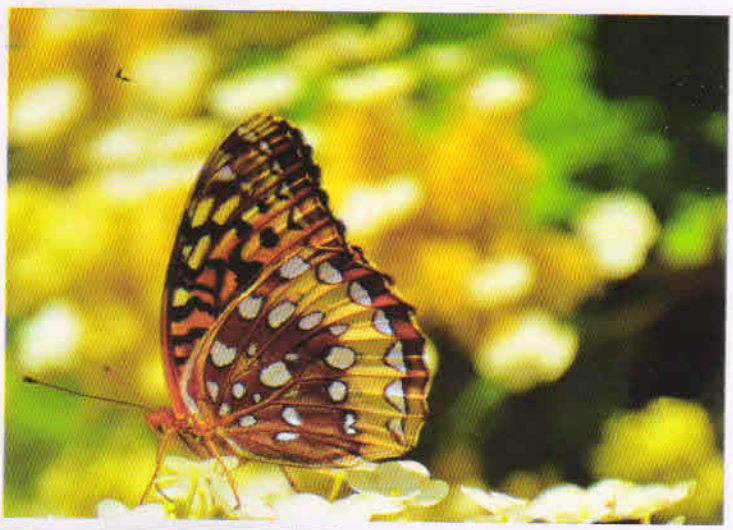
Nanotechnology would be the application of our understanding about the properties of nanostructure and the designing and fabricating of such structures on materials (like steel, polymer etc) to yield properties which would otherwise not be possible. Scientists are designing self–cleaning glasses, wrinkle–free textiles, optical encoders, water purifying agents etc. Nanotechnology has wide applications in areas ranging from Agriculture, Medicine to Energy and Environment.

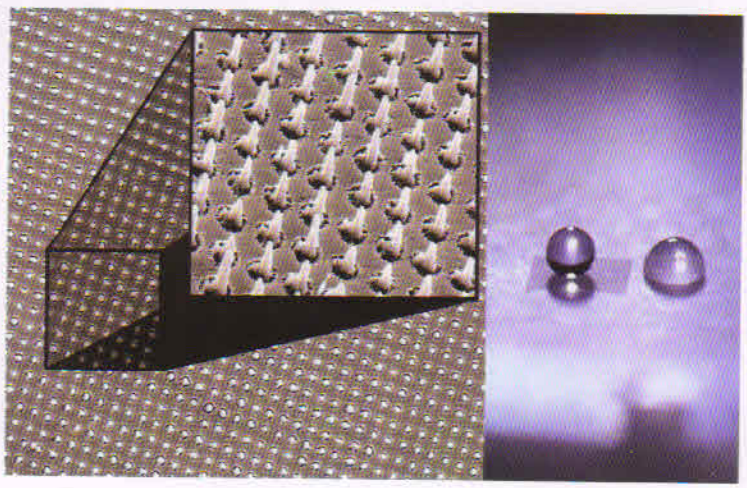
Nanostructures and Colour

The colours of butterfly wings come from the scattering of light when they hit the nanostructures on their scales.

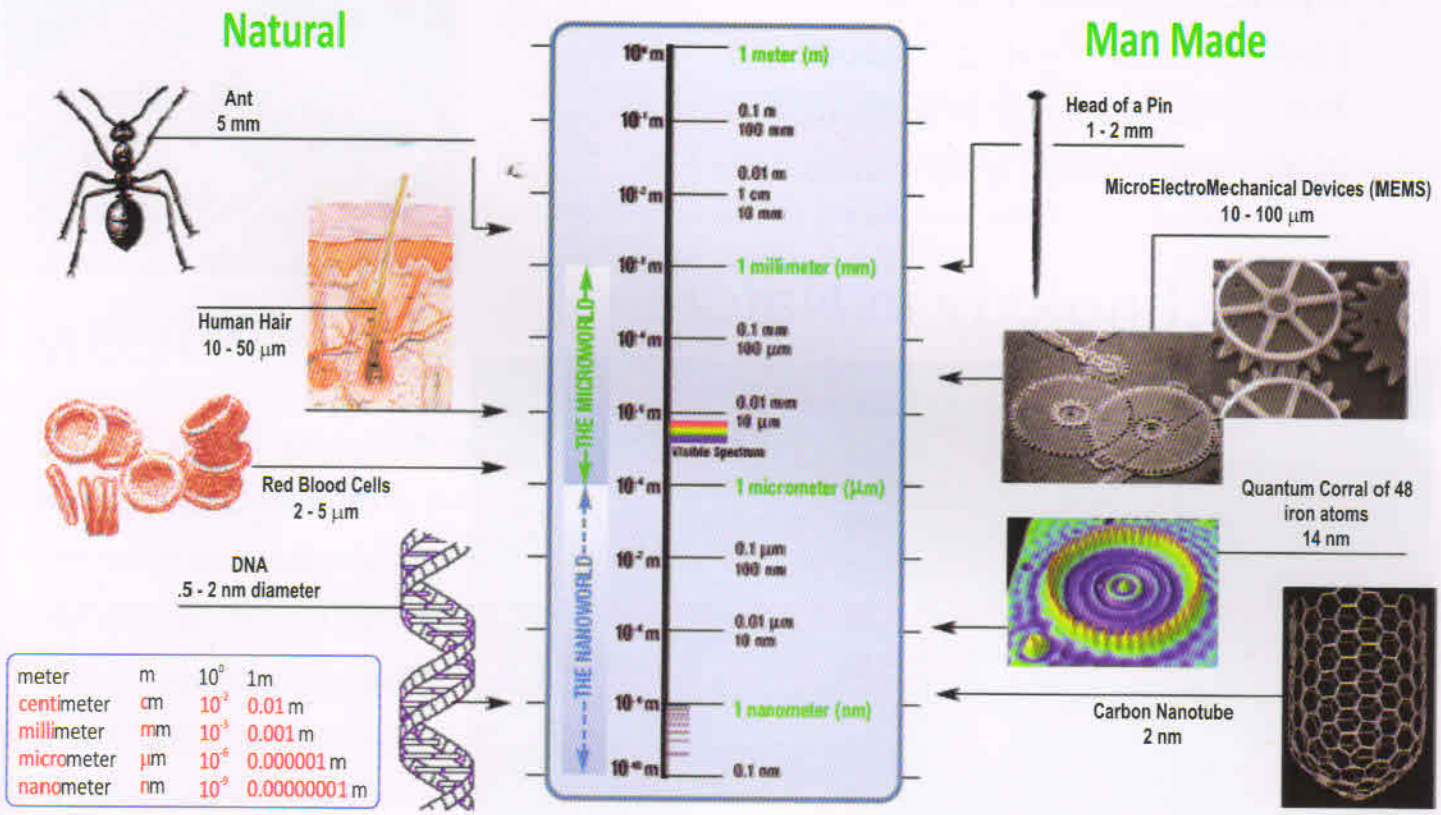
Lotus Effect

The water drops on the lotus leaf do not wet the surface of lotus leaf due to the nano-structures present on the seemingly smooth surface.





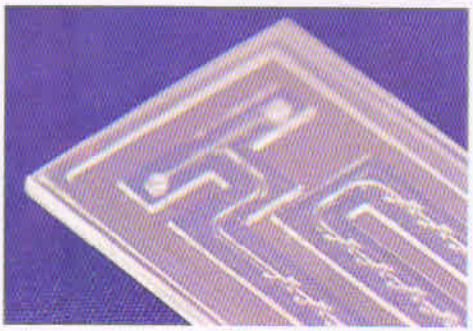
An introduction to the subject of Nanoscience and Nanotechnology



The above diagram shows that several important living objects are of the size of 1-100 nm. (like DNA helix, red blood cells etc.). The right panel shows man–made nanostructures, gears tubes etc. which can form part of nano machines.

Nanoscale Effects

- Realization of miniaturized devices and systems while providing more functionality
- Attainment of high surface area to volume ratio
- Manifestation of novel phenomena and properties, including changes in:
  - Physical Properties (e.g. melting point)
  - Chemical Properties (e.g. reactivity)
  - Electrical Properties (e.g. conductivity)
  - Mechanical Properties (e.g. strength)
  - Optical Properties (e.g. light emission)



Nanotechnology in Nature

- Spider silk is stronger than steel and more elastic than nylon
- Spiders make silk protein-based nanomaterials that self-assemble into fibres and sheets. These fibres are very strong and flexible.

VISION, MISSION, OBJECTIVES & FUNCTIONS OF INST

VISION

To emerge as globally competitive India's foremost research institution in Nano Science and Technology and to contribute to the society through application of nanoscience and nanotechnology in the field of agriculture, energy, medicine and environment.

MISSION

To be a world class research institution by creating state-of-the-art infrastructural facilities, engaging outstanding scientists from different branches of science and engineering, encouraging them to carry out their individual scientific research to be published in the best journals along with the mandate to jointly work on interdisciplinary projects to develop devices/technologies based on nano science and technology. To encourage all aspects of nanoscience and nanotechnology with major thrust on the following areas: agricultural nanotechnology, sensors, medical nanotechnology, nanotechnology based solutions for energy and environment.

OBJECTIVES

- Resource building – infrastructure and manpower
- Enhance research activity in Nano Science and Nano Technology
- Training students in PhD programme in Nano Science and Technology
- Foster interactions between leading scientists of the world in Nano Science and Technology

- Impart advanced training courses and laboratory techniques of nanotechnology at the highest level
- Organizing important national and international level seminars and conferences
- Encouraging innovative and challenging technology/product based scientific projects
- Publish scientific papers of high impact factor
- Generating patents in Nano Science and Technology
- Setting up of incubators for translational research (from laboratory to industry)
- Sensitizing public and media about the advantages and safeguards in Nano Science and Technology

FUNCTIONS

To develop Nano Science and Technology and to take it to a globally acclaimed level. Efforts shall be carried on relentlessly by supporting and encouraging young researchers and scientists with state-of-the-art infrastructure and through a challenging work environment. Though all aspects of nanoscience and nanotechnology will be encouraged, some of the key research projects of the institute would be as follows:

- Carbon based nanostructures and devices
- Lab-on-chip based bio-sensing platforms
- Smart nanomaterials for diagnosis, medicine and therapy
- Interactive nano-packaging for extending food shelf lives
- Nano-rod arrays for battery applications
- Band-gap engineering for efficient solar photo-catalysts
- Nanocoatings for efficient solar photovoltaics
- Nanofluids for heat transfer applications
- Low-cost microfluidic devices for food safety, health and agriculture
- Nano biotechnology and drug delivery

BOARD OF GOVERNORS

(The Apex Executive Body)

CHAIRPERSON

1. Prof CNR Rao
   National Research Professor,
   Honorary President & Linus Pauling Research Professor, and
   Director, International Centre for Material Science (ICMS)
   Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore

MEMBERS

2. Dr T. Ramasami
   Secretary, Department of Science and Technology, New Delhi
3. Dr K Vijay Raghavan
   Secretary, Department of Biotechnology, New Delhi
4. Shri Ashok Thakur
   Secretary, Department of Higher Education, MHRD, New Delhi
5. Dr S. Ayyappan
   Secretary, Department of Agricultural Research and Education (DARE), New Delhi
   (Secretary DARE's nominee: Dr. K. K. Singh, Astt. DG, Process Engg, ICAR)
6. Shri Indrajit Pal
   Secretary, Department of Chemicals and Petrochemicals, New Delhi

7. Smt Anuradha Mitra
   Joint Secretary & Financial Advisor,
   Department of Science and Technology, New Delhi
8. Prof A. K. Sood
   Department of Physics, Indian Institute of Science, Bangalore
9. Prof Shantikumar V. Nair
   Professor and Director, Amrita Centre for Nanosciences and Molecular Medicine, Kochi
10. Prof M. K. Sanyal
    Director, Saha Institute of Nuclear Physics, Kolkata
11. Prof Ashutosh Sharma
    Institute Chair Professor, Department of Chemical Engineering
    Indian Institute of Technology, Kanpur
12. Prof V. Ramgopal Rao
    Chair Professor, Department of Electrical Engineering,
    Indian Institute of Technology, Bombay
13. Shri. Suresh Kumar
    Principal Secretary to Government of Punjab,
    Department of Science, Technology and Environment, Chandigarh
14. Dr. (Mrs) Neelima Jerath,
    Executive Director, Punjab State Council for Science & Technology, Chandigarh
15. Prof N. Sathyamurthy
    Director, Indian Institute of Science Education and Research (IISER), Mohali
16. Prof Ashok K Ganguli
    Director, Institute of Nano Science and Technology, Mohali

MEMBER - SECRETARY (ACTING)

17. Shri. P. K Datta
    Consultant, Institute of Nano Science and Technology, Mohali

OTHER COMMITTEES

I. RESEARCH & ACADEMIC ADVISORY COUNCIL (RAAC)

CHAIRPERSON

1. Prof. Milan Sanyal
   Director, Saha Institute of Nuclear Physics, Kolkata

MEMBERS

2. Prof. V Ramgopal Rao
   Chair Professor, Department of Electrical Engineering,
   Indian Institute of Technology, Bombay
3. Prof. Shantikumar V. Nair
   Director, Amrita Centre for Nanosciences and Molecular Medicine, Kochi
4. Prof. Amit K. Dinda
   Head, Department of Renal Pathology, All India Institute of Medical Sciences (AIIMS),New Delhi
5. Prof. Santanu Bhattacharya
   Head, Department of Organic Chemistry, Indian Institute of Science, Bangalore
6. Prof. D D Sarma
   Head, Department of Solid State and Structural Chemistry Unit,
   Indian Institute of Science, Bangalore
7. Dr. (Mrs) Jatinder Kaur Arora
   Executive Director and Director (BT),
   Punjab State Council for Science & Technology, Chandigarh
8. Prof. A K Ganguli
   Director, Institute of Nano Science and Technology, Mohali

II. FINANCE COMMITTEE

CHAIRPERSON

1. Prof. A K Ganguli
   Director, Institute of Nano Science and Technology, Mohali

MEMBERS

2. Ms Anuradha Mitra
   Joint Secretary & Financial Advisor, Dept. of Science & Technology, New Delhi
3. Dr. Praveer Asthana
   Head (AI), Department of Science and Technology, New Delhi
4. Shri P G Basak
   Deputy Registrar, Indian Institute of Technology, New Delhi

MEMBER - SECRETARY

5. Shri Ashok Kakria (Member Secretary)
   Consultant (F&A), Institute of Nano Science and Technology, Mohali

III. PURCHASE ADVISORY COMMITTEE

CHAIRPERSON

1. Prof. G.U. Kulkarni
   Chairman, Chemistry and Physics of Materials Unit,
   Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore

MEMBERS

2. Prof. A K Bacchawat, Dean
   Indian Institute of Science Education and Research, Mohali
3. Dr. Pramit K Chowdhury
   Associate Professor, Department of Chemistry, IIT, New Delhi
4. Shri K. K. Bhattacharya
   Deputy Registrar (S&P), Indian Institute of Technology, New Delhi
5. Dr. Kingshuk Choudhury
   Consultant (Technical), Institute of Nano Science and Technology, Mohali
6. Shri Ashok Kakria
   Consultant (F&A), Institute of Nano Science and Technology, Mohali

IV. COMMITTEE FOR RECOMMENDING APPOINTMENT OF VISITING/HONORARY/ADJUNCT SCIENTISTS

CHAIRPERSON

1. Prof. A K Sood
   Indian Institute of Science, Bangalore

MEMBERS

2. Prof. K N Ganesh
   Director, Indian Institute of Science Education and Research, Pune
3. Prof. Ashutosh Sharma
   Indian Institute of Technology, Kanpur
4. Prof A K Ganguli
   Director, Institute of Nano Science and Technology, Mohali

V. BUILDING WORKS COMMITTEE

CHAIRPERSON

1. Prof. A K Ganguli
   Director, Institute of Nano Science and Technology, Mohali

MEMBERS

2. Prof. A K Jain
   Head, Civil Engineering, Indian Institute of Technology, New Delhi
3. Shri A. K. Jain
   (Retd. Spl Dir Gen, CPWD), New Delhi
4. Shri S. Roy, *FIE*
   Senior Consultant, Projects & Construction, New Delhi
5. Prof. N. Sathyamurthy *(or his Nominee)*
   Director, Indian Institute of Science Education and Research, Mohali
6. Shri Niranjan Singh
   Consultant (Engg.), Institute of Nano Science and Technology, Mohali

FACILITIES

Transit Campus at Habitat Centre, Sector–64, Phase–X, Mohali

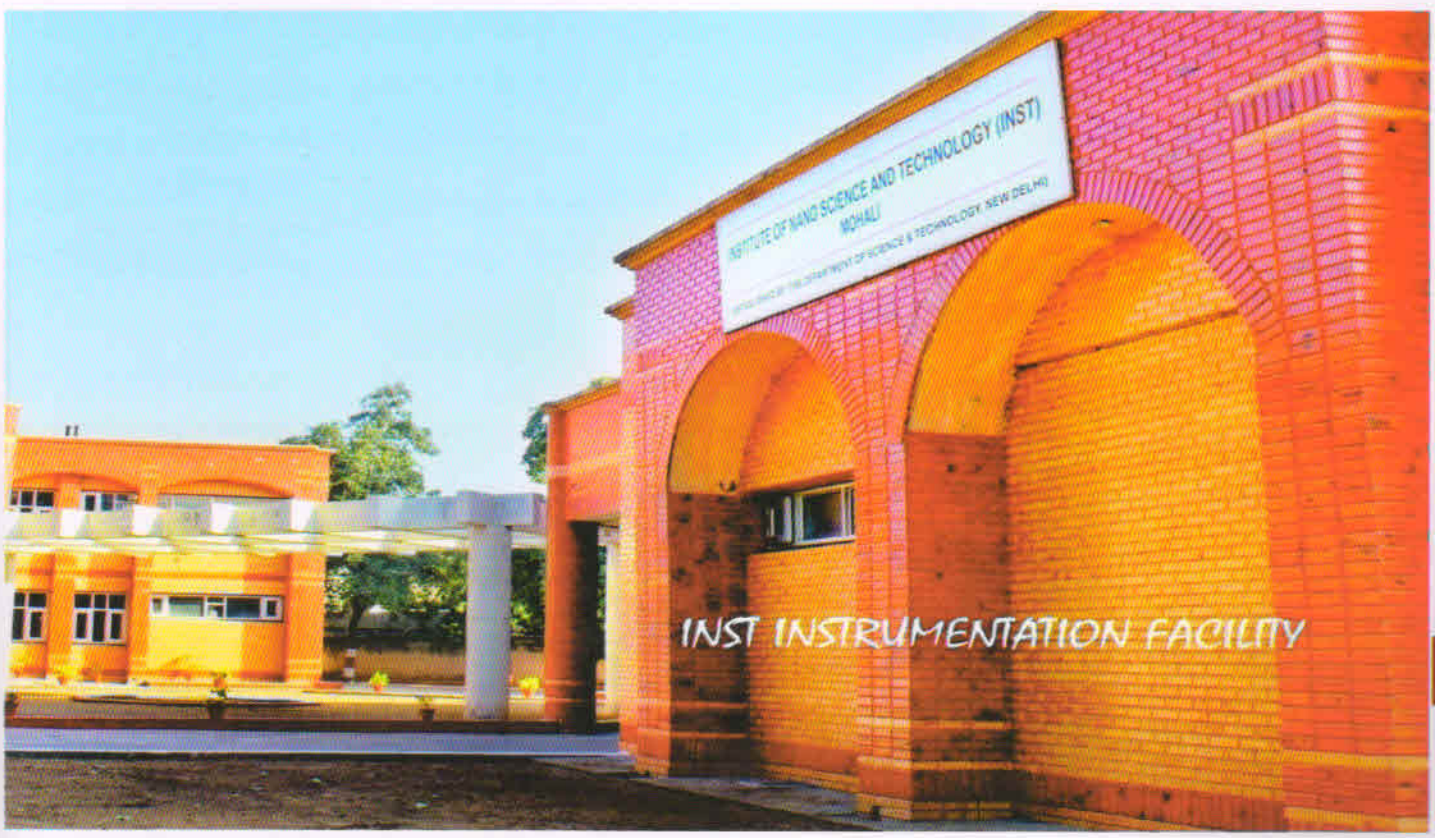
Three storeyed main building consists of:

- Office rooms (20) for Max 60 capacity (Scientists, Administrators) Spread over three floors
- Students (20) (Foyer on 1st floor)
- Seminar Hall with 60-70 capacity
- Board Room with 20 Capacity
- Seven guest rooms on second floor
- Wi-fi in entire building
- Pantry on each Floor

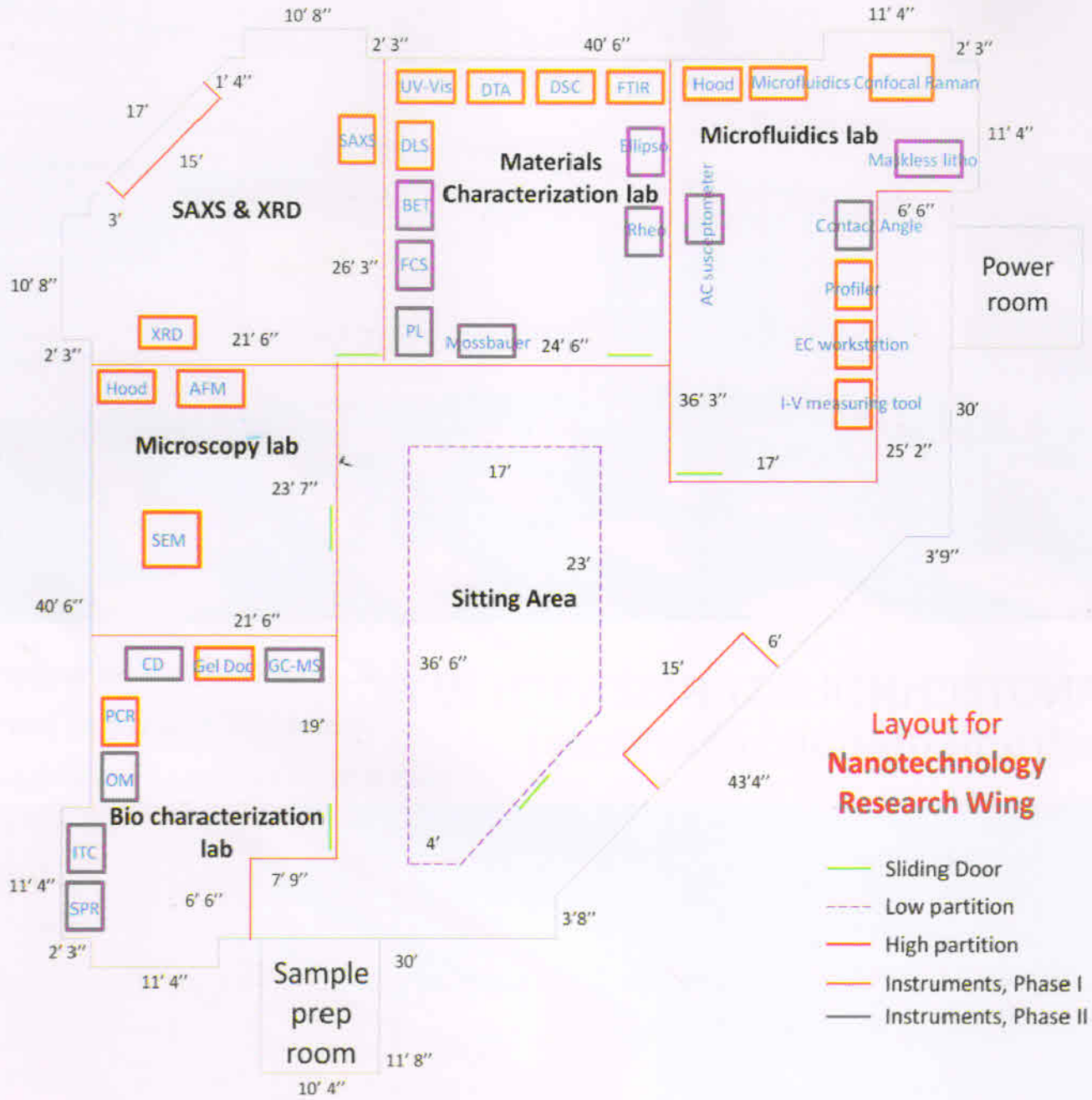
In addition, there is a single-storey building (7300sqf.) opposite to the main building, which is intended to be used as Research Wing which will have all the key equipments in the transit facility of INST.

SEMINAR HALL

NANOTECHNOLOGY RESEARCH WING
(Instrumentation Laboratory)



Setting up of basic research infrastructure at Nanotechnology Research wing at Habitat Centre – Total area: 7300sqf



Note: Two more laboratories would be set up by INST in the premises of Indian Institute of Science Education and Research (IISER) Mohali, with total area of 1500 sq ft

PROGRAMMES (FUTURE PLANS)

Various programmes are contemplated to be initiated in the immediate near future for formulation of research activities and developing linkages of INST with academic/research institutions and industry.

Starting PhD Programme at INST in collaboration with IISER Mohali

INST has very recently started its functions and is in the process of creating some research facilities at its existing campus and also intends making use of research facilities available at other nearby institutes like Indian Institute of Science Education and Research (IISER), National Agri-Food Biotechnology Institute (NABI), BioProcessing Unit (BPU), Panjab University (PU). The Institute being at its nascent stage, cannot award degrees to PhD students. Accordingly, the Institute would be taking up the matter of enrolling PhD students for carrying out research at INST with the Indian Institute of Science Education and Research, Mohali for grant of PhD degrees under the umbrella of this organization.

Involvement of INST to work on thrust areas of research with various scientific organizations.

INST intends associating itself with the Punjab Government's initiative to identify thrust areas of research in consultation with heads of scientific institutions located in Punjab. A cluster at Chandigarh known as Chandigarh Region Innovation and Knowledge Cluster (CRIKC) is being established with lead role being played by the Panjab University. CRIKC's

mission would be to foster and sustain close academic alliances between institutions of higher education and research in the Chandigarh region, to facilitate innovation and knowledge creation, achieving excellence in all academic spheres without compromising in any manner the authority of the participating institutions. INST intends to work on in some of the thrust areas like nano-biotechnology and drug delivery as also bio-sensors, agri-sensors and diagnostics.

A dialogue has been initiated by INST with Defence Institute of High Altitude Research (DIHAR) to work together in areas of mutual research interest to both the organizations, for the development of agro-animal technologies using nanoscience and nano-material suitable for cold desert regions, in high altitude areas and devising strategies organic waste degradation etc.

INST intends to build a state-of-the-art Microfluidics laboratory where it would like to utilize the expertise of globally acclaimed organizations. For this purpose, specialized organizations would be approached.

INST intends to establish a common Microscopy facility for use in the research activities of nanoscience and nanotechnology in collaboration with other academic and research institutes located in Mohali and the adjacent areas in the state of Punjab.

INST intends to start collaborative research in the Micro Electro Mechanical Systems (MEMS) and Nano Electro Mechanical Systems (NEMS). Research in and applications of MEMS/NEMS will shape the basis for the creation of technologies that will impact diverse areas such as information technology, biomedical technology, energy, robotics, manufacturing, deep space studies and national security. In this context, INST intends to associate with other scientific organizations in the state of Punjab and elsewhere in the country.

Lectures and endowed Chairs on Nanoscience and Nanotechnology sponsored by industry

INST would be formulating schemes of attracting funding from leading business houses to serve as an endowment fund with the institution in order to meet expenses towards expenditure incurred on inviting eminent scientists for delivering lectures for the benefit of faculty/students, creating honorary chairs/scholarships, developing special laboratories for scientific research etc.

Institution of INST lectures

INST would like to institute a series of lectures in the field of Nanoscience and Nanotechnology to be named after renowned Scientists who made significant contributions through their research work in the field of science and technology with special association for the foundations of today's nanoscience and technology. Also, INST intends to propose a scheme to invite eminent faculty to deliver lectures at INST for the benefit of its scientists/PhD students.

Financial assistance for organizing Conferences/Workshops in the areas of science and technology with special emphasis on nanoscience

INST intends supporting conferences/workshops/seminars on various subjects in order to bring together eminent experts, scientists, young researchers and students from across the globe to provide a common platform for discussing their achievements and newer directions of research/progress in respective areas.

Scheme for awards/fellowships

INST intends to promote research in the field of nanoscience by way of offering PhD fellowships. Further, INST intends to propose a scheme to promote high quality research and retain bright PhDs of our country by offering post-doctoral fellowships.

Dissemination of information on nanoscience and technology

INST intends to work out a programme to involve students from the schools and colleges who are pursuing science, engineering or medicine in order to trigger a passion in them for science with novel and innovative ideas so as to promote the exciting properties and phenomena in the nanoscale regime which exist in nature and are being artificially engineered in Nanoscience and Nanotechnology based laboratories

Nanotechnology Museum at INST's premises

INST intends to moot the idea of setting up a nanotechnology museum (as known in USA, Germany etc.) at its premises in order to engage and educate the public in advances in nanoscale research, to capture the imagination of young people who may subsequently choose careers in nanoscale science or technology and to foster new partnerships among research institutions, relevant industries and informal science centers.

STATUS REPORT ON ACTIVITIES AS ON MARCH 31, 2013

Ever since its setting up in January, 2013, the institute started work on almost all fronts in order to make the institute functional as well as creating infrastructure for institute's immediate future requirements. Following are the major activities on which work has progressed at a significant pace:

- During the end of December, 2012, lot of work pertaining to cleansing, repair of the Habitat Centre, the transit premises for the Institute, was carried out in a very short span of time. The Habitat Centre was got ready for occupation by the time the Director, INST took over charge on 3rd January, 2013. Subsequently, all office infrastructure was provided. Conference room/seminar hall were got readied. A research laboratory at INST's existing campus is being created.

- Recruitment process to engage Scientists/Consultants/Staff was initiated as soon as the Director joined. By the end of January, 2013 limited number of Scientists/Consultants/Staff were recruited on contract basis and through outsourcing agency in order to make INST functional.

- Department of Scientific and Industrial Research (DSIR) was approached for issuing a certificate of exemption from excise and customs duty under the Public Funded Research Institute (PFRI) scheme of DSIR.

- Researchers from different scientific fields are being invited from time to time to deliver lectures at INST. In addition, scientists interested in faculty positions at INST and who have shown interest to deliver lectures are also being invited.

- A topographical survey and contouring of the land for INST campus has been completed. Meetings of Building works Committee are being held regularly. Master plan and model of the new campus is expected to be ready by December, 2013. Presently there are four issues pertaining to land for which INST is in touch with concerned authorities. It is hoped that these will be sorted out soon:

  a) Government school (two-rooms) – to be shifted
  b) Marhi (structure revered by a sect) (area around 200 sq ft) – to be shifted
  c) High tension wires going through INST, IISER Land – to be re-routed by PSPCL
  d) Minor encroachment from village (~ 250 sq ft) – to be removed by GMADA

- It is intended to have foundation stone laying ceremony for the new campus during January-March, 2014.

PERSONNEL

Following 45 posts have been sanctioned by Govt. of India for INST against which 08 posts have been filled as per following details:

Designation	No. of Posts	Pay band	Grade Pay	Posts filled
(i) Scientific and Technical Posts				
Director	1	Rs 80,000/- fixed		1
Scientist 'G	1	PB-4, 37400-67000	10000	-
Scientist 'F'	3	PB-4, 37400-67000	8900	-
Scientist 'E'	9	PB-4, 37400-67000	8700	-
Scientist 'D'	4	PB-3, 15600-39100	7600	-
Scientist 'C'	8	PB-3, 15600-39100	6600	07 (on contract)
Scientist 'B'	15	PB-3, 15600-39100	5400	-
Total	**41**			
(ii) Administrative Posts				
Chief Finance and Administrative Officer (to function as Registrar)	1	PB-4, 37400-67000	8700	-
Finance Officer	1	PB-3, 15600-39100	6600	-
Stenographer	2	PB-2, 9300-34800	4200	-
Total	**4**			
Grand Total (i + ii)	**45**			**8**

Recruitment rules for all the above posts have been framed. Process of filling up these posts would be initiated shortly.

Since very less number of administrative posts has been sanctioned, INST has presently deployed administrative manpower on contractual basis/through outsourcing, as per the following details:

1. Consultant (Personnel & Administration)
2. Consultant (Finance & Accounts)
3. Consultant (Technical)
4. Consultant (Engineering)
5. Security Supervisor-cum-Caretaker
6. Office Assistant - 01
7. Security Guards - 11 (05 at transit campus and 06 at land for new campus)
8. Safaiwalas - 05
9. Malis - 02

STATEMENT OF ACCOUNTS - 2012-13

INSTITUTE OF NANO SCIENCE & TECHNOLOGY
HABITAT CENTRE SECTOR-64
PHASE-X MOHALI PUNJAB

S. PATHANIA & ASSOCIATES
CHARTERED ACCOUNTANTS

1665, Phase-5
Sector 59, Mohali - 160059
Telefax : 0172-2272986
Cell : 9876172986
Email : caspathania@gmail.com

AUDITORS' REPORT

The Director,
INSTITUTE OF NANO SCIENCE AND TECHNOLOGY
Mohali, Punjab

We have examined the attached Balance Sheet of INSTITUTE OF NANO SCIENCE AND TECHNOLOGY, Mohali, Punjab, as at March 31, 2013, Income and Expenditure Account and Receipt and Payment Account for the period January 01, 2013 to March 31, 2013. The accounts of the Institute for the period April 01, 2012 to December 31, 2012 has been audited by Anant Rao & Malik, Chartered Accountants, # B-409/410, Kushal Towers, Khairatabad, Hyderabad-500004, vide their Audit Report dated January 11, 2013 and the same has been considered while compiling & preparing the accounts for the full year ended March 31, 2013. These financial statements are the responsibility of the Institute's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Auditing Standards generally accepted in India. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatements. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in financial statements. An audit also includes assessing the accounting

principles used and significant estimates made by the management, as well as evaluating the overall financial statements presentation. We believe that our audit provides a reasonable basis for our opinion.

We further report that :

a) We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit ;

b) In our opinion, proper books of account, as required by law, have been kept by the Institute so far as appears from our examination of those books ;

c) The Balance Sheet, Income and Expenditure Account and Receipt and Payment Account of the Institute are in agreement with the books of account ;

d) In our opinion and to the best of our information and according to the explanations given to us, the said accounts read together with and subject to the Significant Accounting Policies and Notes to Accounts thereon, give the information in the manner so required, and present a true and fair view, in conformity with the accounting principles generally accepted in India ;

1. In so far as it relates to Balance Sheet, of the state of affairs of the Institute as at March 31, 2013 ;
2. In so far as it relates to the Income and Expenditure Account, of the Excess of Income over Expenditure of the Institute for the period ended on that date;

For S. PATHANIA & ASSOCIATES
CHARTERED ACCOUNTANTS
FRN : 012527N

Sd/-
(CA. SUNIL PATHANIA)
M. No. 091651

Place : Mohali
Dated : 22.05.2013

BALANCE SHEET
AS AT 31.03.2013

(Amount in Rs.)

CORPUS/CAPITAL FUND AND LIABILITIES	SCHEDULE	CURRENT YEAR	PREVIOUS YEAR
CORPUS/CAPITAL FUND	1	200000000.00	200000000.00
RESERVE AND SURPLUS	2	7402310.37	5617275.00
EARMARKED/ENDOWMENT FUND	3	0.00	0.00
SECURED LOANS AND BORROWINGS	4	0.00	0.00
UNSECURED LOANS AND BORROWINGS	5	0.00	0.00
DEFERRED CREDIT LIABILITIES	6	0.00	0.00
CURRENT LIABILITIES AND PROVISIONS	7	6847069.00	0.00
TOTAL		**214249379.37**	**205617275.00**
ASSETS			
FIXED ASSETS	8	2685795.00	0.00
INVESTMENTS FROM EARMARKED/ENDOWMENT FUNDS	9	0.00	0.00
INVESTMENTS-OTHERS	10	0.00	0.00
CURRENT ASSETS, LOANS AND ADVANCES	11	211563584.37	205617275.00
MISCELLANEOUS EXPENDITURE (to the extent not written off or adjusted)		0.00	0.00
TOTAL		**214249379.37**	**205617275.00**
SIGNIFICANT ACCOUNTING POLICIES	24		
NOTES ON ACCOUNTS	25		

As per our report of even date.
For S. PATHANIA & ASSOCIATES
Chartered Accountants
Firm Registration No. 012527N

Sd/-
CA. SUNIL PATHANIA
Membership No. 091651
Date : 22-05-2013
Place : Mohali

For INSTITUTE OF NANO SCIENCE AND TECHNOLOGY

Sd/-
ASHOK KUMAR KAKRIA
Consultant (F & A)

Sd/-
ASHOK KUMAR GANGULI
Director

INCOME AND EXPENDITURE FOR THE PERIOD 1-4-2012 to 31-03-2013

(Amount in Rs.)

		SCHEDULE	CURRENT YEAR	PREVIOUS YEAR
	INCOME			
1	Income from Sales and Services	12	0	0
2	Grants/Subsides	13	0	0
3	Fees/subscriptions	14	0	0
4	Income of Earmaked fund	15	0	0
5	Income from Royalty, Publications etc.	16	0	0
6	Interest	17	19503480.37	9155991
7	Other Misc Income	18	0	0
8	Increase/(decrease) in Stock of Finished goods & Works-in-Progress	19	0	0
	TOTAL (A)		**19503480.37**	**9155991**
	EXPENDITURE			
1	Establishment expenses	20	0	0
2	Other Expenses	21	17718445	9832137
3	Expenditure on grants, subsidies etc.	22	0	0
4	Interest	23	0	0
	TOTAL (B)		**17718445**	**9832137**
	Balance being excess/(shortfall) of Income over Expenditure (A-B)		1785035.37	(676146)
	BALANCE BEING CARRIED TO GENERAL RESERVE		1785035.37	(676146)

As per our report of even date.
For S. PATHANIA & ASSOCIATES
Chartered Accountants
Firm Registration No. 012527N

For INSTITUTE OF NANO SCIENCE AND TECHNOLOGY

Sd/-
CA. SUNIL PATHANIA
Membership No. 091651
Date : 22-05-2013
Place : Mohali

Sd/-
ASHOK KUMAR KAKRIA
Consultant (F & A)

Sd/-
ASHOK KUMAR GANGULI
Director

RECEIPT & PAYMENT FOR THE PERIOD 1-4-2012 to 31-03-2013

(Amount in Rs.)

RECEIPT	Current Year	Previous Year	PAYMENT	Current Year	Previous Year
Opening Balances			**Expenses**		
a) Cash in Hand	0.00	0.00	Other Expenses (As per Schedule No.-21)	17718445.00	9832137.00
b) With Canara Bank					
In Current Account	5765479.00	5005346.00	Capital Expenditure on		
In Deposit Account	194851796.00	196288075.00	a) Fixed Assets	2685795.00	0.00
Grants Received-DST	0.00	0.00	b) Capital Work-in-Progress	0.00	0.00
Interest Received			Other Payments		
Interest from Bank Deposits	19503480.37	9155991.00	Advance to Parties	1125409.00	0.00
			Advance to Staff	10000.00	0.00
Other Income (specify)	0.00	0.00	T.D.S. Recoverable	11037.00	0.00
Amount Borrowed	0.00	0.00	Closing Balances a) Cash in Hand	22126.00	0.00
Any Other Receipts			b) With Canara Bank		
T.D.S. Payable	587567.00	0.00	In Current Account	9411.00	5765479.00
Cheques Pending Encashment	103088.00	0.00	In Deposit Account	205385601.37	194851796.00
Expenses Payable	6156414.00	0.00			
TOTAL	226967824.37	210449412.00		226967824.37	210449412.00

As per our report of even date.
For S. PATHANIA & ASSOCIATES
Chartered Accountants
Firm Registration No. 012527N

For INSTITUTE OF NANO SCIENCE AND TECHNOLOGY

Sd/-
CA. SUNIL PATHANIA
Membership No. 091651
Date : 22-05-2013
Place : Mohali

Sd/-
ASHOK KUMAR KAKRIA
Consultant (F & A)

Sd/-
ASHOK KUMAR GANGULI
Director

SCHEDULE FORMING A PART OF BALANCE SHEET FOR THE YEAR 2012-2013

[SCHEDULE NO - 1]

(Amount in Rs.)

CORPUS/CAPITAL FUND:	CURRENT YEAR	PREVIOUS YEAR
Contribution towards creation of Corpus Fund		
Balance at the beginning of the year	200000000.00	200000000.00
Add : Addition During the year (DST)	0.00	0.00
Less: Deductions During the year	0.00	0.00
BALANCE AT THE YEAR-END	200000000.00	200000000.00

Sd/-
ASHOK KAKRIA
Consultant

[SCHEDULE NO - 2]

(Amount in Rs.)

RESERVE AND SURPLUS	CURRENT YEAR	PREVIOUS YEAR
General Reserve		
Balance at the beginning of the year	5617275.00	6293421.00
Add:Addition during the year-Transfer from Income & Expenditure Account	1785035.37	0.00
Less:Deduction during the year-Transfer from Income & Expenditure Account	0.00	676146.00
BALANCE AS THE ENDING OF THE YEAR	7402310.37	5617275.00

Sd/-
ASHOK KAKRIA
Consultant

SCHEDULE FORMING A PART OF BALANCE SHEET FOR THE YEAR 2012-2013

[SCHEDULE NO -7]

(Amount in Rs.)

CURRENT LIABILITES AND PROVISIONS		Current Year	Previous year
A.	**CURRENT LIABILITIES**		
1	Tax Deduction at Source	587567.00	0.00
2	Cheques Pending Encashment	103088.00	0.00
3	GIS Payable	483.00	0.00
4	Medical Subscription Payable	675.00	0.00
5	Provident Fund Payable	20000.00	0.00
6	Rent Payable	5467798.00	0.00
7	Salary & Consultancy Payable	662458.00	0.00
8	Audit Fee Payable	5000.00	0.00
	TOTAL (A)	6847069.00	0.00
B.	**PROVISIONS**		
1	Other	0.00	0.00
	TOTAL (B)	0.00	0.00
	TOTAL (A+B)	6847069.00	0.00

Sd/-

ASHOK KAKRIA
Consultant

SCHEDULE FORMING A PART OF BALANCE SHEET FOR THE YEAR 2012-2013
[SCHEDULE NO - 8]

(Amount in Rs.)

FIXED ASSETS											
		GROSS BLOCK					DEPRECIATION			NET BLOCK	
ASSETS	RATE OF DEP. %	COST AS ON 01.04.2012	ADDITIONS USED FOR 180 DAYS OR MORE	ADDITIONS USED FOR LESS THAN 180 DAYS	SALE/ TRANSFER DURING THE YEAR	COST AS ON 31.03.2013	AS ON 01.04.2012	DURING THE YEAR/ (ADJUSTMENT)	AS ON 31.03.2013	W.D.V. AS ON 31.03.2012	W.D.V. AS ON 31.03.2013
Airconditioners	0%	0.00	0.00	672210.00	0.00	672210.00	0.00	0.00	0.00	0.00	672210.00
Computers	0%	0.00	0.00	182162.00	0.00	182162.00	0.00	0.00	0.00	0.00	182162.00
Electrical Items	0%	0.00	0.00	219363.00	0.00	219363.00	0.00	0.00	0.00	0.00	219363.00
Office Equipments	0%	0.00	0.00	418106.00	0.00	418106.00	0.00	0.00	0.00	0.00	418106.00
Furniture & Fixtures	0%	0.00	0.00	1084930.00	0.00	1084930.00	0.00	0.00	0.00	0.00	1084930.00
Library Books	0%	0.00	0.00	109024.00	0.00	109024.00	0.00	0.00	0.00	0.00	109024.00
"A" FIGURES FOR CURRENT YEAR :Rs.		0.00	0.00	2685795.00	0.00	2685795.00	0.00	0.00	0.00	0.00	2685795.00
"B" FIGURES FOR PREVIOUS YEAR :Rs.		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOTE:

No depreciation has been charged during the year as the assets are not properly/fully in put to use upto 31.03.2013 as certified by the management of the Institute.

Sd/-
ASHOK KAKRIA
Consultant

SCHEDULE FORMING A PART OF BALANCE SHEET FOR THE YEAR 2012-2013

[SCHEDULE NO - 11]

(Amount in Rs.)

	CURRENT ASSETS, LOANS & ADVANCES		CURRENT YEAR		PREVIOUS YEAR
A	**CURRENT ASSETS**				
1	Cash in Hand		22126.00		0.00
2	Bank Balances				
	Canara Bank				
	a) Current Account No. 2452201001102	9411.00		5765479.00	
	b) Auto Sweep Account No. 2452401002486	2590975.00		0.00	
	c) Fixed Deposits	202794626.37		194851796.00	
			205395012.37		200617275.00
3	Post Office-Saving Accounts		0.00		0.00
	TOTAL (A)		**205417138.37**		**200617275.00**
B	**LOANS, ADVANCES/DEPOSITS. AND OTHER ASSETS ETC.**				
1	**Loan**		0.00		0
2	**Advances and other amounts recoverable in cash or in kind or forvalue to be received**				
	Advance to Parties				
	a) Deposits : Boundary Wall (CPWD)	5000000.00		5000000.00	
	b) Pacific Ads	786.00		0.00	
	c) Shibiya Enterprises	1122888.00		0.00	
	d) Prem Kumar (Shintu)	1735.00		0.00	
			6125409.00		5000000.00
	Advance to Staff				
	a) Surinder Singh		10000.00		0.00
	Tax Deducted at Source Recoverable form Canara Bank		11037.00		0.00
	TOTAL (B)		**6146446.00**		**5000000.00**
	TOTAL (A+B)		**211563584.37**		**205617275.00**

Sd/-
ASHOK KAKRIA
Consultant

[SCHEDULE NO - 17]

(Amount in Rs.)

	INTEREST EARNED	Current Year	Previous Year
1	On Term Deposits		
	1. With scheduled bank (Canara Bank)	19503480.37	9155991.00
	TOTAL	**19503480.37**	**9155991.00**

Sd/-
ASHOK KAKRIA
Consultant

[SCHEDULE NO - 21]

(Amount in Rs.)

	OTHER EXPENSES	Current Year	Previous Year
1	Advertiement & Publicity	76634.00	0.00
2	Freight & Cartage	800.00	0.00
3	Electricity /Power Supply Charges	50000.00	170380.00
4	Rent for Habitat Centre	13187975.00	7460200.00
5	Repair & Maintenance of Habitat Centre	200499.00	0.00
6	Audit Fee	27472.00	0.00
7	Guest House Expenses	85096.00	0.00
8	Printing & Stationery	75058.00	2000.00
9	Travelling & Conveyance	687172.00	143655.00
10	Area Cleaning Expenses	0.00	15000.00
11	Recruitment Expenses	282502.00	1549728.00
12	Salary, Wages, Pay & Allowances and Man Power Charges	2584780.00	490266.00
13	Postage	4413.00	173.00
14	General Expenses	10136.00	270.00
15	Bank Charges	899.00	465.00
16	Legal Consultancy Charges	100000.00	0.00
17	Honorarium Paid	36000.00	0.00
18	Horticulture, Gardening & Plantation	73761.00	0.00
19	Hospitality Expenses	53824.00	0.00
20	Labour and Processing Expenses	81348.00	0.00
21	Meeting Expenses	17145.00	0.00
22	Office Expenses	54235.00	0.00
23	Telephone & Trunkcalls	26973.00	0.00
24	Water Charges	1723.00	0.00
	TOTAL	**17718445.00**	**9832137.00**

Sd/-
ASHOK KAKRIA
Consultant

[SCHEDULE NO - 24 - Significant Accounting Policies]

1. Accounting Concepts & Basis of Preparation of Financial Statements

   The financial statements have been prepared under the historical cost convention in accordance with the generally accepted accounting principles. The Institute generally follows mercantile system of accounting and recognizes significant items of Income & Expenditure on accrual basis unless otherwise stated.

2. Grants

   Grants are recognized on receipt, Grants received from Department of Science & Technology (DST) are treated as corpus of the centre.

3. Fixed Assets and Depreciation

   No depreciation on the Fixed Assets has been charged during the year as the assets are not properly/fully put to use upto 31.03.2013 as certified by the management of the Institute.

As per our report of even date.
For S. PATHANIA & ASSOCIATES
Chartered Accountants
Firm Registration No. 012527N

For INSTITUTE OF NANO SCIENCE AND TECHNOLOGY

Sd/-
CA. SUNIL PATHANIA
Membership No. 091651
Date : 22-05-2013
Place : Mohali

Sd/-
ASHOK KUMAR KAKRIA
Consultant (F & A)

Sd/-
ASHOK KUMAR GANGULI
Director

[SCHEDULE NO - 25 - Notes to the Accounts]

1. Department of Science and Technology (DST) Sanctioned and Released Rs 2000 Lakhs (Rs 1000 Lakhs in the financial year 2008-2009) and (Rs 1000 Lakhs in the financial year 2009-2010).
2. The audit for the period April 01, 2012 to December 31, 2012 has not been conducted by us. The same was conducted by Anant Rao & Malik, Chartered Accountants, # B-409/410, Kushal Towers, Khairatabad, Hyderabad-500004. We have conducted the audit for the period January 01, 2013 to March 31, 2013 only and then compiled & merged the data with the period of April 01, 2012 to December 31, 2012 audited by Anant Rao & Malik, Chartered Accountants vide their Audit Report dated 11.01.2013.
3. The financial statements have been prepared under the historical cost convention in accordance with the generally accepted accounting principles. The Institute generally follows mercantile system of accounting and recognizes significant items of Income & Expenditure on accrual basis unless otherwise stated as certified by the management of the Institute.
4. In the opinion of the management the current assets, loans and advances are approximately of the value stated, if realized in the ordinary course of business. The provision of all the known liabilities is adequate and not excess of the amount considered reasonable necessary.
5. No depreciation on the Fixed Assets has been charged during the year as the assets are not properly/fully put to use upto 31.03.2013 as certified by the management of the Institute.
6. Debit and Credit balances in the accounts of suppliers, customers and others are subject to confirmation and reconciliation.
7. In some of cases the TDS has been late deposited. And the same has been deposited alongwith Interest on it wherever applicable.

8. The TDS Returns for the Quarter 1, 2 & 3 for the current financial year has been submitted late as on 26.04.2013.
9. Audit fee for last years i.e for the years 2008-2009, 2009-2010, 2010-2011, 2011-2012 has been debited during the current financial year.
10. The Bank Balances and Fixed Deposit shown in the Balance Sheet are as certified by the management of the Institute.
11. All Schedules form an integral part of the Balance Sheet and Income & Expenditure Account and have been duly authenticated by the management of the Institute.

As per our report of even date.
For S. PATHANIA & ASSOCIATES
Chartered Accountants
Firm Registration No. 012527N

For INSTITUTE OF NANO SCIENCE AND TECHNOLOGY

Sd/-
CA. SUNIL PATHANIA
Membership No. 091651
Date : 22-05-2013
Place : Mohali

Sd/-
ASHOK KUMAR KAKRIA
Consultant (F & A)

Sd/-
ASHOK KUMAR GANGULI
Director