

REPORT ON THE ACTIVITIES OF SCIENCE & TECHNOLOGY DEPARTMENT FOR THE YEAR 2010-11

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1. INTRODUCTION

The Science & Technology Department is the nodal Department for the promotion of the Science & Technology in the State. The manifold scientific and technological activities are carried out by different agencies like Odisha Renewable Energy Development Agency (OREDA), Odisha Space Application Centre (ORSAC), Odisha Bigyan Academy (OBA), Pathani Samanta Planetarium (PSP), Institute of Mathematics & Applications (IMA) and Institute of Materials Science (IMS) working under the aegis of this Department with the following objectives:-

- i) To keep abreast of the latest developments in the field of Science & Technology and to take steps for dissemination of these among institutions like industries, research laboratories, Universities and among scientists and technologists.
- ii) To co-ordinate the R&D Programmes of different departments, industrial and research institutions and to ensure scientific and technical co-operation among these institutions and agencies.
- iii) To formulate and fund, research and application programmes in the field of science and technology,
- iv) To encourage, develop and extend the use of renewable sources of energy including energy plantations.
- v) To popularize Remote Sensing Technology and make effective use of it.
- vi) To popularize science and technology among students and the people so as to inculcate in them a scientific temper and attitude.
- vii) Promote and popularize appropriate rural technologies.
- viii) Development of Library cum Documentation Centre for Science & Technology.
- ix) Science & Technology communication through awareness promotion, support to Institutions for Seminars/Workshops etc., development of Science Centres and administration of Pathani Samanta Planetarium.
- x) To conduct Science & Technology Entrepreneurship Development Programmes.
- xi) To undertake fundamental research in mathematics and its application.

- xii) To conduct basic and applied research in the frontier areas of Material Science & Engineering.

2. STATE COUNCIL ON SCIENCE & TECHNOLOGY

The State Council on Science & Technology functions as the highest policy making body for development of Science & Technology and oversees the implementation of the programmes undertaken in the field of Science and Technology in the State. The activities pertaining to various programmes / schemes undertaken during the year 2010-11 are stated below.

2.1 Scholarship at Post Graduate Level on Basic Sciences

To promote and encourage the meritorious students to pursue their Post Graduate studies in Basic Science subjects such as Physics, Chemistry, Mathematics, Botany, Zoology and Geology, Government of Odisha in Science and Technology Department introduced a Scholarship programme @ Rs 2000/- per month for 50 students during the year-2010-11 under the aegis of the State Council on Science and Technology. The Institute of Mathematics and Applications, Bhubaneswar is the Nodal agency to implement this scheme as per rules.

2.2 Travel Grant

The State Council on Science & Technology, Odisha has been providing partial financial support to the Scientists of the State to promote scientific temper & encourage Scientists of Odisha, to enable them to attend National / International Conferences, Seminars, Workshops, Symposiums etc. and to interact with leading International Scientists in their respective field. During 2010-11, steps have been taken to revise the Travel Grant Scheme by including the Student/Research Scholar in the scheme. The Departmental Appraisal Committee for Travel Grant in its meeting held on 10.05.2010 resolved that the Young Scientists will be encouraged and given priority who could not have got the financial assistance from other sources.

2.3 Assistance for Scientific Symposium, Seminar, Workshop etc.

- o A sum of Rs.20.5 lakh was sanctioned in favour of the Chief Executive, OREDA, Bhubaneswar for Implementation of the Project under New / Innovative scheme

(Lighting solution for Tribal Schools located in un-electrified / marginally electrified areas of Odisha State.

- State Council on Science & Technology has provided partial financial assistance of Rs.50000/- for the 13th Odisha science congress held from 9th to 11th , December,2010 at Regional Museum of Natural History, Bhubaneswar-751013
- Financial assistance of Rs.1.70 lakh was given to the Coordinator, Regional Science Centre, Bhubaneswar to organized State level science Quiz, State level Science Exhibition and Organizing Annual Science Quiz for Secondary level students
- One time grant of Rs.1.0 lakh was sanctioned in favour of Managing Trustee, Kalinga Foundation Trust, Bhubaneswar for Observation of “UNESCO India Day” at Bhubaneswar on 12th November,2010
- Financial assistance of Rs.1.0 lakh was given to the University Teachers’ Association, OUAT, Bhubaneswar-3 for organizing National Seminar on “Sustainable Agriculture and Food Security - Challenges and Opportunities” held during November, 29-30 , 2010 at OUAT, Bhubaneswar -3
- A sum of Rs.40.0 lakh was sanctioned in favour of the Chief Executive, OREDA, Bhubaneswar for energisation of Government Higher Secondary School, Dhodipani, under ST &SC Development Department, Government of Odisha in Chandahandi Block of Nabarangapur District through Renewable Energy Sources.

2.4 UNESCO- Kalinga Prize

Odisha State Council on Science &Technology donates and coordinates for UNESCO-Kalinga Prize initiated by Late Biju Pattnaik through UNESCO in 1951 for Popularization of Science. The Share of Odisha Government for the award year 2011 was deposited from the interest accrued from the fixed deposit of Rs.25 lakh .However, to meet the enhanced share from the award year 2013 Government has approved Rs.20.0 lakh for one time additional fixed deposit in the financial year 2011-12.

2.5 Establishment of Sub-Regional Science Centers.

The State Council on Science & Technology is taking active steps for establishment of Sub-Regional Science Centers at different Regions in Odisha to develop scientific temper, to promote creative activities, to highlight important and relevant issues in science and technology and to popularize these for the benefit of the community specially for students and young mass. The State Share money has been increased from 1.3 crore to 2.0 crore.

Action has been taken for setting up Sub Regional Science Centres at Nrusinghnath in the district of Bargarh, Jeypore in the District of Koraput and Keonjhar in the district Keonjhar.

2.6 Celebration of National Science day

Proposal of Odisha Bigyan Academy for celebration of National Science Day-2011 has been submitted to the DST, Government of India for sanction. The theme of this year is “Chemistry in our lives”. The Central Share of Rs.3.90 lakh towards celebration of NSD 2010 was released to Odisha Bigyan Academy.

2.7 Participation in the 98th Indian Science Congress, SRM University, Chennai

State Council on Science &Technology took initiatives for participation in the 98th Indian Science Congress held at SRM University campus, Chennai from 3-7, January, 2011 and successfully coordinated with the Organizers and the participating Institutions. The Team Odisha participated in the 98th Indian Science Congress. The participation was well organized under the guidance of Shri P.K.Jena, I.A.S. Commissioner-cum-Secretary and Shri P. Krishna Mohan I.F.S., Director Biotechnology-cum-Additional Secretary to Government, Science & Technology Department, which culminated in bagging the “Best State” prize in the “Pride of India” Science Exhibition at Chennai.

2.8 Encouragement to Inventors.

State council on Science &Technology, during 2009-10, had rewarded to Shri Jayaram Mallick, At-Balarampur, P.O./Via- Kujanga, Dist-Jagatsingpur, Odisha for innovation of concrete hand pump and to Shri Kishore Chandra Sahu, At- Dadapatna, PO-Baranga,Dist-Cuttack, Odisha for innovation of machine for generating electricity using sea wave.

For Innovation Promotion Programme and further necessary follow up on “Development of Wave Power Generator- Phase-II” innovated by Sri Kishore Sahu, financial assistance of Rs.1.0 lakh was given to the Chief Executive, OREDA, Bhubaneswar during 2010-11.

2.9 Research Grant under “Development of biotechnology”

State Council on Science &Technology has sanctioned Research Grant amounting to Rs. 30.52 lakhs under the scheme “Development of biotechnology”. The grant has been released to 12 Nos Principal Investigators. Moreover State Council has sanctioned Rs.29.09lakh towards

development of Marine Biotech Park in Ganjam and participation in Bangalore Biofestival and 97th Indian Science Congress.

3. DEVELOPMENT OF BIOTECHNOLOGY

Biotechnology is a frontier area of technology with immense benefits to society in diverse areas such as Food Security, Nutritional Supplementation, Health Care Productions and Industrial applications. Considering the diversified resources of the State, this cutting edge technology has a potential to make a significant contribution to the economy of the State.

Research grant has been sanctioned for 12 short term Research & Development Project in Biotechnology.

Govt. of Odisha is developing a State of the Art Bio-Tech Pharma IT Park (Konark Knowledge Park) over an area of about Ac.64.613 acres at Mouza – Andharua, under Bhubaneswar Tahasil in PPP mode.

Lease-cum-Development Agreement (LDA) has been signed between Odisha Industrial Infrastructure Development Corporation (IDCO), Bhubaneswar and M/s Konark Knowledge Park Pvt. Ltd. for development of the Park.

In the above park, 10 acres of land has been earmarked for development of Biotechnology Incubation Centre by the State Govt. for use by researchers, entrepreneurs and students.

Active Steps have been initiated for development of two more Biotech Parks in the State i.e. one at Deras in Khurda district and another Marine biotech Park in Ganjam District.

4. ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY (OREDA)

Odisha Renewable Energy Development Agency (OREDA), under the Department of Science & Technology, Government of Odisha is a Society constituted under Societies Registration Act-1860. The main objectives of this Agency in the development of New and Renewable Sources of Energy are:

- (i) to encourage the development and accelerated utilisation of renewable energy sources wherever they are technically and economically viable.
- (ii) to improve the access to and availability of renewable, decentralized sources of energy particularly for the rural population,
- (iii) to contribute towards balanced rural and urban development as well as development of backward, hilly and tribal areas by enabling the use of locally available decentralized renewable energy sources and to create gainful employment opportunity with due importance for ensuring greater access to woman and other disadvantaged groups to employment opportunities,
- (iv) to reduce environmental degradation resulting from deforestation.

Activities:

The important activities, which have been so far taken up and are being implemented by this Agency during 2010-11 are outlined hereunder.

4.1 State Level Renewable Energy Awareness Park.

The State Level Renewable Energy Awareness Park christened as “Biju Patnaik Energy Park” has been established in Bhubaneswar near Khandagiri. The Park would enter-alia have the following objectives.

- (a) Create awareness about renewable energy and its application in daily life among all categories of people.
- (b) Educate common people about energy conservation practices.
- (c) Attract entrepreneurs towards renewable energy based business.
- (d) Provide students and researchers pertinent data about history and development of renewable energy resources and devices.

4.2 Village Energy Security Programme (VESP)

Number of VESP projects sanctioned by MNRE, Govt. of India is 15. The installation and commissioning of Biomass Gasifier Power Generating Systems in 11 VESP projects have been completed and the rest 3 projects are under progress. M/s Winrock International India, New

Delhi has been appointed as the Regional Consultant for project design, development and capacity building under VESP.

4.3 Remote Village Electrification Programme (RVEP)

The objective of the programme is electrification of those un-electrified remote census villages and remote un-electrified hamlets of electrified census villages where grid connectivity is either not feasible or not cost effective through conventional sources of energy with the financial assistance of Government of India and State Government. So far 537 villages have been covered under this programme.

4.4 National Biogas and Manure Management Programme (NBMMP)

The National Biogas and Manure Management Programme (NBMMP) is a high priority Central Sector Scheme, and a part of the 20-Point Programme. It can be used for cooking and lighting purpose. It also provides rich organic manure. During the year 2010-11 a total of 1969 domestic biogas plants have been constructed in the State till end of December 2010 against a target of 8000 plants.

4.5 SPV Programme

(a) Street Lighting system (SLS)

Against the sanction of 80 sets of SPV Street Lighting System by the MNRE, GOI, 15 sets of SPV (SLS) have been commissioned in the District of Keonjhar. The Institute of Management and Information Science at Bankula requested for time extension for deposit of users share for 25 sets till June 2011 and in case of 40 sets of SLS, purchase order have been placed with supplying firms to install the systems by February 2011. The cumulative achievements comes to 5486 sets of SPV (SLS).

(b) One 650 Wpk SPV Power plant has been commissioned at Badatamera Sevashram of Nawarangpur district.

4.6 Renewable Energy Policy

Policy Guidelines on Power Generation from Non-Conventional Energy Sources have been issued vide Science & Technology Dept. Letter No. 6971/ST dated 3.12.2005. The main objectives of the Policy are to reduce dependency on conventional sources of power generation. Other objectives are,

- (i) Protecting the environment,

- (ii) Generation of employment on a large scale,
- (iii) Generation of grid quality power from New & Renewable Source of Energy so as to reduce dependence on conventional sources of power,
- (iv) Encourage entrepreneurial investment in New & Renewable Source of Energy,
- (v) Provide such rational fiscal and promotional incentives so as to provide conducive atmosphere to attract private investment.

OREDA is the State Nodal Agency for Power Generation from Non-Conventional Energy Sources and functions as the single window for promotion and facilitation of all projects.

4.7 Renewable Energy Power Projects

- **Solar Power Projects**

- OREDA has been proactively promoting Solar Power Projects under the Jawaharlal Nehru National Solar Mission with a view to fulfill the Solar Power Purchase obligation of the State as well as for trading Renewable Energy Certificates (REC) within and across the State.

- For the year 2010-11 the Solar Power obligation of the State is about 24 MU. So far 8 Developers have signed PPAs for a total generation of about 12.8 MU. More solar power developers are being encouraged to set up power plants in the State so as to meet our own obligation and at the same time trade renewable energy certificate.

- **Biomass Power Projects**

The Biomass Power Potential of the State has been estimated to be about 300 MW.

So far the State Technical Committee has cleared a total of 11 projects for a cumulative capacity of 138 MW. Of these 9 developers have already signed PPAs with GRIDCO for a total capacity of 118 MW. The first 20 MW project in Dhenkanal has already been set up and is waiting for commissioning.

This project would pump about 651 MU to the grid which entirely covers the non solar renewable obligation of the State for the current year as well as for the coming years.

- **Wind Power Projects**

- The estimated wind power potential in Odisha is about 800 MW.

- Mewing resource assessments are being taken up in 15 sites by C-Wet, Chennai, an organization under the Ministry of New and Renewable Energy, GOI and Suzlon and Regan, wind power majors in private sector.

4.8 Energy Plantation and Bio-Diesel Production

During the year a decision was taken to discontinue back ended subsidy to support Jatropha plantations being raised by individual farmers by availing bank loans and link NREGS to the programme so as to provide the necessary labour as well as material component for raising plantations of Jatropha through NREGS job card holders.

Accordingly guidelines for operation of the programme under NREGS were prepared in consultation with Panchayati Raj Department and the same was circulated to all districts. Jatropha cultivation under MGNREGS upto the month of December 2010 is 3338 acres. Under RLTA through DRDA (SCA funds) 2677 acres has been cultivated.

4.9 Solar Thermal Programme

During the current year 2010-11 Solar Water Heating System of 2000 liters per day (LPD) system will be installed at Government (SSD) High School Dhodipani of Nawarangpur district for supply of hot water to kitchen and other use point of the school.

4.10 Research & Development programme.

Provision of 5 lakh was made during the year 2007-08. A joint research project by OREDA and OUAT on operation of the stationary engine on straight vegetable oil have been taken up. Diesel engine with test rig and viscomer etc. have been purchased and commissioned at OUAT campus. Provision of Rs.5.00 lakh was made during 2008-09 towards development of solar tunnel dryer for drying Kendu leave, ginger, vegetable, NTFP etc. Now the different type of materials to be dried have been short-listed. Literature survey on different types of tunnel dryers in use has been done and the materials have been collected. At present a suitable institution (Engineering College) is being located for taking up the research project. Steps are being taken to complete the project during this financial year.

4.11. Tribal Sub-Plan

Village Electrification of village – Jakham, Block-Bhawanipatna, Dist – Kalahandi using biofuel under TSP for the year 2007-08 is under progress and likely to be completed during the current financial year.

Electrification of village Talakabadi in the district of Mayurbhanj using SVO based power generating system for 2008-09 is under progress.

4.12 Renewable Energy Club

In order to create awareness about New & Renewable Sources of Energy, its various systems and devices amongst the students, Renewable Energy Clubs in 10 Engineering Colleges have been set up in the State. These clubs are regularly organizing seminars, symposium, workshops, exhibitions etc to promote renewable energy.

4.13 Celebration of Rajiv Gandhi Akshaya Urja Diwas (RGAUD)

The Rajiv Gandhi Akshaya Urja Diwas was celebrated as Renewable Energy Day on 20.08.2010 in the State Capital of Odisha followed with a Mass Rally / Run, different competitions among the students.

4.14 Awareness Generation, Publicity and Exhibition during 2010-11.

Advertisement have been published in different Oriya news papers for awareness generation on different renewable energy programmes. 10 seconds video spots on different renewable energy programme have been telecasted in the running programme named “Ajir Odiasha” sponsored by Odisha Space Application Centre and I. & PR Department, Govt. of Odisha. Sanction has been received from MNRE, GOI for organizing NRSE Exhibitions in Dhanu Yatra at Baragarh,, National Kharvela Exhibition at Bhubaneswar and Annual Adivasi Exhibition in Bhubaneswar.

5. ODISHA SPACE APPLICATION CENTRE (ORSAC)

Important Activities of ORSAC for the year 2010-11 are as follows:

5.1. Forecasting Agricultural Output using Space Agro-metrology and Land based observations (FASAL)

District wise acreage estimation and production forecaste have been made for khariff paddy during the khariff season. The paddy acreage has been estimated through the analysis of multirate RADARSATSAR data and yield forecaste is based on agro-meterological models. The results have been made available to the user departments of the State and Central Government.

5.2 GRAMSAT Project

72 interactive training programmes have been conducted by the user departments from January, 2010 to December 2010. 155 episodes each of news programmes “Sunara Odisha and Swapnara Odisha” have been produced and transmitted through OTV and ETV respectively.

5.3 Block Level Resource Atlas and GIS Database Generation.

The Block level Resource Atlas have been generated and web enabled as “Odisha Sampad” and is now available in the public domain.

5.4 Resurvey of Cadastral Maps in Odisha

Cadstral resurvey / updation in Cuttack, Khurda, Ganjam and Keonjhar districts is in progress.

5.5 Urban land Information System

Urban mapping for Puri, Rourkela and Berhampur Development authorities has been completed.

5.6 Kendu Leaves Procurement and Storage Information System.

A web-enabled GIS based online monitoring system has been developed for Kenduleaves organization of the State Government Forest Department.

5.7 Dynamics of landuse/land cover change in Mahanadi Basin.

The land use / land cover maps have been prepared for the Mahanadi and adjacent river basins for the year 1985-86, 1993-94 and 2005-06 from Landsat-MSS, IRS-LISS-I and Resource at LISS-III data to study the land use changes over three different periods.

5.8. RISAT-UP Project

Ground truth, paddy, biomass and Crop Cutting Experiment (CCE) data has been collected from selected sample segments of Bhadrak and Puri districts.

5.9. Geomorphology and Lineament Mapping

Geomorphology and lineament mapping for Angul, Dhenkanal, Keonjhar, Jajpur, Cuttack, Jagatsinghpur, Kendrapara, Puri, Khurda, Ganjam, Bhadrak, Nayagarh and Sundergarh districts is in progress.

5.10 DGPS Survey of Mining Lease Areas

Steel & Mines Deptt., Govt. of Odisha has recognized ORSAC as nodal agency for DGPS Survey of Mining Lease Areas. The survey for 34 mining lease areas has been completed.

5.11 EDUSAT Programme

Class room teaching transmission on Mathematics, Science and English has been made for 113 days for 9th and 10th class students.

6. PATHANI SAMANTA PLANETARIUM (PSP)

Pathani Samanta Planetarium is a premier institute of the state for popularization of science in general, Astronomy, Astro-Physics and Space science in particular under the administrative control of Science and Technology Department, Government of Odisha.

Pathani Samanta Planetarium, Bhubaneswar was inaugurated on 8th January 1990. Since its inauguration PSP has increased its activities many fold and it has established a link throughout the state. Various programmes are being conducted throughout the state.

The main objective and function of the Planetarium are to bring to the public the awe and wonders of the universe through the planetarium shows. It aims at creating awareness on astronomy, astrophysics and space science among the common mass in general and among the young students in particular. It serves as the key institution of the state in instilling scientific temper among the people.

The activities of Pathani Samanta Planetarium for 2010-11 is as follows:-

6.1 Visitors and Revenue Collection:

	PSP Show	Light & Sound Show
Total Show	573	24
No. of Adult Visited	29325	1098
No. of Child Visited	14976	2535
Total No. of Person Visited	44301	3633
Total Amount collected (In Rs.)	531367	50290

Total Visitors: 47934

Total Amount: Rs.581657/-

6.2 Other Activities:

- i. The Pathani Samanta Planetarium have organized the monthly meeting of SCAAA on Sunday following the second Saturday wherein eminent scientists delivered lectures on various astronomical events.
- ii. A Programme called “Learning Mathematics through Problem Solving” was organized on every Sunday in collaboration with The Book Point in PSP for Class IV & V students.
- iii. Night Sky Watch Programme was held after the new moon day of every month for three to four days. People observed celestial objects like Venus, Mars, Saturn, Jupiter and Moon through Telescope.
- iv. Zonal Camp of Young Astronomers Talent Search (YATS – 2010) was organized at following places. About 300 students from different schools were invited to display their model on “Space Science – India’s Past, Present & Future”.
 - 15.09.2010 Model School, Dhabalagiri, J.K. Road
 - 17.09.2010 Joda West Recreation Club, Joda
 - 19.09.2010 D.N. High School, Keonjhar
 - 20.09.2010 Ganjam Kalaparishad, Berhampur
 - 21.09.2010 Govt. Boy’s High School, Jeypore
 - 24.09.2010 Pathani Samanta Planetarium, Bhubaneswar
 - 29.09.2010 B.R. High School, Belpahar
- v. State Level Camp of Young Astronomer Talent Search (YATS – 2010) was held at PSP on 12th & 13th December 2010. 89 students of different schools displayed their models on “**Space Science – India’s Past, Present & Future**”. Out of them best 20 models were awarded by the Hon’ble Chief Minister of Odisha on the 175th Birth Anniversary of Mahamahopadhyaya Chandrasekhar Harichandan Mohapatra Samanta. Many dignitaries, scientists and students attended the function.

Prof. (Dr.) Jayadev Kar, Planetarium Engineer attended the block level Science Exhibition at Khelar, Rench in the District of Puri on 15.12.2010. He delivered a speech on Science, Religion & Blind belief.

7. ODISHA BIGYAN ACADEMY (OBA)

During the Year 2010-11 Odisha Bigyan Academy has organised different activities/ popular science programme as follows:

7.1 The .“Bigyan Diganta”, the monthly Science Magazine, specially designed for school students and other people is being continuously published by the Odisha Bigyan Academy since 1993. During 2010-11 (upto December, 2010) nine issues of “Bigyan Diganta” have been released. The “Bigyan Diganta” is distributed to the Government recognised High Schools of the State free of cost.

7.2 The Odisha Bigyan Academy is also publishing an abridged version of “Bigyan Diganta” for visually handicapped students of the state. The magazine is brought out as a quarterly publication and distributed to the blind students and their institutions. During 2010-11 (upto December, 2010) two issues of the abridged version of popular science magazine “Bigyan Diganta” have been printed in braille oriya script and released.

7.3. The Odisha Bigyan Academy is publishing a monthly Science Magazine "Science Vision" in English language for English Medium Schools and +2 Science College students. The Hon'ble Chief Minister, Odisha inaugurated the 1st Issue (January, 2011) of "Science Vision" on 23.12.2010.

7.4 The meeting of the Expert Panel in different disciplines was held at Bhubaneswar from 27.11.2010 to 29.11.2010 for selection of Biju Patnaik Award for Scientific Excellence, Samanta Chandra Sekhar Award and Odisha Young Scientist Award 2010.

7.5 The meeting of the Expert Panel in different disciplines was held at Bhubaneswar on 15.12.2010 for selection of Pranakrushan Parija Popular Science Award for the year 2010.

7.6 The Investiture ceremony of different Awards of Odisha Bigyan Academy for the year 2008 & 2009 was organised at Jaydev Bhawan, Bhubaneswar on 23.12.2010 at 11.00 a.m. under the Chairmanship of Professor Basudev Kar, President, OBA,. Hon'ble Chief Minister of Odisha S.J. Naveen Patnaik graced the occasion as Chief Guest and presented the Awards to Dr. Kulamani Parida & Dr. Rajanikanta Choudhury for Biju Patnaik award for Scientific Excellence. He awarded Dr. Tapan Kumar Adhya, Dr. Prafulla Kumar Sahoo, Prof. Rabindra Kishore

Mishra, Dr. Manmohan Parida, Dr. Rabindranath Padhy, Dr. Arun Kumar Pati, Prof. Mohammed Khalid Khan and Dr. Debi Prasad Mishra for Samanta Chandra Sekhar Award and felicitated the eminent Scientists of Odisha Prof. Rebati Charan Das, Prof. Swadhinananda Pattanayak, Dr. (Mrs.) Priyambada Mohanty-Hejmadi, Dr. Renupada Naik and Dr. Dwijesh Kumar Panda. Odisha Young Scientists Award was given to Dr. Shreerup Goswami, Dr. Satchidananda Dehuri, Dr.(Mrs.) Mamata Mohapatra and Ms. Sandhyarani Biswas and Dr. Murari Mohan Dash & Smt. Manaswini Dash were awarded as Popular Science Writers Award in this occasion. Sj. Ramesh Chandra Majhi, Hon'ble Minister of Information Technology, Science & Technology, Odisha and Sj. P. K. Jena, Commissioner-cum-Secretary to Government, Science & Technology Department, Govt. of Odisha graced the occasion as the Guests of Honour.

7.7 The Government of Odisha allotted a Plot of land at Sahid Nagar, Bhubaneswar for construction of Odisha Bigyan Academy building. The academy is taking necessary steps for construction of building.

7.8 The Odisha Bigyan Academy has taken steps to celebrate National Science Day-2011 on 27.02.2011 and 28.02.2011 at Sonepur among the school students.

8. INSTITUTE OF MATERIAL SCIENCES (IMS)

Followings are the brief activities report of the Institute of Materials Science for the year 2010-11.

8.1. Institute has created basic experimental research facilities for young researchers of the state to carry out research work in the frontier field of material sciences & engineering leading to their Ph.D programme. A few high precision equipment (High temperature programmable vacuum furnace & UV-VIS-NIR Spectrophotometer) are procured for this purpose.

8.2. A CSIR - NET qualified research scholar has joined in IMS availing the financial support from Govt. of India to pursue his research work in the broad area of ferroelectrics.

8.3. Basic research in the area of Multiferroics and Diluted magnetic Semiconductors are being taken up by the two research scholar of the Institute which have got tremendous impact in the field of future spintronics devices.

8.4. Microscopic analysis of rice and rice husk of Odisha (collected from different parts of Odisha) were analyzed availing the experimental support of NRL, Washington DC under the guidance of Dr. B. B. Rath (Associate Director, NRL) in order to evaluate the biogenic toxicity detrimental to human health.

8.5. Three research papers on Diluted Magnetic Semiconductor & Colossal Magnetic Resistance were published in International journal.

8.6. One research scholar has developed a programme for X-Ray Diffraction analysis of different materials covering seven crystallographic system.

8.7. The IMS completed the scientific exposure visit programme of 254 SC & ST school students situated in TSP zones of Odisha and awarded 10 best pride of the school award to them.

Research scholar and Faculty of IMS have been invited to deliver their talk in First International Conference on Composites and Nanocomposites” on 7th, 8th and 9th January 2011 at kottayam, Keral and National Seminar on “Recent Advances in Physics” (NS RAP-2010), on 5th and 6th January 2011, Kalinada, Andhra Pradesh respectively.

9. INSTITUTE OF MATHEMATICS AND APPLICATION (IM&A)

The Institute is making all effort to keep the standard of Mathematics of Odisha high in all India level. Different activities for the year 2010-11 are as follows:-

9. 1. Research Activity

New areas of research under taken by the Institute of Mathematics and Applications are:

- i) Cryptography
- ii) Stochastic Filtering and its Applications to Signal Process
- iii) Application of Stochastic Process to Mathematical Finance
- iv) Operator Theory
- v) Graph Theory and its applications
- vi) Combinatorial Optimization
- vii) Non Commutative Geometry, Number Theory

9. 2. Exchange programme

A memorandum of Understanding has been reached with Abhilash Mishra, Metron College, Oxford on Science Education Initiative for training and nurture of rural meritorious school students of Odisha.

9.3 Teaching Programmes:

The Institute offers a Master Level Course in Computational Finance. This is the first of its kind in India. This has already stated attracting financial institute. Our students have already got lucrative job offers even before their result are published. We shall continue to offer the course which has enormous job potential. 04 of our pass out students in this course are doing their Ph.D in (i) Belgium, (ii) German (iii) IIM, Indore, (iv) IIT, Kharagpur.

The Institute offers a B.Sc (Hons) in Mathematics & Computing. The aim of the course is to orient a student to take up a research course in mathematics. There are only four such courses in India. These children shall be able to go directly for their Ph.D after the B.Sc (Hons) in Mathematics & Computing.

As regards to achievements students are excellent in their progress. One student of final year B.Sc of the Institute competing with other students from allover India both B.Sc and M.Sc, qualified for Ph.D programme of TIFR Mumbai and for the Integrated Ph.D program of the TIFR Centre Bangalore. He has been selected finally to join the Ph.D programme of Institute of Mathematical Sciences. Other students of the same batch has taken admission in other reputed Institutions.

Two of the 3rd year B.Sc students have been selected under Kishore Vaigyanik Proshahan Yojana (KVPY) of CSIR. This entitles each of them to a scholarship of Rs. 5000/-per month till they finish their Masters programme.

Now, the B.Sc programme of IM&A has become popular at all India level.

9.4 Summer Internship

Students of different Institute like NIT, Rourkela/Central University, Pondycheri /NISER, Bhubaneswar have come to Institute of Mathematics and Applications for their summer project/ internship.

9.5 Search & Nurture Programme

The Institute has been running the **Rural Mathematics Talent Search Programme** since 2003. So far more than 1400 students have passed through this programme. Some of them

have done extremely well in the high school certificate examinations and pursuing their higher education in reputed institutions. Regular students & guide teachers training camps were held in April-July, October and in December 2010 for the selected Rural Mathematics Training Search students of class VII, VIII & IX.

A counseling and suggestion camp was held on 7.4.2010 to 8.4.2010 for Rural Mathematics Talent Search qualified 2005 batch students who have appeared the Matriculation Examination.

A State level training camp for Junior Mathematics Olympians-2009 was held at Institute of Mathematics & Applications from 29.05.2010 to 11.06.2010.

A prize distribution Ceremony for awarding of Mathematics Olympiads-2009 was organized by the Institute of Mathematics & Applications on 11.06.2010 in the Auditorium of Institute of Material & Mineral Technology, Bhubaneswar. The Hon'ble Chief Minister of Odisha Sri Naveen Patnaik distributed Gold and silver medals and prizes to 170 school children who were in the merit list of Regional & Junior Mathematics Olympiad-2009 conducted by Odisha Mathematical Society. 3 Gold and 12 silver medals are distributed. Sri Ramesh Chandra Majhi, Hon'ble Minister Science & Technology Dept, Govt. of Odisha graced the occasion as guest of honour.

9.6 Interactive Mathematics training Programme for Under Graduate and Post Graduate Students

The institute organizes Interactive Mathematics Training Camp for undergraduate students in an area of rural setting but selected from all over Odisha. These camps are held at vacation time of the year. In the year 2010-11 the training camp was organized at Department of Mathematics Ravenshaw University, Cuttack.

9.7 Sunday Morning Problem Solving Classes for School Children

Every Sunday the Institute conducts Problem Solving classes for school children. In these classes the children were taught the techniques and methods of problem solving of non traditional and non routine types of mathematics problems which are not generally taught in their schools. Students of both urban and rural areas are attending these classes. A bus has been arranged for this purpose.

9.8 Programme for SC/ST students

Onsite counseling program for +2 2nd year Science students of 19 EMRS & HSS school under ST & SC Devt. Dept, Govt. of Odisha had been started by Institute of Mathematics & Applications, Bhubaneswar.

Teachers training of the junior lectures in Mathematics of 19 EMRS & HSS School under ST & SC Devt Dept, had been done during 28th September to 30th September 2010 in the Institute of Mathematics & Applications, Bhubaneswar.

9.9 Capacity Building Programme in Tribal area

The Institute of Mathematics & Applications has been conducting various programme for capacity building for tribal schools in Koraput District only. The Government is fully aware of the fruits of the programme. There have been requests from other districts to extend this programme to their ST/SC schools. This will have a far reaching effect on the mathematical competence of ST/SC children. To consolidate this effort we propose to get some of these children and teachers to our Institute periodically to train and nurture them.

9.10 Library

A good set of standard books and journals have been procured in the Institute of Mathematics & Applications, Bhubaneswar library to make it a reputed library of advanced study in Mathematics & Applications.

9.11 Special Training Programme for Tribal Students of KBK Districts

A special training programme for +2 ST/SC students of KBK Districts have been undertaken by the Institute since academic session 2008-09 under which the students are given special coaching for Examinations of IIT/NISER/NIT & other reputed Institutions.

9.12 Institute of Mathematics & Applications, Bhubaneswar acts as the nodal agency to coordinates the scholarship programme for students perusing **P.G. in Basic Sciences** in State levels under the aegis of State Council on Science & Technology.