



GOVERNMENT OF ODISHA

**ANNUAL ACTIVITIES REPORT OF
SCIENCE & TECHNOLOGY DEPARTMENT
FOR THE YEAR 2015-2016**

SCIENCE & TECHNOLOGY DEPARTMENT

REPORT ON THE ACTIVITIES OF SCIENCE & TECHNOLOGY DEPARTMENT FOR THE YEAR 2015-16

1. INTRODUCTION

The Science & Technology Department is the nodal Department for the promotion of 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 (IM&A) and Institute of Materials Science (IMS) working under the aegis of this Department with the following objectives:-

- 1.1. To keep abreast of the latest developments in the field of Science & Technology and to take steps for dissemination of these among institutions, industries, research laboratories, Universities, scientists and technologists.
- 1.2. To co-ordinate the R&D Programs of different departments, industrial and research institutions and to ensure scientific and technical co-operation among these institutions and agencies.
- 1.3. To formulate and fund, research and application programs in the field of science and technology,
- 1.4. To encourage, develop and extend the use of renewable sources of energy including energy plantations.
- 1.5. To popularize Remote Sensing Technology and make effective use of it.
- 1.6. To popularize science and technology among students and the people so as to inculcate a scientific temper and attitude in them.
- 1.7. Promote and popularize appropriate rural technologies.
- 1.8. Development of Library cum Documentation Centre for Science & Technology.
- 1.9. Science & Technology communication through awareness promotion, support to Institutions for Seminars/Workshops etc., development of Science Centres and administration of Pathani Samanta Planetarium.
- 1.10. To conduct Science & Technology Entrepreneurship Development Programmes.
- 1.11. To undertake fundamental research in mathematics and its application.
- 1.12. 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 programs undertaken in the field of Science and Technology in the State. The activities pertaining to various programs / schemes undertaken during the year 2015-16 are stated below:

2.1 Scholarship at Post-Graduate Level on Basic Science

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 is implementing a Scholarship programme @ Rs.2000/- per month for 200 students under the aegis of the State Council on Science and Technology.

2.2 UNESCO- Kalinga Prize

The UNESCO Kalinga Prize for popularization of Science is an International Award and established in the year 1951. The prize is being administered by UNESCO, Paris since 1952. The donation for this prize is shared by the Government of India, Govt. of Odisha and Kalinga Foundation Trust, Bhubaneswar since the year 2005 in the ratio 6:4:4. The proposal for enhancement of UNESCO Kalinga Prize money has been submitted to Government for consideration.

2.3 Establishment of Sub-Regional Science Centres in the State.

A Sub-Regional Science Centre is being set up at Mouza-Tukurla under Bhatli Tahasil in Bargarh District in the State, which is under progress. Further, steps are being taken up for setting up of 04 more Sub- Regional Science Centres at Bodapalasa in Keonjhar, Umuri near Jeypore, Khandapada and Gopalpur in the State under State Plan. The above sites are finalised by National Council of Science Museum(NCSM) Kolkata. The project proposal for the above sites has been submitted to the Government for consideration.

2.4 Financial support provided for holding State Level Science Exhibition

Financial support has been provided to Regional Science Centre, Bhubaneswar for holding a State Level Science Exhibition.

2.5 Establishment of Patent Information Centre in the State.

The State Council on Science & Technology has established a Patent Information Centre (PIC) in Odisha. The project will run for a period of 5 years with the financial assistance from the Department of Science & Technology (DST), Government of India and one Project Scientist has been appointed on contractual basis for Patent Information Centre. One day workshop on "Awareness Generation on Intellectual Property Rights" has been organised by Patent Information Centre of Science & Technology Department on 11.3.2016 at Odisha Bigyan Academy, Bhubaneswar.

2.6 Financial support for holding seminars, workshops, conferences etc.

Financial support has been provided for holding seminars, workshops, conferences etc.

2.7 Award of Biju Patnaik Research Fellowship in Science

Guidelines for awards of Biju Patnaik Research Fellowship in Science (Basic & Applied Sciences) have been prepared with an aim at encouraging Research and Development in Basic & Applied Sciences by motivating the young brains (M.Sc. / M.Tech. Science students) towards research and development programmes in different fields. The External Selection Committee has recommended that 10 students will get the award of Biju Patnaik Fellowship in Basic and Applied Sciences.

2.8 Research and Development projects in Basic and Applied Sciences

A new programme/ Sub-Scheme for sanction and Research and Development projects in Basic and Applied Sciences has been approved for implementation. The Sub-Committee on R&D in Basic and Applied Sciences has recommended that 5 R&D Projects will be funded.

2.9 Guidelines for travel grant

Guidelines for travel grant have been prepared for providing partial assistance to only those scientists/ academicians of the State who are supposed to give oral presentation in national/ international Conferences/ Seminars/ Workshops/ Symposia etc. and which will be beneficial to the State.

2.10 Guidelines for awards of Biju Patnaik Research Fellowship in Basic and Applied Sciences and Biotechnology for SC and ST students

Guidelines for awards of Biju Patnaik Research Fellowship in Basic and Applied Sciences and Biotechnology for SC and ST students have been prepared with an aim at encouraging Research and Development in Basic and Applied Sciences and Biotechnology by motivating the young brains (M.Sc. /M.Tech. Science students) towards research and development programmes in different fields.

2.11 Guidelines to Regulate Scholarship Programme for Meritorious SC & ST students to pursue post Graduate studies in Basic Science.

Guidelines to Regulate Scholarship Programme for meritorious SC & ST students to pursue post Graduate studies in Basic Science have been prepared with an aim at promoting and encouraging meritorious SC & ST students to pursue their post graduation studies in Basic Science- Physics, Chemistry, Botany, Geology, Zoology and Mathematics.

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 products 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 to thirteen new Research & Development -projects in Biotechnology.

- Financial support has been provided for holding Workshops/ Seminars etc. on Biotechnology.
- 32 scholarships are being provided to students pursuing Post-Graduation studies in Biotechnology in different Universities and Colleges of the State.
- Government of Odisha is developing a state of the art Biotech Pharma IT Park (Konark Knowledge Park) over an area of 64.613 acres at Mouza- Andharua under Bhubaneswar Tahasil in a Public private Partnership (PPP) mode. The project has been handed over to Odisha Industrial infrastructure Development Corporation (IDCO), Bhubaneswar as the nodal agency for execution as per the Lease-cum-Development Agreement.

- Guidelines for awards of Emeritus Fellowship in Biotechnology have been prepared with an aim at imparting quality teaching at M.Sc/M.Tech. level by eminent superannuated teachers and scientists.
- Guidelines for awards of Biju Patnaik Research Fellowship in Science (Biotechnology) have been prepared with an aim at encouraging Research and Development in Biotechnology by motivating the young brains (M.Sc. /M.Tech. Science students) towards research and development programmes in different fields.

4. INSTITUTE OF MATHEMATICS AND APPLICATIONS (IM&A), BHUBANESWAR

The main aims and objectives of the Institute of Mathematics & Applications are to pursue research in Mathematics & Applications, to search and nurture talents in Mathematics, to build a reference library and documentation centre, to set up advanced computing centre and to offer specialized courses

4.1 Research Activity

Some of the areas in which research work was undertaken in the period under reference were

(i) Stochastic Filtering and its Applications to Signal Process (ii) Application of Stochastic Process to Mathematical Finance (iii) Computational Finance (iv) Operator Theory (v) Optimization Theory (vi) Computational Fluid Dynamics (vii) Numerical Analysis (viii) Cellular Automata Theory (ix) Computational Biology (x) Machine Learning.

- Three nos of research papers were published in International journals by the faculty.

4.2 Teaching

Three year B.Sc (Hons) programme in Mathematics & Computing and two year M.A/M.Sc Programme in Computational Finance to produce competent financial engineers to face innovative financial market, are offered by the Institute. Students of B. Sc (Hons) in Mathematics & Computing of this Institute have qualified for the M.Sc/Ph.D programme in different Institutes like IISER Mohali, IISER Thiruvananthapuram, IISER Bhopal, IIT. Bombay, IIT. Madras, IIT Guwahati, IIT Kanpur, Central University, Hyderabad, Indian School of Mines University, Dhanbad, ISI Kolkata, Lucknow University etc. One student of M.Sc Computational Finance has been selected for appointment in CRISIL. Further, some of B. Sc (Hons) and M. Sc students have been selected to work for summer project and for summer internship in national level institutes.

4.3 Nurture Programme

(i) On Sundays, the Institute conducts Problem Solving classes for school children of Class VI to Class X. Students of both urban and rural areas are attending these classes.

(ii) Training camps : Under Nurture programme, the Institute trains students and teachers during vacation to improve their competence in Mathematics.

- ◆ During this year, the Institute organized two state level Mathematics training camps for Pathani Samanta Scholarship awardees of (2013-14 session) Class-VIII during different vacations. In these training camps, 101 students and 42 guide teachers participated.
- ◆ The Institute also organized Interactive Mathematics Training Camps for Under-Graduate students selected from all over Odisha. From 13/05/2015 to 22/05/2015 a state level Interactive Camp 2015, was organized in the Campus of the Institute of Mathematics & Applications for Under-Graduate students with academic support from faculty of NISER and IIT Bhubaneswar. Forty-one (41) students from various colleges participated in the camp.
- ◆ From 26/05/2015 to 04/06/2015 a state level Summer Camp 2015, was organized in the Campus of the Institute of Mathematics & Applications for the students who qualified in Junior Mathematics Olympiad. One hundred-seven (107) children from various schools participated in the camp.
- ◆ From 20th to 22nd January 2015, a state level training camp for the Regional Mathematics Olympiad qualified students (38 numbers) of the State, was held in the Campus of the Institute of Mathematics & Applications campus for possible improvement in their performance at the Indian National Mathematics Olympiad-15 Examination to be held on 1/2/2015. Professor C.R. Praneschar, former Professor at the Olympiad cell of National Board for Higher Mathematics, Indian Institute of Science, Bangalore was the main resource person for training the participants of this camp.

4.4 Programme for SC/ST students

Under this programme the Institute trains the Ekalabya Model Residential School and SSD school children under SC & ST Development Department, Govt. of Odisha regularly during vacation to improve their competence in Mathematics.

Nine (9) groups of tribal students (boys and girls) including their guide teachers (gents and ladies) sponsored by the Institute of Materials Science, Bhubaneswar visited the Institute of Mathematics & Applications for scientific exposure. Professor Swadheenananda Pattanayak, Professor Sudarsan Padhy and Dr. Hadibandhu Pattanayak enlightened them the various possibilities of studies for career in Mathematics.

4.5 Library

Thanks to the support of the Govt. of Odisha, the library of the Institute has more than 7000 books of references on mathematical, financial, computational and related subjects as well as professional journals, both national and international. This facility is being used by students, faculty and research scholars of the Institute and also teachers/research scholars from other institutions of Odisha.

4.6 Seminar/Conferences/Symposium/Workshop

- Regular monthly Seminars were held for students where internal members delivered talk.
- Seminars were held for Under-Graduate students of different colleges (Naharakanta College, Bhubaneswar, Kendrapara Autonomous College, Maharshi College, Bhubaneswar) in the Institute where internal members delivered talk.
- Faculty members were invited as keynote speakers/Resource Persons and to chair the Sessions in the National and International seminars and conferences.
- Faculty members have participated in different National and International seminars and Conferences to present their research papers.

4.7 Summer Project

Two Post Graduate students of NIT, Rourkela have done project work under the guidance of Prof. S. Padhy in Institute of Mathematics & Applications.

4.8 Nodal Agency of State Level P.G Scholarship in Basic Science

Institute of Mathematics & Applications, Bhubaneswar coordinates for award of the scholarship offered by State Council on Science & Technology, Science and Technology Department, Govt. of Odisha to students pursuing P.G. in Basic Science in the State. Under this Programme, the Institute selects the students and distributes the scholarship to the awardees. The processing work for the year 2015-16 admission batch is going on.

All these above activities will be continued during 2016-17 financial year in large scale.

A proposal to make the Institute of Mathematics and Applications a Centre of Excellence is under consideration of the Government.

5. INSTITUTE OF MATERIALS SCIENCE (IMS), BHUBANESWAR

The activities pertaining to various programs / schemes undertaken during the year 2015-16 are stated below:

- (i) Experimental research collaboration among UNISA, South Africa (Prof. V.V. Srinivasu), Naval Research Laboratory, USA (Dr. B.B. Rath) & Norfolk State University, USA (Prof. A.K. Pradhan) continuing.
- (ii) A Tubular Furnace (high temperature ≈ 11500 C Max.) has been installed in IMS laboratory.
- (iii) Two numbers of research papers of IMS have been published in International journal.
- (iv) Colloquium / invited talk :
 - (a) Invited talk organized by IMS titled "Nanomaterials, energy carriers and applications: learn from nature" delivered by Prof. S. Ram (Material Science Center, IIT, Kharagpur) on 18.04.15.
 - (b) Invited talk organized by IMS titled "Superconducting Technologies for Indian Power Sector" delivered by Prof. V.V Rao (Applied Superconductivity Laboratory Cryogenic Engineering Center, IIT, Kharagpur) on 02.05.15.
 - (c) Invited talk organized by IMS titled "Superconducting Technologies for Indian Power Sector" delivered by Prof. V.V Rao (Applied Superconductivity Laboratory Cryogenic Engineering Center, IIT, Kharagpur) on 20.06.15.
 - (d) Invited talk organized by IMS titled "High Tc-Superconducting Material and Possible Applications" delivered by Mr. Fhulufhele Nemangwele (Department of Physics, University of Venda, South Africa) on 10.08.15.
 - (e) Invited talk organized by IMS titled "Current Research in Advanced Materials" delivered by Padmabhusana Dr. B.B. Rath (NRL, Washington DC, USA) on 23.12.15.
- (v) Two numbers of conferences were attended by IMS researchers.

(vi) Ph.D degree awarded

- (a) Mrs. S. Samantaray got Ph.D. award from Utkal University, Bhubaneswar for her research work on “Studies on dielectric behavior of rare earth based perovskite maganite”.
- (b) Ms. P.P. Rout got Ph.D. award from Utkal University, Bhubaneswar for her research work on “Ferroelectric behavior of doped rare earth based multiferroics”.
- (c) Mr. Sangram Keshari Das got Ph.D award from Ravenshaw University, Cuttack for his research work on “Studies on Multiferroic Behaviour in Transition Metal doped ABO₃ type Ferroelectrics”

(vii) TSP programme has been completed through scientific exposure visit covering 338 schools (selecting one best student from each school securing highest marks in Mathematics and Science) functioning under the administrative control of ST & SC Development Department, Govt. of Odisha. Best 20 Pride of the School Award in Science has been given to selected school students.

(viii) Outside researchers of OUAT, IMMT, Utkal University, ITER & Silicon college of Engineering, Bhubaneswar are using the research facilities of IMS.

(ix) Two foreign researchers from South Africa (Mr. Fhulufhelo Nemangwele and Mr. Tebogo Sfiso Mahule) visited IMS and initiated collaborative research programme.

6. PATHANI SAMANTA PLANETARIUM (PSP), BHUBANESWAR

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

(i) Pathani Samanta Planetarium, Bhubaneswar was inaugurated on 8th of January, 1990. Since its inauguration, PSP has increased its activities manifold and it has established a link throughout the state. Various programmes are being conducted throughout the year. About 1,55,000 (One Lac Fifty Five Thousand) visitors visit Planetarium every year from 2013.

Visitor & Revenue Collection (2015-2016)

	PSP Show
Total Show	1421
No. of Adult Visited	89385
No. of Child Visited	57266
Total no. of Visitors Visited up to February, 2016	1,46,651
Total Amount Collected (in Rs.) up to February 29, 2016	Rs.27,69,975/-

(ii) The main objectives and function of the Planetarium are to bring to the public the awe and wonders of the universe through the planetarium shows. At present, Pathani Samanta Planetarium is conducting planetarium shows in three distinct languages with different programmes of duration range from 25 to 40 minutes such as (i) *AKASARA ASRANTI KATHA* (in odia) (ii) *BISWARA RAHASYA* (in Hindi) and (iii) *IBEX : Search for the edge of the Solar System* (in English). In the open air, the Astronomy Park established in the premises of PSP with many astronomical models are being appreciated by student community, teacher community & general public. Like every year, this year on 13th December 2015, on the birth Anniversary of Pathani Samanta, 20 selected Young Astronomers of the state have been awarded by the Hon'ble Chief Minister of Odisha. Students covering almost all districts of Odisha participated in the YATS programme. They are encouraged to pursue their career in science, in general, Astronomy, Astrophysics & Space Science in particular and take up future research activities to build the nation and create mile stones in space exploration.

(iii) Besides, presenting Planetarium shows, PSP has taken up a nos. of activities for popularization of science, specifically Astronomy and for creating consciousness and its culture in the state. Further, it is also deeply engrossed in research and development works. Some of the activities include Night Sky Watch (NSW) programme, publication of wall magazine 'Chhayapath' Teachers Training programme for talented secondary school Students, Astronomy Olympiad, demonstration of astronomical models, Amateur astronomer's meet, workshops, seminars, symposia monthly meeting of SCAAA, Bigyan Lekhaka Sammukhya (Science writers forum) etc. The mobile Planetarium has been inaugurated on 24th December 2015 at Khandapada. The said programme has been launched in the district of Nayagarh, Khurda, Jajpur and Angul of Odisha.

7. ODISHA BIGYAN ACADEMY (OBA), BHUBANESWAR

The aims and objectives of Odisha Bigyan Academy (OBA) are to promote and popularize science, amongst people of Odisha, based on informed knowledge emanating from various frontier fields of Science & Technology.

Physical achievement report during the year 2015-16 of Odisha Bigyan Academy is as follows :

- (i) During 2015-16, twelfth issue of monthly popular science magazine in Odia "Bigyan Diganta" has been released and distributed to all Government recognised High Schools of the State free of cost.
- (ii) 11th issue of abridged version of quarterly popular science magazine 'Bigyan Diganta' printed in braille odia script was released in this month and distributed to the visually handicapped students of Odisha through the Headmaster of their Schools free of cost.
- (iii) Twelfth issue of monthly Science Magazine "Science Horizon" in English language has been released and distributed to Govt. English Medium High Schools and +2 Science Colleges of the State free of cost.
- (iv) Odisha Bigyan Academy (OBA) celebrated its foundation day on 01.04.2015 (Utkal Divas).

In this occasion, Quiz competition based on articles published in 'Bigyan Diganta' during 2014 and Sit & Draw Competitions were conducted among the High School Students of Odisha. The Chief Guest presented the Awards to the Awardees of the above competitions. Students interacted with Scientists of Odisha.

- (v) Odisha Bigyan Academy in collaboration with Radhakanta Bidyamandir, Katara, Jagatsinghpur, Durga Devi High School, Kanas, Puri and Kabatabandha High School, Jenapur, Jajpur organised Workshop on "Understanding Weather and Climate for our better future" on 17-18 April, 2015, "Wetland Management with Special Reference to River Daya" on 18.04.2015 and "Science in Everyday Life" on 23.04.2015 respectively in those High Schools. Different popular science programmes i.e. Science Project, Quiz, Debate and sit- draw competitions also organised among students.

- (vi) Odisha Bigyan Academy organised a Popular Science Lecture on 26.05.2015 (Tuesday) in the Conference Hall of Odisha Bigyan Academy. Sj. Sisir Chandra Rath, former Director General, Geological Survey of India was the resource person. He delivered a lecture on "Science - The Eternal Quest".
- (vii) The Investiture ceremony of different Awards of Odisha Bigyan Academy for the year 2013 was organised at Jaydev Bhawan, Bhubaneswar on 03.07.2015 at 11.45 am. Hon'ble Chief Minister of Odisha Sj. Naveen Patnaik graced the occasion as Chief Guest. Dr. Pradip Kumar Panigrahi, Hon'ble Minister, Higher Education, Science & Technology, Rural Development (Rural Water Supply), Odisha and Sj. Surendra Kumar, Commissioner-cum-Secretary to Government, Science & Technology Department, Government of Odisha were the Guests of Honour. Hon'ble Chief Minister felicitated Prof. Krushna Chandra Satpathy, Prof. Amulya Kumar Panda, Prof. Basudev Kar, Prof. Sharat Chandra Panda and Prof. Nimain Charan Mohapatra as eminent Scientists of Odisha. The "Biju Patnaik Award for Scientific Excellence" was awarded to Prof. Gadadhar Misra and the recipient of the "Samanta Chandra Sekhar Award" were Dr. Ramesh Chandra Ray, Prof. Bidyadhar Subudhi and Dr. Pradyumna Kumar Mishra. Dr. Alok Prasad Das, Dr. Bikash Kumar Jena and Er. Alok Tripathy received the "Odisha Young Scientists Award" and Smt. Archana Panigrahi and Sushree Nirmla Kumari Mohapatra were awarded with "Pranakrushna Parija Popular Science Book Award" in this occasion.
- (viii) Odisha Bigyan Academy celebrated the "First World Students Day" on 15.10.2015 at P.G. Department of Zoology, Utkal University, Vani Vihar, Bhubaneswar i.e. the birthday of former President and Bharat Ratna awardee Dr. A.P.J. Abdul Kalam. Dr. Lambodar Prasad Singh, former Professor, Department of Physics, Utkal University, Bhubaneswar delivered a lecture on "Life and Work of Dr. A.P.J. Abdul Kalam". Prof. Ashok Kumar Das, Vice-Chancellor, Utkal University presided over the Meeting.
- (ix) Odisha Bigyan Academy organised a Writers Workshop for writing in 'Bigyan Diganta' & 'Science Horizon' at its Conference Hall on 28.11.2015. The purpose of the workshop was to improve the quality of popular science writing for 'Bigyan Diganta' & 'Science Horzion' published by Odisha Bigyan Academy.

- (x) National Science Day-2015 has been celebrated in various High Schools of Odisha in collaboration with Rashtriya Vigyan Evam Prodyogiki Sanchar Parishad (RVPSP), Department of Science & Technology, Government of India.
- (xi) Odisha Bigyan Academy represented 103rd Indian Science Congress held at Mysuru in 'Pride of India Expo' from 3-7th January, 2016.
- (xii) Dr. Rekha Das, Secretary, Odisha Bigyan Academy presented a paper on 'Impact of Life Style & Stress on Type-2 diabetes in 103rd Indian Science Congress held at Mysuru from 3rd-7th January, 2016.
- (xiii) District Level Interactive Sessions of Science Teachers and Students were organised by Odisha Bigyan Academy at B.S. High School, Sundargarh, Zilla School, Bhadrak and Capital High School, Unit-III, Bhubaneswar on 5-6, 9-10 and 15-16th February 2016 respectively. Students and Science Teachers of all the 30 districts had interacted with eminent scientists of Odisha in those sessions.
- (xiv) Odisha Bigyan Academy in collaboration with P.G. Department of Zoology, Ravenshaw University, Cuttack celebrated the National Science Day 2016 on 27-28th February 2016. In this occasion science based project /exhibition, essay & debate competitions were conducted among school students of High Schools, Colleges and University. This year Prof. Basudev Kar Memorial Award, Prof. Surya Narayan Behera Memorial Award and Prof. Madhusudan Kanungo Memorial Award were presented to students for best Essay, Debate and Project respectively. On 28th February a popular talk on the theme of National Science Day i.e. "Make in India, S&T Driven Innovation" was organised in the Conference Hall of the Academy. Prof. Ashok Kumar Das, Vice-Chancellor, Utkal University, Vani Vihar, Bhubaneswar delivered lecturer on the above theme. Patrons, Life Members, Students participated in the programme.

8. ODISHA SPACE APPLICATIONS CENTRE (ORSAC), BHUBANESWAR

The activities of the ORSAC for the year 2015-2016 are the following:

(i) Block Level Resource Atlas & GIS Database Generation:

The mobile application under 'Odisha Sampad' has been developed. The thematic content of the same is being updated.

(ii) Urban Land Information System:

Landuse/land cover map updation of Phulbani, Kendrapara, Biridi, Balukuda, Aul, Rajgangpur, Biramitrapur and Anandpur towns has been completed.

(iii) EDUSAT Programme:

Classroom teaching transmission In English, Mathematics, Science & Geography has been made for Class IX and X students for 175 days covering 475 classes from April 2015 to March,2016.

(iv) DGPS Survey of Mining Lease Areas:

DGPS survey for 13 mining lease areas, 10 mineral blocks and one coal block area has been completed.

(v) Forest Area Proposed For Diversion / Compensatory Afforestation Projects:

Authentication of maps showing forest areas proposed for diversion for 84 proposals have been completed. DGPS survey has also been completed for 16 proposals.

(vi) Georeferencing of Forest Blocks of Odisha:

Georeferencing of Forest blocks of 50 Forest Divisions has been completed and submitted to state Forest Department.

(vii) Fasal Project :

The kharif rice acreage and production forecast for Odisha state has been released incollaboration with Mahanalobis National Crop Forecast Centre (MNCFC), Ministry of Agriculture and Farmers Welfare, Govt. of India, New Delhi. The kharif rice area of the state is estimated at 3.81 million ha. with a production of 8.23 millon tonnes.

(viii) OPTCL Project:

Web-based power atlas of Cuttack circle has been completed and submitted to Odisha Power Transmission Corporation Limited.

(ix) Odisha Land Bank Project:

Landbank clusters have been identified and mapped for 2.4 lakh acres in 22 districts of Odisha. Landbank maps and land schedule for 75,000 acres are made available in public domain through GoIPLUS (Government of Odisha industrial Portal for Landuse and Services).

(x) Research & development projects:

The Intergraph Geospatial Server (IGS) has been installed at Odisha Data Centre at Odisha Computer Application Centre. The ortho rectification done for the Worldview Pan data are being quality checked to verify the correctness with reference to cartosat-1 ortho image.

(xi) Odisha Industrial Infrastructure Webgis Database:

GoIPLUS has been webhosted in public domain under invest Odisha Website, Industry Department. Query option has been added as per the users requirement.

(xii) Development of GIS based canal network monitoring system:

A pilot project on Suhagi Minor Irrigation Project in Narasinghpur Block of Cuttack District has been completed and submitted to Chief Engineer, Minor Irrigation, Odisha.

(xii) Groundwater Quality Mapping:

Groundwater quality maps for Angul, Kendrapada, Bargarh and Malkangiri districts have been prepared by integrating pre and post monsoon data.

(xiv) CHAMAN Project:

Two days training programme on co-ordinated Horticulture Assessment and Management using Geo-informatics (CHAMAN) was arranged for state horticulture department officers collaborated by MNCFC, Ministry of Agriculture and Farmers Welfare, Govt. of India, New Delhi.

(xv) Shifting Cultivation Study:

Shifting cultivation map of Koraput and Rayagada Districts has been prepared and submitted to state Forest Department.

(xvi) DGPS Survey of Shamuka Beach Project:

The DGPS survey has been carried out at coastal stretch near MangalaNala of Puri district. Maps and reports have been submitted to IDCO.

(xvii) Land information system of ga plots, general administration department, Govt. Of Odisha :

Georeferenced maps of Bapuji Nagar area has been prepared and submitted to Director, Estate, General Administration Department, Govt. of Odisha.

(xviii) GIS based planning for optical fibre routing under Bharat net project:

The GIS based plan for optical fibre routing connecting districts, blocks and grampanchayats of Odisha has been generated and submitted to Electronics & IT Department, Govt. of Odisha.

(xix) Forest cover change map preparation of Odisha state :

Forest cover change maps of seven Forest division along with beatwise change matrix has been submitted to Forest Department.

9. ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY (OREDA), BHUBANESWAR

9.1 National Biogas and Manure Management Programme.

The National Biogas and Manure Management Programme (NBMMP) is a centrally sponsored scheme and a part of 20-point programme. Under the programme, people are taking advantage of cooking and lighting by establishing the Biogas plant. The State has achieved 1582 nos. of biogas plants till end of February'2016.

SI No	Name of the scheme	Target fixed for the year 2015 -2016	Achievement till end of 29.2.2016
1	NBMMP	5100	1582

9.2. Wind Power Project,

The estimated wind power potential in Orissa about 910MW. Resource assessments are being taken up in 10 locations. The programme is supported by Centre for wind Energy Technology(C-WET), Chennai an organization under Ministry of New and Renewable Energy (MNRE), GOI, New Delhi.

The Status report of installation of met mast in Odisha is given

SI No	Name of the location.	Name of the Block.	Name of the District.	Date of Installation	Status.
1	UAllapur	Khalikote	Ganjam	14/10/2012	Dismantled. Site feasibility & Potentiality report is awaited from NIWE.
2	Ariputra ghati	Koraput	Koraput	16/10/2012	Closed. Site feasibility & Potentiality report is awaited from NIWE.
3	Zillagaon	Th. Rampur	Kalahandi	19/10/2012	Dismantled. Site feasibility & Potentiality report is awaited from NIWE.
4	Dakhili Panabandha	Kasipur	Raygada	22/10/2012	Dismantled. NIWE informed that the site is feasible for small wind solar hybrid systems
5	Paradeep	Kujang	Jagatsinghpur	24/10/2012	Dismantled. NIWE informed that the site is feasible for small wind solar hybrid systems & wind power projects.
6	Kadakala	Banspal	Keonjhar	24/10/2012	Dismantled. Site feasibility & Potentiality report is awaited from NIWE.
7	Srikona	Balasore	Balasore	02/03/2013	Dismantled. Site feasibility & Potentiality report is awaited from NIWE.
8	Kasijaganathpur	Sadar	Puri	04/03/2013	Closed. Site feasibility & Potentiality report is awaited from NIWE.
9	Chedak	Chandbali	Bhadrak	07/03/2013	Closed. Site feasibility & Potentiality report is awaited from NIWE.
10	Patherganj	Krushnaprasad	Puri	07/03/2015	Data assessment work is going on. Expected month of completion-March-2017.

9.3 Solar Photovoltaic Power Projects:-

a. Grid Connected solar power plant:-

During **2015 -2016**one 25 MW Grid Connected Solar Power Project has been commissioned on 22.6.2015 in the district of Bolangir under RFS, Batch-II.

b. Off grid Solar Photovoltaic (SPV) Programme.

The programme is supported by Ministry of New and Renewable Energy, Govt. of India. The Prime objective of the programme is to provide illumination and running of different electrical appliances and reduction in use of diesel and kerosene also indirectly help to reduced carbon dioxide emission. The State has achieved 462.5 KW under solar photovoltaic system till end of February'2016.The Roof top solar power plants have been provided to the Govt.institutions, hospital, Schools. Balashram, sevashram, private institutions,residential hostels ,Police stations etc.

Sl. No.	Name of the scheme	Target fixed for the year 2015-16	Achievement till end of 29.2.2016	Proposed target for the financial year 2016-17
1	SPV Power Plant	200kw	462.5 KW	1440 KW
2	Solar lantern	Nil	22812	Nil

The solar lanterns have been supplied to Weavers and handicraft artisans. The funds for the above lanterns have been realized from the office of the Director of Textile and Handloom, Odisha and Director, Handcraft and Cottage Industries, Odisha.

9.4 Solar Energy Based Dual Pump Piped Water Supply Scheme:-

Small irrigation and drinking water are the most potential applications of solar power. The main advantage is that solar radiation is intense when the need of water for irrigation/drinking is high. Further, Solar power is available at the point of use, making the farmer/villagers independent of fuel supplies or electrical transmission lines.

IAP (Integrated Action plan), PVTG and OTELP areas are typically characterized by small remote habitations. Bore well/tube wells are the only sources of drinking water in these habitations. When water level in the wells depletes or hand pumps go out of orders

providing minimum life supporting drinking water in these villages comes as a very big challenge. Since most of these habitations are either un-electrified or the power supply is highly erratic energizing the wells with normal grid power is also very difficult. In such scenario Solar PV water pumping systems in tandem with regular existing hand pumps (called as dual pump) emerge as viable option for ensuring uninterrupted drinking water supply with minimum recurring expenses.

OREDA has taken up the scheme of Solar Energy Based Dual Pump Pipe Water Supply in collaboration with the RWS&S under NRDWP. So far OREDA has installed 4852 Nos. of solar dual pump in the state from the year 2013-14. It is planned to install 2000 Pumps in the year 2016-17

9.5 Solar Pumping Program for irrigation in the state of Odisha:-

MNRE has launched a major program for irrigation using solar powered pumps with 30% subsidy wherein the ministry had indicated a target of 2650 pumps for Odisha vide Minister's letter No 42/25/2014-15/PVSE dated 2.9.14. The state communicated its acceptance to implement the project and provide the required state subsidy vide letter No 3450/ST dated 26.9.14. MNRE sanctioned an amount 26,75,18,700/- towards CFA which includes service charge to OREDA amounting to Rs 26,48,700/- vide letter No 32/22/14-15/PVSE(Part II) dated 9.12.14. Out of the sanctioned amount, an amount of Rs. 9.33 crore has been released by the MNRE. Odisha lift Irrigation Corporation limited has released 5.00 core and Science and Technology Department has released 16.00 crore for the above programme. The least price for each pump comes to **Rs. 4, 59,883/-** including Taxes, Service charges etc. Work order for supply, installation and commissioning of 238 pumps has been issued in favour of 14 nos. of approved vendors on 16.3.2016 and the work is under implementation. It is expected to complete all installation by April'2016.

9.6 Electrification of Remote villages & Hamlets:-

(a) The Ministry of Tribal Affairs, GOI have sanctioned solar lighting project in 450 tribal villages under TSP areas in the state.

In the first phase, it has been proposed to take up 250 villages for electrification through SPV during the current year. After survey, 239 villages have been identified for electrification for which DPRs have been prepared and submitted to TDCCOL, Bhubaneswar.

Tender for electrification of those villages have been invited vide this tender call notice No.590/OREDA, dt.10.2.2016 which will be opened on 27.2.2016.After finalisation of the tender ,work order will be issued for implementation of the projects.

(b) REC, Gol has communicated sanction of 7 villages of Gajapati district, 6 villages of Kandhamal district and 1 village of Angul district for electrification under DDUGJY. Action has been initiated for alienation of land for installation of SPV power plant in the said districts.

Another 183 villages in the district of Angul, Boudh, Koraput, Rayagada, Nabarangpur, Dhenkanal, Nayagarh, Bargarh, Mayrubhanj, Keonjhar and Ganjam has also been sanctioned by REC for electrification under DDUGJY. Further,In-principle sanction of 79 villages have been received from REC for electrification.The tender was floated vide tender call notice No. 936/OREDA, dt. 25.2.2016 for execution of the work.
