

# CHAPTER 17

## SCIENCE AND TECHNOLOGY

### SCIENCE AND TECHNOLOGY

17.01 Science and Technology play a vital role in the process of development and transforming the nature of an economy into a more modern and vibrant one. It has special relevance for Orissa as the State is still striving to achieve a level of excellence in its process of development. In regard to Science and Technology, the State has the following objectives:

- ♦ *To keep abreast of the latest developments in the field of science and technology and to take necessary steps for dissemination of developments to industries, research laboratories, Universities as well as among scientists and technologists.*
- ♦ *To co-ordinate R&D Programmes of different departments, Industrial and research institutions and to ensure scientific and technical co-operation among these institutions and agencies.*
- ♦ *To formulate and finance research and application programs in the field of science and technology.*
- ♦ *To encourage, develop and extend the use of renewable sources of energy including energy plantations.*
- ♦ *To popularize Remote Sensing Technology and its effectiveness.*
- ♦ *To popularize science and technology among the people in general and students in particular, in order to inculcate in them a scientific temper and attitude.*
- ♦ *To promote scientific and technological education in selected institutions of higher specialization.*

- ♦ *To promote activities in key areas like Biotechnology, Remote Sensing and Non-conventional sources of energy.*
- ♦ *To enhance scientific and technological communication through awareness promotion, support to institutions for seminars/workshops, development of science centers and administration of Pathani Samant Planetarium (PSP).*
- ♦ *To conduct Science and Technology Entrepreneurship Development Programs (STEDP).*
- ♦ *To promote and popularize appropriate rural technologies.*
- ♦ *To implement Integrated Rural Energy Programs (IREP) in the State.*
- ♦ *To undertake fundamental research in Mathematics and its applications.*
- ♦ *To carry out well defined research and development programs on frontier areas of Material Science and Technology and to conduct inter-disciplinary research on special materials, their development, optimization, production and utilization.*
- ♦ *To train and upgrade skills of field level development functionaries of Govt. departments.*

### STATE COUNCIL ON SCIENCE AND TECHNOLOGY

17.02 The State Council on Science & Technology functions as the highest policy-making body to promote the development of Science & Technology in the State. The council undertakes a number of programmes such as funding of application oriented research projects, seminars, workshops etc. Some important activities pertaining to

various programmes / schemes undertaken during 2005-06 are as follows:-

**i) National Children's Science Congress**

17.03 The 13<sup>th</sup> National Children's Science Congress-2005 was organized at Bhubaneswar from 27<sup>th</sup> to 31<sup>st</sup> December, 2005 in which more than 2000 child scientists from all over India participated and presented their projects.

**ii) Orissa Bigyan Congress**

17.04 The 9<sup>th</sup> Orissa Bigyan Congress was organized by the Council on 11<sup>th</sup> and 12<sup>th</sup> December, 2005 at Bhubaneswar in collaboration with the Bhubaneswar Chapter of the Indian Science Congress Association, in which more than 250 Scientists of the State participated and presented research papers on various disciplines of Science.

**iii) Organization of Scientific Symposium, Seminar, Workshop etc.**

17.05 A National Symposium on "Impact of Information Technology on Physics Education" was organized from 21<sup>st</sup> to 23<sup>rd</sup> October, 2005 in association with R.D. Women's Autonomous College, BBSR, in which Physics teachers of different Colleges and Universities participated and presented their papers.

17.06 A National Seminar on "Einstein and 21<sup>st</sup> Century Physics" was held at P.N. College, Khurda during 11<sup>th</sup> and 12<sup>th</sup> February, 2006.

17.07 The council in collaboration with Pathani Samanata Planetorium has

organized State level programmes for celebration of World Year of Physics.

**ORISSA BIGYAN ACADEMY**

17.08 Orissa Bigyan Academy is the nodal agency for popularization of Science in the State. The Academy has been publishing a bi-monthly popular Science magazine in Oriya namely "Bigyan Diganta" with an objective of making science intelligible among the students in particular and common masses in general. The significant achievements of the Academy during the year 2005-06 are as follows.

- The Academy organized a workshop on science writing from 24<sup>th</sup> to 27<sup>th</sup> April, 2005 at D.D. College, Keonjhar which was catalyzed and supported by Rashtriya Vigyan Evam Prodyogiki Samchar Parishad (RVPSP), Department of Science & Technology, Govt. of India, New Delhi. Around 43 science teachers, journalists participated in the workshop.
- During the year 2005-06, the eleven issues of "Bigyan Diganta" were published. This magazine is specially designed for school students and their parents. The Academy also published an abridged version of "Bigyan Diganta" for visually handicapped students. During 2005-06 three issues of the abridged version of "Bigyan Diganta" printed in Braille Oriya script, have been released. A special issue of Bigyan Diganta (December, 2005 issue) was also inaugurated by Hon'ble President of India in 13<sup>th</sup> National Children Science congress held at KIIT's Campus, Bhubaneswar in December, 2005.
- Orissa Bigyan Academy and Regional Science Centre, Bhubaneswar jointly observed 117<sup>th</sup> Birth Anniversary of Sri C.V. Raman by organizing a Popular Lecture Series from 7<sup>th</sup> to 11<sup>th</sup> November, 2005. As many as 400 students from different local schools participated in this programme.

- *The National Science Day 2006 was celebrated by the academy at MRB High School, Paralakhemundi, Gajapati district on 27<sup>th</sup> & 28<sup>th</sup> February 2006. In this occasion science based project exhibition, essay and different competitions were conducted. Around 500 schools children and teachers participated in this function and about 90 science projects were displayed.*
- *National Seminar on "Innovations in Non-Conventional Energy Sources" organized jointly by Orissa Bigyan Academy and NM institute of Engineering & Technology, Bhubaneswar on 18<sup>th</sup> March 2006.*

### **PATHANI SAMANT PLANETARIUM**

17.09 The Planetarium, named after the great Oriya luminary in astronomy, was established at Bhubaneswar in 1990 with a view to inculcate interest in the celestial Environment and with the aim of creating awareness in astronomy, astrophysics and space science among the people in general and among the students in particular. During 2005-06, the Planetarium conducted 1,343 shows, which were witnessed by 93428 viewers. Besides Night sky watch programs were conducted at PSP for 40 days, which was witnessed by 1156 viewers. Besides, 10 popular lectures/general talks were conducted during 2005-06.

17.10 Some other activities of the Planetarium during 2005-06 are:

- *The celestial event "Solar Eclipse" on 3rd Oct, 2005 and Lunar Eclipse on 17th Oct, 2005 was observed in PSP. Around 1100 visitors including media enjoyed this programme. Observation of Mars was conducted from 30th Oct to 31st Oct, 2005 through the telescope.*
- *Engineers of PSP guided the students for preparing different Astronomy Models in*

*a summer camp for school children organized by Regional Science Centre (RSC), Bhubaneswar. About 70 students were benefited from the programme.*

- *A three-day state level Resource Persons' Training for Celebration of World Year of Physics was held on 19th to 21st Nov, 2005. One hundred Secondary School Science teachers from different parts of Orissa attended the programme.*
- *On the occasion of celebration of 16th Foundation Day of Pathani Samanta Planetarium, Essay, Debate, Painting and Quiz competitions were organized by PSP among the school students and prizes were distributed to the winners of different competitions. A relief Artwork on Life and Contribution of Samanta Chandrasekhar was inaugurated by the Hon'ble minister during the annual day celebration of PSP.*

### **ORISSA REMOTE SENSING APPLICATION CENTRE (ORSAC)**

17.11 Orissa Remote Sensing Application Centre (ORSAC) acts as an apex organization to promote remote sensing technology in the State. ORSAC has rendered commendable service by undertaking several projects for the Central Government as well as State Government.

17.12 The important achievements of ORSAC during 2005-06 are as follows.

#### **(i) Disaster Management Study:**

17.13 The Digital mosaic of DMS datasets (Disaster Data Management System) for 10 coastal districts of Orissa has been made. The datasets has been sent to RRSSC/ISRO, Nagpur for quality check. The software development for user service (Data supply to district/ State Administration) is under progress.

**(ii) FASAL (Forecasting Agricultural Output using Space Agro meteorology and Land based Observations):**

17.14 Three forecasts on acreage and production of kharif paddy and ragi has been made under this programme during August, September and October 2005 respectively, the paddy acreage area has been estimated through the analysis of RADARSAT SAR data and the yield forecast is based on agro meteorological models. Acreage estimation for rabi groundnut for selected five districts and rabi rice acreage estimation for three districts has been completed.

**(iii) Preparation of Groundwater Potential Maps under Rajiv Gandhi National Drinking Water Mission :**

17.15 Groundwater prospects maps for the entire state have been prepared and submitted to NRSA in soft copies and will be disseminated to state user after final quality check.

**(iv) Nationwide Wasteland Updation Mission:**

17.16 The digital spatial data, area statistics and attribute database on wasteland for all 30 districts of the state has been submitted to National Remote Sensing Agency, Hyderabad which has been incorporated in the Wasteland Atlas of India and can be used now by all state level users.

**(v) Desertification Status Survey:**

17.17 Erosion prone area zone mapping of Orissa State and part of Andhra Pradesh and Chhatisgarh has been completed under this National level programme.

**(vi) Gramsat Pilot Project-Orissa:**

17.18 Direct Reception System (DRS) Network have been installed at 30 district headquarters, 314 Block Hqrs and 1190 Grampanchayat Hqrs. of 8 KBK districts. 70 Interactive Training Programmes (ITPs) has been conducted by the user departments during 2005-06. Very Small apparatus Terminal (VSAT) network is being used for e-governance implementation of the State Government.

**(vii) Urban Land use Database for State Capital Region:**

17.19 ORSAC has been entrusted to undertake the Remote Sensing (RS) & GIS inputs for Prospective Plan and Comprehensive Dent Plan (CDP) preparation of State Capital Region using recent high resolution satellite data. Georeferencing of Cartosat satellite data has been completed through Ge3ographical Positioning System (GPS) based survey. Quick Bird data indent for CDP input generation has been made.

**(viii) JEP Microwave Applications for rice crop growth parameters:**

17.20 Three times ground truth data from the rice fields of Bhadrak district of Orissa synchronous to the date of pass of the satellite image on crop cutting Experiment on Kharif paddy for 34 villages of Bhadrak district have been collected and transmitted to Space Applications Centre (SAC) for further analysis.

**(ix) Preparation of Block level Resource Atlas and GIS database for KBK district:**

17.21 Mapping of natural resources has been completed using recent satellite data. Blockwise village level demography maps have been generated for four districts. Village level data base on infrastructure / amenities / utilities have been collected and compiled for all the 80 blocks of KBK districts. Generation of maps and GIS data base on natural resources, demography, socio economic infrastructure, amenities, climate etc. is in progress.

**(x) Road Network Database of the State:**

17.22 As per the requirement of Khurda district administration, Road network database (cover wise, ownership wise and 14 column road attribute data) has been completed. Panchayat level maps were handed over to respective Block Development Officers. Road Base map for 9 other districts i.e. interpretation from satellite data has been completed.

**(xi) Resource Mapping of Reservoir Catchments:**

17.23 The centre prepared natural resource maps of Upper Indravati and Upper Kolab reservoir catchment area for the task force constituted for this purpose.

**ORISSA RENEWABLE ENERGY DEVELOPMENT AGENCY (OREDA)**

17.24 Orissa Renewable Energy Development Agency (OREDA) functions as the State nodal agency for promotion of various renewable energy systems and energy saving devices.

17.25 The important activities which have been so far taken up and are being implemented by this Agency are as under.

**(i) Renewable Energy Awareness / Education Park (REAP), Bhubaneswar**

17.26 REAP; Bhubaneswar has been christened as “**Biju Patnaik Energy Park**”. The Park has the following objectives.

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

17.27 The Park is under an advanced stage of completion and it is expected to be opened for public very soon.

**(ii) Electrification Programme (RVEP):**

17.28 The Remote Village Electrification Programme (RVEP) entails electrification of Remote Un-electrified Census Villages through non-conventional energy sources. 6474 remote un-electrified census villages have been identified in the State by Ministry of Non-conventional energy Sources (MNES). During the current year i.e. 2006-07, it has been proposed to initiate electrification of 1000 remote census villages through non-conventional energy sources.

**(iii) National Biogas and Manure Management Programme (NBMMP):**





17.29 NBMMP is a high priority Central Sector Scheme, and a part of the 20-Point Programme. It can be used for cooking and lighting purposes. It also provides rich organic manure. 1.96 lakhs Biogas Plants have been constructed in the State. During the year 2005-06, 1500 nos. of Biogas plants have been constructed.


**(iv) Integrated Rural Energy Planning (IREP):**

17.30 IREP was previously being implemented by taking a Block as a Unit of implementation which has been modified to District as a Unit. During 2005-06, the programme was implemented in Koraput district with installation of Renewable Energy Saving devices, Biogas Plants, Improved Chullahs and SPV Lighting Systems.

**(v) Renewable Energy Policy**

17.31 Policy guidelines were issued on matters relating to promotional and fiscal incentives for power generation from Non-Conventional Energy Sources in the State. The main objectives of the Policy are to reduce dependency on conventional sources of power generation. Other objectives are,

-  *Protecting the environment*
-  *Generation of employment on a large scale*
-  *Generation of grid quality power from NRSE, so as to reduce dependence on conventional sources of power*
-  *Encourage entrepreneurial investment in NRSE*

-  *Provide rational fiscal and promotional incentives so as to provide conducive atmosphere to attract private investment.*

**(vi) Small & Mini Micro Hydro Projects –**

17.32 OREDA commissioned second unit of 20 KW Mini Micro Hydel Project at Badaghagara in Keonjhar district. Another project of 110 Kw MHP at Sunei in Mayurbhanj district has been revived and is likely to be commissioned shortly.

**(vii) Wind Energy -**

17.33 Orissa has Wind Power potential of 1,700 MW. Six potential sites have been identified in the State for harnessing this power. To begin with, 2-MW demonstration Wind Power Project is being set up at Damanjodi in Koraput district to demonstrate techno-commercial feasibility of such project with a view to attract private investment in the Sector.

**(viii) Consultancy, Training Programmes, Workshops etc. -**

17.34 With a view to provide accelerated renewable energy activities in the State, OREDA has taken up Consultancy services in the fields of Solar Passive Architecture, Energy Audit, Carbon Trading etc.

**(ix) Workshop on Energy Efficient Buildings**

17.35 An one-day workshop on “Energy Efficient Buildings” has been conducted on 27.8.2005 at Bhubaneswar on the occasion of Akshaya Urja Diwas-2005. 70 representatives from Government Department, PSUs, Educational Institutions, NGOs etc participated in the seminar.

Subjects like, Solar Passive Architecture, Building Integrated Solar Photovoltaic, Efficient manner management in Building, Clean Development Mechanism etc. were discussed by experts in the workshop.

**(x) Regional Workshop on Remote Village Electrification -**

17.36 In collaboration with MNES, a one-day Regional Workshop on Remote Village Electrification was organised by OREDA on 22 & 23 September, 2005 at Bhubaneswar. The workshop was attended by representatives from Jharkhand, State Government Departments and other line Organisations.

**(xi) UNDP Aided Programme -**

17.37 UNDP has sanctioned 1 million US Dollars (Rs.4.25 Crores) for decentralised energy systems for integrated development of Komna Block of Nuapara District within a period of 3 years. This amount would be spent broadly on (a) demonstration of decentralized energy systems, (b) capacity building within the communities in operation & maintenance of the systems. The programmes aim at installing various Renewable Energy Systems in all 24 Gram-Panchayats of Komna Block and capacity building of the people in regular operation & maintenance of the systems.

**(xii) Biomass Gasifier Power Generation –**

17.38 Deodhara Village in Komna Block of Nuapara District has been commissioned with a 10 KW Capacity Gasifier System for electrification of the village. Local youths

have been trained to undertake the maintenance & upkeep of the system. 17 acres of land have been acquired for plantation of fast growing trees for making the system sustainable and eco-friendly as well as viable.

**(xiii) Awareness Generation, Publicity & Exhibition -**

17.39 During the year 2005-06, several steps were taken by OREDA to popularise the Renewable Energy Devices, Non-Conventional Energy Processes and Appropriate Technologies. Video films under Bio Energy and Solar Energy Programmes have been prepared and telecast in the Regional Door Darsan Kendra in their sponsored programmes as well as in GRAMSAT PROGRAMME.

**INSTITUTE OF MATERIAL SCIENCE**

17.40 The Institute of Material Science came into force in 1996-97. The basic objective of the institute is to provide facilities for research in the frontier areas of material science and to conduct inter-disciplinary research on special materials.

Significant achievements of this institute during 2005-06 were as follows-

**(i) Synthesis of multielemental Colossal Magneto resistance materials**

17.41 All fabrication work pertaining to the preparation of multielemental CMR film by using spray pyrolysis system has been completed. A few attachments such as, vacuum based sample holder **Oxygen Free Copper (OFC)** water-cooled substrate

holder and rotational arrangement of substrate holders are designed and fabricated indigenously by the IMS for thin film fabrications.

**(ii) Preparation of green powder for rare earth oxide based advanced materials-**

17.42 Preparation of ultrafine powders of rare-earth oxide based CMR advanced materials has been completed by using pyrophonic technique in collaboration with IIT – Kharagpur. Powders are characterized by using SQUID magnetometer and magnetic transport measurement available in BARC and National Taiwan University, Taiwan. Detailed characterization of the powder will be carried out to understand structure properly relation of CMR materials.

17.43 The following ongoing projects are being implemented:

- a) *Low cost La-based reproducible colossal Magneto resistance films by spray pyrolysis.*
- b) *Processing of Advanced Oxide of multielemental nano-composites.*

**INSTITUTE OF MATHEMATICS AND APPLICATIONS (IMA)**

17.44 This institute has started functioning during 1999-2000 with the following objectives:

- *To undertake fundamental research in Mathematics and its Applications.*
- *To undertake and support interdisciplinary research for interaction between mathematicians & physical / biological / engineering /social scientists.*
- *To organise reorientation and refresher programs for teachers/research scholars*

*with a view to upgrade their teaching /research skills.*

- *To organise publication of research monographs / journals/ proceedings/ papers on Mathematics and its Applications.*
- *To nurture talent in mathematics.*
- *To establish interaction with other institutions/ Universities/ Academic Societies of high learning, both at the national and international level.*
- *To provide guidance in research for doctoral students and to render technical advice and service to Government and other Institutions.*

17.45 Few activities undertaken by the Institute of Mathematics and Applications in 2005-06: is as fallows.

**(i) Search & Nurture of Mathematical Talents:**

17.46 The Institute of Mathematics with Orissa Mathematical Society organized Junior Mathematics Olympiad (for Class VI - VIII), Regional Mathematics Olympiad (for class IX - XII) and Honours Mathematics Olympiad. In Orissa these on 5<sup>th</sup> December, 2005. The continuous effort of the Institute place Orissa at a very honorable place in Mathematics Olympiad movements in India.

**(ii) Mathematics Training Camps -**

17.47 The Summer Mathematics Training Camp for school children from Class VI to XI was organized by the institute in collaboration with Mathematics Olympiad Committee (a unit of Orissa Mathematical Society) at Bhubaneswar from 30.5.2005 - 13.6.2005. About 103 students attended the camp.



17.48 The institute conducted a Winter Mathematics Training Camp from 24th to 31<sup>st</sup> December 2005 in which 36 children participated.

17.49 The Institute of Mathematics and applications organised an Interactive Mathematics Training Camp for one month from 18.10.2005 to 8.11.2005 for undergraduate and first year Master's level students of Orissa, supported by the National Board for Higher Mathematics, Department of Atomic Energy, Govt. of India. It is hoped that it would encourage some young men and women to choose mathematics as a career.

17.50 "Rural Mathematics Talent Search Programme" is being implemented in the State with financial support from National Board for Higher Mathematics. Under this programme trainings are being imparted to the students of class VI of Govt. and Govt. aided schools of rural Orissa. During 2005-06, 100 students were trained.

#### **DEVELOPMENT OF BIOTECHNOLOGY**

17.51 Biotechnology is a frontier area of technology with immense benefit 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.

17.52 The following activities were undertaken during 2005-06 under this programme:

#### **(i) Constitution of Sub-committee to consider the proposals on R & D, pertaining to Biotechnology.**

17.53 A Sub-committee was constituted to consider the proposals on Research & Development Projects pertaining to Biotechnology. A total of 23 project proposals submitted by concerned Universities, Govt. Colleges and other Institutions were placed before the Sub-Committee for consideration.

#### **(ii) Organization of Investors' Meet on Biotechnology; -**

17.54 An Investors' Meet was organized by Science & Technology Department, Government of Orissa with support from Biotech Consortium India Ltd., New Delhi at Bhubaneswar on 4.7.2005 to attract entrepreneurs/ investors for setting up of Biotechnology Industry.

#### **(iii) Formulation of Draft Biotechnology Policy 2005 for the State of Orissa –**

17.55 The State Government have formulated a Draft Biotechnology Policy to attract Investors/ Entrepreneurs to set up Biotech industries in the State. Steps are being taken to finalize the Draft Biotechnology Policy. After finalization of the same, the incentive in the field of Biotechnology will be made available to the entrepreneurs/investors.

**(iv) Development of Biotech Incubator and Bio - IT Parks**

17.56 It has been decided to establish a Biotech Incubator and Bio-IT Park over an area of 63.299 acres at Bhubaneswar and a Bio-IT Park at Deras farm which would be utilized for development of Industry corridor for other activities such as Production, Processing and Manufacturing. State Government have decided to provide Rs. 10.00 crore (ten crore) in phases in addition to land as their share. A Draft Project Report for establishing Bio-IT Park in Orissa prepared by M/s Ernst & Young Pvt. Ltd. has been sent to Department of Biotechnology, Govt. of India for sanction of the Biotech Incubator. IDCO, Bhubaneswar has been entrusted with the infrastructure development work at both the sites.

**(v) Launching of IIT, Kharagpur – Orissa Technology Mission:**

17.57 Government of Orissa has decided to launch the IIT, Kharagpur – Orissa Technology Mission with the following thrust areas, which are in pipeline.

17.58 Promotion of Biotechnology and Bio-informatics including setting up of a Biotechnology Park.

- *Waste Management with particular emphasis on use of Fly Ash.*
- *Collaboration between BPUT and IIT.*
- *Master Plan for Bhubaneswar and Vision, 2030.*
- *Coastal Zone Management Plan*

**INFORMATION TECHNOLOGY (IT)****INFORMATION TECHNOLOGY**

17.59 Information Technology is a fast growing segment of the Indian socio economic scenario. The State Government have recognized Information Technology as a thrust area and priority sector, mainly due to its potential for generation of employment and earning of foreign exchange. The Industrial Policy Resolution-2001 has identified Electronics, Telecommunication, Information Technology and IT Enabled Service as the "priority sector". The establishments and enterprises concerning

the aforesaid priority sector have been declared as Public Utility concerns.

17.60 The State Government have created a separate department namely "Department of Information Technology" with effect from 15.03.2000. It is entrusted with all matters relating to Computer Communication and Electronics both Software and Hardware. Orissa Computer Application Centre (OCAC) and Orissa State Electronics Development Corporation Ltd. (OSED) are functioning as nodal agencies for promotion and development of Information Technology in the State. The Department of IT acts as the

nodal department for National Informatics Centre (NIC) and Software Technology Park of India (STPI) established in Bhubaneswar. The Department of IT also plays an enabling role in promotion, development and implementation of IT related e-Governance projects for different sectors of Government. In order to encourage IT enabled service activities, a new scheme titled "IT Enabled Service" (ITES) is being implemented since 2004-05.

17.61 The Department of Information Technology has formulated the Information and Communication Technology (ICT) Policy, 2004, which will help IT reach the common citizen so as to narrow down the Digital Divide. The ICT policy will look after the following aspects.

- ☞ *Inexpensive access to Information,*
- ☞ *Transparency in governance practice,*
- ☞ *Door-step delivery of host services,*
- ☞ *Increased employment, and*
- ☞ *High export turnover and economic growth*

#### **IT ENABLED SERVICES (ITES)**

17.62 This scheme aims at providing a broad range of IT enabled services to the people of Orissa by taking benefits from the emerging global opportunities in the field of IT enabled services. The cheap capital investment, availability of IT professionals, better law and order environment, excellent infrastructure like data connectivity and business space like Info City and Fortune Tower are some attractive features that are

expected to encourage potential investors to invest in a big way for setting up of Call Centers, Information Kiosks, Internet Dhabas and other establishments.

17.63 The scheme has already yielded a good result in providing network connectivity. Orissa Computer Application Centre, the implementing agency has concentrated more on providing IT Enabled Services by undertaking important items of work viz. network connectivity, hardware / software, infrastructure development and its application in a systematic manner. As the State Government portal forms an integral part under the scheme, OCAC has taken up the responsibilities of development and maintenance of ITES applications for the portal.

#### **DISTRICT INFORMATION SERVICE COUNCIL (DISC)**

17.64 DISC are being constituted to provide a forum and a mechanism for overall co-ordination and monitoring of IT & ITES sectors in the district along with the mandate of IT services for good governance. It will promote IT uses and bridge the digital divide between regions, peoples and classes within the district.

#### **ORISSA COMPUTER APPLICATION CENTRE (OCAC)**

17.65 The OCAC, an Agency under IT Department is entrusted with the responsibility of systems development and computerization in government offices and Undertakings and training of manpower on

system operation and has now established itself as one of the leading IT consultancy organizations in the State. The significant activities taken by OCAC are as follows.

**(i) Information Kiosks**

17.66 In the year 2003-04, Government of Orissa has launched the Self Employment Scheme – Information KIOSK with an objective to create self employment opportunities for unemployed youth of the State. The average unit cost of the scheme ranges between Rs.1.50 lakh to Rs.2.50 lakh. The scheme has a subsidy of 25% of the unit cost subject to a maximum of Rs.25000/-. Till date, 180 KIOSKs have been set up and subsidy @ Rs.25000/- have been released to 101 entrepreneurs.

**(ii) Business Process Outsourcing (BPO) Complex**

17.67 In order to provide employment opportunities to the unemployed educated youth, Govt. of Orissa, through I.T. Department and OCAC, has setup Business Process out-sourcing BPO units in providing 300 sq.ft. of space at free of cost for initial three years in Fortune Tower, Tower 2000 at Bhubaneswar which has all required infrastructural facilities for IT industries.

**(iii) Bhasa development – in Oriya language**

17.68 A MoU was signed between OCAC and Microsoft Corporation Pvt. for development of Bhasas in Oriya language under UNICODE system. Oriya script will be incorporated in script in windows operating

system and in Microsoft office through this system. It is also decided to translate the classic books like Ramayan, Sarala Mahabharat, Oriya Bhagabat etc. in to UNICODE Oriya for hosting in web in association with Orissa Sahitya Academy, Utkal University, Sarala Sahitya Sansad etc.

**(iv) Project e-sishu, Orissa Primary Education Programme Authority (OPEPA)**

17.69 A scheme is being executed by OPEPA in association with OCAC to provide education to all the children in the age group of 6-14 years. A database is being developed through Intelligent Character Recognition (ICR) technology for all the children which will help in getting information on schools, child segment, village etc.

**(v) Computer Training for School Children**

17.70 The scheme is funded by 11<sup>th</sup> Finance Commission. OCAC had undertaken this project during the year 2003 for providing Computer and necessary peripheral to the 425 schools under School & Mass Education and SC & ST Development Departments. The computer, printer, software, CBT and books were supplied. Training to Teachers (TOT) has been completed.

**(vi) e-Governance Road Map and Capacity Building.**

17.71 The State Government has appointed National Institute of Smart Governance (NISG) / Wipro as consultant for preparation of e-Governance Road Map and Capacity Building Road Map for the State. It will help

as a long term vision for implementation of e-Governance Road Map and Capacity Building Road Map of different Departments. Senior Officials of WIPRO, NISG and members of the e-Governance Mission Team constituted by the State Government are co-coordinating the work.

**(vii) Industry Facilitation and IT promotion Cell**

17.72 In order to attract IT entrepreneurs of the country as well as from abroad, State government has setup a Industry Facilitation and IT promotion cell at OCAC in 2005. It will provide single window facilities to IT companies for establishment of their unit in Orissa. Major IT companies like WIPRO and TCS have signed MOU with the Govt. of Orissa to setup their units at Bhubaneswar and acquired lands in the infocity. Other two firms like Hexaware and Mind Tree consulting Pvt. Ltd. have also shown their interest for opening their software units.

**(viii) State Wide Area Network (SWAN)**

17.73 State Government has also got the approval from Department of IT, Govt. of India for setting up a state Wide Area Network (SWAN) which would connect the State Headquarters with all District Headquarter, subdivision Headquarters, Blocks and Tsahalis with a 2 mpbs dedicated line. This SWAN is a core e-Governance infrastructure which will facilitate the Government in door step delivery of various citizen centric services.

**(ix) e-Procurement**

17.74 IT Department through OCAC to make the procurement process transparent and efficient. A committee under the Chairmanship of Chief Secretary, Orissa has been constituted for implementation of the project. A three days workshop was organized at NISG, Hyderabad in which senior officials of works Department, H & UD department, Rural Development Department, Water Resource Department and OCAC participated.

**(x) Establishing of State Internet Exchange of India (SIXI)**

17.75 It has been proposed to set up a State Internet Exchange of India (SIXI) in the pattern of National Internet Exchange of India (NIXI) as a Central Plan Scheme. OCAC has been declared as the implementing agency in association with Software Technology Park of India (STPI) and Department of Information and Technology will function as Nodal Department. SIXI will focus on facilitating handing over domestic internet traffic among the peering Internet Service Provider (ISP) members. It is expected that through this peering facility a lot of international band width can be used in a mode which will have a positive impact in the internet users as well as ISPs.

**ORISSA STATE ELECTRONICS DEVELOPMENT CORPORATION (OSED)**

17.76 OSED, established in 1981, has been engaged for promotion of Electronic industries both in the field of hardware and

software. It has promoted 5 hardware and software projects with/without equity investment. The significant achievements include the following:

- (i) **Website of Government of Orissa:** *The Website of Government of Orissa (WWW.orissagov.nic.in) has been launched with the help of NIC. The Website is bringing about qualitative improvement in information dissemination to the citizens. All forms, tender papers etc. are available in the Government website for use by public/organizations.*
- (ii) **INFOCITY:** *An IT Park named "INFO CITY" has been established at Bhubaneswar through IDCO for growth of IT in Orissa. It covers an area of 205 acres of land. The park has infrastructure and communication facilities to attract software companies to set up their units. Major software houses including INFOSYS and Industrial Development Corporation of Orissa have already set up their units in it.*

### **SOFTWARE TECHNOLOGY PARK OF INDIA (STPI)**

17.77 Software Technology Park of India (STPI), is an autonomous society under the Ministry of Communication and Information Technology, Government of India to promote Export of IT Software and Services from the Country. With this aim, the STPI centre at Bhubaneswar and Rourkela are working in the State of Orissa. The Bhubaneswar centre of STPI which is one of the Premier centers in the country has come a long way and achieved major milestones in the IT sector of the State spearheading the country's mission to fulfill the national dream of global leadership in Software Exports. Its dream of making Bhubaneswar a silicon city is gradually becoming a reality. STPI offers various incentives like 100% foreign equity permission, 100% exemption on custom duty

on import of capital goods, total exemption on excise duty on indigenous procurement of capital goods, permission for importing second hand capital goods, full reimbursement of Central Sales Tax, exemption from corporate Income Tax on export earning etc. to the software exporters under its regulatory services.

**17.78 Incubation Facility:** The STPI, Bhubaneswar and Rourkela, have set up incubating infrastructure and provide the facility based on the member unit requirement under- lying the philosophy to give one stop and non-stop services to the software industries and consequently leaving other mundane but important aspects of operationalisation to STPI. In addition to the Satellite earth station at Bhubaneswar and Rourkela to provide high speed data links with foreign countries, STPI has also installed its second International Gateway at Bhubaneswar and Rourkela for providing 100% reliable data communication. It is also exploring the IT potential at Berhampur, Puri etc. STPI is also offering customized solutions in the field like network design and architecture, international connectivity, local loops, facility management, feasibility study, project management and implementation etc.

17.79 The STPI, Bhubaneswar has designed a comprehensive course module in various fields to keep abreast the student of the changing trend and technology. The STPI, Bhubaneswar is also promoting IT

enabled services namely Medical Transcription, Manpower Intensive GIS and Digitizing jobs as well as call centre operations. STPI Bhubaneswar has made every effort for promoting and enhancing the export share from the State.

**NATIONAL INFORMATICS CENTRE (NIC)**

17.80 NIC a pioneering organization providing information and communication technology (ICT) solution covering the entire gamut of Government of IT endeavors. In Orissa, NIC playing a catalytic role in promoting IT culture for effective governance at the State as well as in the district level. It provides ICT services including consultancy, software design and development, systems integration and networking etc to the users. Significant activities of NIC during 2005-06 are as follows:

**(i) Computerization of Land Records ( Bhulekh )**

17.81 Computerization of “Land Records” has been initiated in the State to keep pace with the emerging scenario to provide fair, efficient and transparent services to the citizens with Central Government assistance. Out of 171 Tahasils, data entry in respect of 161 tahasils has been completed.

**(ii) e-Governance initiatives of Panchayati Raj Department**

17.82 The broad objective of e-Governance is application of Information Technology in the functioning of the Government and aims at simple & morale governance, accountability, responsiveness with enhanced transparency.

**ECONOMIC SURVEY**

17.83 E-Governance, which makes public services inexpensive, responsive and truly transparent, has been inviting attention from polity, bureaucracy and business alike. The SMART (\* Simple, \* Moral, \* Accountable, \* Responsive, \* Transparent) model of e-governance is the mantra of Good Governance with the goal to provide universal services to all citizens by disseminating information regarding the plan and programmes of the Government to all citizens speedily. This also helps in improving administrative efficiency and improving public services.

17.84 With this aim, Government of Orissa in Panchayati Raj Department has implemented a large number of e-Governance Project like Priasoft for accounts monitoring in 3-tier Panchayati Raj Institutions and citizen-centric information of projects in Ruralsoft for monitoring the Poverty Alleviation programmes and Project Monitoring and a Comprehensive citizen service portal – PR Online.

17.85 The Web enabled computerized data base with respect to its implementation for Panchayati Raj Department can be attributed to –

- ❖ *Governance of computerized data base of all activities implemented by Panchayati Raj Institutions.*
- ❖ *Applications required for enhancing internal working of development programmes undertaken.*
- ❖ *Real time data access by implementing agencies for effective programme implementation, evaluation, enforcement,*

*monitoring and reporting to achieve the goal of socio-economic development.*

- ❖ *Intra-departmental and inter departments data flow – Data flow from GP/Block to DRDAs and to State level.*
- ❖ *Internet application (Mail, Telnet, FTP, Bulletin Boards).*
- ❖ *To set up disaster Management*
- ❖ *Virtual Management of remote servers.*
- ❖ *Resource sharing & services to miscellaneous activities.*

### **Hardware Support**

17.86 Keeping in view the objective of the Panchayati Raj Department, at the outset, each Block has been provided with two numbers of P-IV computers with 512 MB RAM out of Eleventh Finance Commission grant. Under Gramsat Pilot Project, each block has been provided with one computer with V-SAT equipment. Similarly, each DRDA has been equipped with four Computers along with V-SAT equipment for online transmission of data.

### **Software Support**

17.87 National Informatics Centre (NIC) is providing software Priasoft and Ruralsoft for accounts monitoring and monitoring of Poverty Alleviation Programme at DRDAs, Blocks, Gram Panchayats.

### **National Panchayat Portal (NPP)**

17.88 With the technical support of NIC, DRDAs, Blocks and Gram Panchayat portal were developed. Each DRDA / Block / GPs can host information of their own at their level using eNRICH software developed by NIC.

17.89 Government of India in Panchayati Raj Department have developed web sites for the 3-tier Panchayati Raj system i.e. Zilla Parishad, Intermediate Panchayat (Blocks) and Gram Panchayat (GP). Information relating to ZP/Block/GP are being updated by the respective ZP/Block/GP regularly.

### **Standardization of Block Accounts (PAMIS)**

17.90 The Panchayati Raj Department has signed MoU with Xavier Institute of Management (XIM), Bhubaneswar to develop and smooth implementation of software PAMIS for online daily transmission of Block Accounts with Oracle as the database. The Panchayat Accounting and Monitoring Information Software (PAMIS) would be made CAG complaint. This software has already been implemented in all the Blocks / DRDAs for generating cash books etc.

### **Betan – e – Solution for Pay bill**

17.91 OCAC is providing payroll package using ORACLE database which will be accessed by all Blocks and DRDAs for generating their monthly salary bills in the web from 1<sup>st</sup> April, 2006.

### **National Rural Employment Guaranty Act –e- Employment for Rural poor**

17.92 Under National Rural Employment Guarantee Act (NREGA), Government will have to provide 100 days guaranteed employment to a rural poor who registered his name in the Gram Panchayat. For smooth implementation of NREGA schemes,



National Informatics Centre (NIC), New Delhi has developed a online software for monitoring the job seekers in rural areas.

***Training Infrastructure Support***

17.93 For capacity building and sensitization of the computer operator and official of involved in the processes of implementation of e-Governance in Blocks / DRDAs / State headquarters, the existing training infrastructure have been augmented with the unutilized fund available under erstwhile TRYSEM infrastructure. Twenty computer systems are being provided to State Institute of Rural Development for creating a full fledged IT infrastructure.

***Connectivity –e- Connectivity***

17.94 This V-SAT connectivity with a bandwidth of 128 KBPS up-link to hub and hub to serve with a dedicated 2 MBPS line will connect all blocks, DRDAs and the State headquarters. This has been done with a view to achieving easy and speedy data flow from the district level to the state level and vice versa. It also helps in storing data and information on important programmes, activities, implemented through the Department along with generation of report, monitoring and evaluation. The State headquarters has also been equipped with one server and four clients with LAN connectivity.

***Interactive Training programme – e- Capacity building for PRIs & PROs***

17.95 Under Gramsat Pilot Project (GPP) all the 30 districts and 314 blocks and 1192 GPs of KBK districts have been provided

with the Director Reception System (DRS) with one TV set, Antena and equipments which is capable of one way video and two way audio communication to facilitate Interactive Training Programme (ITP).

17.96 Five such sets have also been installed at Bhubaneswar in the State Headquarters. This helps in direct communication with the people at GP/Village level and the administration from block level to district and ultimately with State administration. This project is in operation under assistance from ISRO in 1192 GPs in KBK districts, 314 blocks and all districts. ITPs have already been conducted regularly by this Department through GPP covering all the plan, programmes, e-Governance and training of PRIs of this Department till now.

***Road ahead.....***

17.97 Panchayati Raj Department looks ahead to extend its e-Governance Programme to village / GP / Block level with the implementation of Gramsat Pilot Project (GPP) through out the State with VSAT modes at 314 blocks and 30 district headquarters. Further, National e-Governance Plan (NeGP) comprises of eight components with twenty seven Mission Mode Projects out of which State will implement eleven projects. Under backbone of NeGP, Government of Orissa is planning for implementation of State Wide Area Net Work (SWAN) connecting 8558 Common Service Centre (CSC) at Gram Panchayats @ a kiosk for 6 villages with State Data

Centre (SDC). Overall, the Panchayati Raj Department aims to find out a solution where the District, Block and Gram Panchayats have to function online in a seamless environment with a double connecting mode i.e. VSAT and SWAN).

**Vision for 2006-07**

17.98 Panchayati Raj aim at achieving the following objectives.

- *GP automation specifically office automation; pay and allowance.*
- *Work – flow method and Accounting automation along with integration with DRDA.*
- *Estimate of projects: case records, MB book, deduction of royalty etc.*
- *Devolution of power monitoring.*
- *SGRY-SGSY, IAY package-name project and location details: village wise.*
- *Asset monitoring of GPs*
- *PRI Monitoring: meetings of Gram Sabha , Palli Sabha, PS, .Z.P.*
- *Package for other Departments who deal with DRDA or / and Blocks like Rural*

*Development, Women & Child Development, Food & Civil Supply, ST & SC Development, Agriculture, Planning & Co-ordination, Revenue, Special Relief Commission.*

- *Touch screen-kiosk at block HQ for transparency-Paper-less citizen-centric information processing.*
- *Public grievance hearing and disposal online.*
- *Website for all 30 DRDAs, 314 blocks and 6234 GPs on e-NRICH package of NIC.*
- *Online Personal information system for DRDA and Blocks.*
- *IT Kiosk*
- *E-Panchayat - Seva*

**(iii) Orissa Registration Information System (ORIS)**

17.99 ORIS is being implemented in the Office of the District Registrar,, Khurda as the pilot district and in 13 district Sub-Registrar offices, which can minimize the loss of State Government revenue as well as providing transparency in the system and faster processing of documents .

