

Informatics

Agricultural Informatics Development

- CCBS in Meghalaya
- Delivery of Public Services in Odisha
- Interview with Sh. A.N Sahay,
Chairman-cum-MD, MCL
- Efficient Governance in Chandigarh
- ICT in Districts: Purulia, Bareilly, Jodhpur
- Biometric Authentication



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Editorial

Agriculture is at the heart of Indian Economy. A very large segment of Indian population depends directly on agriculture. Any initiative to introduce efficiency or productivity in agriculture sector is going to touch lives of large population of India. Application of ICT to agriculture has a huge potential. Get an insight on ICT Applications in Agriculture Sector in India by various Government Institutions, in our lead story contributed by our Agriculture Informatics Group.

In our From the State/UTs Section, get an overview of e-Governance in the States of Chandigarh and Odisha. Districts of Purulia (West Bengal), Bareilly (Madhya Pradesh) and Jodhpur (Rajasthan) are also a part of our District governance section highlighting fine examples of e-Governance. Besides, sections like Technology Updates and E-Gov Products & Services will keep you updated on the vast potential of ICT applications in government.

**WISHING YOU ALL A VERY HAPPY
& PROSPEROUS NEW YEAR !!**

NEETA VERMA
Editor-in-Chief

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We would like you to contribute to Informatics. You can send your contributions to our State Correspondents or can also send directly to us at the following address.

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AS WE STEP INTO 2012, I WISH YOU & YOUR FAMILY A VERY HAPPY & PROSPEROUS NEW YEAR !

NIC is the front runner in providing e-Governance services to the government and the common man alike. Thanks to your hard work, dedication and commitment the organisation has achieved new heights of success. I compliment you all for the great achievements.

The Government of India is placing great emphasis on accelerating implementation of e-Governance initiatives in all sectors, especially the social sector, which impacts the lives of the aam aadmi. This will facilitate efficient, transparent, accountable & participative governance for the Citizens.

NIC's role has become very crucial in the implementation of various national/State level ICT enabled initiatives and acquiring strategic control of these ICT applications on behalf of the government.

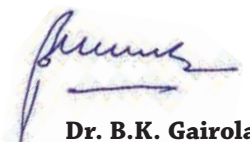
In order to accelerate the implementation of e-Governance it is very vital that we, as technology support providers and enablers, free the users from the drudgery of managing either the ICT infrastructure or the application platform for their respective applications.

NIC therefore has to work towards creation of a Common National Information Infrastructure and move to 'cloud' over a period of time. It must provide a ready- to- use secure environment for the users and allow them to concentrate on the services.

All of you today are building a number of applications with multiple variants for meeting specific needs of the State Governments. This is not only an inefficient way of software development but also does not allow building of interoperable unified systems. We need to build common service delivery platform/s with effective process reforms to meet the challenge in the future.

Technology is changing very rapidly. We need to keep pace with it to ensure that India takes maximum advantage to meet the challenges which are unique to us.

In the coming years therefore, we need to rededicate ourselves to accelerate the e-governance process and achieve the vision and goal before us. I am sure that together we will be successful in our endeavors and bring glory to the organization. I once again wish everyone, the best in this year and the times to come.



Dr. B.K. Gairola

Rural India, where more than 70% of the Indian population lives in, is in dire need of knowledge intensive techniques for sustainability of its shareholders, and farm and non-farm linkages through grassroots level information access (contents) and grassroots level access to information (networking). Availability of this will be the measure to achieve sustainable and more than that inclusive growth, during the twelfth plan period.



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Agricultural Informatics Development: A Holistic Approach

With the Panchayat Raj institutions in operation and the agriculture as the subject brought under the list of Panchayat Raj Institutions, through the Constitutional Amendments, it is essential to build database on agriculture and allied sectors, at village level, farm level and farming household level granularities. The 120 million farm households of India, out of which 80 per cent are poor and marginal farmers, are the target beneficiaries of “ICT led agricultural development initiatives”. An ICT-triggered rural knowledge revolution can help to break the barriers that stand between “localised rural economies” and the ‘globalised market’.

Both the National Informatics Centre (NIC) and the Ministry of Agriculture (MOA) have been working together in establishing agricultural informatics for sustainable development, since 1995. The journey started with the National Conference on Informatics for Sustainable Agricultural Development (ISDA-95), which gave the informatics blueprint for e-governance in the agricultural sector, and also recommended for allocation of 3-6% of the Agricultural budget outlay for ICT as follows:

- **AGRISNET** – an Infrastructure network up to block level agricultural offices facilitating agricultural extension services and agribusiness activities to usher in rural prosperity;
- **AGMARKNET** – with a road map

to network 7000 Agricultural produce wholesale markets and 32000 rural markets;

- **ARISNET** – Agricultural Research Information System Network;
- **SEEDNET** – Seed Informatics Network;
- **CoopNet** – to network 1,40,000 Agricultural Primary Credit Societies (PACS) and Agricultural Cooperative Marketing Societies to usher in ICT enabled services and rural transformation;
- **HORTNET** – Horticultural Informatics Network;
- **PPIN** – Plant Protection Informatics Network
- **FERTNET** – Fertilizers (Chemical, Bio and Organic Manure) Informatics Network facilitating “Integrating Nutrient Management” at farm level;
- **VISTARNET** – Agricultural Extension Information System Network
- **PPIN** – Plant Protection Informatics Network;
- **APHNET** – Animal production and Health Informatics Network networking about 42000 Animal Primary Health Centre;
- **FISHNET** – Fisheries Informatics Network
- **LISNET** – Land Information System Network linking all institutions involved in land and water management for agricultural productivity and production systems, which has now evolved as “Agricultural Resources Information System” during the Tenth Plan is being implemented through NIC;
- **AFPINET** – Agricultural & Food

- Processing Industries Informatics Network;
- **ARINET** – Agricultural and Rural Industries Information System Network to strengthen Small & Micro Enterprises (SMEs);
 - **NDMNET** – Natural Disaster Management Knowledge Network in India;
 - **Weather NET** – Weather Resource System of India;

During the 9th and 10th Five Year Plan periods, the Central Sector Scheme “Strengthening and promoting agriculture informatics systems” gained importance, and flagship programmes viz., INTRADAC, DACNET (<http://dacnet.nic.in>), Agricultural Marketing Information System Network (AGMARKNET), Agricultural Resource Information System - AgRIS (<http://agris.nic.in>) and AGRISNET etc., were launched. The DACNET project was viewed as the “model framework for e-Governance” in the Government. The projects such as DACNET (<http://dacnet.nic.in>), SEEDNET (<http://seednet.gov.in>), PPIN (<http://cibrc.nic.in>, <http://ppqs.gov.in>, <http://plantquarantine.india.nic.in>), AGMARKMET (<http://www.agmarknet.nic.in>), AGRISNET etc., are operational in the country and these G2B, G2G, G2F projects are benefiting the agricultural stakeholders such as farmers, traders, scientists, administrators etc., in a potential manner.

The AGMARKNET project has, now emerged, as an important national portal, with local language interfaces, containing databases comprising daily market information, in terms of commodity arrivals; minimum, maximum and modal prices for about 300 commodities and 2000 varieties. The project has strengthened decision making at various levels and paved the way for globalization of Indian agriculture. Apart from domestic access, there has been a tremendous global access of this portal.

Agricultural Informatics Division was instrumental in establishing ARISNET (Agricultural Research Information System Network) for the Department



Madaswamy MONI
Deputy Director General, NIC

Since 1995, the Indian Agricultural Sector has been witnessing “Informatization” progressively, through the efforts of NIC. I was instrumental, as a Project Director in conceiving the “AGRIS” (Agriculture Information System) and MISAH (MIS for Animal Husbandry Sector) projects, under the DISNIC Programme during 1987 and promoted in about 520+ districts in the country, along with the expansion of NICNET, in about 520+ districts, in the country. This approach was further strengthened through the National Conference on “Informatics for Sustainable Agricultural Development (ISDA-95)” in May 1995, organised by NIC, in collaboration with the Ministry of Agriculture, Ministry of Rural Development and Ministry of Fertilizers. The conference, which was well attended by a large number of practitioners, academicians and policy makers, produced informatics blueprint for Informatization of the agriculture sector.

Rural India requires “Digital Network for Farmers (DNF)” viz., AGMARKNET, SeedNet, HORTNET, AGRISNET, FISHNET, NADRS, ReALCRAFT, APHNET, AgRIS, DISNIC-PLAN etc, for moving towards faster and more sustainable and inclusive growth. The ICT triggered rural knowledge revolution is helping to break the barriers that stand between “Localized Rural Economies” and “Globalized Market”, through contents and networks. Breaking the language barriers is like providing an essential infrastructure for Good Governance, peace and prosperity at the grass root level. Digital Network for Farmers (DNF) is a strength, wealth and prosperity for about 125 million farming households in India. To facilitate this, India requires a “National Rural Informatics Policy”, which is the need of the hour and further, a step towards achieving “Rural India to Smile, Shine and Roar.” The definition of “Rural” is as adopted by FAO of UN.



of Agricultural Research & Education, to promote agricultural research informatics in the Indian National Agricultural Research System. ARISNET was initially developed as a close user group on NICNET by networking of ICAR Institutes, Central Agricultural University and State Agricultural Universities through high speed Ku band FTDMA VSATS (85). During 2003-04, the ARISNET backbone has been changed to ERNET from NICNET. NIC has been continuing to associate ICAR Institutions in strengthening the agricultural informatics development programs.

Informatization of various subsectors, such as: horticulture, plant protection, animal health, fertilizers have taken the progressive steps to mainstream ICT in the desirable manner. The AGRISNET project is facilitating building of information systems, through bottom-up process, in the States of Gujarat, Uttar Pradesh, Orissa, West Bengal, Maharashtra, Tamil Nadu Andhra Pradesh, Himachal Pradesh, Uttrakhand, Assam Karnataka, Kerala, Puducherry, Madhya Pradesh, Chhattisgarh, Meghalaya, Mizoram, Nagaland, Sikkim, Punjab and Rajasthan. The pilot project of AgRIS (<http://agris.nic.in>) is likely to emerge as farmer's centric "resource information system" to facilitate productivity increase in the sector.

In view of its importance in the Indian economy, agricultural sector has been incorporated as a mission mode project

under e-governance under which the following 12 services will be provided to the agricultural stakeholders, through multiple delivery channels such as mobile phones, IVRS, touch screen kiosks, common service centres, etc. Below are the 12 services:

- Information on Pesticides, Fertilizers and Seeds
- Providing information on soil health
- Information on crops, farm machinery, training and Good Agricultural Practices (GAPs)
- Information on forecasted weather and agro-met advisory
- Information on prices, arrivals, procurement points, and providing interaction platform
- Electronic certification for exports & imports
- Information on marketing infrastructure
- Monitoring implementation /Evaluation of schemes & programs
- Information on fisheries
- Information on irrigation infrastructure
- Drought Relief and Management
- Livestock Management

This Agricultural mission mode project (NeGP-A) promotes integrated service delivery through local languages, and involves database applications, workflow applications, content management system, decision support system, GIS applications, advisory system, and grievances management and redressal system. These systems are to be integrated with the national, state and district delivery gateways.

The other flagship programmes of the Agricultural sector, such as National Food Security Mission (<http://nfsm.gov.in>), Rashtriya Krishi Vikas Yojana (<http://rkvy.nic.in>), National Horticulture Mission (<http://nhm.nic.in>), Technology Mission on Horticulture in North Eastern and Himalayan states (<http://tmnehs.gov.in>), and National Bamboo Mission (<http://nbm.nic.in>) have been enhanced through mainstreaming of ICT to benefit the farming community and other stakeholders. The databases on agriculture statistics such as land use (<http://lus.dacnet.in>), area and production (<http://apy.dacnet.nic.in>), agriculture census and input survey (<http://agcensus.nic.in>), Minor irrigation Census (<http://mowr.gov.in>), 18th Livestock census (<http://dadf.gov.in>) are being effectively utilized by researchers, economists and policy makers.

The e-Governance project - G2B Component: "Computerized Registration of Pesticides" (CROP) proj-





including remote areas such as Andaman Islands, Car Nicobar Islands, Lakshadweep Islands, and Minicoy Islands. The R e A L C R A F T (<http://fishcraft.nic.in>) project, under the fisheries informatics programme, is strengthening the coastal security and being utilized by security agencies such as Navy, Coast Guard, Marine Police, etc.

Production which requires information on the following:-

- **Information on physical feature** to determine the land's capability for agricultural development
- **Maps depicting differences** in physical land characteristics etc.
- **Areas of immediate growth potential**
- **Areas of future growth potential**
- **Areas of low growth potential**

To achieve this, it is required to have the following maps in 1:4000 / 12000 scale, with their interpretations, in GIS format:-

- **Base map** showing boundary, sub-watersheds, villages, roads, etc.
- **Topographic map** showing contours, elevations, land forms, streams, etc.



- **Soil map** showing soil types and boundaries, depths and soil limiting properties Climatic map showing mainly rainfall, but statistics may include temperature, evapo-transpiration, etc.
- **Geology map** showing rock types, structures, displacement, morphology, etc.
- **Slope map** showing different slope classes or exposures/aspects
- **Present land use map** showing major land uses and cover types
- **Land capability or land suitability map** showing different land capability classes; or land suitability classes
- **Land-use adjustment map** showing land being over-used or under-used and adjustment needs
- **Erosion or sediment source maps** showing sites of various types of ero-

ect, under the PPIN programme, is facilitating online application filing for Pesticides Registration and processing while Plant Quarantine Information System (PQIS) under PPIN has brought more efficiency and effectiveness in the functioning of Plant Quarantine Stations by use of Information Technology Tools. It facilitates online submission of application for Import permit, Import Release Order and Phyto-Sanitary Certificate (PSC) by traders and processing of these applications online at Plant Quarantine Stations and Phyto-Sanitary Issuing Authorities.

The AGMARKNET initiative, launched in the year 2000, is the first e-governance project, which has spread to about 3200 agricultural produce wholesale markets, to strengthen agricultural marketing system in the country. Now the country is witnessing implementation of National Animal Disease Reporting System (NADRS) to monitor 143 animal diseases through 7000 locations at sub-district level in the country,

agriculture sector, with the help of Ministry of Agriculture and state Agricultural Departments, has laid a strong foundation in the country, for ushering in digital inclusion and sustainable development of farming sector in an effective manner. It has been envisaged to provide information delivery in 22 constitutionally recognized Indian languages. The Agricultural Informatics Division has, in its blueprint, to develop ICT enabled supply-chains for 300 commodities, pertaining to agricultural, livestock and fisheries sectors through "Access Layer", "Distribution Layer" and "Network Layer" and also focusing on establishment of database on agro-climatic regional planning (ACRP) and strengthening of "Digital Network of Farmers (DNF)" to "reach the un-reached" and to "serve the un-served".

The next steps in the pipeline are mobile based applications for automating agricultural inflow system, in order to e-bridge the farmers and other stake holders and also to promote ICT under small area farm business, implementation of Agriculture Resource Information System (AgRIS) and DIS-NIC-Plan Programme (<http://disnic.gov.in>) to establish grassroots level informatics of sustainable agriculture development through information modelling, is the need of the hour.

The Agricultural Informatics Division, during the 12th Five Year plan, will strive to achieve design and development of Spatial Decision Support System (DSS) on Agricultural





sion and sediment potential areas

- **Hydro-meteorological network map** showing the location of climatic and stream gauging stations
- **Water resource map** showing surface and underground sources

The National Spatial Data Interchange (NSDI) is expected to facilitate generating Agricultural Sector Spatial Data Infrastructure (ASSDI) in 1:4000/12000 scales. Will it happen? Databases and informatics on Farm Health Management, Soil Health Management, Plant Health Management, Livestock Health Management, Fisheries Health Management and Water Quality Management, are of paramount importance to enhance and sustain agricultural productivity in India. This is also the top priority of Agricultural Informatics Division.

The Approach paper for 12th Five Year Plan (2012-17), which seeks to reach growth rate to 9% up from 8.2% estimated in the 11th Plan, desires to “stimulate for widespread development of ICT in the country to achieve inclusive growth”. The Agriculture Informatics Division, involved in design and development of various e-governance programmes to strengthen “Good Governance”, is gearing up its initiatives to undertake the needed widespread development of ICT in the Agricultural

sector in the country. It expects a decent measure of organisational promotional aspect in this regard.

India is among the fastest growing economies in the world. The power of a billion plus people, all connected via the Internet, will definitely redefine the system of e-Governance. The factors that may drive growth include “National e-Governance Program (NeGP)” and “Internet on mobile”. Mobile phones are the success story of bridging the rural digital-divide, bringing tangible economic benefits and acting as agents of social mobilization through improved communication. The Agricultural Informatics Division, through its involvement in implementation of NeGP-A Mission Mode Project, envisages promoting “M-Government Services” as follows:-

- Agricultural news (e.g. new cultivation products, machinery)
- Agricultural policy (e.g. laws and regulations)
- Funding opportunities (e.g. for purchasing equipment)
- Weather forecasts
- Alerts (e.g. disease outbreak, extreme weather conditions)
- Market forecasts (e.g. product prices, supply and demand)
- Expert consulting (e.g. regarding cultivation techniques, marketing of products, new production standards)
- Notifications (e.g. for deadlines, renewal of certificates, submission of documents, new cultivation products or techniques, verification of important dates, farmer union issues, events)
- Petitions (e.g. license renewal)
- Tele-diagnosis (e.g. plant and animal diseases)
- Calculations (e.g. for subsidy or indemnification)
- Financial transactions (e.g. loan payments)
- Employment market (e.g. job offer and demand in particular area)
- Search engine (e.g. for databases, locating agencies in the surrounding area)
- Messages to public agencies (e.g. agri-

cultural accident reports, incidents, queries, complaints, comments, interventions, opinion stating). Intra and Inter State Government Agricultural Developmental Schemes and their guidelines for implementation and monitoring

- Input dealers (seed, fertilizers, pesticides, etc)
- National Agricultural Research System (NARS) – IACR & SAU - Research & Extension Services
- WTO Regulations of agricultural commodities.
- Agricultural Crop Insurance information
- Public Grievances Redressal
- File / Applications Tracking;
- Continuous and Integrated Agricultural Drought Monitoring
- Government Initiatives (development schemes, etc)

Technical papers have been published and also presented in both national and international conferences on the achievements of these ICT initiatives in the Agricultural Sector. The Agricultural Informatics Division have received Manthan Award, PCQuest Award, CSI Award, SKOCH Editor’s Choice, Stockholm Finalist, Microsoft Award – Project of National importance, eWorld Forum 2011, eIndia 2011 and DAR&PG’s Innovation in Administration.

To strengthen mainstreaming ICT projects as well as development of Agricultural informatics development in the Country in a coordinated manner, Agricultural Informatics Divisions have been established in all NIC State Centres, through Office Memorandum.

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NIC's Co-operative Core Banking Solution (NIC - CCBS)

CCBS, an Integrated Core Banking Application, is specially designed to meet the requirements of all State Co-operative Banks (SCBs), District Centre Co-operative Banks (DCCBs), and Primary Agricultural Credit Societies (PACS). The Common interface for all the category of banks provides better integration of information flow among SCBs, DCCBs and PACS facilitating better monitoring and planning.



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Inauguration of CCBS for Meghalaya State Co-operative Bank on 20th October 2011 by Hon'ble Chief Minister of Meghalaya, Dr. Mukul Sangma at Shillong

Rural credit cooperatives in India were originally envisaged as a mechanism for pooling the resources of people with small means and providing them with access to different financial services. These Credit Co-operatives are the oldest Rural Financial Institutions in our country and the largest in the world. There are close to 5.5 lakhs credit and non-credit cooperative societies with coverage of almost 100% villages and 71% rural households fulfilling the need of providing financial services in rural areas.

OBJECTIVES OF COOPERATIVES

To raise capital for the purpose of giving loans and supporting the essential activities of the rural people.

- To collect deposits from members

with the objective of improving their savings habit

- To supply agricultural inputs and services to members at remunerative prices

PROBLEM FACED BY COOPERATIVES

Despite their wide network and close proximity to its members, Credit cooperatives suffer from many problems which not only hinder their growth but also pose a threat to their existence. Major issues faced by credit co-operatives include:

- Huge amount of accumulated losses
- Poor Recovery performance
- High incidence of NPA's & poor Deposit Mobilization
- Ineffective supervision & weak MIS

NEED FOR CORE BANKING

- Government of India implements a large number of social sector programs for socio-economic

development in rural areas. Such programs involve disbursement of funds to the target beneficiaries in terms of wages/payments. The cooperative credit structure could be channelised to make such payments. There is growing need for financial inclusion and direct payments of funds to beneficiaries.

- Accounting system of Primary Agricultural Credit Societies (PACS) PACS is not well managed and needs improvement through CAS (Common Accounting System). CAS can only be implemented effectively through a Core Banking Solution.
- A Core Banking Solution (CBS) will reduce the time for preparing necessary reports, required by controlling authorities.
- CCBS can help in implementing any Government Scheme through PACS as Government can monitor these schemes, through the application.

NIC- CO-OPERATIVE CORE BANKING SOLUTION (CCBS)

The main objective behind development of the Co-operative Core Banking Solution (CCBS) by NIC is to serve the poorest of the poor in our country by furthering basic banking facility in the rural areas of the country.



While the commercial banking system is taking steps to extend its reach to rural areas, there is a need to develop innovative solutions to provide access to people in rural areas so as to help

them get efficient and reliable payment and banking services closer to their area of activity. CCBS will play a vital role in financial inclusion, a primary agenda of Government of India and NABARD for the upliftment of rural masses of India. CCBS is designed so as to enable the Agricultural Societies at the Village level to disburse all the social sector related Government fund distribution (MNREGA, Mid-day Meal scheme, Old Age Pension etc.) to the targeted beneficiaries at the doorstep. It would also facilitate easy monitoring of fund disbursement and day to day position of fund distribution under these heads known at the apex level.

CCBS DEVELOPED BY NIC

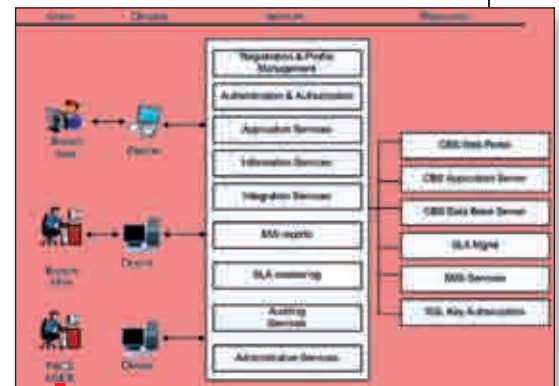
CCBS has highly parameterized role based security levels. The application is developed with enormous care so to minimize the cost of application and better ROI. With the implementation of CCBS, banks do not have to invest a large amount of money for creation of Data Centre, Disaster Recovery Centre and purchase of high-end server and its maintenance thereof.

JOURNEY FROM COIN -TBA TO CCBS -COOPERATIVE CORE BANKING SOLUTION

NIC started implementation of a TBA solution for the Bihar State Co-operative Bank Ltd. (BSCB) in 2003. The COIN software was successfully implemented and the bank earned a profit of Rs 114 cr after its implementation. In 2008-09, Sikkim State Co-operative Bank showed interest in implementation of CBS and requested NIC to convert COIN to a full-fledged CBS. In 2010, NIC/NICSI decided to develop a CBS with ASP model with its increasing demand amongst various state co-operative banks. Objective of development of CCBS was to provide a low cost integrated CBS for all three level of Cooperative sector (SCB, DCCB, PACS).

TARGET AUDIENCE

CCBS aims to provide a common inter-



CCBS Architecture

face for all the category of banks enabling better integration of information flow from SCBs, DCCBs and PACSs. NABARD, RBI, State Cooperative departments could be benefited through this system.

CCBS ARCHITECTURE

Logical Architecture: An architecture overview diagram at an enterprise level of the CCBS depicted in CCBS Architecture. These entities located on the different geographical location will access the CCBS portal system using internet and/or intranet connectivity under secured environment. These subsystems are logically separated without any virtualization of hardware system except they are co-located at the same Data Centre.

There are four main components in the architecture of CCBS:

Users: The users of CBS portal are the cooperative bank employees who can access this application from their respective branch only.

Delivery: The branch user can access the application through a computer/Laptop.

Services:

- Registration & Profile Management
- Authentication & Authorization
- Application Services
- Information Services
- Integration Services
- MIS Reports
- SLA monitoring
- Auditing Services

- Administrative Services

Resources:

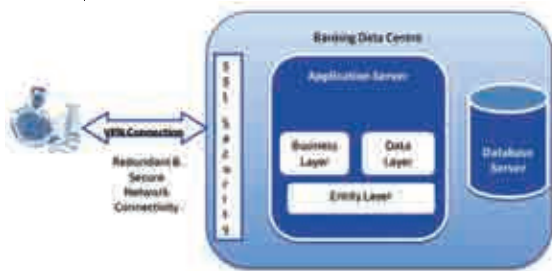
- CBS Web Portal
- CBS Application & Data Base Server
- SMS Services
- SSL Key Authorization & SLA Management

TECHNICAL ARCHITECTURE

Technical Architecture of NIC's CCBS
The application data flow for CCBS is as below:

- The branch user will be connected to the data center through the secured VPN connection.
- The user will be logged in into the CCBS portal through SSL security layer using authentication details.
- The proposed solution will have Form based, Menu based, Role based
- Code based security.
- The business processes /objects will be called based on user commands through the common gateway channel.
- The business processes/objects infract utilizes the respective services and call the Data layer for the transaction.

The CCBS application is hosted at the NIC's Data Centre.



TECHNOLOGY USED IN CCBS

VB .Net 3.5 framework, WCF, SQL Server 2008, (SSRS). SQL Server reporting service 2008

SPECIAL FEATURES OF CCBS

- Centralised banking solution for SCB,DCCBs and PACS
- State of the art technology to fully support business needs
- Fast & error free disposal of transactions

- Timely & accurate preparation of Cash Book, Trial Balance and Profit & Loss Account
- More effective MIS and Audit Trail Reports for decision support
- Effective Security management and Disaster Recovery Plans
- Helping improve employee productivity
- Helps in Financial Inclusion
- Timely payments to beneficiaries of social sector schemes
- Better and more accurate maintenance of up-to-date data about transactions with respect to an account, various books and ledgers
- Better monitoring of agricultural and non-agricultural loans and advances

MAIN MODULES OF CCBS

- Saving & Current Account, KYC Norms
- Fixed /Reinvestment /Recurring Deposit
- Loan & Advances
- Cash Credit & Advances
- Clearing inward & outwards
- Lockers, Share Browning & Investment
- Remittances, Statuary Reserve Fund
- HO modules & Inter branch transactions
- PACS Non-financial Activities
- Scroll, Vouchers & Advice
- Balance Register ,Bill of Collection Reports

IMPLEMENTATION STATUS

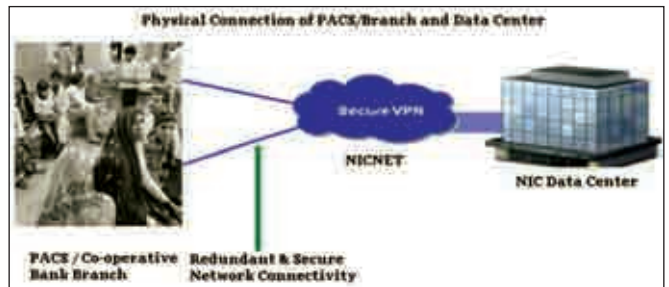
The CCBS is being implemented on pilot basis so far at following banks:

- Meghalaya SCB (two branches)
- Sikkim State Cooperative Bank (two branches)
- DCCBs in Uttrakhand (Dehradun-Astle Hall and Raipur branches, Nainital- Transport Nagar and Maldhanchor branches)
- Chhattisgarh District central cooperative Bank (Raipur DCCB)

- One PACS in Rajasthan (Hathoj) & two PACS in Orissa

THE FURTHER IMPLEMENTATION IS PLANNED AT:

- About 200 branches of DCCBs in Uttachand. Government Order already issued by Government of Uttrakhand



- 14 branches in of District Central cooperative Banks in Chatissgarh
- PACS under Rajiv Gandhi Sewa Kendras in Rajasthan
- 2528 PACSs in Orissa
- Kerala and Karnataka have also shown interest in CCBS implementation

WAY FORWARD

CCBS is steadily moving towards achieving success through multiple implementations at various Co-operative Banks. The solution has basic banking functionalities. However, to strengthen the product, a number of advanced modules like ATM integration, RTGS, NEFT, ECS, HRMS, Treasury, Social Sector Payments are being developed. Also, people need to be trained, promotion of the solution needs to be done so as to enhance the product's market value and hence result in more number of implementations.

For further information

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e-District Project in Kannur & Palakkad Districts of Kerala (Phase I - Certificate Services)

e-District is a mission mode project of Department of Information Technology, Government of India under NeGP Kerala State IT Mission (KSITM) is the State Designated Agency (SDA) for the project implementation in Kerala. The Government has chosen Kannur & Palakkad districts for the pilot implementation of the project.



Citizens queuing up at the Akshaya Centre in Taliparamba Municipality

Edited by **R.Gayatri**

The eDistrict consultant has brought-out As-is and To-be documents which were the base documents for NIC, prior to system study and design. NIC has submitted the project proposal after analysis of the backend computerization of participating departments. Necessary changes have been made in the to-be document based on input from NIC during the system study and based on the SRS wherever necessary. The to-be document has addressed necessary BPR. Government Order was issued to introduce the digitally signed certificates.

PROJECT MONITORING COMMITTEES

Government has constituted a state project committee chaired by Chief Secretary, State level technical com-

mittee chaired by Director KSITM and district level committees at Kannur and Palakkad chaired by District Collector.

ROLE OF NIC

NIC Official is a member of each of the above committees. Thus NIC is involved in the overall project visioning, guidance and monitoring. Additionally, NIC has the role of software developer. The application software for the project has been designed and developed by NIC Kerala State Centre.

SOFTWARE FEATURES

Common application form: The project allows people to apply and obtain the 23 certificates online from any Common Service Centre (Akshaya Centres) in addition to the Village / Taluk Offices. The applicant should pay a fee of Rupees twenty out of which ` 10/- would go to the Akshaya entrepreneur and ` 10/-



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would be remitted to the government. Digital authentication and signing: Digital Signature Certificates issued by NICCA have been allotted to Village/Taluk Officers for secured login and approving the certificates online.

The pdf certificate is digitally signed. The signed certificates can be printed and issued to the applicant from anywhere. This way, the public could avail the services from Akshaya Centres without going to the Government office and beyond office hours.

Use of QR codes: All certificates are generated in PDF format with embedded QR code (2D bar code).

SMS integration: Applicant's mobile number is captured during registration process as part of general details. A system generated SMS is delivered to the Applicant's mobile based on the change in application status. SMS will be generated during status changes like Application Processing, Application Return, Application Rejection, Application Approval and Application Cancellation.

X-forms: e-forms have been developed using X-forms technology for offline filling up of application whenever connectivity is not available. These forms can be saved separately and later uploaded to the database when connectivity is available.

Database level verification: Database verification is being provided during the application verification process. The databases of respective department will be searched and information retrieved. The scanned attachments need not be submitted along with the application, rather the key information need only to be entered. This feature is available with respect to following databases-Driving licence, Ration card, Election ID, eDistrict.

Certificate Authenticity verification: The certificates issued through eDistrict can be verified from any-

where by the following means.

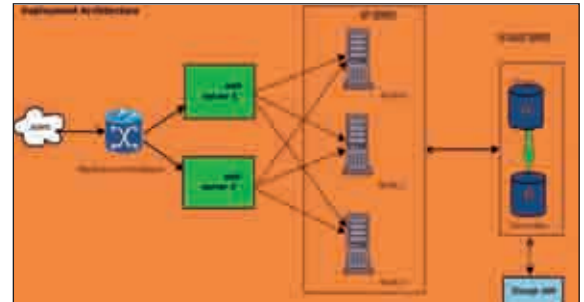
- Through eDistrict web site by entering the certificate number
- Through mobile handset, by focusing on the QR code and retrieving details online.

BENEFITS TO CITIZEN

By the implementation of eDistrict, the citizens are the first to be benefited. The major advantages includes

- Availability of CSCs out of the offices hours enables the citizen to apply and obtain certificates at his own convenience, without disturbing his routine working hours and without forfeiting his wages.
- Single point of contact (CSCs) for availing services. Before implementing eDistrict, to obtain a certificate from the Tahsildar, the individual has to visit the village office and get the verification report first. This has to be taken to the Tahasildar to get the certificate. He may have to visit multiple times at the Taluk and Village office. On each visit he has to forfeit one day wage as these offices function only 10 AM to 5 PM.
- The citizen has the facility to apply for a certificate from any available CSCs in the State. This enables him to visit a CSC near to his work place.
- The citizen need not have to bother about the availability of the Village/Taluk officer to get his certificates. Earlier the citizen often required to have multiple visits to the Village offices as the officers may be busy or out of the office during the visit. The citizens get their certificates as per the citizen charter. The system helps to avoid unnecessary delays in issuing the certificates.

- Only one common application is required to be submitted by the person for any type of certificate.
- One time registration process enables, to retrieve past data and saves time when applies for multiple certificates and repeated requests.



Deployment Architecture

DEVELOPMENT & DEPLOYMENT

It was decided to use open source technology for the eDistrict software development in line with the policy of Government. eDistrict application has been developed in J2EE platform and hosted at the State Data Centre. The hardware infrastructure includes two Web Servers on NLBS, three application servers (cluster) and two database servers configured as primary and secondary which are replicated. As part of the project, all Village and Taluk offices of Kannur and Palakkad are provided with necessary infrastructure including connectivity. Open source software is used in the client PCs in Village offices and Taluk offices. KSWAN connectivity is used wherever feasible and VPN over broadband made available wherever KSWAN is not feasible.

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Manipur: Web Enabled Monitoring of Plan Schemes

The Planning Department, Govt. of Manipur, is responsible for the formulation of the Five Year Plans, Annual Plans and all allied matters in the State of Manipur. It is the nodal department for monitoring all development activities in the state. It is also the state liaison department with the Planning Commission, the Ministry of Development of North Eastern Region (DoNER) and the North Eastern Council (NEC).

Edited by **Prashant Belwariar**

The manual system of monitoring the plan schemes operates with time lags and do not give a clear picture of funds remaining unutilized in a fiscal year. The absence of a system that could quickly provide consolidated or granular information on project retention, approval, fund utilization, financial and physical progress reports of projects, fund transfers or balances across schemes etc. was felt. This necessitated the development of a robust and reliable system using ICT tools to address various issues in monitoring the different plan schemes. The four main stake holders in the scheme are (a) DoNER (b) Planning Department, (c) Finance Department and (d) Line Departments.

ing more than Rs. 1000 crores per year. Monitoring schemes of this size is a huge task in terms of time and cost overrun. This became more and more difficult with the system running on stand alone computers. In order to address the current issues, Planning Department initiated for web enabled ICT based solutions to monitor these projects in an integrated manner. It was decided to implement the scheme with NLCPR (Non Lapsable Central Pool of Resources) scheme in May, 2010. The necessary funding for development of Software was provided by Planning Department.

PROPOSED SOLUTION

After analyzing the present system, it was decided to develop a web based S/W and host it at NIC Server and implement it by making data entry by all the stake holders, except DoNER. Planning Department will make data entry for all sanctions, approvals and release of funds made by DoNER as well as submission of

INITIATIVES

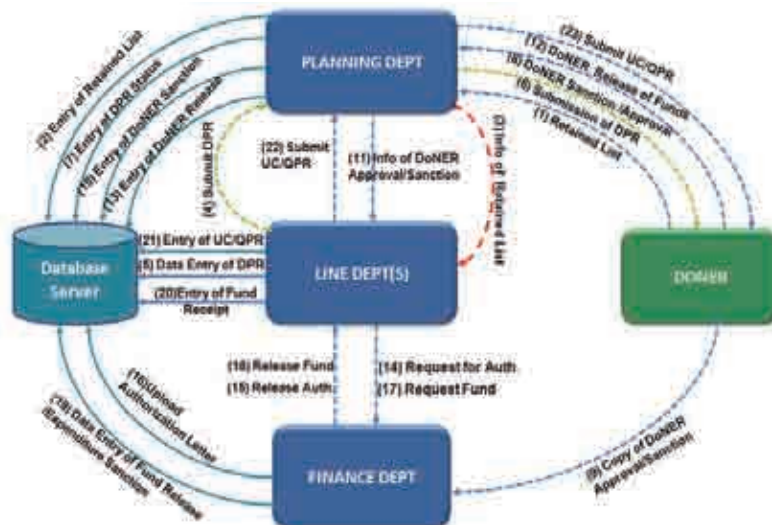
In Manipur there are more than thousand Projects at any time involv-



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Pictorial presentation of Work Flow of NLCPR



Sh. DS Poonia, Chief Secretary Manipur speaking at the workshop on "Monitoring State & Central Projects in Districts" held on 29-07-2011 at Manipur Secretariat

Utilization Certificate, Quarterly Progress Report (UC/QPR) etc. Similarly it was envisaged that all the line departments would do data entry of their activities right from submission of DPR, receipt of funds etc to submission of UC/QPR. In short, all the required data will be made available in the server. Various reports are generated from the system which are referred by the administrative heads any time anywhere. On behalf of DoNER, Planning Department will make data entry whenever there is approval or sanction of the schemes.



SIO, Manipur demonstrate Web based Monitoring of NLCPR scheme during the Workshop-cum-Training held on 29-07-2011 at Manipur Secretariat

Security: Three layer securities have been proposed in the system. They are:

- **Layer-1:** The S/W was designed with Role based authorisation with the provision of User ID and Password for (a) Administrators, (b) Data Entry Operators with CAPTCHA. The S/W prevents officials from one department to see the data for other department.
- **Layer-2:** OS hardening was done at the server side. SAN with ATL is also deployed.
- **Layer-3:** Network is also made secured with Fire Wall and IPS.

- Increased reporting functions
- Greater transparency and accountability
- Reduction of workload

The solution has been implemented in all the schemes of NLCPR in Manipur. It did not required much investment from the stake holders as it utilizes the existing infrastructure such as Manipur Secretariat LAN, SDC, SWAN, NICNET etc. ICT requirements of the main stake holders were minimal and were organized very easily. The main challenge faced was in the area of availability of data in the line departments and with the right kind of people making regular data entry. At present, the Government of Manipur has decided to fully implement the software and has issued

SOFTWARE DEVELOPMENT

NIC-Manipur developed the web based S/W which is hosted at NIC Server. The main activities of the departments are categorized in the table below :

Department Entry	Fund Authorization	DPR Submission
Department Entry	Fund Authorization	DPR Submission
Retained Project List Entry	Fund Release to Line Dept.	Fund Receipt
DPR Approval	Expenditure Sanction	UC & QPR Submission
DoNER Sanction	—	—
DoNER Release	—	—
UC & QPR Submission to DoNER	—	—

Platform used for development of the S/W – The software has been developed in Java /JEE (Spring Framework) as front and PostgreSQL database under Linux OS and Apache Tomcat web server.

Govt. Order to this effect. The Planning Department is also contemplating to roll out the s/w to cover all Plan Schemes such as Special Plan Assistance (SPA), North Eastern Council (NEC) and Boarder Area Development Programme (BADP) in the coming year.

MAJOR BENEFITS

- 24X7 availability of data relating to project Approval, Fund Flow, Financial and Physical progress
- Timely submission of UC/QPR Dept. to Planning Dept. and subsequently to DoNER
- Improved data exchange amongst stakeholders
- Easy tracking of fund flow details
- Retrieval of uploaded documents when untraceable

For further information

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Electronic Payment System in Haryana

Two years back the treasuries were working on an archaic system which involved stamping 'Pay Order' on the bills presented at the treasury which was then returned to DDO to be presented at the bank for payment. This resulted in problems like wrong payments, unauthorized alterations in amount, loss of bills and vouchers in transit, delay in disbursements, delay at end of DDO in distribution of RTR/Drafts etc. This is now shifted to an entirely new concept i.e. Electronic Payment System (EPS), for passing of bills and disbursement of payments.



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Edited by
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Under EPS system, payments of any kind are credited directly in bank accounts of payees, in any branch anywhere in country. With active participation of Director, Treasury and Accounts, and officials of State Bank of India, the software was developed as part of the already implemented Online Treasuries Information System (OTIS) with Treasury EPS system (TEPS) running in the banks. Awareness and training programmes for DDOs and officials of treasuries/sub-treasuries and banks was also organised. Successful pilot launch of system was done in Panchkula in September 2010 and then all other district treasuries in April 1, 2011.

PROCESS DESCRIPTION:

- Each payee furnishes details like Name, PAN number, GPF/PRAN number and bank details like name of bank, branch name, IFSC code and account number. The details are entered in OTIS and after verification by DDO a Unique Code for Payee (UCP) is generated. Online facility for allotment of UCP has also now been made operational.
- DDO prepares the bill and submits to the Treasury along with the list of payees for payment. Token Clerk receives the bill and enters the details in the Token Entry Module of OTIS, generates a Token Number and issues a token receipt.
- Bill Passing Clerk checks the bill details, verifies Photo and Signatures of the DDO displayed on the screen with those on the bill

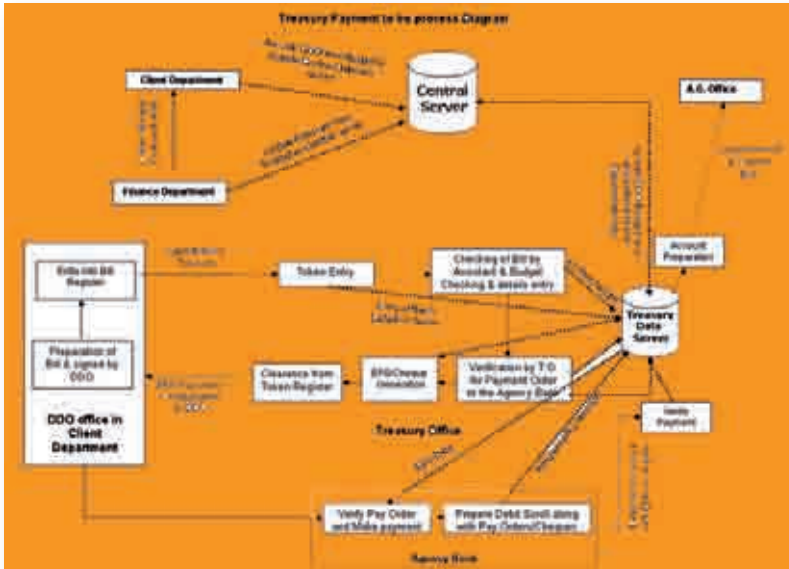


Sh. Harinder Kumar, IRS
Director, Treasuries &
Accounts, Haryana

THE ELECTRONIC PAYMENT SYSTEM DEVELOPED BY NIC-HARYANA HAS GIVEN A QUANTUM LEAP TO THE PROCESS OF FINANCIAL APPROVAL BEING GIVEN BY STATE TREASURIES AND ELECTRIFIED THE DISTRIBUTION PROCEDURE LEADING TO HIGHER LEVEL OF SATISFACTION AMONG THE END USERS AND THE PAYEES.

and if all the parameters are verified and budget is available, bill is passed and the budget data is updated. Mode of payment whether EPS, Cheque or Cash payment is then selected. Otherwise objections are recorded and list attached with the bill.

- Assistant Superintendent checks the bill with the details displayed on the screen which are then verified with the physical bill.



Treasury payment to be process diagram

- After that the bill goes to Treasury officer (ATO in case of sub-treasury) for verification. In case of objection the bill can be sent back to Token Counter or bill passing clerk. After updation of payees' data, the bill again comes to T.O. for verification. A verified bill goes to EPS generation section and a Pay Order and two invoices are generated. There can be multiple bills and payees in a single pay order. A pay order is generated for all the pending bills of a DDO in a single Major head. The pay order and one invoice are handed over to the DDO and one invoice is kept in the treasury for record purpose. In case of Cheque, the bill goes to Cheque generation section and a Cheque is generated.
- The EPS pay order is printed on A4 size sheet and is valid for a period of ten days. A unique EPS number and list of payees (with bank details) is also printed on the pay order. The pay order is signed by Treasury officer and stamped and endorsed by the DDO. Pay order can be for normal EPS, consolidated EPS, for pensioners, for refund etc. For large number of payees in a bill, there is option to generate a consolidated EPS instead of a normal EPS.

DDO provides soft copy of the list to the bank and there is instruction in the pay order to make payment to the payees.

- Data in encrypted form is sent by mail to the treasury branch of bank where it is decrypted and imported in TEPS. An acknowledgement code is displayed and mailed to the treasury. The code is to be acknowledged by the Treasury officer in OTIS otherwise further generation of pay orders is stopped after one hour of EPS file generation.

The pay order is presented in bank by DDO/messenger and is verified in TEPS using the EPS number. For the purpose of verification of EPS pay order, the pay order number is entered on the basis of EPS pay order received physically. The details of the EPS pay order are displayed on screen. The same is matched with the hard copy of the EPS pay order and verified on the computer.

For verified pay orders, three files are generated, one containing transactions with the various branches of the treasury bank, one for NEFT containing transaction for other banks of amount upto Rs. 2 lakhs and one for RTGS containing transactions for other banks of amount above Rs. 2 lakhs. The bank official uploads these files onto their system and specified amount is credited

directly in the bank account of payees. In case of failure by NEFT/RTGS, a draft or RTR is made in favour of the payee and handed over to the DDO. Further in case of failure on account of wrong bank details of payee, the information is received back online from the bank and the related UCP is blocked until the details are corrected by DDO.

After payment, payment verification is done in TEPS using the EPS number and for any unsuccessful transaction then the Draft or RTR no. is entered.

- A scroll is also generated for the payments done which is sent to the treasury. Digital data is also sent by mail to the treasury. Verification of bills is done using the digital data and payment scroll and Voucher numbers are generated for each bill. All the data of this transaction is uploaded to the central server at day end and expenditure data for DDO budget is also updated in the central server.

BENEFITS

It has provided an efficient, transparent and faster mode of payments clearances, saving people time, and reducing the red tape involved in conducting transactions with banks and state authorities. The biggest benefit to citizens/employees however is the improvement in government and administrative services.

FUTURE PLANS

Soon the system will be replicated in all the sub-treasuries of the state. EPS will also allow digital endorsement by the DDOs and then the physical copy of the EPO will not be required.

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Chandigarh : Participatory, Accessible and Efficient Governance

Chandigarh, symbolic of planning urbanism, was commissioned by Pt. Jawahar Lal Nehru, the country's first Prime Minister, who rather prophetically proclaimed that Chandigarh would be “unfettered by the traditions of the past, a symbol of the nation's faith in the future” and was developed by famed French architect Le Corbusier. It is a futuristic city with an irresistible mix of dynamism and elegance, which never fails to delight.



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Web Portal of Chandigarh Administration

NIC Chandigarh UT Unit was setup in 1990 in the office of Deputy Commissioner and currently has its offices at 3 locations. In last 21 years it has contributed significantly in various ICT related activities. NIC has been instrumental in successfully running various e-Governance projects, Chandigarh SWAN was commissioned 2 years ago and departments have been able to reap the benefits of connectivity by way of using centralized applications and information interchange, Network Data Centre is being looked after by NIC which is manned 24*7 and has provided 99.9% uptime, e-mail, internet and VC services have been extended practically to each and every individual which are being made full use of by them.

Well understanding the importance of technology, need of the hour and the expectations of the users, efforts have been made to keep pace with the technological advancements and deliver standardized products.

Chandigarh Portal: The portal <http://chandigarh.gov.in> is a testament of Administration's focus on transparency & proactive approach towards taking it to the comforts of the homes of the citizens so as to reduce their legwork. The portal harnesses content from across the various departments of Chandigarh Administration. Although, the primary driver for the development of this solution was the need to have a single point of access for information of Chandigarh Administration, this portal has now become its face.

GePNIC: eProcurement solution, <https://etenders.chd.nic.in/>, was suc-



Participants at GFAS workshop for DDOs

Successfully deployed for all departments of Chandigarh Administration wef April 2010 for Tenders above 10 lakhs. It has been widely acclaimed and is now implemented for tenders of all values. Efficient use of technology has been showcased in this application to ensure safety and security. Non-discrimination among bidders, access of tender documents by any bidder & bid submission from their place of convenience are the factors for keen acceptance of the solution. It has also promoted open competition. NIC Chennai is rendering much needed support for its successful implementation. In the current financial year more than 4100 tenders amounting to over 1000 crores have been processed.

NETWORK SUPPORT

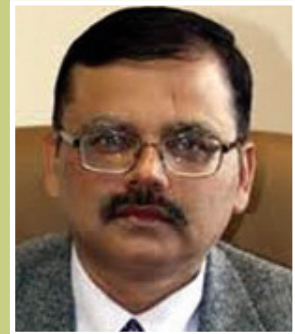
National Knowledge Network (NKN) Hub: NIC Chandigarh has provided connectivity under NKN Project to IIT Roop Nagar, IMTECH Chandigarh, Panjab University Chandigarh, NDRI Karnal, CDAC Mohali, PGIMER Chandigarh, PEC University of Technology Chandigarh, Government Medical College & Hospital Sector 32, NIT Jalandhar, CSIO Chandigarh, NITTRE Chandigarh, CCET Chandigarh, IISER Mohali, NIPER Mohali, NABI Mohali, PAU Ludhiana, Dental College & SGTB Hospital & College Amritsar, DWRI Karnal and many other institutes in the region are

in pipeline.

Regional Network Centre: In 2003, Leased Line network was commissioned connecting all NIC offices (Punjab, Haryana & Chandigarh) in Chandigarh, Punjab and Haryana High Court, Haryana Assembly, etc. Subsequently it has been extended to Himachal Pradesh, Jammu, Mumbai, all districts of Punjab and Haryana, Punjab Raj Bhawan and SPIC Centre. In addition to it, MLLN connectivity to different central government offices - Passport Office, Census, NCRB, Department of

Post, DGFT, Environment and Forest, UID, ROC, CGHS etc is also through. The backbone bandwidth for NICNET/Internet access from this centre to New Delhi has been significantly strengthened with 2.5 Gbps link from Railtel and 1 Gbps standby link from PGCIL.

Chandigarh SWAN: NIC was assigned the task of setting up Chandigarh State Wide Area Network (SWAN), a project funded by Department of Information Technology (Option II). All the major buildings and eSampark/ eJanSampark/ GramSampark Centres are now connected. There are 7 PoPs namely UT Secretariat-SHQ, Municipal Corporation, Deputy Commissioner Office, Sub Divisional Magistrate(South), Sub Divisional Magistrate(East), Government Medical College and Hospital Sector 32, Government Multi-Specialty Hospital Sector 16 & Registration & Licensing Authority identified under SWAN which are connected to the Network Data Centre and are fully operational. Chandigarh Administration has extended SWAN to many departments from State Hqrs and POPs. Manpower for maintenance and support services under the project has been deployed on all the PoPs and State Headquarters site. NIC is providing 24x7x365 services to all PoPs and SWAN sites.



Sh. V. K. Singh, IAS
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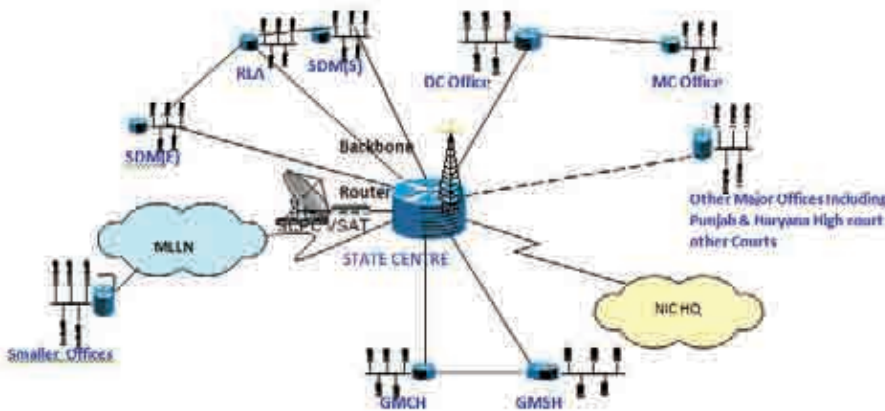
It gives me immense pleasure to know that NIC is covering Chandigarh UT in its forthcoming issue of Informatics. NIC Chandigarh UT Unit has contributed stupendously in the various e-Governance initiatives of the Administration which were aimed at improving the life of a common man. These initiatives have also helped in ushering the city to a new paradigm that looks promising than ever before. I congratulate the NIC team for its tremendous efforts in putting together various solutions which have served as e-Governance enabler and are of great importance to Administration. The contribution has been in terms of connectivity, networking, technology upgradation, delivery systems for information and services and an array of software solutions. My best wishes for the ongoing initiatives and the future endeavours.

It has facilitated the implementation of eGovernance projects as the reach has been widened. It has become equally easy to disseminate information across various offices and has resulted in adoption of standardized approach by all departments.

State Data Centre (SDC): Chandigarh Administration decided to use the existing NIC Chandigarh Network & Data Centre (NDC), established in 2004, as State Data Centre. The same site is being used as State Headquarter site under SWAN and NKN Project, thus all the major build-

also connected to the NDC through high speed channels to provide efficient services. The applications are hosted on varied platform having different back-end databases to give multiple hosting environments.

Intranet Portal of Chandigarh Administration: A significant initiative was undertaken to have a one-stop access point for various G2G and G2E related services. SWAN, centralized SDC and the IT vision of Chandigarh Administration served as the driving force in successfully integrating the various applications – common and department specific.



Chandigarh State Wide Area Network Layout

ings/departments are connected to Data Centre. The NDC is equipped with state of art infrastructure to facilitate e-Governance initiatives of Chandigarh Administration as well as to cater to diverse computing and networking requirements of the government. A state of art high capacity (10 TB) storage area network (SAN) is also set up in NDC to provide consolidated storage infrastructure for Intranet Applications, Citizens Services, eGovernance applications, Databases, E-mail and other internet services. The NDC is operational on 24x7x365 basis and also remains manned by technical persons to respond to any kind of requirement. All the major buildings, Citizen centric centres (viz. eSampark, Jan Sampark and eGram Sampark) are

Most of the departments/offices across the city access the applications through the portal <http://admser.chd.nic.in>. User accounts of employees are maintained in common database where it is authenticated and access provided as per assigned roles. The access is also limited to valid domains. On successful login, the selected application is made available to the user. Some of the applications are –

- **Common applications:** General Financial Accounting System, Meeting Manager, Court Cases Monitoring System, File Monitoring System, Visitor's Information System, Government Tenders and quotations
- **Department specific:** Public Relations, General Financial Accounting System, Integrated

Scheme & Budget monitoring, Project Monitoring System, Grievances Monitoring System, NIC UT Portal, Passport/Public Window File Updation.

eSampark, eJan Sampark and Gram Sampark: The much acclaimed and successful eSampark project of Chandigarh Administration was launched in September 2004, as a “Multi Service Single Window convenience”, to bring various services under one window. Starting with 11 services from 3 centres it has emerged as a key revenue mop-up agent now. A footfall of over 2 lakh transactions is being recorded per month and it has accounted for revenue collection of over 800 crore in 2010-11. At present, 23 G2C and 5 B2C services are being provided at 11 eSampark centers spread all over the city. Replicating the success in UT villages, as many as 13 Gram Sampark centers have already been established. All eSampark services were being provided at Gram Sampark centers free of cost to the villagers. Residents have the convenience to submit RTI applications and grievances at these centres and also seek appointments for Government Medical College and Hospital and Government Multi Specialty Hospital.

Smart Card based Public Distribution System (SCbPDS): In 2008-09 budget, Finance Minister Sh. P. Chidambaram announced Chandigarh as one of the pilots to implement SCbPDS to bring more transparency in the distribution of ration and to streamline procedures related to PDS to ensure reach of benefits to the intended group of citizens. An approval of Rs. 6 Crores was granted by the Govt. of India.

The project was rolled out in June 2010 and it takes care of all the ensuing processes right from allocation to the disbursement of commodities at FPS. A KMS enabled Smart Ration Card with the beneficiary and a PoS Terminal integrated with weigh bridge and connected to central server through GPRS

and with the FPS owner's Smart Card at the FPS makes the transaction happen and biometrics authentication ensures that the commodity is delivered to the intended beneficiary. At present data digitization has been completed, biometrics capturing is nearing completion and commodities are being issued through this solution at 13 FPS and the remaining shall soon be covered. Some of the benefits accrued are Improved service delivery, Transparency and effectiveness in PDS, Proper allocation and distribution monitoring, Plug leakages in PDS, Remove bogus/multiple ration card and Convenience & consumer contentment.

Government Financial Accounting System (GFAS): GFAS, implemented on 1st April 2011, has resulted in integrating the Budget and the Treasury operations, which till now were running in silos. Hosted on central server in NIC NDC and accessible through Intranet portal, it is used by all offices/Boards and Corporations. Allocation of budget by Finance department, preparation of bill by DDO, presentation of bill to treasury, approval/rejection based on funds available etc are some of the activities carried out using this system. It facilitates making available the latest figures at any given time. Online availability of data helps in knowing about the available funds, expenditure status and the receipts.

It also makes account, cheque and vouchers reconciliation very easy. A robust MIS supports variety of reports catering to day to day requirements of various offices. As a next step forward, facility of e-Payment has been initiated for crediting salary of employees and shall subsequently cover all kind of transactions.

SARATHI and VAHAN (Transport Department): Smart card based Key Management System (KMS) enabled Driving Licences and Registration Certificates (both Transport and Non Transport) are being provided to the residents of Chandigarh. The test for Learner's Licence is also computer

aided. Data consolidation to form State register and National register has also been accomplished. High Security Registration Plate module has also been integrated in VAHAN to record the details. The application is now running from 4 locations (RLA office, SDM(S), SDM(E) and STA) over Chandigarh SWAN thus bringing in lot of convenience to public and the staff. National Permits for goods vehicles are being generated through the Permits portal.

Industrial Tribunal & Labour Court: A centralised solution developed for the court to manage and keep track of the cases has become an integral part of their day to day working. All reports are generated through the system and queries regarding case status, case history, decided/disposed cases etc are easily responded. Manual intervention has been totally eliminated and access to information and retrieval is very fast.

Prevention of Food Adulteration (Food Licencing): The Food Safety Act includes rules and regulations for the registration and licencing of premises used or proposed to be used for the purposes of a food business. The application has been developed and implemented to streamline the food licencing process of the Administration. Workflow based application covers the complete process of food licencing which starts from accepting the license application with fee including penalty and late fee, giving receipt to the applicant and ends at the delivery of the license to the applicant. An effective monitoring and reporting mechanism assists the enforcement staff.

There are many other projects running successfully in various departments for the last many years for which technical support is being provided as and when required eg. Chandigarh Transport Undertaking, Excise and Taxation, Property Registration, Education etc.

Services are rendered to various National Level Projects viz: Common Integrated Police Application

(CIPA), Counseling for admissions to engineering colleges, Immigration, Visa and Foreigner Registration Tracking, Online Scholarship Management System, Election MIS, Socio Economic Caste Census, Mother and Child Tracking System, eGranthalaya, CONFONET, AISES

Video Conferencing: A fully fledged VC studio is established and regular VC sessions are conducted for the benefit of various departments of Chandigarh Administration.

Websites: More than 40 websites of various departments of Chandigarh Administration have been developed, hosted and are being maintained. User departments are provided adequate training on the maintenance of the sites and also explained the importance of a well maintained site.

Internet & Email - it's the basic service that is being availed by all departments/offices who have been encouraged to put it to maximum use. More and more offices are being provided official email accounts, thus facilitating faster and reliable communication amongst each other. Internet services are efficiently monitored on 24x7x365 basis to ensure uninterrupted services. Over last 5 years 99.9% uptime has been ensured.

Recognition -

- National Golden Icon Award for e-Sampark.
- National Silver Icon Award for Best Government Website
- CSI-Nihilent Best e-Governed State/UT Award.
- Continuously Ranked as a LEADER in "India: e-Readiness Assessment Report"

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Odisha - Establishing Greater Transparency and Accountability in Delivery of Public Services

National Informatics Centre, Odisha is playing a catalytic role in implementing e-Governance projects and establishing a Networked Government for greater transparency and accountability in delivery of public services to facilitate moral & material progress of all citizens.



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Edited by **R. Gayatri**

Odisha aims at establishing robust and futuristic IT Enabled Services in the State to bring about ease & convenience in transactions between Government and Citizens. A number of critical Core ICT Projects have been implemented in the State to establish G2G, G2C & G2B transactions.

Some of the Key Projects implemented during 2010 & 2011 are as follows:

Web Based Counselling: NIC, Odisha had taken up the responsibility for web based counselling of Odisha Joint Entrance Examination- 2011 (<http://ojee.nic.in>) and Diploma Entrance Test - 2011 (<http://deterissa.nic.in>) conducted by the Directorate of Technical Education & Training (DTET), Odisha under Department of Industry. The counselling for Engineering, Lateral Entry, MBA, MCA & Pharmacy Courses of OJEE and Diploma Engineering and Lateral Entry for more than 1 lakh students was conducted successfully.

PRERANA- the e-Scholarship System: PRERANA, the portal (<http://ori.nic.in/odishapms>) for Post-Matric Scholarship Registration Release And Network Automation, is a web

based solution to provide online service to the underprivileged ST, SC, OBC / SEBC and Minority students of Odisha, in terms of financial assistance. More than one lakh students have registered within one month of time after inauguration by Shri Naveen Pattanaik, Hon'ble Chief Minister of Odisha. The PRERANA is going to facilitate easy access, speedy and timely disbursement of scholarship to the needy students maintaining transparency, accountability and responsibility in implementation & management of the schemes.

e-Abhijoga: It is an integrated web based application, which primarily aims at submission of grievances from anywhere and anytime, instant and easy Data transmission between Departments and the subordinate organizations resulting in the speedy redressal of grievances. Centralized Public Grievance Redressal and Monitoring System (CPGRAMS) has been designed and developed with a view to achieve a uniform and systematic approach towards monitor-



A view of e-Counselling at VSS, Burla, Sambalpur Centre



Hon'ble CM inaugurating Prerana eScholarship project

ing of procedures by adopting a comprehensive classification and standardization of grievances and redressal actions across the government organizations. So far 11738 grievances have been redressed through the portal since its launch in 2011.

Standardisation of District Portal:

A standardized district portal-<http://ordistricts.nic.in>, framework has been put in place, which is based on the content architecture of the National Portal of India (<http://india.gov.in>) under NeGP. The contents and formats of the portal include; profile, geography, administrative setup, directory, peoples' representatives etc. Citizen Services such as acts & rules, e-forms, policies, enquiries, guidelines to get caste and domicile certificate, registration of documents, ration card, land records, Right to Information etc. are included. The content is contributed to the Portal using a user-friendly web-based Content Management System (CMS). The site has been developed under the environment of LAMP – "Linux, Apache, My Sql and PHP".

Chief Minister Relief Fund online (e-CMRF) is meant to be an e-Governance oriented Web Portal catering to G2G and G2C domain. It is intended for timely, accurate delivery of assistance and to bring transparency & accountability at every level of Management. The whole application is divided into three important modules i.e. Receipts of Fund in the form of

donation /budgetary allocation, Remittance of assistance to the family of deceased person of the state, Fund Management etc. Within last 5 months of implementation 1040 applications were processed over the portal & more than 2 Crores have been distributed. The project is being monitored by Hon'ble C.M's Secretariat through General Administration (CMRF) cell.

GePNIC: Odisha being the leading state for implementation of NIC's eProcurement solution for the Government (GePNIC) has hosted more than 35000 tenders worth 52000 crores over <http://tendersorisa.gov.in>. GePNIC has also been successfully implemented in Mahanadi Coalfields Limited, Sambalpur, a nabaratna PSU under Ministry of Coal. eProcurement team of NIC Odisha is actively involved in the national roll-out of GePNIC under MMP. Odisha has been instrumental in rollout at Visakhapatnam Port Trust, Visakhapatnam. Several other Defence Ministry PSUs like Mishra Dhatu Nigam Limited, Hindustan Shipyard Limited & Goa Shipyard Limited are in the pipeline to adopt GePNIC which has received national and international laurels like eIndia 2009 & 2010, Skoch, eWorld, CIL etc.

Study of Pre & Post tendering Modules : In order to make GePNIC a complete e-procurement solution it is necessary to develop and integrate pre tendering modules like Indent Generation, Demand Aggregation and post tendering modules like Contractor Registration and Contractor Database, On line Technical Evaluation, Post Contract Works Monitoring & Payment to Contractors. On request from Govt of Odisha & pro-active initiative of NIC, an expert team of engineers has been formed by the Government for domain input to the NIC study team and the study report is going to be

submitted latest by March 2012.

Registration Authority Office: Registration Authority (RA) Bhubaneswar came into existence as the 2nd RA Office of NIC Certifying Authority after RA Bangalore in Oct 2008. This facility is catering to Digital Signature Certificate (DSC) requirements of Odisha and neighbouring states like Andhra Pradesh, Jharkhand & West Bengal. Central Government departments like CPWD, East Coast Railways, CRPF, Indian Army, Indian Navy etc and central PSUs like MCL, HAL, VPT etc are important users of RA Odisha for their DSC needs. More than 3500 DSCs have been issued from this facility as on November 2011.

e-Advertisement: Digital delivery of advertisement to the newspaper agencies (NPAs) to publish in the newspapers and periodicals by Information & Public Relations (I&PR) Department has been implemented. The software facilitates stakeholders to send online request for advertisements. Advertisement wing in I&PR department accepts the requests and processes for the cost estimation. Accordingly release order (RO) is issued to the respective newspaper / periodicals. SMS / e-mail alerts have also been integrated at strategic levels.

e-BHABISYANIDHI: e-Bhabisyanidhi, deals with provident fund of more than 2 lakh teachers under all the Aided Educational Institutions of Govt. of Odisha. Subscribers are able



Hon'ble Minister Sh. Prafulla Samal inaugurating e-Advertisement



I OHWiS interface

Web-GIS for Odisha State - GIS applications have been successfully developed and implemented at Grass-root level using open source for nine districts of Odisha. Using this application, user can access different GIS data and its information using Browse mode, generate query based maps and reports and prepare thematic maps over net as and when

required.

to obtain their GPF statement, pension and other retirement related information etc. The grievance interface helps the present and retired employees to interact with the system.

Online GPF tracking for BSNL employees under controller of communication accounts, Bhubaneswar disseminate information on GPF status of employees working under Controller of Communication Accounts, Bhubaneswar

Mother & Child Tracking System (MCTS) - MCTS, a Mission Mode Project under the NeGP, the name-based pregnant mother and child tracking system, has been implemented in 6688 Sub-Centres in Odisha. Till date 623342 mothers and 411041 children have been Registered in MCTS portal, along with 8286 ANM & 40899 Asha workers.

Odisha Health Workforce information System (OHWiS): OHWiS the web-based system monitors and manages the Human Resource of the Department of Health and Family Welfare, Govt. of Odisha. 3100 Doctors profile have been created & managed over the portal.

Integrated Three-Tier Computerization of Public Health Engineering Organisation: The application portal is operational in the major cities of Odisha viz, Bhubaneswar, Cuttack, Puri, Khurda, Berhampur, Sambalpur and Rourkela covering Four PH circles, Eight PH divisions, 21 PH Subdivisions and 87 PH sections catering to more than 2 lakhs of consumers. Water tariff Billing and Payment application has significantly contributed towards public awareness hence resulting in a major increase in water tariff revenue. A State Complaint Call centre has been made operational for more than Two years with facilities of Lodging complaints by public through a Toll free number and checking the status by Web Portal. Complaints system has received a wide range of good public response and till now thousands of complaints have been redressed through the State Complaint Call Centre.

e-Payment system for Jagannath Temple: With the objective of offering devotees the opportunity to serve the LORD by contributing generously towards expenses for the RAJ-BHOGA (KOTHA-BHOGA) offered daily before the LORD in the "Sanctum-Sanctorum" and at the same time cre-

ating a permanent and adequate financial base for Shri Jagannath Temple (Puri) the online payment system (<http://jagannath.nic.in>) through Credit as well as Debit card is in place.

Credit Card : The application is integrated with Credit Card Payment Gateway through the Store Front Adapter (SFA) API. Data interchange is done through encrypted Secure Socket Layer (SSL) transmission over HTTPS protocol as POST request. Credit Card transaction is in accordance with Payment Card Industry (PCI) guidelines verified by Master & VISA card. Parameters shared by NIC application with Payment Gateway are as PRN No., Amount, Bhoga Type.

Direct Debit : The application is integrated with the payment gateway or net-banking of the participating Banks through URL based POST Request and passing of certain mutually agreed parameters.

AGRICULTURE SECTOR

FARM MECHANISATION module monitors the targets and achievements of farm implements and machinery distributed to the beneficiaries. **BIO-FERTILISER/ORGANIC INPUT MANAGEMENT SYSTEM** provides the users of district level and Directorate level as well as the production unit to know the usable status of total consumption and balance of bio fertilizer and organic manure. **Fertilizer Registration Certificate system**, monitors existing & new license



I SIO, Odisha being felicitated for GepNIC implementation at MCL

holders and their details regarding profile, sale & storage address, fertilizers details, renew details and payment details etc. Online Fertilizer Management system keeps the record of fertilizer flow from manufacturing company to retailer. The system captures receipt and distribution of fertilizer data for companies, wholesalers and retailers. Subsidy report is generated for manufacturing companies. Other modules developed & implemented in Odisha include Pesticide Licensing System, Commercial Pest Control Licensing System, Farm Pond Registration, Pest monitoring system, Weather information system etc.

AUTOMATION OF LOCAL FUND AUDIT (ALFA)

Local Fund Audit Organisation is the internal Audit Organisation of Govt. of Odisha functioning under the administrative control of Finance Department. The application has been rolled out to cover the development of intra LFA portal, standardization of audit workflow, monitoring daily diary & tour programmes, preservation of audit report and better access, development of MIS on Institutional Audit, automation of surcharge processing and development of online Intra LFA messaging and communication etc.

ONLINE STATE BUDGET

The role based e-Budget system has been implemented with mapping of various functionalities. All Administrative Departments of Govt. of Odisha have been enabled to submit their budget proposals, monitor & retrieve desired information etc. through the portal.

OTHER MAJOR PROJECTS:

Online Rice Mill Registration, Paddy Procurement, Road Movement of CMR, Performance Appraisal Report(PAR) Maintenance & Monitoring System, Property Return Statement of State Govt. Officers, Mid-Day-Meal monitoring system for the WCD Department, Bhulekh- consist-

AWARDS & RECOGNITIONS DURING 2010 & 2011

- SUBIDHA – State Urban Local Bodies Integrated data Handling & Access
- Nagar Bandhu Samman-2010 by Hon'ble C.M, Odisha GePNIC – e-Procurement system
- e-World – 2011 (1st Public Choice award for G2B initiative) Standardisation of District Portal with web CMS
- e-World-2011 (2nd Public Choice Award for Best Portal)
- SKOCH DIGITAL INCLUSION AWARD 2011 (Certificate of Merit as best hundred projects in India) Online Passport Verification, Missing Persons & Complaint Monitoring System (at Jharsuguda District)
- e-World-2011- (1st Public Choice award for Electronic Delivery of Services Initiative) BEDP-DSS (Block Economic Development & Planning Decision Support System) (At Khurda District)
- SKOCH DIGITAL INCLUSION AWARD 2011 (Certificate of Merit as best hundred projects in India) e-Abhijoga- Online Grievance Monitoring Redressal system for Chief Minister of Odisha
- SKOCH DIGITAL INCLUSION AWARD 2011 (Certificate of Merit as best hundred projects in India)



Hon'ble CM felicitating SIO, Odisha for contribution of ICT in Urban Sector

ing of the (i)Tehsil module for file generation, encryption & transmission, (ii)State portal module for decryption, data updation & status monitoring, and (iii) Web service for providing interface to the online RoR data etc. have been successfully implemented in the state.

e-Governance in Panchayati Raj sector bagged “ePanchayat Puraskar-2011”

Odisha bagged the “ePanchayat Puraskar-2011” - a national award, instituted by Ministry of Panchayati Raj, Government of India, in order to appreciate the excellent achievement for implementation of Model Accounting system for Panchayats (MAS) and PRIASoft. Sh. S. N.

Tripathy, Commissioner-cum-Secretary, Panchayati Raj Department, Govt. of Odisha, received the Trophy & Certificate along with Rs. 50 lakhs cash prize from Sh. Vilasrao Deshmukh, Union Minister Panchayati Raj & Rural Development, in presence of Sh.Mani Shankar Aiyar, former Union Minister Panchayati Raj, and Shri Prafulla Samal, Minister, Panchayati Raj, Odisha.

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Unique eProcurement initiative of Mahanadi Coalfields Limited

A close interaction with **Sh. A.N Sahay**, Chairman-cum-MD, MCL....

Sir, we express our sincere thanks to you for providing your valuable time and the opportunity of this valuable interaction with you. We would like to hear from you about the recent achievements of MCL.

CMD- It is a fact that MCL being the youngest company among all subsidiary companies of Coal India Limited established only in 1992 has now become the second largest Coal Producer of India producing more than 100 Million Tonne of Coal per year and is the highest profit making subsidiary company of CIL. It has been the constant endeavor of MCL to bring about innovation in different fields and to strive for excellence. MCL has been fairly successful not only in adopting innovative methods of production of coal but also in Corporate Governance and as well as procurement system adopted for goods and services. The success of MCL in implementing eProcurement system is exemplary to other organisations.

Can you please elaborate little more on eProcurement?

CMD- We are a Mini Ratna Public Sector Company of Govt. of India and we believe in extensive use of ICT in Corporate Governance. eProcurement is a G2B (Government to Business) application. For the success of the organization it is absolutely essential to finalize the Tenders quickly without compromising the quality of decision making and transparency of tendering process. Earlier in case of manual



tendering system we were obtaining offer consisting of documents containing information about the bid. During evaluation of tenders we were extracting the relevant information from the submitted documents and using those information with subjective interpretations. Now with the advent of e-Procurement the relevant information is obtained from the Bidders in a highly structured objective format which are evaluated by portal software. This has made the evaluation of bids very fast and highly transparent. There are many advantages of eProcurement, particularly for a PSU and hence we are committed towards its implementation and constant improvements in the system.

How this journey was started?

CMD- MCL's eProcurement journey was started in the year 2007-2008; however the project got an impetus in 2009 with introduction of GePNIC (Government

eProcurement Application of NIC). It is on 15th August 2009 when MCL started this system by floating pilot tenders.

But how did this project was helpful to MCL?

CMD- This project is very helpful to us because of its direct link with the main Business of our Company, which is Coal Production. As you know tendering is a cumbersome process and has many inherent stumbling blocks. For the smooth functioning of any corporate it is absolutely essential to finalize the procurement of goods, works and services in a quick and transparent manner. With the help of eProcurement we have been able to reduce our procurement time significantly with added convenience and better transparency.

How these uneasy processes were eliminated as far as Procurement is concerned?

CMD- We made a systematic study of the existing process and re-engineered our system to meet the requirement of automatic evaluation of bids by the e-Procurement portal software. Now this web based application takes care of our tendering need like Publication of Tenders, Bid submission, Online Evaluation of Tender and finally Award of Contract. We have recently introduced online payment of EMD and Tender fee thus enhancing transparency and convenience to the Bidders.

This is quite interesting and what

is so unique to this implementation?

CMD-Yes, this is a question I love to answer. MCL is the only company, which has gone for Automatic Technical Evaluation of bids by customizing the GePNIC application software. What we have done is that, the requirements of a tender have been parameterized and accordingly the information is obtained from the bidder in a structured objective format. The system facilitates the Auto Technical Evaluation and by this process the subjective decisions are eliminated. This has resulted in elimination of favoritisms, discrimination etc. which usually are the practice of any Tendering process. I am happy that to a great extent that we have done away with such practices and that is our biggest accomplishment by becoming a catalyst for bringing transparency.

From your prominence, we could guess that your Organization has been greatly benefited with introduction of this project.

CMD-Yes and we have experienced both immense Tangible and Intangible benefits. Our tendering cycle has been reduced from whopping 150 days to 70 days. The blocking period of huge sum of EMD of the bidders has been reduced along with the bid validity period. All other Tender related issues have been removed thus facilitating the bidders to quote realistic price. The increase in bidders base and convenience in tender participation has led to better competition and better price for us. These are few benefits to mention and the list is endless.

What has amused you in this project?

CMD-This project is of great importance to my company. The project focuses both on a unique process as well as the system. Ingrained with high technology with features of transparency of the process, non-discrimination of bidders, equality of access & participation, open competition, accountability, probity and security features the GePNIC application has been adopted by many State Govts and reputed PSUs. As I have been given to understand this system has been reviewed and accepted by International Agencies like Asian Development Bank (ADB). The system meets our requirements and there is constant improvement in the system that is why we have imposed deep faith on this software project.

How have your partnered with NIC in this project?

CMD-We are extremely happy that NIC is our partner in this project. The journey with NIC since December 2008 has been extremely cordial and reciprocal. Both in Domain and Technology NIC has proved its competence. The project planning, execution and maintenance has been done in a highly professional manner and I am sure it would create its own precedence in this area. This project has been able to attract more and more users.

Do you know that the Project has been decided to be implemented as National Mission Mode project across the Country?

CMD- I had no doubt that this project would go even much higher with more applauds. The project has been conceived keeping genericity in mind and its execution has been very systematic so far, which are key areas for success of the project. Its ease of use, the look

and feel attracts its user. I must share with you that the recent eWorld 2011 award for this project for MCL has boosted up the confidence of our Organization as a whole. This project had received eIndia 2010 award and CII award last year. I am proud of my team for successful implementation of this. The NIC model of e-Procurement is very easy and convenient for implementation by any organization.

Any other thing you would like to share with us?

CMD- I would like to thank Dr. B.K Gairola, Director General NIC, and Dr. Y.K Sharma, DDG along with Sh. A. Mohan, DDG for their vision of ICT implementation for this country and supporting MCL in its endeavor. I would like to appreciate the effort made by my Team Sh. O.P. Mishra, Sh. S.K Shrivastava and Sh. B.Patnaik with the guidance of Sh. S.K Bhanja to enhance the functionality and features of this unique project.

It is an opportunity and I would attribute successful GePNIC implementation at MCL to all the members who have contributed significantly in this project namely Sh. K.S Raghavan and Sh. M Manivannan, Sr. Technical Directors from NIC, Chennai, Sh. S.K Panda, SIO, Orissa, Sh. A.K. Hota, Sh. T.P Ray and Sh. Nihar Ranjan Biswal from NIC, Bhubaneswar.

I can foresee a lot of change to happen through this project and my sincere wish to all of them.

**Interviewed by: Sh. A.K Hota,
Technical Director, NIC,
Bhubaneswar**

Bringing GIS to Mainstream IT through Service Oriented GIS

Information and Communications Technologies (ICTs) are playing an increasingly vital role in the daily activities of Government departments, revolutionizing work culture, promising to enhance the delivery of good, essential services to citizens by improving the process and management of Government. Importance of GIS and its potential are also being realized across Government departments.



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The restrictions being imposed on map data are not so encouraging because the GIS datasets cannot be distributed across easily for various reasons. Further, the software cost, technology related issues and dedicated GIS resources and time in each and every department for implementing the technology are the challenges blocking the growth of the GIS community.

By conventional method, to depict tabular data in a map form, the typical requirements would be a GIS server, GIS database with appropriate data loaded in each application's database server, apart from the attribute data itself and necessary scripts that could interact with all these components to generate maps on the fly. However, by adopting open standards and services based architecture, GIS databases could be distributed geographically, but opened and federated through GIS services while applications themselves could be run geographically anywhere else, in any platform, using any technology.

Individual applications could consume these services, query, filter and apply styles appropriately for depiction locally, based on their application data and make the integration happen seamlessly.

STANDARDS SPECIFICATIONS FOR GIS WEB SERVICES / OPENGIS STANDARDS

Open standards promote interoperability of systems, and Open Geospatial Consortium (OGC) is the group that specifies the development

and implementation of open standards for geospatial content and services, GIS data processing and data sharing. The specifications for GIS based services are laid out by OGC and adhered by different vendors including open source developers.

The Web Map Server (WMS) is the most promising services for amalgamation of GIS into IT services. WMS renders the map as a standard image format (PNG, GIF, JPG, SVG, etc.) to the client, by adopting the default style or any application supplied style. Through WMS, Service level metadata, map - whose geographic dimensional parameters are well defined and information about particular features could be returned.

The styling of WMS map presentation is defined by an XML document called the Styled Layer Descriptor (SLD) and fed through URL. Any application could create SLD on the fly, based on its own database, stream it to the WMS Server and thus could control the visual portrayal of any geospatial data.

USAGE OF THESE OPENGIS STANDARDS WOULD ENSURE THE FOLLOWING ADVANTAGES:

- The client could be any desktop GIS software or any browser based application
- Can consume / overlay local layers or geospatial data from one or more servers and visualize / query / analyse
- Query these data with reference to the spatial or attribute data
- Ensure interoperability among software / application / tools, by

adopting open standards.

SOFTWARE

Almost all major vendors dealing with proprietary software provide OGC services support. The following lists server and client software in the open source arena with various levels of implementation:

Servers:

- UMN MapServer
- Deegree
- GeoServer
- MapGuide Open Source

Clients:

- Desktop GIS tools like GRASS, uDig, QGIS, OpenJump, gvSig, etc.
- OpenLayers (Simple JavaScript interface for Web applications)

USE OF SLD FOR THEMATIC MAPPING THROUGH A GENERIC SYSTEM

SLD could be used to draw simple choropleth maps, for example: colour all the roads (line) features as 4 pixel line in red for National Highways, 3 pixel line in blue for State Highways, and other roads in green; Colour all districts (polygons) red which are having sex ratio less than 800, orange for those between 800 and 1000 and green for others, etc. Proportional Symbols / graduated symbol maps could be generated for point features where the individual symbol's size and colours could be applied depending upon the value of attribute. Symbols themselves could be a dynamic image

retrievable through a valid URL. Bivariate symbols with a mix of the fill colour and varied symbol size could also be generated.

A generic interface has been designed and developed by NIC Chennai using completely open source software stack, to create dynamic thematic / choropleth maps for use in any platform, from any technology. By reading the XML data generated by individual applications on the fly, using any technology, SLD is generated dynamically and the map rendered using the WMS layer.

ARCHITECTURE USED FOR THE GENERIC GIS INTERFACE

This service oriented application gives us the freedom of platform independent deployment and the advantage of distributed environment. The attribute and spatial components collaborate over XML technologies from different servers.

The set of processes for generic GIS interface has been planned as given below:

- At the application server side, individual applications generate attribute XML for thematic representation using any technology;
- Dynamic SLD generation using PHP technology and
- The WMS server that hosts the spatial datasets interprets the SLD and renders map images.

using any technology viz. ASP, ASP.NET, PHP, JSP, etc. This could also initiate a map request through this Attribute XML file whose URL is passed onto SLD generation process server.

The attribute XML is required to be in a specific format that provides the

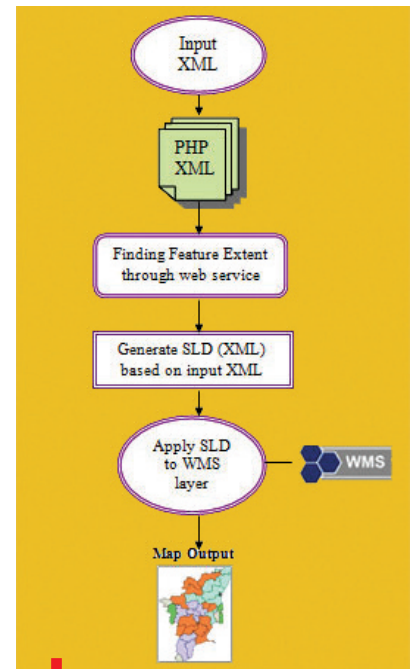


Fig. 2: Process Flow on getting XML request from Application

following parameters: which layer is to be displayed, column to link in WMS (that is, linking column between spatial and attribute), column to use for labeling maps, symbology type (default - Equal interval), range (default - 5), filters to apply, if any (both the column name and value pair for filter) and title. Also, the code-value pairs for the administrative units / features chosen are to be provided in the XML file. The administrative / feature codes need to be unique. It is also possible to provide a drill down effect on the thematic map to traverse down to the hierarchically next level maps. For this, necessary parameter could be set to appropriate URL of the XML file that would generate thematic map at the required map level.

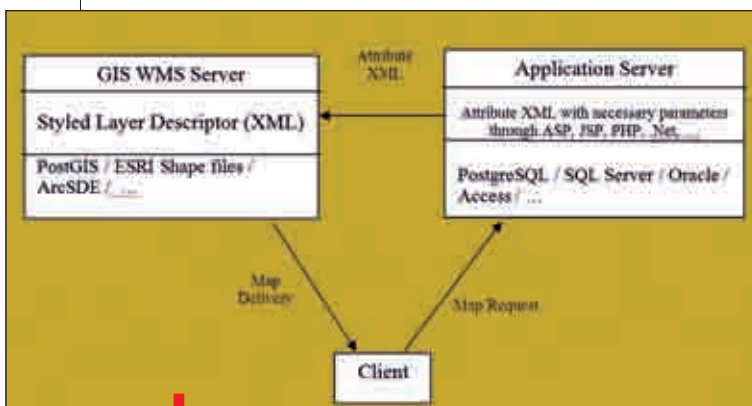


Fig. 1: Interactions of different components of the generic system

Here, the last two process could probably be out of the same server or be distributed too. The process flow is given in fig. 2.

Application Server: The Application server has to create the XML Attribute file for the attributes to be thematically represented in the maps, in a pre-designed format, and this could be

SLD generation: The SLD generation / GIS Server reads the attribute XML file on the fly, for the parameters necessary and the code-value pairs and generates Styled Layer Descriptor (SLD), through PHP scripting.

Based on the request, the attribute XML data is classified (equal interval, equal count and custom ranges are currently possible) for the code-value pairs in the XML data. SLD file identifies the correct symbolizer to use, for the selected layer, to apply different styles / colours over different features. This SLD file gets stored temporarily on the Server. The layer request to the WMS server has this SLD file link as one of the parameters in the URL. Passing the SLD file link as a URL makes it possible to separate the SLD generation server and the actual WMS server that applies the style and renders the image on the client as an image viz. jpeg, gif or png.

WMS Server: WMS Server hosts the spatial data as geospatial services. The SLD=http://someserver/sld.xml parameter in the request URL applies the styles on the fly.

ADMINISTRATIVE CODES / FEATURE CODES

Generally, Census 2001 codes have been used in the administrative layers. It is possible to link the layers with other codes also. For this, necessary codes need to be added in the GIS layer first. For example, if Revenue codes need to be used for Tamil Nadu District layer, these codes need to be included in the layer and then the newly added column could be used for linking spatial and the attributes. Salient Features in the generic interface.

- Customizable for layer selection, linkable column selection, filtering for a column name-value pair and label column selection.
- User selectable Number of ranges, classification type like Equal Interval / Equal Count / custom ranges, colours

and title through parameters. The thematic parameter could be either integer or floating values.

- Drill down map hierarchically by enabling clickable map through appropriate URL in the XML parameters.
- Has RIA interface including Accordion interface that could be docked / expanded for Data, Legend, Query Builder and Symbology selection
- Map panel with Ajax based Zoom in / out, pan, information query, previous / next extents, label on / off, distance and area calculations in the map, etc.
- Built completely on Open Source software stack

IMPLEMENTATION

The generic model has been implemented for thematic representations in the following department websites in Tamil Nadu State:

Industries Department – Number of Micro, Small and Medium Entrepreneurs applications applied online in Tamil Nadu (PHP)

Revenue Department - Daily / Weekly / Monthly Rainfall Map (ASP)

Rural Development Department - Financial Progress and Physical Progress of Schemes for Rural Development (PHP)

Civil Supplies & Consumer Protection Department - Daily / Weekly / Monthly price of commodities for (JSP)

ADVANTAGES

This architecture overcomes the following drawbacks over usage of GIS interfaces across multiple applications:

- Sharing the spatial data across the organization / websites for various security reasons by retaining source data at the source itself leading to savings on costs incurred for procuring spatial data.
- Enables easy administration of maps (as the changes on maps would be required less frequently but to be carried out in only one database)
- Since the map rendering is Service oriented, the backend technologies do

not matter. Interoperability is achieved using XML technologies.

- Fully compliant with the Open Geospatial Consortium Standards being proposed by the OGC
- Supports a distributed architecture

ADVANCING TOWARDS FUTURE GIS

This acts as a proof of concept on how a common unified GIS server can provide simple thematic services to n-number of applications, independent of platform and technologies, to start with.



Distributed architecture based on Services would have much wider scope or reach than any regular / conventional GIS website could deliver. This concept could be enhanced to draw graduated symbol maps, charts, etc.

WFS or Web Feature service allows requests for geographical features (and not images) over the web using platform-independent calls. Actual geospatial objects are returned as GML to the client. Creation / Updation / Deletion of features and get / query features based on spatial and attribute data could be performed. The OGC Web Processing Service (WPS) Interface Standard provides rules for standardizing how the requests and responses should be, for invoking geospatial processing services, such as creating a buffer around any feature, intersection, union, overlay of spatial entities, etc., through the web service.

Biometric Authentication: IRIS image Capture, Storage and Processing

In this era of Information technology, we all have multiple accounts and use multiple passwords on host of computers and Web sites for checking e-Mail, managing bank accounts, online transactions etc. Maintaining and managing access while protecting both the user's identity and the computer's data and systems has become increasingly difficult. Central to all security is the concept of authentication - verifying that the user is who he claims to be.



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Broadly speaking, in digital world we can authenticate and identify a person in three ways - by something the user knows (such as a password or personal identification number), something the user has (a security token or smart card) or something the user is (a physical characteristic, such as a fingerprint, called a biometric). Password, tokens and smart cards are perhaps the most commonly used techniques today. But all these methods are based on properties that can be forgotten, shared, lost or stolen. Biometric methods of verification, on the other hand, are based on distinctive anatomical and behavioral characteristics or identifiers such as (fingerprints, face, iris, voice palm geometry etc.) that cannot be easily misplaced forged or shared.

Even historically, finger prints (thumb impression) were taken on legal documents using the 'ink technique' where black ink was smeared on the thumb and pressed on the paper to authenticate and identify the subject. Biometric authentication has been widely regarded as the most foolproof system.

WHAT IS BIOMETRICS?

Biometrics is an automated method of identity verification or identification based on the principle of measurable biological characteristics of a person such as a fingerprint, an iris pattern or a voice sample. Biometric characteristics are permanent, unique and not duplicable or transferable. The Biometric characteristics are classified into two major groups -

physiological and behavioral.

- Physiological Biometric data relates to the physical aspects of a person's body such as fingerprints, iris scan, face scan and also DNA test.
- Behavioral Biometric data relates to the behavior of a person such as hand writing matching, voice recognition, signature analysis.

ADVANTAGES OF BIOMETRICS:

- Biometric identification can provide extremely accurate, secured access to information; fingerprints, retinal and iris scans produce absolutely unique data sets when done properly
- Current methods like password verification have many problems (people write them down, they forget them, they make up easy-to-hack passwords)
- Automated biometric identification can be done very rapidly and uniformly, with a minimum of training
- Your identity can be verified without resort to documents that may be stolen, lost or altered.

TYPES OF BIOMETRICS

There are number of methods of biometric data gathering and reading worldwide. Some are less invasive, some can be done without the knowledge of the subject, and some are very difficult to fake. However, the selection of technology for proper identification depends upon number of factors like:

- Universal: All Persons must possess
- Unique: guarantee to identity
- Permanent
- Inexpensive

- Ease of Collection
- Analysis
- Technology
- Legal
- Socially accepted
- Based on these parameters some of the frequently used biometric technologies are
- **Face Recognition:** Face recognition system uses distinctive facial features, including upper outlines of eye sockets, areas around cheekbones, the sides of the mouth and the location of the nose and eyes. These numerical quantities are then combined in a single code that uniquely identifies each person.
- **Fingerprint Identification:** Fingerprints remain constant throughout life. It has been found that no two fingerprints are alike, not even those of identical twins. Fingerprint identification involves comparing the pattern of ridges and furrows on the fingertips, as well as the minutiae points (ridge characteristics that occur when a ridge splits into two, or ends).
- **Hand or Palm Geometry:** It uses the entire hand as an individual identifier. This method relies on devices that measure the length and angles of individual fingers.
- **Retina Scan:** Retina Scan uses the pattern of the blood vessels at the back of the eye, which is unique and stays the same for a lifetime. However, it requires about 15 seconds of careful concentration to take a good scan.
- **Signature Dynamics:** Signature dynamics is based on individual's signature. The biometric data is easy to gather and is not physically intrusive. Digitized signatures are sometimes used, but usually have insufficient resolution to ensure authentication.
- **Voice Recognition:** Like face recognition, voice biometrics provides a way to authenticate identity without the subject's knowledge. It is to verify the individual speaker against a stored voice pattern, not

to understand what is being said.

- **Iris Scanning:** IRIS is the colored ring of tissue that surrounds the pupil of the human eye. The iris scan provides unique biometric data that is very difficult to duplicate as researches have shown that the possibility of having two similar iris patterns is very remote. Iris also remains the same for a lifetime of the person provided there is no physical injury and even the use of glasses or contact lens does not hamper the iris recognition. The technology is not sight dependent and can be used for blind persons also.
- Iris scanning is considered to be least intrusive of the eye-related biometrics, no bright light or lasers or contacts are used in order to protect the eyes from any harm or discomfort. The iris scanner mathematically analyses the random pattern visible within an eye from some distance and uses the technique of pattern recognition using computer vision and optics. In addition, iris scan has the potential for higher than average template-matching performance.
- **IRIS Images:** Iris scans create high-resolution images of the irides of the eye; IR illumination is used to reduce specular reflection from the cornea. Both iris images (left and right) are taken into consideration. To maintain the interoperability among the various e-governance applications it is necessary that standardized format is used for storing and transmitting the iris images.

IMAGE STORAGE FORMAT OF IRIS

- ISO and ANSI have defined several file formats for storing iris images. ISO 19794-6:2005(E) standard is widely accepted by Government of India.
- **Standard:** CBEFF (Common Biometric Exchange Formats Framework) defined in ISO/ IEC 19794-6. The image can be of type

PNG or jpeg200.

- Standard Biometric Header (SBH) as defined in ISO/ IEC 19794-1
- Biometric Data Block (BDB) for rectilinear iris image as defined in ISO/ IEC 19794-6.
- Image Data (Compressed/ Uncompressed)

IMAGE TYPES

- There are two types of iris images –
- Rectilinear - No Preprocessing of the image is done; 12-15 K space is required for storage.
- Polar - Image is preprocessed before storage and iris portion is converted to polar coordinates, very less space is required (2K).

IRIS RECOGNITION

It is the biometric identification technique which applies complex mathematical pattern recognition techniques on the video images of the iris of an individual's eyes. The complex random patterns inside the eyes are unique. The core algorithms for iris recognition were developed by Professor John Daugman (University of Cambridge) in 1990. Daugman's algorithms were the basis of all the commercially deployed iris recognition systems till 2008. Later some alternative algorithms were also studied upon and developed.

The majority of iris recognition cameras use Near Infra Red (NIR) by emitting 750 nm low power light. Most of the human eyes reveal rich patterns in the Infra Red light but much less in the visible band. Other reason for using this narrow band is that it reduces the effect of ambience that bright light reflections may produce. But the infra red light is not sensitive to melanin (chromophore) present in the eyes and as result they do not appear in the captured image. So the alternative approach of iris scanning includes the fusion of the two.

ADVANTAGES OF IRIS SCAN IDENTIFICATION

Iris structure is stable throughout the

life after one year of age. It begins to form from the 3rd month of gestation. The structure is complete by eight months. The color and pigmentation completes in first year itself. Some advantages of iris include -

- Unique structure consisting of several layers.
- Protected (inner part of body).
- Taking iris image is easy like taking a photograph from some distance.
- Strong Algorithm.
- Iris has a very fine texture that remains stable for decades.
- In Indian context it is difficult to identify the poor people and people from rural background from fingerprints only because extensive physical labor always affects the quality of finger prints.

LIMITATIONS

Daughman's algorithm does not describe any tool for adjusting the focus. Some other image grabber software may be used to judge the focus quality by examining the successive images. It becomes more relevant if we do not have very much trained persons for grabbing the iris image. So the quality of the image depends on the instrument and the software.

DATABASE

An iris recognition database does not consist of actual images captured but the processed iris is stored. It is not possible to compress these iris templates as it may result in improper matching during identification process. Original images can be compressed. JPEG images can be effectively compressed using JPEG2000 compression techniques.

COMPRESSION

Compression reduces the space requirement for storing the images and bandwidth requirement for transmitting the images.

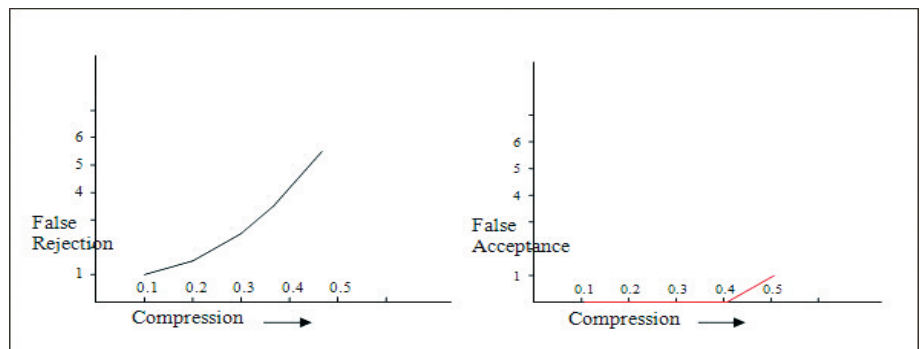
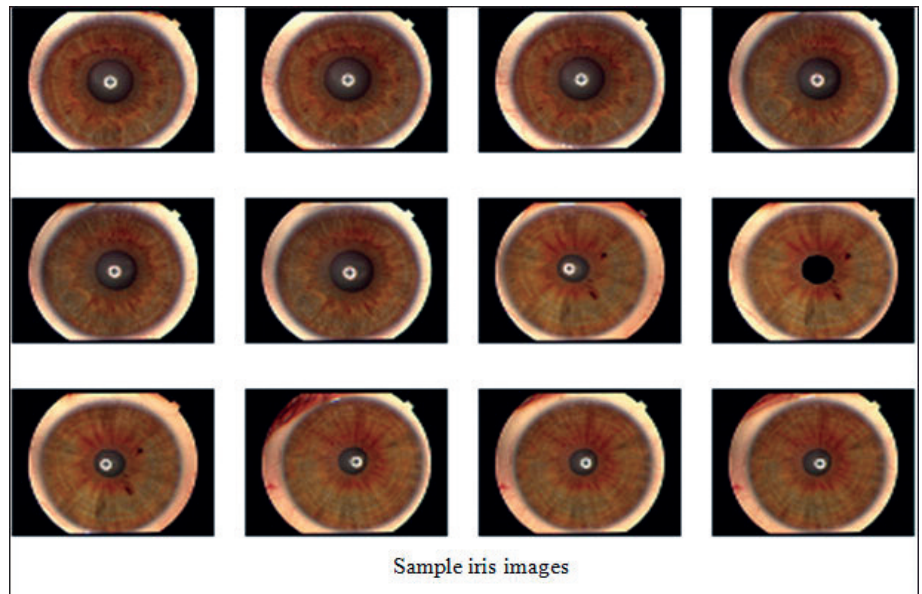
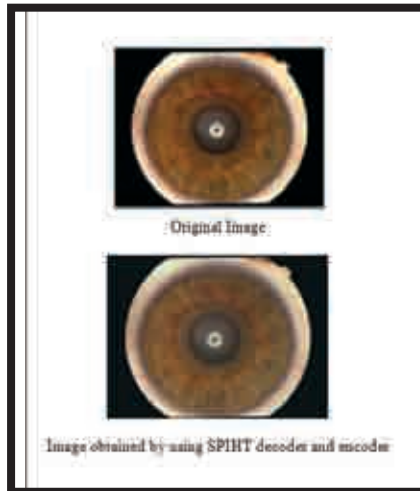
Two commonly used compression techniques are -

- Set Partitioning In Hierarchical Tree (SPIHT): It can be used for all

bitmap images including png.

- Joint Photographic Experts Group (JPEG2000): It is new and more advanced image compression standard.

EFFECT OF COMPRESSION ON



False Rejection -Acceptance of the image compressed by SPIHT

IRIS RECOGNITION

Effect on comparison of iris images using SPIHT based compression software were analyzed, it has been observed that possibility of accepting the invalid iris image is very low, even if compression of the image is very high.

Iris scan technology can be used for identification and de-duplication in any project that involves identification. Possibility of accepting duplicate iris is lesser than any other biometrics. The fusion of iris and fingerprint scanning or iris scanning with face scan may result in more cost effective techniques. Even in the Unique Identification (UID) project of Government of India Finger scanning & iris technologies have been used in conjunction as unique identifier for each citizen of the country.

Purulia – Using ICT for Citizen Centric Services

Purulia – The westernmost district of West Bengal state has all-India significance because of its tropical location, its shape as well as function like a funnel. It funnels not only the tropical monsoon current from the Bay to the subtropical parts of north-west India, but also acts as a gateway between the developed industrial belts of West Bengal and the hinterlands in Orissa, Jharkhand, Madhya Pradesh and Uttar Pradesh.



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N Edited by
Prashant Belwariar
IC Purulia District centre has played a major role in providing e-Governance services to government departments in the district. The centre is equipped with state of the art infrastructure which includes a dedicated 34mbps leased line connectivity and 'Video Conferencing' facility. It has provided ICT support to all major departments and contributed towards citizen centric project development and their implementation.

On 11th November, 2011 a Comprehensive Public Grievance Redressal System was launched by Hon'ble Chief Minister of West Bengal. It's an ICT enabled single window system project named - SAMADHAN to register & monitor public grievances and their redressal.

SAMADHAN: PUBLIC GRIEVANCE REDRESSAL SYSTEM

The 'Public Grievance Cell' at the district received complaints, which were

forwarded to the concerned department for redressal but there was no mechanism to monitor pending complaints or to verify the satisfaction level of complainant regarding their redressal. It was also not possible to assess the performance of departments with respect to public grievances redressal efficiency. Hence the need to improve service delivery to common citizens and bringing government closer to common man was felt.

SAMADHAN - an ICT enabled single window system, www.samadhan.net.in/govpurulia, to register & monitor public grievances, is a tool for the district administration and other departments for monitoring & improving efficiency of service delivery mechanism up-to satisfaction of the common citizen.

A help line number has been widely publicized to register complaints at the SAMADHAN Control Room (PG cell). Details of complainant and complaints are noted down and simultaneously recorded in voice recording system. The details are entered into the online SAMADHAN portal for registration. As soon as registration is done, an auto gen-



Hon'ble Chief Minister Ms. Mamata Banerjee Inaugurating the SAMADHAN portal.

erated complaint number and redressal time limit is sent to the complainant through an auto generated SMS using SMS gateway and the same is also sent to the concerned government officials at different level in departmental hierarchy for necessary redressal.

The concerned officer can also check SAMADHAN website for pending complaints and for updating status of complaints. He/She can also interact with PG Cell or with the complainant through a complaint specific dialogue box. The recorded audio files are uploaded by the operators against the concerned reference ID of the complainant at the SAMADHAN website. The District Magistrate can also monitor / generate reports status-wise, geographical unit-wise (Village/GP/Block), and department-wise for registered complaints. Complainants can also check the progress / status of complaints either through website or by calling the control room. Complaint is closed only after verification and quality of service provided to the complainant over phone by SAMADHAN control room.

OTHER E-GOVERNANCE INITIATIVES

Election Call Centre (ECC): A software was developed to manage the Poll related communication between District Magistrate and other officials including presiding officers to maintain law and order and control the entire district election work from a central point. The software was fully tested at the recently concluded 'General Assembly Election 2011' in the state. It was implemented at the District Police Office also for controlling the force movement and later replicated in other districts during next phase election. This software facilitates Blue tooth connection and mobile phone device. An operator can call / connect officials, whose contact number has been captured in database, directly from the system without dialing any number from mobile.

Online File and Letter Monitoring System (OLFTS): NIC Purulia has

developed a web based online system to monitor letter received from different sources and also monitor the movements of files from District Magistrate office to different line departments. The software helps to speed up Files movement between the departments and allows quick view of action taken. Each department can log into the system and can find out their files status.

Transport Computerization (VAHAN & SARATHI): The VAHAN & SARATHI software for vehicle registration and driving license respectively has been implemented successfully in Purulia District. Apart from Registration and Licensing process the captured data is regularly transmitted to state centre through VPN over Broadband connectivity.

E-Court Project (CIS): The features of Case Information System are judgeship module along with Master, Centralized filling, daily proceeding, allocation/registration, case scrutiny and queries.

E-Registration (CORD): Computerization of Registration of Documents (CORD) is an application package developed by NIC, West Bengal State Centre to automate the Registration Offices. All the seven Registration Offices in the district have implemented the CORD system. Till now about 65,000 deeds are registered comprising all offices.

E-Salary (COSA): As per requirement of different offices of the district, new COSA (Computerization of Salary Accounts) application has been implemented and necessary trainings were provided to the staff. The COSA software is running in almost 150 DDO offices of the district.

ICT SUPPORT IN OTHER AREAS INCLUDE

e- Registration for Death and Birth Certificate, RSBY database preparation and monitoring, Election - polling party formation, EVM randomization, counting party randomization etc, MGNREGA, AGMARKNET, CCTNS



SHRI AVANINDRA SINGH, IAS
District Magistrate and
Collector, Purulia

To promote e-Governance and improve delivery of various citizen services using ICT, District Administration with the technical support of NIC District unit has taken several initiatives including recently launched "SAMADHAN : An ICT enabled Public Grievance Redressal System" in socio-economically backward Purulia district. It gives me immense pleasure to inform that National Informatics Centre, Purulia plays a vital role for spreading informatics culture in Purulia district by designing, developing and implementing various e-Governance projects to make the administration citizen centric. I appreciate the active support of Shri Bhaskar Ray, DIO and Shri Siddhartha Sen, ex-DIO, who has been recently transferred from Purulia to NIC WBSC Kolkata. I hope for continued motivated performance of NIC team in the future.

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Bareilly – Adapting Technology to Innovate

Bareilly is a prominent city in the northern state of Uttar Pradesh spread across 6 tehsils, 15 development blocks and having a population of about 44 lakhs (as per the 2011 census). The city has been famous for various reasons right from days of Mahabharat as birth place of Draupadi to a very popular song in Indian Cinema. However, the present day Bareilly will be remembered as one of the first districts to adopt Information Technology and be one of the pioneers to have a thin-client based networked Collectorate.



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Day-in and day-out, NIC team at Bareilly faced a daunting task of managing more than 40 desktops, located in different rooms around the Collectorate campus. The problems reported were more or less the same “my PC is not working”, “the network is not working”, “my backup was lost” etc. etc. On analyzing these problems it was found that majority of them were simple “virus problems” which resulted in network choking, data loss and unavailability of computers. A lot of precious time was wasted in removing these viruses, re-installing the systems and there was a tremendous pressure to save the important data as well.

NIC Bareilly and district administration led by the then district magistrate Sh. Ashish Goel IAS, studied various technologies to resolve the problem and finally decided to have a thin client based collectorate, which is based on the fundamental concept that instead of running all applications locally on PCs with associated challenges and costs, applications should run centrally and simply deliver screen updates and inputs to the clients. It was found that the thin client computing not only reduces the deploy-

Edited by
Anshu Rohatgi

ment cost by 40-50%, but also cuts down on requirement of support staff leading to higher utilization levels.

In thin client environment the data and software look and feel the same as on a PC for any user on the network. The data files are stored on the server which makes it easier for users to work from multiple locations. The thin clients only run the operating system software locally, and have no hard drives or floppy drives. However, they per-



NIC Officials explaining Thin Client Concept to Sh. Majid Ali IAS & Commissioner and Sh. Ashish Goel, IAS & District Magistrate, Bareilly

mits local printing, audio and serial device support, web browsing, terminal emulation and can combine local processing with network computing.

Advantage of Thin Clients are Reduced Capital Expenditure, Reduced Power, Consumption about 20% of normal PC, No repeated desktop configuration, No need to redesign and integrate e-mail architectures, Minimal chances of Data loss and Scope for introducing viruses is greatly reduced

After installing thin client system in Bareilly Collectorate the number of complaints has reduced considerably. Services are being delivered 24 by 7 and Internet has been extended to all the 40+ nodes in the Collectorate. The employees can now work on many online projects of the government and they can work from any thin client in the Collectorate. Still, thin client is not a one-size-fits-all solution. Users will generally not have access to USB and CD drives, nor will they be able to install applications. Server security and resilience is also very important and critical. As such proper planning, power backups etc is must to ensure server availability at all times. Adequate emphasis has to be given to data backup also as all the files are stored centrally.

Apart from this, NIC, Bareilly has been constantly providing support to the district administration in areas of office automation, scheme computerization, training, Internet & web services and in their endeavor to use IT to provide services to the citizens in a simple & friendly manner.

Many state and central government IT projects are being implemented across the district some of which include -

Information KIOSK: Information KIOSKs have been established at the Collectorate and Tehsil Sadar to facilitate the citizens to know the status of various schemes being implemented by the government and retrieve information related to land records, salaries, pensions etc.

Single Window System: Single window systems have been implemented in all the tehsils of the district which provide the citizens with caste, income, domicile certificates and other host of other services.

National Rural Employment Gurantee Act: Many workshops and training programs were organized at Bareilly for block staff, district level officials and data entry agency staff for smooth functioning of the project. Currently online data entry is going



District Administration officials working on Thin Client

on in all the blocks.

State Wide Area Network: Bareilly was one of the first few districts to connect all the tehsil & block PoPs (Point of Presence) under the UPSWAN project, that provides the basic functionality of network for the transactional aspects of e-Governance applications. In all there are 18 PoPs in Bareilly, one at district level, 6 at tehsil level and 11 at block level which are providing horizontal connectivity to field offices of various departments such as commercial tax, transport, passport, post and telegraph etc.

Online Counselling: With a view to ensure transparency in admission procedure in different Engineering Colleges affiliated to Uttar Pradesh Technical University, Lucknow and for the convenience of residents living in different parts of the state NIC conducts online counseling for admission to B.Tech, BBA, MBA, MCA B.Ed, Medical etc. courses offered by different Institutes across the state every year. Bareilly has been selected as one of the counseling centre for these admissions for both the off campus and online counseling.

NIC BAREILLY IS ALSO PROVIDING SUPPORT TO

- Prerna: The property registration system implemented at sub registrars office.
- Treasury computerization connecting about 100 departments
- Bhulekh : technical support and

management of all the six tehsils computer centres issuing computerised Record of Right (RoR or Khatauni)

- Birth and Death Registration system at Nagar Nigam Bareilly
- Transport Computerisation at office of RTO
- Below Poverty Line: software developed & implemented at DRDA
- Right to Information. All the proactive disclosures of many departments have been put on the official website of district (<http://bareilly.nic.in>)

NIC Bareilly has been working in close association with the district administration to extend the IT enabled services across the district and influence the life of people living in far and remote areas using the tools provided by Information Technology. It's a commitment to the district administration that from now on Bareilly will be known more for its achievements in IT than anything else.

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JODHPUR - ICT Shines Over The Sun City

Sun city - Jodhpur in Rajasthan is also known as the Blue City, an apt name as most houses in the old city are in shades of blue belonging to the Pushkarna brahmins. Set on the eastern fringe of the Thar Desert, the royal city echoes with tales of antiquity in the emptiness of the desert. Once the capital of the Marwar state, it was the home of the 'Ran Banka Rathores'. The hustle and bustle, closed knit culture, temples and havelis, vibrant traditions, polite hospitality, spices and fabrics, colour and texture, a booming handicrafts industry, all add up to make Jodhpur a wonderful sojourn and a shopper's paradise.



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NIC District Center was set up in 1988, and since beginning has played a vital role in promoting ICT culture. It regularly supports the District administration, Rajasthan High Court, District Court and other Government department in better planning and decision support and has developed and implemented many e-Governance projects.

Edited by
Vivek Verma

Jodhpur Website: Launched by Hon'ble CM Sh. Ashok Gehlot, this comprehensive website, <http://jodhpur.nic.in>, which has been designed, developed and hosted by NIC and covers all aspects of information which could be of interest to a common man.

KEY ICT INITIATIVES

SUGAM Single Window System: This system which initially started with two services viz. domicile and caste certificate, in 2002 at Jodhpur Collectorate is now delivering 40 services. Various administrative reports and other registers are also generated. Certificates are generated on pre-printed stationery in Hindi. Minority, Solvency, Income, Permission letter for Birth/Death, Mutation, Copy of Record, Arm License Renewal, Pension, NOC, RTI & Miscellaneous Application, SC-ST, OBC, SBC Certificates are being delivered through this software. Citizens can inquire status of their application from the website.

The project has now been rolled out in 289 locations - all 33 Districts HQ, 247 Tehsils HQ and 9 Sub Tehsils overall 289 locations.

Sidharth Mahajan, IAS
 Collector and District Magistrate
 I am happy to note that the e-Governance projects of Jodhpur District will be published in Informatics, the quarterly Newsletter of NIC. Since the inception NIC has been closely associated with the district administration on its various e-Governance projects. NIC Jodhpur District Unit has always played a pivotal role for spreading informatics culture in Jodhpur District. The efforts being put in by NIC, Jodhpur to improve the service being provided to the people are truly appreciable. I am certain that this drive will continue and wish to convey my sincere thanks for implementation of SUGAM Single Window System, SUGAM RPG, IFMS, LRC, e-Gram etc. I am confident that the district administration in coordination and support from NIC will bridge the digital divide and will complete the e-Governance activity up to grass root level.

SUGAM Redressal Public Grievances: It is a web based system, <http://sugamrpg.raj.nic.in>, to provide an effective grievance redressal mechanism for the citizens and is being monitored regularly by District Administration.

Land Record Computerisation (APNAKHATA): Data entry and ver-



Jodhpur website



Hon'ble CM Sh. Ashok Gehlot inaugurating the VC facility

ification of data of all Seven tehsils has been completed and tehsil level centers 'Khata Kendras', have been made operational where Nakal of Khata(ROR) are being issued to citizens. A Touch Screen kiosk has been installed at DC Office from which any citizen can take latest information of Land Record and various schemes of Government.

General Elections: Support provided in successful conduct of the elections for Lok Sabha, Assembly, Nagar Palika, Panchyat Raj and Krishi Upej Mandi Samiti process by undertaking various polling activities, result transmissions and online counting software has been developed and implemented for local display.

Integrated Financial Management System (IFMS): It is a web based system for complete government financial accounting. It includes budget planning, estimates preparation, distribution / allocation, fund management, treasury functions etc. It eventually improves the government services and expedites government operations making the budget process more transparent. IFMS has been initiated with the concept of 'Any-Where-Treasury' and it's a centralized web based solution.

Treasury Computerisation System (TCS): Implemented at all treasuries, it covers – compilation of accounts, Civil & Old Age Pension payments, stamps

inventory, Accounting of Personal Deposit and bill passing Process. It produces Schedule of Payment & Receipts, List of Payments, Cash Books, BT Register and various useful MIS reports. The daily account is prepared, reconciled and transferred to district server from Sub Treasuries.

Data Depository System: It covers all the 950 DDO's of District. Salary of all the state government employees of the district is maintained centrally.

Online Counseling: Since 2008, Jai Narain Vyas University conducted Online counseling for

Rajasthan Pre Teacher Education Test for admission to one year B.Ed. Course in collaboration with NIC.

District Network: A well structured LAN has been established in District Collectorate, having a number of servers & clients which are being used for various software applications. E-Mail & Internet connectivity has also been provided. District center is connected to State HQ through 34mbps circuit. Network connectivity extended to Rajasthan High Court, Desert Medicine Research Center and 4 Post Office through 2mbps Lease Line.

National Knowledge Network (NKN): Technical support has been extended to IIT Rajasthan, CAZRI, AFRI and Regional Remote Sensing Center (ISRO) for NKN connectivity.

e-Peshi: Videoconferencing system between Central Jail and District Court was installed and this facility is being used regularly for under trial prisoners.

Central Jail Project: Two successfully running modules are "Prison Management System" for Prisoners information and "Visitors Management System" for visitor's information.

Pension Monitoring System: Implemented at Joint Director Pension's office successfully since 1994 monitors and generates all types of pension cases. Pre-88 pension revision cases are also being monitored.

Other projects implemented and running successfully are: CM Cell Public Grievances, e-Gram Monitoring System, MIS for MG-NREGS, Arms Licenses Monitoring System and Video Conferencing System.

NATIONAL LEVEL PROJECTS

Some of the projects running successfully are

- **AGRICULTURE MARKETING PRICE MONITORING** has been implemented for daily Monitoring of commodity prices at 7 Krishi Upaj Mandi Samiti. This data is being uploaded at National Level Portal <http://agmarknet.nic.in>.
- **National Social Assistance Programme** programme aims at ensuring minimum national standard for social assistance in addition to the benefits that states are currently providing or might provide in future.
- **NICNET MEDLARS SERVICES** <http://indmed.nic.in> To disseminate information from NLM's Medical Literature Analysis and Retrieval System (MEDLRAS) to students and research scholars.

Training: Regular training imparted to employees of different government departments to enable them to clear their basic concepts and use ICT tools efficiently has proved to be beneficial in executing many ICT activities and Projects.

ACCOLADES -

- CSI Nihilent e-Governance Award 2008-09
- e-World Public Choice Award 2011
- SKOCH Digital Inclusion Award 2011

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Dubai offers Business Licensing Online

The strong demand for the use of eServices and promoting eGovernment initiatives, driving the evolution of a knowledge-based economy, Dubai Department of Economic Development (DED) introduced an online business licensing service for new and existing business. The initiative attracts even the potential investors.

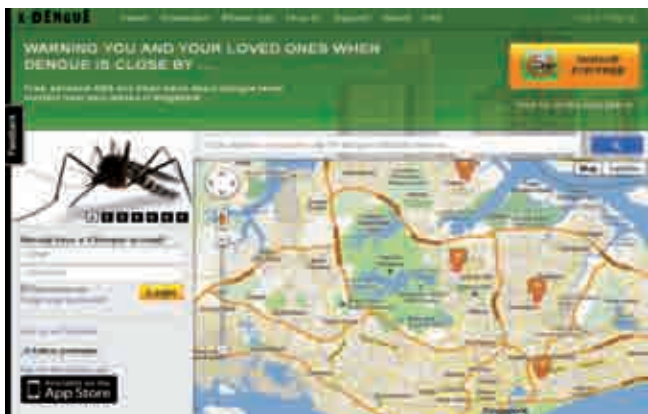
The service is a key initiative, expected to be a great value addition to businesses as it facilitates more convenient business registration enhancing ease of transactions. The range of eServices offered by DED include reserving and renewal of trade name, renewal of licenses, initial approval of licenses permits for most activities, and updating trade license data.

The eServices also include Transaction Status whereby customers can check the status of the transaction by using a transaction number, license number or initial approval number; Search Trade Names enables users to reserve trade names or find out if the desired name is already taken; and Company Lookup helps to search for existing companies operating in Dubai and gain information on their contact details and business activities.



Business owners must present a sealed lease contract authenticated by Dubai Real Estate Regulatory Authority to issue, renew or transfer the location of business licences, according to DED. It will ensure the validity of commercial contracts, as well as strengthen the relationship between investors and tenants.

For information: <http://www.dubaided.gov.ae>



With the increase of dengue cases in Singapore in recent years, National Environment Agency (NEA) is addressing these concerns by collaborating with Smart Communities in a public service project to raise awareness of dengue clusters, health risks and prevention through SMS and email alerts. It is part of a new initiative by NEA to equip the public with timely information so that they can take immediate steps to keep themselves dengue free. The x-Dengue initiative is part of NEA's efforts to enhance public outreach efforts on dengue by providing useful, timely and relevant alerts and customized information on dengue clusters.

Singapore alerts Citizens on Dengue Clusters on Mobile

People can now get free SMS alerts on new dengue clusters in areas they frequent, such as neighborhoods and workplaces. They will also receive alerts on the severity of a dengue cluster and its closure. Previously, the public had to check the official NEA website regularly to receive these updates. The information, which is refreshed daily, reflects a dengue cluster that is within 150 metres of a specific location.

Under one user's account, up to eight places and five other users' telephone numbers can be registered. Alerts are also sent if the dengue cluster grows beyond 10 cases - for every five new cases. In addition, text messages provide a link to website for more tips on dengue prevention.

Users can view information about a specific location by keying in the postal code and even request for SMS alerts for that particular location. Subscription to this service is free as the SMS costs are borne by private telecommunication companies as part of their Corporate Social Responsibility efforts.

For information: <http://www.x-dengue.com>

Malaysia launches Mobile Clearance System for Foreigners

The State Immigration Department has recently launched mobile counters for foreigners to register for the Malaysia Automated Clearance System (MACS), which will result in swifter processing at checkpoints into the country. In order to support the economic development of Iskandar Region, MACS is developed to cater fast-track immigration clearance for non Malaysia investors, business persons and professionals.

The scope of MACS facility is expanded to frequent travelers e.g. Citizens and Permanent Residents of Singapore and also for those who have been issued with the relevant long term immigration pass and frequently travel within Malaysia and Singapore for the purpose of working, studying and staying in Malaysia.

Hence, MACS holders can benefit faster immigration processing via access to dedicated entry and exit MACS lanes at Bangunan Sultan Iskandar, Johor Bahru and Kompleks Sultan Abu Bakar, Tanjung Kupang, Johor.

MACS holders will also be excluded from the requirement of completing the immigration arrival card. Consequently, entry



and exit to/from Malaysia records shall be made online and the usage of passport pages for stamping will be minimized.

Spouses and dependents (children) of MACS holders are also entitled to apply this facility with the condition that they have been issued with the relevant immigration pass.

For information:

<https://eservices.imi.gov.my/myimms/mac?type=16&lang=en>



The Ministry of Public Administration & Security of Korea has opened a new website to provide online video chat to multicultural families to aid communication with family members living in overseas. The ministry is also providing monitors and web cameras to 365 multicultural centers to allow people without home computers a place to access the service. They have also published a guide book on how to use the chat program.

This web-based video chatting systems is dedicated

Korea provides Video Chat Service for Multicultural Families

to video reunions is built in Information Network Villages in the country, equipped with LCD TVs, speakers, and webcams, in order to allow immigrants to video chat at all times from the nearest locations.

The Information Network Village project is designed to reduce the digital divide between rural and urban areas of Korea by enabling villagers to access rich content in areas such as education, medicine, commerce, and government and to buy and sell local products over the Internet.

The method to use the services is explained in multiple languages and thus visitors can use the services without any misunderstanding. The service is available in Korean, Chinese, Vietnamese, Filipino, Cambodian (Khmer), Mongolian and English language.

For information: <http://en.invil.org/>

National Portal of India bags the coveted CSI-Nihilent award 2010-2011



Sh. D.P Misra, PSA NIC HQ receiving on behalf of NPI Team

Ever since its inception in 2005, National Portal of India (NPI), <http://india.gov.in> has been constantly endeavoring in fulfilling citizens' search on various information and services provided by the Government of India. The broad scope of this portal is to establish a single-window access to information and services being delivered by any Government of Indian constituent, enhancing interaction between government and citizen (G2C), government and business (G2B), government and employee (G2E) and government departments, and to act as an integral part of the overall mission towards 'good governance'.

As of today, when NPI is celebrating its 7th year of existence on the cyber world, it is playing a pivotal role in delivering impeccable service in accessing over 7000 existing Indian Government Websites and Portals and the number is increasing constantly. Besides, it has curved a

niche in helping a citizen to access the information and services from these websites in the most user friendly manner. Therefore, india.gov.in, a Mission Mode Project under National e-Governance Plan (NeGP), has emerged as a tool to provide the much needed single window access to all government information and services.

Recently the website added another feather to its cap, when it received the prestigious CSI Nihilent award for 2010-2011. The portal was conferred the 'Special Recognition award of National Initiatives.

In its endeavor to cater to most of the citizens' needs, the NPI plays host to over 1900 services from various states/ministries/departments which are all packaged under the 'HOWDO I' section of the portal. It is also a central repository for numerous Government Forms, Documents, Acts, Rules, Schemes and Policies.

The portal receives overwhelming

feedback on a daily basis through its various sections, which actively solicit suggestions, complaints and comments from users. The aesthetic appeal, thoughtful, informative and user friendly content made the Portal most favorite bookmarked site, as numerous hits poured in from all corners of the world. Furthermore; the Accessibility Statement strengthens the commitment of accessibility to all its users irrespective of device in use, technology or ability.

Now in its seventh year of existence, the portal can be aptly termed as the cyber factes of the Indian Government which is complete in all aspects. In a nutshell, this bilingual Portal-English and Hindi, which endorses G2A (Government to All) interface is built and designed, keeping in mind the citizens in common.

Contributed by:
Alk Mishra, NIC HQ
D.P Misra, NIC HQ

Mid Day Meal Scheme (<http://mdm.nic.in/>)

The Mid Day Meal is the world's largest school feeding programme reaching out to about 12 crore children in over 12.65 lakh schools/EGS centres across the country. With the view of bringing in accountability, transparency, responsiveness, effectiveness, efficiency and improve the quality of work amongst the work force, the department of Ministry of Human Resource Development, Government of India has recently launched their MDM official website. The content rich website has incorporated many useful information and features pertaining to the MDM project like Union Budgetary Allocation, Central Assistance Released, Foodgrain Allocation, FCI Payment, Physical Progress etc. Apart from it, the website also helps in management, monitoring, evaluation of the project which is simultaneously improving nutritional levels among children. All the updated information of the Department, information RTI and useful forms have been uploaded.



National Mission for Empowerment of Women (<http://nmew.gov.in>)



The National Mission for Empowerment of Women ensures empowerment of women in all spheres viz. economic, social, political and legal. The content rich website of the mission is an effort to achieve these goals and to promote all round development of women through Co-ordination and Convergence of Schemes, Programmes of participating Ministries or Department. The homepage of the site discusses on various domain areas towards which the mission aims at. One important feature of this website is its accessibility option which enables one to increase or decrease the font size, increase the text spacing and/or change color scheme of this website according to his/her preferences. Well structured information architecture and easy navigation housed in a clean interface provide an excellent user experience to everyone visiting this new website of NMEW

Water Resources Department, Jharkhand (<http://wrджharkhand.nic.in/>)

Water Resources Department (WRD), Government of Jharkhand, is responsible for protecting the rights of the state in sharing water of Inter State Rivers and basins. The newly launched website of the department details about the various field of Operations of the WRD, pertaining to construction, maintenance and regulation of major, medium and minor irrigation projects, Flood Control and Drainage works. The MIS facilitates monitoring of real time progress of projects at various locations through 'Google Maps' using latitude & longitude. Apart from this, regular features like photo gallery, allotment orders, notifications & departmental circulars are updated regularly. The site is in compliance with Guidelines for Indian Government Websites (GIGW) and is easily accessible to differently abled.



Contributed by: Lokesh Joshi

Inauguration of Online Missal Bandobast Record System, Raipur

Recently the Hon'ble Chief Minister of Chhattisgarh Dr. Raman Singh has inaugurated the 'ONLINE MISSAL BANDOBAST RECORD SYSTEM' of Raipur District and distributed Caste certificates to students on. The link to these records (Raipur Record Room Online) is available at <http://raipur.gov.in>. Around 20 lakh bandobast record pages pertaining to 2119 villages of 15 tehsils have been scanned in one year before making them online. With this the people of the district can now besides accessing their age old land record documents print them for various purposes. This facility is a leap forward in the State's e-Governance initiatives. Online availability of records to a great extent eased preparation of Caste and Domicile certificates of students which hitherto used to be a lengthy, cumbersome and time consuming process. The system facilitates availability of documents viz. Missal bandobast records of 1928-29, Chakbandi missal records of 1936, Record of Rights of 1954-55 in a very user friendly manner.

These records are used as reference in many cases including matters related to land disputes etc. In order to ensure security the scanned records are kept in NIC State server as well as in



Hon'ble C.M Dr. Raman Singh handing the caste certificate to a student after inauguration

Treasury.

The Chief Minister in his message said that obtaining copies of land records and preparation of caste and domicile certificates have been considered by all to be very difficult tasks but a simple solution has been provided to this problem with the use of Information Technology which is a commendable effort. He congratulated the collector Dr. Rohit Yadav and NIC for this achievement.

Y.V.Shreenivas Rao , CHHATTISGARH

Award for NIC PALI



NIC Pali Receiving the Award

It was yet another feather in the cap of NIC Rajasthan as NIC District Centre Pali, was selected for this year's prestigious CSI-Nihilent e-Governance Awards 2010-11, Award of Appreciation under the District Category. The award was presented at a glittering function held on the 2nd Dec 2011 as part of the Computer Society of India's 46th Annual Convention in Ahmedabad. The award was presented by Sh. Surendra Kapoor, Convener, Sh. M.D. Agrawal, President, CSI, Sh. L. C. Singh, President & CEO, Nihilent Technology presented this award of appreciation in District Category. The award was received by the District Collector, Pali Sh. Niraj K. Pawan, IAS and Sh. Anil Purohit, DIO & PSA, Pali. The Sugam project of NIC Jodhpur has also been previously awarded by CSI -Nihilent at Pune.

Chandan Sen, RAJASTHAN

DDOs workshop on e-Payment at Chandigarh UT

In a step forward towards e-governance, the Finance Department, Chandigarh Administration organized a workshop of all the Drawing & Disbursing Officers of the Chandigarh Administration on 22nd November 2011 at PEC Auditorium. The workshop aimed at imparting practical training for the smooth implementation of e-payment system to the DDOs. With the introduction of e-payment system, all payments to be made to the beneficiaries shall be made by electronic fund transfer to the respective accounts of the employees/beneficiaries at the level of Central Treasury, Chandigarh. All periodic and non-periodic payments payable to various officers/officials/private contractors/agencies shall be made on-line on the presentation of relevant bill in the Central Treasury Chandigarh.

About 350 officers/officials of the Chandigarh Administration participated in the said workshop. Sh. Ajay Rampal, SIO, NIC gave presentation about the Govt. Financial Accounting System to the participants and Smt. Gurpreet Kaur Sapra, Joint Secretary Finance-cum-Director Treasury also highlighted the advantages of the e-payment. Previously, it took two to three days for the transfer of money to the beneficiaries' accounts but with this new system it will take only two hours for the transfer of funds. It will also be helpful for easy reconciliations and less paper fund management system. In the month of November, salaries for three departments will be taken up on pilot



Sh. Ajay Rampal, SIO NIC Chandigarh demonstrating the software

basis. From December 2011, salaries of all the employees of the Chandigarh Administration will be covered under this system. The new system facilitate On line access to salary details to each employee, Mobile based information and query system, Online bank transfer of payments to individual/vendors

Vivek Verma, CHANDIGARH



Dr. Rakesh Gupta, DC Faridabad, Sh. Vipin Mittal, DIO Faridabad, Smt. Seema Gupta, Chairperson, Red Cross society examining the website

Online status of blood availability in the Blood banks, Faridabad

On World Handicapped Day (3rd December), Deputy Commissioner, Faridabad Dr. Rakesh Gupta, IAS inaugurated the website for providing the Online status of blood availability in the nine blood banks. In this website, blood availability can be checked through two ways i.e. blood bank wise and blood group wise. Also a blood group wise list of volunteer blood donors with their contact information has been made available.

All blood banks send the availability of blood through e-mail to DC office on daily basis. This information has been entered into the software which generates blood bank wise & blood group wise reports in pdf format. Then these pdf files are uploaded to the website. This website has been linked with the website of District Faridabad <http://faridabad.nic.in>

Poonam, HARYANA

Co-operative Core Banking Solution for Meghalaya Co-operative Apex Bank

The Hon'ble Chief Minister of Meghalaya, Dr Mukul Sangma inaugurated the Co-operative Core Banking Solution (CCBS) for the Meghalaya Co-operative Apex Bank Ltd (MCAB) on October 20, 2011. The application has been designed and developed by National Informatics Centre (NIC).

The Chief Minister said that core banking not only increases employee productivity but also improves monitoring of agricultural and non-agricultural credits. He hoped that with the co-operation of the people the bank would further improve its services. By increasing its presence in remote areas the bank has benefitted rural people immensely, Dr Sangma said.

The inaugural function was attended by Sh. Saleng Sangma, Minister of Co-operation, Government of Meghalaya, Smt. R Warjri, Chairperson of MCAB, Smt. JRD Kailey, Deputy Director General, NIC, Sh. A K Singh, Senior Technical Director, NIC, Sh. Timothy Dkhar, Senior Technical Director and State



View of the inaugural function

Informatics Officer, NIC Meghalaya, Sh. I P S Sethi, Senior Technical Director, NIC among others. After the inauguration, the Chairperson of the Bank handed over the first CCBS passbook to the Chief Minister who is also a customer of the bank.

Sabyasachi Choudhury, MEGHALAYA

PRERANA – Delighted Hon'ble Cabinet Minister, Tribal Affairs, GOI



Hon'ble Minister with Secretary and other Dignitaries

Hon'ble Cabinet Minister, Tribal Affairs, Govt. Of India, Sh.V. Kishore Chandra Deo, recently reviewed PRERANA (Post-Matric Scholarship REgistration Release And Network Automation) a unique initiative of Govt. of Odisha for development of Tribal and Backward Classes of the State.

Initiating the discussion, Secretary, Sh. Santosh Kumar Sarangi, IAS, described PRERANA as of

much importance in receiving applications, processing & sanctioning the scholarships to the deserving students. He informed that within 20 working days of launching of the application more than 80,000 applications have been processed by the system.

Sh.A. K. Hota, TD, NIC, Orissa assisted by Sh. S. P. Dash, Scientist-C, presented the detailed work flow, roles & responsibility of major stake holders, deliverables of the application, programme management approach followed etc.

The Hon'ble Minister expressed his satisfaction over the commitment of the Govt. of Odisha and the effort of NIC in extending ICT based support and services to the Tribal and Backward Classes.

Appreciating the effort of NIC & GOO, Sh. Ravindra Garimella, IAS, Private Secretary to the Minister, wished to initiate the action plan for national roll-out of "PRERANA".

Among the others, the senior officials of the SSD & BCW Dept. were present in the meeting. The meeting ended with vote of thanks by Sh. Bisar Kumar Nayak, IAS, Jt. Secretary to Govt.

A.K. Hota, ORISSA

Inauguration of Video Conferencing, KIOSK and Website of the Gauhati High Court, Imphal Bench



Hon'ble Chief Justice of Gauhati High Court during inaugural function

Hon'ble Chief Justice of the Gauhati High Court, Sh. Madan B. Lokur recently graced the function of inauguration of Video Conferencing, KIOSK and the website (<http://hcmimphal.nic.in>). The web site was designed, developed and hosted by NIC, Manipur and the contents were provided by the Gauhati High Court, Imphal Bench. It allows uploading of Judgment, searching of judg-

ment by case number, judge name, date wise, petitioner wise, respondent wise and party wise etc. It also provides links to the web site of Supreme Court, High Court and other Benches.

Hon'ble Chief Justice congratulated to the NIC officials for developing this web site and also mentioned that the newly launched Video Conference and the Information Kiosk will not only give benefits to the lawyers and Court officials but also to the respondents and petitioners of the State where communication technology is still lagging behind.

Hon'ble Justice Sh. Tayenjam Nandakumar Singh, Portfolio Judge of Gauhati High Court, Imphal Bench mentioned the importance of the facility that will enhance discussions and meetings with other Judges throughout the Country in a big way at the desired time thereby improving Court functionaries more efficiently. Sh. Kotishwar Singh, the learned Advocate General of Manipur, said that the facility of Video Conferencing if launched in the District Courts and Central jail will reduce the inconvenience of carrying prisoners a long way on which the Government spends large amount of State fund.

M. Budhimala Devi, MANIPUR

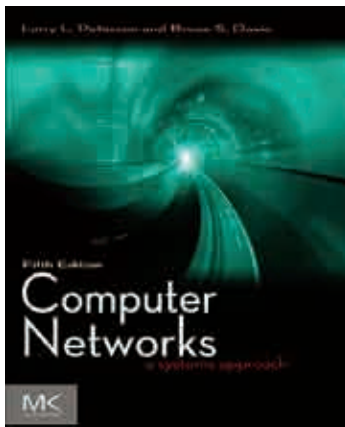
Jharkhand Vidhan Sabha goes online

To mark the eleventh foundation day of the Jharkhand Legislative Assembly, Dr. Sayed Ahmad, Hon'ble Governor, Jharkhand inaugurated its website – <http://jharkhandvidhansabha.nic.in> on 22nd November'2011 at a glittering function organized in the sprawling premises of the legislative assembly in the presence of an august gathering comprising – Hon'ble CM Sh. Arjun Munda, Sh. Chandreshwar Prasad Singh, Speaker and all the Hon'ble ministers, Members of the assembly.

The Principal Secretaries, Secretaries and large number of senior officials of various departments of the government led by Sh. Shushil Kumar Choudhury, Chief Secretary, attended the function making the occasion a confluence of the executive and the bureaucracy.



Dr. Sayed Ahmad, Hon'ble Governor, Jharkhand lighting the lamp on the occasion



Book Title: Computer Networks
Authors: Larry L. Peterson and Bruce S. Davie
Publisher: Morgan Kaufmann

The book Computer Networks, Fifth Edition: A Systems Approach is suitable for all sets of people including network administrator, application developer or a designer of network equipment to understand how modern networks and their applications are built.



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Computer Networks, Fifth Edition: A Systems Approach

COMPUTER NETWORKS: a systems approach fifth edition written by Larry L. Peterson and Bruce S. Davie is one of the bestselling books on Computer Networks that teaches the key principles in networking with examples drawn from the real world of network and protocol design. Using the Internet as the primary example, the authors explain various protocols and networking technologies. Their systems-oriented approach encourages thinking about how individual network components fit into a larger, complex system of interactions. The book is organised into nine chapters as follows:

The first chapter “Foundation” discusses what goes into network architecture, provides an introduction to protocol implementation issues, and defines the quantitative performance metrics that drive the network design. The second chapter “Getting Connected” describes the issues in link-level protocols including encoding, framing, and error detection. The most important currently used link technologies - Ethernet and Wireless has been described here. The third chapter “Internetworking” discusses the basic concepts of switching and routing. This chapter also deals with the Internet Protocol (IP), routing protocols and hardware, software approaches to build routers and switches. The fourth chapter “Advanced Internetworking” covers multi-area routing protocols, inter-domain routing and BGP, IP version 6, multiprotocol label switching (MPLS) and multicast. The fifth chapter “End-to-End protocols” describes both the Internet’s

Transmission Control Protocol (TCP) and Remote Procedure Call (RPC) used to build client-server applications in detail. The sixth chapter “Congestion Control and Resource Allocation” introduces the mechanisms used to provide quality of service (QoS) in IP. This chapter also describes how congestion control works in TCP. The seventh chapter “End-to-End Data” covers XML and how MPEG video compression and MP3 audio compression work. This chapter describes how application data is encoded in network packets. The eighth chapter “Network Security” gives an overview of cryptographic tools, the problems of key distribution, and authentication techniques using both public and private keys. This chapter also discusses the building of secure systems using examples including Pretty Good Privacy (PGP), Secure Shell (SSH), and the IP Security architecture (IPSEC). The ninth chapter “Applications” describes a sample of network applications and the protocols they use, including traditional applications like email and the Web, multimedia applications such as IP telephony and video streaming, and the overlay networks like peer-to-peer file sharing and content distribution networks.

This book also contains a set of exercises of varying difficulty which ensure that the readers have mastered the material presented.

The book has gone through five editions proves the popularity of the book both as a textbook for teaching computer networks as well as a reference book for networking professionals.