

Informatics

AN  GOVERNANCE PUBLICATION FROM NATIONAL INFORMATICS CENTRE

- 
- National Transport Project
 - ICT in Treasuries
 - Data Centres
 - IPv6

Patron

Dr. B.K. Gairola

Editor-in-Chief

Neeta Verma

Editor

Sonal Kalra

Regional Editors

Vivek Verma

R. Gayatri

Anshu Rohatgi

Prashant Belwariar

Advisory Panel

Dr. Y.K. Sharma

T.A. Khan

Dr. Gautam Bose

R.K. Gupta

Editorial Board

Dr. Mahesh Chandra

Dr. Shefali Dash

B.V. Sarma

S.B. Singh

Vinay Thakur

WWW Version

P. Hemamalini

Print Coordination

A. K. Aggarwal

Anita Arora

Circulation & Despatch

Anita Bhardwaj

Jasvinder Kaur

Editorial Assistance

Aditya Gogoi

Informatics

is Published by National Informatics Centre, Department of Information Technology, Ministry of Communications & Information Technology, Government of India

A-Block, CGO Complex,
Lodhi Road,
New Delhi-110 003

Tel.: 91-11-24361133

Fax: 91-11-24362628

<http://home.nic.in>

© 2007, All Rights Reserved.

Layout & Printed at
Viba Press Pvt. Ltd, New Delhi
on behalf of National Informatics Centre

from the Editor

They say 'Change is the only constant' in this world. When the tides of change beckon, they are unstoppable. And rightly so, for constant re-invention and improvisation spells success in today's fast paced times. Well, the forces of change knocked our doors yet again and your very own 'Informatics' underwent a transformation. The new avatar of Informatics, the e-Governance magazine by NIC, retains its soul and mission, that of bringing useful information on myriad aspects of electronic governance for its readers. At the same time, the scope and coverage of the publication has been enhanced to encompass new grounds. You can now read 48 pages of Informatics with a new look and feel. Many new sections have been introduced from this issue onwards, such as International e-Gov updates, book review, interview feature, perspectives and National Portal update. The usual State-in Focus, Happenings, Cyber Governance, District Informatics and Technology Update sections also stay, albeit with different names for some.

Each issue of Informatics shall carry a lead story giving an overview of the developments and impact of e-Governance in a certain area or sector. The current issue gives you a bonus with coverage of ICT initiatives in two key sectors of our economy, namely Transport and Treasuries. The transport story delves upon the remarkable changes that have taken place in the way driving license and vehicle registration certificates are being issued ever since smart card based technology has been deployed. In the lead story on Treasuries, Regional Editor Anshu Rohatgi has done a marvelous job of presenting a comprehensive view of the ICT developments in this sector across the Country. Two technology update features in this issue focus on Designing Data Centre Facility and IPV6 respectively, thus providing the much needed fodder for the technology enthusiasts among our readers.

The entire team of Informatics, with a special mention of Regional Editors Vivek Verma, R Gayatri, Anshu Rohatgi and Prashant Belwariar have toiled hard, often beyond the call of duty, to bring this issue to life. Do let us know your feedback, both raves and rants, so that we continue to strive for a brighter future ahead for Informatics.

Happy Reading



Sonal Kalra
sonal@nic.in

From You to Us

I have recently gone through the Informatics bulletin published by NIC. This is an excellent publication with a very good coverage, especially the January'07 issue with coverage on Yevatmal District of Maharashtra. It is highly informative and gives deep insight of the subject matter. Please accept my heartfelt congratulations for the exemplary article, as well as the work done by the NIC Staff in Yevatmal.

Sunil Soni,
Principal Secretary
Finance Department
Government of Maharashtra

The April'07 issue of Informatics was quite useful and very well laid out, especially the feature on Elitex 2007 through which, many of us who missed attending the event could catch a few glimpse of the Exhibition. I suggest that you may have an exclusive photo feature section which gives good quality pictures of the important ICT events across the Country. My wishes to the entire team of Informatics for keeping up the good work.

Anju Sondhi
NIC Cell, Ministry of Steel
Udyog Bhawan, Delhi

We welcome
your
mails/letters to
the Editor
offering
comments on
this issue.
Send a mail at
sonal@nic.in
or write to
Editor-
Informatics,
Room No 379, 3rd
Floor, NIC HQ, A-
Block, CGO
Complex, Lodhi
Road, N. Delhi-03

Contents

in this issue...

Lead Stories

Treasuries -the Lifeline of Financial Health.....Page 4

An overview of the ICT developments in this key component of the Country's financial system. The ICT initiatives in the Finance Departments of various States and UTs in India have been highlighted

National Transport Project- 'SMART' e-Governance.....Page 8

An account of how smart card based driving license and vehicle registration certificates have changed the face of Surface Transport Sector in the Country



From the States

Uttar Pradesh -Marching towards ICT Leadership.....Page 12

UP, the land of 'Unlimited Potential' is fast becoming an ICT hub with several noteworthy e-Gov initiatives

Kerala -e-Governance at God's own Country.....Page 16

How the most literate state in India is taking big leaps and strides into the ICT and e-Governance arena

District Informatics

A profile and overview of e-Governance initiatives in the following Districts

Surat (Gujarat).....Page 20

Howrah (West Bengal)....Page 22

Bidar (Karnataka).....Page 24



e-Gov Products & Services

Know more about the following ICT Products and Services setting exemplary standards in e-Gov

e-Nagrik Seva Kendra (Jharkhand).....Page 26

Election Personnel Deployment System (UP).....Page 27

Pensioner's Portal.....Page 30

Guest Columns



Interview with Sh. R Chandrashekhar

Additional Secretary (eGovernance).....Page 31

ICT in Police Modernisation

by Sh A.K Srivastava, Joint Secy (MHA).....Page 33



Technology Update

Designing a Data Centre Facility.....Page 35

Data Centres form an integral and critical part of e-Governance infrastructure set-up in a Country. Read all about what it takes to design a Data Centre Facility

IPV6 the Next Generation Protocol.....Page 38

Internet Protocol Version 6, the buzzword that is taking the global Internet arena by a storm

News

International e-Gov Update.....Page 28

Cyber Governance (newly launched Govt websites).....Page 40

National Portal Update (from india.gov.in).....Page 41

In the News (happenings from across the Country).....Page 42



Views

Perspectives: Business Intelligence and Data Mining.....Page 46

Book Review: "Perspective of Free and Open Software".....Page 47

TREASURIES - The Lifeline of Financial Health

Finance Management is the key to economic stability and development of rural & urban infrastructure. In order to discharge its functions & cater to requirements of economic development the Government needs to address the issues related to finance management in a time bound approach. No wonder, the modernization of the Finance Sector is the top priority of the Government.



Pratibha P Joag
Deputy Director General, NIC Pune
joag.mah@nic.in

Treasury is a very important component of the country's Financial System. All financial transactions of the state government are mainly carried out through the treasuries. Treasury is also the basic unit and focal point for recording the initial financial transactions of the government and is the main starting point of public accounts. As such the data entered at the treasuries needs to be managed properly and efficiently for better results, and accounts information needs to be provided in proper time and formats for a robust financial system.

Treasury Linkages

As an integral part of the Finance Department, treasuries play a vital role of authorizing, distributing and accounting the payments & receipts on behalf of State Government. In some of the states, treasuries are also responsible of disbursing the pension payments and are primarily linked with the Directorate of Accounts & Treasuries, District Treasury & Sub-Treasury Offices, the Finance Department, the User Departments, Pensioners, Accountant General's Office, RBI and SBI and other designated banks.

The Finance Department plays a vital role in overall prosperity of the state by implementing innovative revenue earning processes & proper fund management. It is also responsible for fostering fiscal discipline in the state. The treasury offices are required to maintain up-to-date records of each and every financial transaction of the Government after careful scrutiny related to budget provisions etc. The User Departments handle their

expenditure under various budget heads through the DDO's and are required to reconcile the figures with the AG Office. The AG office is the record keeper of all the receipts and payments it receives from the treasuries and the user departments. Finally, the banks are responsible for making the payment and receiving revenue receipts on behalf of the State Government.

The Manual System

During the manual era, it was almost impossible to have any financial discipline in the treasury. Improper fund management was the order of the day and delays in preparation of monthly treasury accounts was a regular feature. This resulted in serious impact on the overall planning of the Government and caused other financial implications. Moreover, it was a very difficult task to monitor the Expenditure and Receipts at a given point of time as there was no mechanism for data convergence from treasuries and its collation at the level of Finance Department. There was no allotment monitoring, no transparency in treasury functioning, and the verification of correctness of the treasury accounts was difficult. The preparation of PF and Pension accounts was delayed by months causing a great discomfort to the senior citizens, pensioners and government employees.

ICT in Treasuries

The inadequately maintained finance management system, inherent systemic deficiencies in the manual system, ever increasing threat of frauds, over spending and

misappropriation of funds by the unscrupulous elements, compounded by the lack of institutional mechanism to check or to identify such incidences prompted the Government to search for comprehensive solution seizing the technological advantages available. The choice zeroed down to Information Technology which provides unlimited opportunities by introducing an element of transparency, accountability, convenience and effectiveness in governance, thereby making major enhancement in the delivery of services and improving performance. IT can streamline the processes to meet deadlines, compile information at a fast rate and provide the necessary tools to the administration for monitoring, planning and control.

It also possesses the capability to provide a networked solution wherein there are no geographical boundaries and the entire treasury system, with all its linkages, works as a single virtual office. The Treasury Information System (TIS) can be visualized as a comprehensive application covering all categories of transactions in the finance department, treasuries and its related offices. However, the overall functionality of TIS can be outlined by the following modules.

- Payment & Receipt
- Audit & Account
- Pension/PPF
- Cheque Drawl/ECS payment
- Delivery & Reconciliation
- Personal Ledger Accounting
- Bill Tracking
- Master Maintenance
- Online status (FMIS for PAO/Treasury Officer)

Benefits Accrued

Streamlined Treasury Operations

After computerization, the treasuries are submitting their Monthly Treasury Accounts within the scheduled dates. The verification regarding the correctness of the accounts has become easier and the cases of discrepancies between the treasury figure with the bank figure have decreased sharply.

Efficient and effective funds mobilization

The real time information of funds available has helped the state government in keeping a track of the cash inflow and outflow. This has helped in facilitating better planning of funds & effective budgetary monitoring, management & control. The timely availability of accounts data for monitoring and analysis on desktop has helped in decision-making and efficient mobilization of funds.

Transparency & Customer Satisfaction

The Government is finally delivering on its promise of effective and transparent governance to its citizens, employees and customers. The Treasury Information Systems have provided an efficient, transparent mode of payments & clearances, and facilitated faster payment processes, saving time and money. The treasury websites are keeping customers well informed while the computerization of Pension, PF etc. have brought a welcome relief to the senior citizens and employees

Awards

- Silver ICON to e-Khazana, Bihar, & Bronze ICON to Double Entry A/cing System from Himachal Pradesh for Professional Excellence in Process Reengineering in 2007.
- Silver ICON for Professional Excellence in Process Reengineering to Koshwahini, Maharashtra, in 2006.
- Golden Icon for Innovative Operation & Best Practices to ePension, Himachal Pradesh in 2006.
- Oracle e-Governance Excellence Award to ITSANIC, Uttar Pradesh & TAS, Gujarat in 2006
- Microsoft e-Governance Award for OTIS, Haryana in 2006
- The 'Integrated Treasury Accounting System' of MP & 'Khazane' of Karnataka have also received Golden ICON & Silver ICON awards respectively in different categories.

Infrastructure

Introduction of IT has transformed treasury offices from a typical, massive paper loaded office to a more comfortable office with a desktop. Large scale training programmes for finance officials has resulted in a large pool of IT trained manpower at each state.

Many other benefits have accrued to the society and the government. It has been a win-win situation for all stakeholders.

The Road Ahead

Standardisation

There is a need to develop a National Treasury Product identifying the common and specific functions of central and state government. The project will have a modular design. It will adopt 'Plug & Play' kind of approach for tackling difference in functionality and adopt standard

Statewide Implementations

Many state governments have implemented some or all of these modules of the Treasury Information System and networked the operations to streamline the processes that are routine or time critical, coupled with G2G and G2C interfaces to bring about greater level of transparency in treasury functions. These applications have brought about fiscal discipline and removed the bottlenecks to a great extent.



Koshwahini - Maharashtra

KOSHWAHINI is an e-Governance initiative of the Finance Department, Government of Maharashtra, to create a data warehouse, information and accounting backbone System for the Accounts and Treasury operations of the State. Koshwahini has introduced high degree of professionalism in the working of the 33 Treasury Offices and 295 Sub Treasury Offices through a highly evolved network flow.



<http://koshvani.up.nic.in>

ITSANIC - Uttar Pradesh

The Integrated Treasury System Application of NIC (ITSANIC) is a user-friendly application, which has completely automated the treasury operations in Uttar Pradesh. Launched in the year 1994 in 93 treasuries of undivided UP, the project has played a key role in bringing about revenue efficiency & controlling government's overall expenditure. The software also conforms to the standards, security, scalability and reliability norms of ISO and was certified in the year 2004



<http://treasury.guj.nic.in>

Treasury Accounting System - Gujarat

TAS is a Client/Server application developed to carry out all the functionalities of District Treasuries and Sub Treasuries of Gujarat. It has 6 Modules and 37 Sub Modules. Apart from Monthly Accounts (Expenditure & Receipt) it also takes care of Pension Bills, Letter of Credit Maintenance and Stamps Inventory through around 200 reports.



<http://himachal.nic.in/finance>

Online Treasury Information System - Himachal Pradesh

Treasury Computerisation started in Himachal in 1993-94. Besides compilation of payment & receipt accounts, the application functions in a workflow methodology for online passing of bills, verification of DDO's signatures and photographs of messengers, preparation of deduction register in respect of LIC, PLI & GIS and creation of data files for transmission to AG Office.



<http://hrtreasuries.gov.in>

Online Treasury Information System - Haryana

OTIS is a workflow based Treasury System implemented in 20 district treasuries and 83 sub-treasuries of Haryana. A separate module (OTISB) is implemented in all banks linked with the treasuries. OTIS has improvised the treasury operations by making the payment processes transparent, updation and sharing processes efficient and data collection consistent.



e-Khazana - Bihar

e-KHAZANA is the tool to automate the treasuries and sub-treasuries of Bihar. The system facilitates online fund management, reconciliation with budget, timely submission of classified accounts and sharing of accounts with excise, registration, commercial taxes and transport department. It has a powerful 'fire-and-forget' capability whereby if certain steps are ensured, the accounts are accurate and dependable. Accounting software for maintaining GPF A/cs of government employees 'Bhavishyanidhi' has also been integrated with the treasury system.

<http://finance.bih.nic.in>

Integrated Pay & Accounts Office - Uttarakhand

Uttarakhand has converted the Treasury Information System into Integrated Pay & Accounts Office. The IPAO software has been implemented in all the treasuries of the state and the online database of about 1.10 lakh government employees is available on Internet.



<http://ua.nic.in/finance>

There are many other applications like Treasury Information System in Punjab, Khazane of Karnataka, E-Karuvoolam in Tamil Nadu, Integrated Treasuries Computerisation Project of Madhya Pradesh, Treasury Info System at Kerala, O-Tracs of Orissa, Treasury Computerisation at Andhra Pradesh, e-Kosh of Chattisgarh, OTIS of Jharkhand, TMIS of Chandigarh, Integrated Accounts System of Goa, Treasury Computerisation System of Rajasthan, Treasury Information System of West Bengal & JAKTMIS of Jammu & Kashmir which have computerized the treasury operations and its linkages to bring about financial discipline in their respective states and evolve a system that is beneficial to the businesses, public and government.

protocols & tools for framing requirement specification, design and handling interoperability between various parts of treasuries and other agencies. The system will have a common architecture for all states and will undergo a series of testing and quality certifications.

System Integration

The approach needs to be broadened from excellent software packages to an end-to-end solution that meets the overall functionality of the Treasuries System. The applications of different stake-holders will need to be integrated with each other to have a complete networked system

Technology Advancements

Data security infrastructure needs to be strengthened and advance technologies like biometric authentication, digital signatures, barcode, electronic clearing system, tax collection through NET banking have to be deployed to have a more secure treasury system. 

Accolades...

"I am happy to state that the Koshwahini website is now in operation on the intranet. It gives unprecedented control to each Mantralaya department over its budget allocations and brings about complete transparency in the working of the treasuries not to mention accuracy and speed in the compilation of accounts. A word of appreciation of the work done by the NIC team and the staff of the Directorate of Accounts & Treasuries on this pioneering task will not be out of place here".

Extract of Budget Speech March-2003 by Finance Minister, Maharashtra

Story compiled and Edited by:
Anshu Rohatgi
Regional Editor - Informatics

National Transport Project 'SMART' e-Governance !!

The Transport Infrastructure has a crucial role in every economy. In a vast country like ours, transport sector plays a vital role not just to make food and other commodities available from the “Grain Bowls” of the country to “Grain Starved States” but also all other essential goods from the industrial belts to each nook and corner of the Country.

ICT implementation to bring about modernization and efficiency in this Sector, therefore, is not just important but crucial to the Country's progress.



Dr. Mahesh Chandra
Deputy Director General, NIC HQ
mchandra@nic.in

During the last 50 years, the vehicle population in India has grown a whopping 250 folds. The number of goods and transport vehicles have also grown 1000 times. Today in most of the Indian states, Road Transport Sector is the 3rd largest revenue earner. The enormity of this sector can be gauged by the fact that over 1.5 crore Driving Licences and over 1 crore Vehicle Registration Certificate are issued by the Transport Authority Offices across the Country per year.

The Motor Vehicle registration and issuance of driving license are governed by the Central Motor Vehicle Act and Central Motor Vehicle Rules. The states have their own taxation structure. Although documents like driving licenses and RC (Vehicle registration certificate) are issued by the states, these documents are valid for the entire country.

In spite of the phenomenal growth of this sector over the 50 years, the processes for issuances of the DL and RC had not been reviewed extensively for a long time. The procedure that was established 50 years ago was

optimized based on the circumstances prevalent at that time. However, with the passage of time, the demands of these services

underwent a sea change and more responsive citizen interface and improved services delivery time became the need of the hour.

The Earlier Scenario

Till a few years back a vehicle owner or a driving licence holder used to carry paper documents for Registration certificate (RC) and Driving Licence (DL). These documents were not legible, often in torn condition and were difficult to manage or comprehend at times. At the same time, the Regional Transport Offices were operating on a manual mode with documents and files pertaining to each vehicle and licensee's records being stored in a paper format. The condition of the Records Room of RTOs in the Country was something as shocking as this picture.



The Record Room of an RTO before Computerisation

The Solution

In the year 2000, Ministry of Road Transport and Highways, decided that

in view of growing volumes, non-uniformity of documents, heterogeneity of data formats and huge cost of application software, it was important to evolve and implement standards. An Apex committee was constituted under the chairmanship of Secretary (Road Transport and Highways) with representation from various states with a mandate to evolve common standards for data and the shape of documents to be released to citizen at large, or in other words,

A Driving Licence (DL) and Registration Certificate (RC) to have standard data elements.

The RC and DL should be issued in an industry standard format and media.

These documents must be digitally signed by the RTAs / DTAs so that they retain their authenticity.

These documents must be inter-operable across implementation agencies in different States/UTs in the Country.

With the above requirements in mind, the Ministry of Road Transport and Highways conceived the **National Transport Project** in June 2000 and the task of implementing the above with Smart Card as a uniform mode of document delivery for DL/RC was assigned to National Informatics Centre (NIC).

Implementation Model

NIC has prepared the standard back end modules for the work flow based software and named them as “SARATHI” for management of driving licences and “VAHAN” for managing the RCs and permits on day to day basis at the RTO level

VAHAN and SARATHI were implemented at some pilot sites in each state and once the pilot site was successful, the states replicated the same using any of their business models.

During this time, the team of NIC professionals who have developed the software have conducted workshops and provided training to the Officials of the State Transport Authorities and other agencies.

NIC in association with IIT, Kanpur and Industry designed and developed an operating system for the smart card which is exclusive for the country. The OS is known as Smart Card Operating System for Transport Application (SCOSTA).

The Road Transport Ministry issued a Gazette Notification formalizing the SCOSTA1.0.

The Ministry also amended the Form-7 for the Driving Licence for a person and Form23-A for Registration of a Vehicle in accordance with the new developments.

Software solution

While designing the software solution for this sector, in addition to the technical considerations, an inclusive

solution was necessary. Most of the staff from the RTOs had no specific computer background and in the first phase, it was decided to translate the manual processes to computerized ones. However, scalability of the solution and introducing alternate modes of providing services was kept in mind. The standard software Vahan 1.0 and Sarathi 1.0 were first released in the year 2002. The Features of these software packages were liked by most of the staff from RTOs across the country. *Today the names VAHAN and SARATHI have become synonymous with RC and DL software.*

The Technology behind Vahan and Sarathi

VAHAN/ SARATHI is a 32 bit, GUI rich application written entirely in JAVA. It has three-tier application architecture. The components of the tiers are:

- ❖ **Database** - This is the bottom most layer or the back end. VAHAN /Sarathi supports three databases namely DB2 version 7.2 or higher, Oracle 8i and version 8.1.6 or higher and MSSQL Server 2000 or higher.
- ❖ **Application Server** - This is the middle layer which manages the business rule that manipulates the data as per the governing condition of the applications. It provides a database independent interface for applications and makes the front end robust. This application uses the JAVA RMI framework to establish connection to clients. This feature enables a program running on the client computer to make method calls on an object located on a remote server machine. It gives the ability to distribute computing across a networked environment. The JAVA JDBC framework provides a standard interface to establish connection to the database.
- ❖ **Client** - The presentation and control logic is embedded in the client tier. This is the GUI layer of the application using Swing component of JAVA, which will interact with the Application server by means of forms.

Impact in States

Prior to the introduction of VAHAN and SARATHI, various units of NIC had developed different software to adjust to the requirements of different States. However, a decision was taken to unify these software and version 1.0 of VAHAN and SARATHI was released. Different states reacted differently to these efforts of introducing a uniform schema and inter-operable documents. However, during the last four years almost all the states have recognized the efforts of the Ministry of Road Transport and Highways as also those of NIC and the deployment of the software has taken off in a big way. As of now, over two-third of the RTOs in the Country have been computerized.



One of the fully computerized RTOs in Delhi

Status of Deployment

While going to the press, out of 763 RTOs across the country, 534 RTOs have already been computerized, using both state and central funds for issuing documents for DL and RC in a standard and interoperable manner. Several states have completed state wide deployment and several others are in the process of doing so. 26 States/UTs in the Country have already implemented VAHAN and 24 States/UTs have implemented SARATHI, either for all RTOs or partially. Some of these states have completed the computerization process on their own while several others have employed BOOT model for roll out across the states. Some of these states have also adopted SCOSTA based smart cards as document delivery mode. It is expected that by the end of 2008, all the RTOs in the Country would be fully computerized.

States like Tamil Nadu, Kerala, Orissa, Delhi, Meghalaya,

Tripura, and Mizoram need a special mention here as they have completed development across all RTOs in their states. Delhi, Tripura, West Bengal, Maharashtra, Orissa have also adopted SCOSTA compliant smart card as DL and RC documents. Several other states have also decided to roll out these applications across the state and issue standard inter-operable SCOSTA compliance smart card as DL and RC document soon.



RTO and NIC Officials at the issuance of first computerized Driving Licence in Nagaland

Boon for the Citizens

Implementation of VAHAN and SARATHI Software products has established uniform implementation of Central Motor Vehicle Act (CMVA) 1988 and Rules (CMVR) 1989 in all the RTO across the states, which is not a minor feat, considering the size and diversity of our Country. The ICT intervention in this area has led to several benefits to the common citizens :-

- ❖ Removed various anomalies in the implementation of act and rules and has led to standardization of various coding patterns like Vehicle type, Manufacture, Registering authority, Licensing authority, Class and type of vehicles, Licencee Name, permit types etc.
- ❖ Integrated the State based specific Tax models and PSV Badge models without compromising CMVA and CMVR.
- ❖ Enabled faster clearance of cases involved in accidents or fines.
- ❖ Brought about transparency in the whole process of Licence and RC management in the country and reduced scope of discretion by the implementing officers.

- ❖ One time data entry and life time transaction processing helps faster clearance of queues at Tax payment counters for the commercial vehicles and transport licences issuing counters.
- ❖ Enabled huge amounts of recovery in terms of tax arrears.
- ❖ Simplified the system of processing requests for transactions like Change of address, duplicate, renewal or change of name in DL.
- ❖ Driving Licenses can not be issued in absentia as biometrics have been captured for every applicant.
- ❖ The Entire Data of the vehicles and the Driving Licences existing in Legacy systems have been integrated with the Standard Data Structure, wherever VAHAN and SARATHI are implemented.
- ❖ RTAs / STAs can now generate several reports for standard and adhoc queries using DSS and MIS modules.
- ❖ The public gets most authentic and easy to carry, durable documents in form of smart card for DL or RC



Ms Sradhanjali Samantaray, Captain of the Indian Women Football Team after receiving the first Smart Card based Driving License in the State of Orissa

The Road Map Ahead...

Here are some of the initiatives by the Ministry of Road Transport & Highways along with NIC which are 'on the cards' in the near future....

- ❖ Inter connecting all The RTAs or DTAs in the State with the STAs using State Wide Area Network (SWANs) or Leased Lines to create a State Register.
- ❖ Replicating the vehicles and driving licence data available at State Registers to develop a National Register
- ❖ Granting the authority to issue Learning Licence to the College Principals and to authorized Driving Schools
- ❖ Automobile Associations and Dealer Networks to be given the authority to issue Vehicle Registration Certificates
- ❖ Setting up of nationwide Call Centres and web based helplines for information and Grievance Redressal
- ❖ Establishment of Vehicle Fitness Checking Centres
- ❖ Setting up Drop Boxes for payment of Taxes and License Fee etc
- ❖ Provision of Anytime-Anywhere services at all RTOs within one's State without any restriction of jurisdiction
- ❖ Payment of Fee/Tax using the payment gateways.

Story Compiled and Edited by:

Sonal Kalra, Editor-Informatics

with inputs from **Indrani Das Swer** (Meghalaya) and **Dr. A.Ram Mohan Rao** (Andhra Pradesh)



UP - Marching Towards ICT Leadership

U.P. today, is the address of every one who matters in the industry in India. Sharing borders with seven different states, Nepal and national capital New Delhi and being a goldmine of disciplined, productive and inexpensive manpower, the state has attracted some of the largest national and international companies to set-up their businesses in the state.



S.B. Singh
State Informatics Officer
NIC UP State Unit
sio@up.nic.in



Anshu Rohatgi
Informatics Regional Editor
anshu.rohatagi@nic.in



Uttar Pradesh at a Glance

Area	2,36,286 sq Kms
Population ('01 census)	16,60,52,859
Districts	70
Cities	631
Nagar Nigams	11
Tehsils / Sub-divisions	300
Development Blocks	820
Villages	1,07,452
Female Literacy	42.98 %
MLAs (Vidhan Sabha)	404
MLCs (Vidhan Parishad)	100
MPs (Lok Sabha)	80
MPs (Rajya Sabha)	31

'Uttar Pradesh' the land of **Unlimited Potential** is one of the largest and most populous state of the country. Endowed with fertile land, salubrious climate and mighty river systems, it has long been, the granary of India. Sharing borders with seven different states, Nepal and national capital New Delhi and being a goldmine of disciplined, productive and inexpensive manpower, the state has attracted some of the largest national & international companies to set-up their businesses in the state. U.P. today, is the address of every one who matters in the industry in India. The state has also been playing a critical and at times decisive role in India's perplexing politics. But for four, all the Prime Ministers, which India has so far seen, come from this part of the country. Uttar Pradesh has everything you can ever ask for except maybe a sea shore.

'**Efficient, Honest, Sensitive, Simplified and Organized**' - is how many governments would like to define themselves in the present times. The ability to provide transparent, responsive and friendly government services is the need of the hour. State governments around India are increasingly using technology to

improve efficiency and provide online services to citizens. Uttar Pradesh too has embraced the concept of e-Government, undertaking various initiatives to turn this dream into reality. It has in place an IT policy which aims at the creation of investment opportunities and building of a knowledge-based society by the year 2010. ICT infrastructures are being developed and spread right across the state down to the tehsil and block levels.

Leadership Initiatives

e-Governance implementations in Uttar Pradesh have had a successful signaling effect for the outside world. They have effectively showcased how modern-day UP is progressing, how new infrastructure that is being added complements the existing resource base, and how ICT is being harnessed for implementing some of the best initiatives of good governance. The strategy is based on four major drivers-

a. Focus on Rural Masses - In Uttar Pradesh decision has been taken that the unit of development in the State will be a village. It will be the village that will work as pivot and accelerate

the pace of development. All the IT enabled services will be designed and implemented so as to reach the rural population. This will not only bridge the digital divide but will also facilitate rural prosperity & rural empowerment.

The unprecedented popularity of projects like Janmitra Ekal Seva Kendra, Ghazibad, Lokvani and Bhulekh in the state amply demonstrate the acceptability of e-Governance initiatives among the rural masses. It also shows how such rural-centric applications are in line with the overall e-Governance and ICT strategy of the state.

b. Process Re-engineering - e-Governance applications in the state are effecting changes at every level of the Government resulting in more efficiency & transparency in its operations - automation of treasuries has brought about changes in the state's financial rules, computerisation of land records has caused changes in the state's Land Records Manual, e-Patravali has introduced a novel way of working with documents & files, transport computerization has simplified processes and property registration system has caused changes in the established manual system of registration of land. There are many such examples.

Introduction of ICT in the Government through the successful implementation of some of the above projects has resulted in the changes of archaic rules and old formats of information sharing. It has ensured that Government of the day keeps pace with the modern times making its delivery systems more responsive and more effective.

c. IT Infrastructure - A robust, scalable IT infrastructure is the building block of all IT applications. Efforts are being made by the state government to facilitate provision of cheap communication infrastructure right up to the village level for ensuring better efficiency and productivity.

UP was the first in the country to have a 73 node SCPC DAMA based video conferencing setup connecting all districts in a data plus video mode over NICNET. NIC has setup state-of-art computer centres at all the 70 Districts of the state equipped with latest computer hardware, software & networking infrastructure. The NIC State Centre at Lucknow is equipped with a high-end Server Farm, Storage Area Network and a Network Management Center to extend 24x7 services to the state government departments, organizations & public.

UP also has the distinction of being one of the first few states to have a Sachivalaya Campus Area Network (SCAN) connecting all the state government departments (spread over 11 Government buildings of the State Capital) in an Intranet. This RF/Fiber based network has extended Internet to each room of the Sachivalaya and has more than 2500 nodes.

d. Standardization - Uttar Pradesh has evolved a standardization process of its own. It has in place an IT procurement policy for the government departments, fibre laying policy, hardware policy, etc. The aim of these

policies is to lay uniform standards, provide guidelines, rebates, etc. and to ensure that any IT investment in the state should suitably help in the removal of digital divide and deeper computer/internet penetration across the state.

NIC in UP

NIC has been working in close coordination with the state government since 1988. As an IT consultant, total solution provider, system integrator, software development centre, implementer, trainer and IT support centre the services extended to the State Government have been acknowledged time-and-again. The NIC, State Unit and District Centres are committed to transform the state government's vision of 'improving quality of life of citizens using ICT' into reality.

e-Governance Success Stories

Lokvani - One of the most successful citizen centric application of the state Lokvani aims at redressing the public grievances in a simple, transparent and time bound manner. The user enters his complaint/grievance through selected Cyber Café/Dhaba spread across the districts through NET and the district authorities have to update the action taken within a stipulated time frame. The user need not visit the Collectorate or run around Government Offices for getting his complaint registered and solved. Further enhancements such as registration of Birth & Death, Land Records information etc have also been added on the Lokvani platform to provide the citizen a single point of contact for all his requirements. The success of the pilot implementation prompted the state government to rollout the application in all the districts of the state.



NIC, Uttar Pradesh has made a significant contribution towards the growth of IT enabled services in the state. Applications such as Lokvani, Bhulekh, Prerna, Vahan, Koshvani etc., have benefited the common masses and helped to improve services.

I have always found the officers of NIC to be extremely helpful and forthcoming in providing support whenever required.

Sh. Shashi Prakash Goyal, IAS

Bhulekh - this is an e-Governance application especially for farmers & land owners. The data digitization which started in 1990s is complete and the Land Record details are now available on the Net (<http://bhulekh.up.nic.in>). The State Government has also issued orders to stop all manual systems and use only computers for issuance of Record of Right (Khatauni). The application has made Land Records Management - transparent and efficient, It has ensured hassle free availability of Record of Rights to Public and reduced inconsistency of land records data.

The software has been implemented in all the tehsils of the state. More than 150 lakh Khataunis have been distributed since inception and a revenue of about 2300 lakh has been

collected (till end of March 2007) by way of service charges.

Prerna - is one stop citizen-centric electronic solution for all kind of property registration. It has knowledge base of all the legislation, procedures with respect to deed registration. It functions as a single window delivery of e-services like - market value assistance, on demand generation of encumbrance certificate, on-spot registration etc. Implemented in 106 Sub Registrar Offices the application has made the property registration a very 'SARAL' process.



The computerization of the registration process in 106 Sub Registrar Offices of the State has been a great success due to the sincere and dedicated efforts of NIC, UP. I will like to take this opportunity to express my gratitude and appreciation for the commendable work done by the state & district officials of NIC.

Sh. Sunil Kumar, IAS

File Tracking System 'e Patravali Pranali' - is a web based solution designed and developed to facilitate easier tracing, retrieval and archival of files & letters received by different departments of the State Government. The project has been instrumental in ushering in an era of eGovernance in the State, and has increased the transparency, efficiency & effectiveness in the Government Offices. The state government has already issued a GO to implement the application in all departments of the state.

Niyukti Online Seva - Niyukti Online (<http://niyuktionline.up.nic.in>) & Niyukti Seva (<http://niyuktiseva.up.nic.in>) are two web portals, launched by the Government of UP to provide fast, easy, effective and clean administration to the officials of the state government and the people.

The portals seek to automate & streamline different activities of the Appointment Personal and Training Department, increase transparency and provide a single, personalized entry point or gateway to information and

systems that any employee needs. The niyuktionline site provides the basic information on rules, procedures etc related to the service matters of the employees, while the niyuktiseva site is an exclusive portal for the IAS & PCS officers of the state for online handling of service matters like submission of application for leaves, advances etc.



I would like to compliment NIC for their excellent workmanship and support for the modernization of the Appointment Department. The Niyukti portal is a unique model of G2C & G2E services and has brought about a paradigm change in the working of the department making it more efficient & transparent.

Sh. Umesh Sinha, IAS

GIS based Planning Atlas - The atlas prepared for the planning department consists of about 100 bi-lingual maps based on development/socioeconomic indicators. The complete atlas is available online (<http://planning.up.nic.in/atlas2004.htm>) and an online dynamic map query based on 4000 indicators of sankhyaki patrika is also possible. The application has helped the planning department to drastically cut down on the time required for preparation of Planning Atlas manually.

Online Counselling & Examination Results - UP is the only state after IIT and IEEE to conduct the online counseling for admission to various Engineering, Management, Pharma & Architecture Institutes of the state. The application was designed to help the student community and caters to the requirements of more than 50,000 candidates seeking admission in about 180 institutes in 8 different streams. The UP results portal publishes various results of UP Board, BHU, UPTU etc every year for the benefit of the students across the state.

There are numerous other projects like Pensioners Database, RuralSoft, Health MIS, Web based budget management system, web based MPR, Revenue Court Monitoring System, etc developed and implemented covering all the facets of e-Governance in the state.

Awards & Certificates

In deep contrast to its image of an IT laggard state, Uttar Pradesh is shining bright at many of the national and international e-Governance awards ceremonies. These awards not only recognize the sincerity and hard work put into the e-Governance implementation, but also inspires people to perform better and take up new challenges. Some of the projects that have received national and international recognition are

- ♦ Lokvani - Golden Icon Award at the 9th National e-Governance Conference in Jan 2006. Manthan Award in 2006 and Special mention at Stockholm Awards, Sweden
- ♦ NISANI (National Identity Card Software) - Manthan Gold Award, 2005



Home page of Niyukti Online Seva Portal

Web Services

NIC U.P. State Unit has been providing Web services to various government departments, organizations & institutes since 1998. It caters to all the aspects of web services viz. consultancy, website design, development and hosting. The basket of design and development services includes Interface design and navigation strategy, Innovative & professional web graphics, Web authoring with latest tools and techniques, Inclusion of Interactive and dynamic components, Development of web enabled databases and Web enabling of legacy applications.



Web Hosting Infrastructure

Our hosting infrastructure includes a large number of powerful, performance-tuned and secured servers, which are well connected, to the Internet. Web Hosting is generally offered on Windows & Linux platforms. The Data Security Infrastructure consisting of firewalls, proxy server etc. provide a secure environment for online applications and more than 150 departmental/ Organisation/ Institutional websites and 70 District websites.

ITSANIC (Treasury Computerisation) Oracle e-Governance Award & Certified by ISO under Quality Management System

BHULEKH - Oracle e-Governance Award & Certified by ISO under Quality Management System.

Manthan Award 2006 to NIC, District Unit, Pilibhit for SGPGI OPD on Video Conferencing

Transformational Leadership Samman 2005 to Shri S.B. Singh from Lucknow Management Association

Dataquest e-Gov Champions Award 2006 to Shri. S.B. Singh

However, the feedback in the form of satisfaction-levels of the farmers and general citizens that is being received on a continuous basis is in itself a certification of successful implementation of e-Governance in the State

Road Ahead

The roadmap for the next couple of years is ready with projects that will give a boost to the IT infrastructure in the state like State Wide Area Network, State Data Centre, Community Service Centre, Centre for Excellence etc and with projects that will extend the fruits of ITES to the people of far-flung and remote areas of the state like Minority & Backward class scholarship computerization, Citizen Information Kiosks, eDistrict etc.

Of course, there are challenges to be met, as Uttar Pradesh is the most populous and one of the largest states in the

county. It faces temporary impediments in the present circumstances with fast changing technology and high implementation costs involved in rolling out applications in the entire state. Yet the state is nevertheless taking long strides in harnessing ICT to position UP as one of the most IT-developed State of the country. i



Sh. S.B. Singh receiving the 'Transformational Leadership Samman' from Shri R. R. Shah, Member Secretary, Planning Commission

For further information, contact:

State Informatics Officer

NIC, U.P. State Unit, 6th Floor

Yojana Bhawan, S.N. Marg, Lucknow 226001

Phone 0522-2238415, Fax 0522-2238977

sio@up.nic.in

Kerala - e-Governance in God's Own Country

Kerala also known as "God's Own Country" is the first Indian State to achieve total literacy. The State has excellent communication infrastructure. NIC Kerala was established in 1987 as part of the nationwide computer and communication network, NICNET. NIC district centers are located in the 14 district head quarters attached to the respective collectorates. NIC, one of the total solution providers for Government of Kerala, is actively involved in most of the IT enabled applications and has changed the mindset of the working community in the Government to make use of state of the art technology in their day to day activities to provide better services to the citizens.



Asha Varma
Kerala Correspondent
asha@kerala.nic.in

Major e-Governance Projects and Achievements

SMART Move (Customised VAHAN - SARATHI)

SMART-MOVE is a package automating all the citizen centric procedures in the Transport Department and obviating the necessity to maintain manual records.

The information, which is of public interest is made available through multi-channel services like CALLS (Computer Aided Learners Licensing System), SMART-Touch (Touch screen facility implemented in RTO's/SRTO's), SMART-Web <http://rto.kerala.nic.in> and SMART-CDS (Central Data Services).

The software is implemented in 56 out of 60 RTO's/SRTO's. and Office of Commissioner of Transport as a BOMT model.

IT KOCHI 2006

NIC Kerala has won the 2nd Runner up prize for best stall in the ICT for all categories during the "IT Kerala 2006" held at Kochi.

Web Services

NIC Kerala is providing web site development and hosting services to various Government Departments / District administration / Organisations on both Linux and Windows platforms. At present 43 websites are hosted at Kerala supporting varied technologies.

gov.in domain registration - About 75 gov.in domain registrations have been done for various organizations in Kerala. An Open source tool provides daily, weekly and monthly hit analysis reports of all sites hosted on the server.

Network services

Kerala is connected through 10 mbps PGCIL connectivity with redundant 4 mbps leased line to the national backbone. ISDN PRI line providing 30 simultaneous dialup connections is also available. Two mbps leased line network is extended to all districts. Email services have been extended to Government departments and about 389 email accounts have been created. Network has been extended to Passport Offices, Immigration Bureau, Registrar General of India, Kerala High Court, Vikram Sarabhai Space Centre (VSSC), NIC Internet & Training Centre (NITC) and State Wide Area Network (SWAN). Connectivity has been established with SWAN through the State Data Centre. The project "Service and Payroll Administrative Repository for Kerala (SPARK)" is implemented through the Kerala SWAN for effective administration of Personnel, Payroll and Accounts information related to Government establishments.

Training services

NIC Kerala conducts computer awareness programmes for various State & Central Government departments. Training on application software, technology update programmes etc. are also conducted.

Around 70 such programmes were conducted for different departments during 2005-2007. 137 project specific training programmes were held. All trainings go through pre-course, in-course and post-course activities through a portal (training.kerala.nic.in)

E-learning services are provided for the state and district officials of Government of Kerala.



SIO NIC Kerala receiving Microsoft Award for Customized VAHAN-SARATHI

Open Source Initiatives

Various open source initiatives have been taken up by NIC Kerala for standardization and cost effectiveness using open source for online and other applications. Various flavours of Linux like Redhat, Fedora and Mandriva have been deployed on the mail server, web server, intranet server, application and database server.

Open Office trainings have been imparted at State and district levels covering over 500 revenue officials. Open office CDROM was distributed to all the participants of the training.

NIC-Kerala took part in the “Linux Asia 2006” - Asia's Premier Open Source conference & Expo held in New Delhi.



Open source initiatives of Kerala presented in LINUX ASIA 2006. Inset: NIC Stall

Content Management Systems (CMS)

Award winner CMS like Mambo and Joomla have been used for deploying 15 Kerala Government websites. Any Government official with basic word processing skills can easily learn to manage the contents of the CMS site.



The NIC Kerala Stall at IT Kochi 2006

CAPNIC

NIC, Kerala State centre has developed the software - CAPNIC (Centralized Allotment Process) for conducting online counseling for the allotment of seats for professional courses in Kerala. The software is developed taking care of all the existing rules of communal reservations and special reservations. Floating seat concept is also implemented in the system.

IDEAS

IDEAS is an electronic file tracking system for monitoring file movement. The system is hosted in the central data server and can be used by the Secretariat departments, Directorates and Ministries and enables inter-departmental file tracking.

CLAIMS (Computerized Lok Ayukta Information Management System)

Case Information System (CIS) which was developed by NIC Pune, has been customized, value added and implemented as CLAIMS an application for Kerala Lok Ayukta. <http://lokayuktakerala.gov.in>

CLAIMS is also customized for Kerala Women's Commission - VANITHA and for DRT (Debts Recovery Tribunal)

Dairy* Net

“Dairy* NET” is a Collaborative portal for Dairy department and cooperative societies deployed at Wayanad district using LAPP (Linux, Apache Postgre SQL & PHP) and provides farmer centric applications. It establishes a rural information center and disseminates dairy related statistics. The major services provided by the portal are :

- Milk production and related details made available for each milk producer.
- Ranking of farmers based on quality/quantity of milk production.

- Cattle sales/purchase facility
- Information exchange between Dairy societies, Dairy department and allied agencies.

DC*Suite

DC* Suite is an integrated suite of applications for the Collectorate based on an integrated solution architecture covering all functional areas and activities of the Collectorate. It is a web enabled solution built on industry standard software technologies and best practices. Public Access, transparent administration and service delivery are the key features of the project. The applications, which are of public interest, are given access through INTERNET, SMS and touch Screen based kiosks.

DC*Suite has been implemented in Palakkad district and replicated in Malappuram, Kannur, Ernakulam and



Chief Secretary, Smt Lizy Jacob visiting Kasargod Collectorate

Kasargod districts of Kerala in 2006. Replication process is in progress in the remaining districts.

e-DROP(Deploy Randomly Officials for Polling duty)

e-DROP is a LAMP based solution for randomly assigning officials for poll duty saving a lot of effort, time & cost. Posting of officials is done as per the criteria given by Election Commission and Government. The system also generates posting orders. The officials can view their place of posting on the web.

GIS(Geographical Information System)

NIC Kerala is working with Department of Planning, Government of India and bringing out National Spatial Database (NSDB) with identified 163 parameters. Thematic Atlas for all the 14 districts of Kerala is being prepared. All the departments can make effective use of NSDB and the thematic atlas. The themes can be used by various departments for better planning. The thematic maps can be viewed at <http://foss.kerala.nic.in/gisnew>.

Kasargod district thematic atlas was released on January 24, 2007.



Honourable Revenue Minister of Kerala releasing the thematic atlas of Thrissur in November 2006.

Agricultural Services

Online Agriculture Marketing Information (AGMARKNET) has been implemented in 95 markets in the state.

DACNET an intranet based e-governance solution has been implemented in the state. Under this project Content Schedule Management System which is a Mass Media Support to Agriculture Extension, Pest Disease Monitoring System and an online portal for Seed Production and Management have been implemented

Hortnet - is a Portal to implement e-governance solution in the Directorate and field offices of State Horticulture Mission (SHM). System Provides Commodity wise best practices for managing crop, pest, nutrient, water etc. It is available in <http://hortnet.kerala.nic.in>

TETRA-PDS - Targeted Efficient Transparent Rationing and Allocation -Public Distribution System

TETRA PDS is a solution for any Taluk Supply Office in the country to achieve smooth implementation of Ration Card Management System and Allocation process. It consists of modules for Ration Card Management System and Allocation of food grains from Taluk Supply Offices based on theoretical requirement of the dealers.

TETRAPDS-RCMS: For the on-going process of Renewal of Ration Cards in the State, RCMS modules have been enhanced to print laminated ration cards with bar code and photo of the card owner. The software has been implemented in all



Implementation S

69 Taluk Supply Offices/City Rationing Offices in the State.

WebPDS- the Official portal for Civil Supplies Department <http://civilsupplieskerala.gov.in>

Business Intelligence (BI) Models :
<http://bi.kerala.nic.in>

The following BI models have been developed for various Departments of Government of Kerala:

- Expenditure data model for Treasury Department
- Stamp Duty and Registration Fee collection of Registration Department
- Office Expenses model for Civil Supplies Department
- Disease Surveillance model for Health Department
- Health Model from Gujarat Database
- Model for AISES (All India School Education Survey)

EXAMINATION MANAGEMENT SYSTEM (EMS)

Examination Management System is a comprehensive system with candidate registration and Internal assessment modules distributed to schools, portal for compilation of data from schools, tabulation and result processing module with certificate and mark lists printing and various statistical reports deployed at the Pareeksha Bhawan and result dissemination. At present the examination management system is installed for the SSLC Examination (Class-X), Higher Secondary (DHSE- Class-XII), Vocational Higher Secondary (VHSE- Class-XII), KGTE (Kerala Government Technical Education), TTC (Teachers' Training Certificate) Examinations of Government of Kerala. The results generated by EMS are published in <http://results.nic.in>

BHUREKHA - ISO certified Land Records Information System implemented at village level

The main objective of BHUREKHA is to issue Record of Right to land owners. The scope of the project is to computerize land related activities, collection of various taxes and issue of certificates in Taluk/Village offices. Bhurekha is implemented in 63 taluk offices and 548 villages.

It supports G2C, G2E & G2G functionalities of Taluk and Village Offices. The main activities taken care are Land records maintenance at taluk / village offices, Mutation, Issue of certificates & collection of taxes, protection of Purnamboke land being encroached by private parties etc.

“The Online Query System of BHUREKHA helps revenue officers get relevant information at their fingertips.” 

Excerpts from a letter by Sh. Jyothilal, IAS, Special Secretary IT, Govt. of Kerala



National Informatics Centre established in 1987 has been working very close with the IT initiatives of the Government of Kerala. NIC has been instrumental in changing the mindset of the government staff and has successfully implemented various G2G, G2E and G2C services. Transport, Treasury, Open Source, IDEAS, Higher education, DC*Suite, Agriculture, Civil Supplies, Exam Management, land Records, Entrance Examination Counseling, Registration are some of the key areas where NIC has done commendable work.

NIC's continuous presence is the key factor of success in many of the government initiatives and I wish NIC to become role model in supporting Govt. of Kerala to render effective services to the common man using ICT.

**For further information, please contact
V. S Raghunathan**

State Informatics Officer
NIC Kerala State Unit,
CDAC Building, Keltron House, Vellayambalam,
Trivandrum - 695 033; Ph: 2729894, 2724529
sio@kerala.nic.in

*Story compiled and Edited by:
R. Gayatri, Regional Editor - Informatics*



Status of DC*Suite

Surat - ICT in World's Diamond Capital

Surat (also Susrat) the commercial capital of Gujarat has impressive economic growth because of the Diamond business - 92% of the world's diamonds are cut and polished in Surat, thus it has been called the "Diamond capital of the world." Surat is situated on the banks of river Tapi. Due to a big textile industry, the city is also known as the "Textile City". Asia's largest heavy industrial place, Hazira is also situated in Surat district. The district has a total of 15 Talukas (Tehsils) and it is spread over 7651 Sq. Km of area and as per current census the population of Surat is 50 Lakhs.



Rajnish Mahajan,
State Informatics Officer, NIC Gujarat
sio-guj@nic.in

NIC District Centre @ Surat

NIC, District Centre Surat was established in 1989 with the motto of providing technical support and computer awareness to the different government departments at district level. The district centre Surat has been involved in providing ICT support to the District Administration by way of developing software for different user departments. It has also implemented numerous State and National Level projects. The NIC district centre is an integral part of the District Administration.

Key Activities/Projects

❖ Land Record Computerisation

Land Record Computerisation programme was initiated in 1997. Land details of all 1234 villages in all 15 taluka, have been verified and thus was appropriately chosen as a model for e-DHARA project replication. Now all 15 talukas of Surat district is having full-fledged e-DHARA Centers providing all land related services to the public.

The Bhulekh Software used at e-DHARA centres support recording of all type of land transactions and various village forms can be generated. The crop information of each season and information like irrigation and tenant details, if any, are recorded. Apart from the landowners, departments like revenue, irrigation and agriculture are using the land record data.

❖ Nagarik Suvidha Kendra (NSK)

Nagrik Suvidha Kendra is a window for the citizens to get various

certificates like Income Certificate, Caste Certificate, OBC Certificate, Domicile Certificate and Senior Citizen Certificate. All types of Affidavits, Arms Licenses Renewal, Petition Writer Renewal, Hotel License Renewal and Stamp Vendor Renewal, Learning Driving License are also issued through this Kendra. Software developed by NIC automates the procedures at the Seva Kendra, right from the receipt of application and approval, to printing of various certificates. The Kendra immensely benefits the citizen of Surat and the response has been tremendous since its initiation on 1st May 2005 by Hon'ble. CM, Sh. Narendra Modi.

❖ Ration Card Computerisation

This is another major e-governance initiative of NIC, Surat. All the ration card data of the district is now computerized and the software is used for ration card transactions like addition/deletion of name, transfer of card, etc. Around 12.4 Lakhs ration cards have been computerized and information used for day to day working.

❖ ROR @ Village

It is an extension of Land Record Computerisation Project to Village level. This web application facilitates issuance of the Record of Rights (ROR) from the Gram Panchayat office. Using dial-up connection, Gram panchayat is authorised to request the RoR and print the ready RoR on pre-printed forms certified by the e-DHARA Kendra. This project is successfully implemented in 383 villages of Surat district and greatly benefiting the rural population by the service being offered.



Sh. Ramesh Chavda, DIO Surat explaining the Bhulekh Software to Shri. Narottambhai Patel, Hon. Minister for Water supply during the inauguration ceremony of e-DHARA centre at Palsana Taluka.

❖ **ReD (Registration of Documents)**

ReD software is being used at Sub Registrar office for the registration of property documents. The software is successfully implemented at four Sub registrar offices falling under Surat district and an average of 300 documents are being registered per day. The software is using biometric finger-prints and photographs of both the parties for proper authentication.

❖ **PCIS (Property Card Information System)**

This is an approach for the computerisation of urban land record i.e. Cities / Towns, which includes the properties ownership and other related information. Software also facilitates different kind of mutation of properties. The backlog data entry for all the urban area of Surat district has been completed.

❖ **Election Monitoring System**

This web application is developed for supporting election process at District / State level by State Election Commission. All the Municipal Corporation/Nagar Palika



Hon'ble CM of Gujarat Sh. Narendra Modi at Nagarik Suvidha Kendra

Elections of Gujarat State have been successfully monitored through this system. The software facilitates all kind of polling day status and reports, online election results and all other statistical reports required by State Election Commission. The efforts of NIC were duly appreciated by the State Election commission.

NIC Surat Center is also helping district administration with smooth conduct of different assembly and parliamentary elections.

❖ **Training**

NIC Surat center is frequently conducting different training programs for the state government employees for the successful implementation of different e-governance projects. The center is also providing program specific training to the employees in collaboration with SPIPA (Sardar Patel Institute of Public Administration). 

Excerpt of the letter from Sh.D.V Mewada, District Collector In-Charge, Surat



“NIC- Surat Is providing remarkable services in developing an information technology enabled work culture in Surat District providing Software developing, training, and building an e-governance based citizen service delivery systems in the offices of the district.”

For more information, contact :

NIC Surat District Unit

gujsur@nic.in

Ramesh Chavda

District Informatics officer

Akshay Padiyar

District Informatics Associate

Howrah - Achieving excellence in e-Governance

Howrah, the second largest city of West Bengal has a rich history, which dates back to around 500 years. It is situated on the west bank of the Hoogli river, and is Kolkata's twin city. Though it is the smallest district in area, the city is densely populated having a total population of 42,73,099 (as per Census 2001). NIC District Centre came into existence in the year 1990 with the aim of bringing ICT at the doorstep of the district administration.



Motiur Rahman
West Bengal Correspondent
motiur@nic.in

Since inception the centre has achieved many milestones in e-governance. This has made the district administration more responsive and transparent, thus transforming it into an electronically governed administration. The centre has provided e-mail and Internet support to various departments at the district level. Official email accounts for block and panchayat level functionaries have been created paving way for faster official correspondence.

The various e-governance projects successfully implemented by NIC Howrah District Centre are as follows.

Vahan and Sarathi:

The Vahan software for computerization of Registration of Vehicles had been implemented in the district since March 2006. All the functionalities related to registration of vehicles have been implemented. The Sarathi software for computerization of Driving License has also been implemented. The implementation of the software has ensured better services to the citizen, transparent interface between the government and the citizen, better management and supervision of vehicular information adhering to the Motor Vehicles acts and rules.

Common Integrated Police Application:

CIPA, a national level project was launched by the Ministry of Home Affairs for the police department with a view to reduce manual records & registers at the

Police Stations. In the first phase the project is being implemented at 10 police stations of the district. The computerization of the entire activity at the police station has been taken up and the project is progressing well in this regard.

Land Acquisition Information System:

The LAIS software is successfully implemented and has



Howrah Road Transport Office Computerization

benefited the citizen as well as the district administration. Land Acquisition is a vital function of the Land Acquisition Department of the Collectorate. In the manual system, preparation of estimate, land schedules, calculation, award preparation, payment notice and other activities caused tremendous delay in the payment of compensation to the persons affected, which resulted in a huge amount of interest payable on compensation. The Land Acquisition Information System (LAIS) software has accelerated the disposal of the Land Acquisition cases thereby benefiting both the Government and the Citizen.

Computerisation of Land Records:

The BHUMI software for

computerization of land records has been successfully implemented at all the Blocks and Land Reforms Office of the district. The computerization of Land Records is aimed at computerization at block level and district level "Land Reforms Office". The software is used for computerization of existing Land Records volumes. The system facilitates on-line mutation and speedy disposal of cases which has led to maintaining an up-to-date status of the records. The common citizen service provides certified copy of ROR (Record of Rights) and plot related information.

Computerisation of Salary Accounts (COSA): The software had been implemented at about 30 locations at the District, Sub-division and Block level. Other offices are also taken up in a phased manner with the aim to cover all the DDO level offices in the district. The software was developed as a low-cost desktop application. It ensures accuracy and timeliness in the preparation of pay bills, schedules and annexure as per the requirement for generating the salary bills.

Computerisation of Registration of Documents (CORD): The software was successfully implemented in the district at 5 Nodal Centres covering 8 Additional District Sub Registrar / District Sub Registrar Offices of the district. The software maintains various details of documents for registration as well as the accounting procedures for the revenue generated in the process.

Official Website of Howrah: District official website (<http://howrah.gov.in>) provides vital information related to the district along with the facility to download public utility forms and tender notifications. The section "District at a Glance" gives details of the departments with contact numbers, Tourist Information, Area & Population, Geography & Climate, Block Details, Industries, Medical facilities etc.

Geographic Information System: A digitized base map of Howrah district has been prepared incorporating information related to Blocks, gram panchayats, mouzas, roads & railways. Various thematic maps are being prepared related to Health Centres, Educational Institutions, Police Stations, Industries, ICDS Centres, Agricultural Cropping Patterns, Relief & Flood shelters etc. The GIS as a tool, has been effectively used for decision making and planning process at the district level. A regular training program for imparting knowledge on GIS and its applications are being conducted for district level officials.

Training: Training on various e-Governance projects as well as general computer awareness program for officers and staffs of the district administration has been a regular activity. During the current year a special training program

was undertaken for all the officers and staffs of the District Collectorate. Officials from NIC state centre also participated in the training program.



Training of District Officials in progress

Other significant projects implemented by NIC Howrah are:

- ❖ Computerization of Provident Fund for Landless Agricultural Labourers
- ❖ Public Grievance Redressal System
- ❖ Letter and File Monitoring System
- ❖ Polling Personnel Deployment System for General Election to Lok Sabha, Vidhan Sabha and Local Body (Panchayat & Municipalities)
- ❖ Prime Minister Gram Sadak Yojna (PMGSY) i

Excerpts of a Letter from Sh. Khalil Ahmed, IAS, DM & Collector Howrah...

"NIC Howrah district has made remarkable strides in e-governance and there has been sea change in work culture through the use of computers. The general awareness about ICT and service delivery to the citizen has greatly improved. There has been marked improvement in transparency in day to day functioning of the administration."

For further information, contact:

NIC Howrah District Centre

Phone: 033-26411224

wbrh@nic.in

Shampa Das

District Informatics Officer

Debdeep Guha

District Informatics Associate

Bidar - Reviving Futuristic e-Governance

In the northern-most part of Karnataka lies Bidar-a tiny district steeped in history with forts, cannons, palaces in ruins, magnificent tombs and the massive monuments. The ancient centre for cultural synthesis on way to revive with futuristic e-Governance technology.



S. Lakshmeesha
Karnataka Correspondent
slak@mail.kar.nic.in

NIC Bidar District unit was setup in the year 1989 and ever since its inception, the unit has developed and implemented various MIS and decision support systems to enable District Administration to take informed decisions and serve the people in a more efficient way. NIC Bidar provides technical support to the major arms of the District Administration namely Revenue, Police & Zilla Panchayat (District Rural Development Agency). In all, more than 25 departments in the District utilize the technical expertise and the ICT infrastructure of NIC Bidar District unit.

e-Governance projects of Central Sector and State Sector are being implemented by NIC Bidar at the District, Block and Panchayat levels. The NIC District Unit has also helped the District Administration in capacity building for the usage of ICT tools by way of organising necessary and useful training programmes for the employees of various departments. The Bidar NIC District unit is a leader in the District for the development and implementation of E-Governance Projects.

Some of the major ICT projects carried out by the NIC Bidar District unit include:

Spandana Single Window Public Service Counter for 20 different Public Services offered from DC Office Bidar. A software package to monitor the day to day operations of DC Office, Spandana- Single Window Public Service Counter has been developed by NIC Bidar. The Software accepts applications for the services offered based on a check list and prints the receipt for the public indicating the date of delivery/disposal for the service request. It allows the Spandana data

entry operators to update the action on the received request like calling of information from various sub offices. It keeps track of all the actions for various requests received at the Spandana counter. Every Saturday, the Deputy Commissioner Bidar reviews the status of various requests. The software helps in generating pendency reports.

AGMARKNET (Krishi Marat Vahini): Daily Market Prices from the five APMCs (Agricultural Produce Marketing Committees) in the District are being fed to the Maratvahini-AGMARKNET web portal benefiting the farmers / traders.

Land Records Computerisation (Bhoomi): About 4 Lakh Computerised RTC's(right of tenancy and cultivation) in all Five Blocks of Bidar District are available in the five Bhoomi centres at Taluk Magistrate office. Mutations are done online with Biometric authentication system. The District Administration has collected more than Rs. 2 Crores as user charges through the Bhoomi kiosks. Connectivity to state data centre has been established and Integration with Cauvery Sub Registrar's office online land registration project is also completed and now JSLIPS are sent online to all the Tahsil offices from the respective sub registrar's offices.

National Rural Employment Guarantee ACT: Under this ACT all 175 Gram Panchayats (GP) and 5 Taluk Panchayats are being given Systems and NREGA s/w is being implemented. As on date NREGA S/w is installed in nearly 50 GP's and by July 2007 end all 175 GP's will have NREGA s/w implemented. Sub Committee III of Parliamentary Committee consisting of 7 MPs visited Bidar in the first week of



A working day at NIC Bidar

January and visited Austoor GP of Bidar Taluk and saw the live data of NREGA and said this GP is a model in NREGA computerisation.

Neemadi (Rural Digital Services) Kiosks: 30 Neemadi Kiosks in 30 Hoblies of Bidar are operational in all taluks and as on date issue of RORs (Record of Rights) from Bhoomi using Internet connectivity is under progress and by July 2007, 30 different services being given through the Tahsil office will be made available through these Kiosks. The services include issuance of certificates like Birth Certificate, Caste Certificate and Income Certificate and issuance of pension orders.

District Passport Cell: District Passport cell has been established at SP Office Bidar for online passport registration. NICNET is being used for data transmission.

E-Granthalaya: E-granthalaya centre at District Central Library is established with Kannada Language interface front end software. Data entry is underway and will be online for library users soon.

Samanya Mahithi: This Village Amenities database is updated annually and hosted on the Rural Development & Panchayati Raj department Web Portal.

District Web Site: (<http://bidar.nic.in>) the official district web site developed by NIC Bidar is hosted at NIC-Delhi in the Districts of India portals web server. It is regularly updated and the District Administration is using it for hosting tender notifications and job advertisements.

Ashraya: Housing Schemes Beneficiary details for rural and urban areas is captured. Also monthly progress updation over the web by ZP and DC office Bidar is being done.

Paavathi: Voucher Level Accounting Software for ZP Bidar - The vouchers entered at all the treasuries of Bidar District are imported and various reports like FORM 15 & 13 for all the major heads is generated. This software has reduced the work of about 10 ZP accounts compilation persons to just taking prints and checking the treasury schedules.

Student Internet World: 2004, 2005, 2006 - For the Past

three years NIC, Bidar has organized a four day Student Internet World event which is a Part of the IT.COM event of Government of Karnataka for the rural high school students. Under this programme more than 15000 rural high school students have been trained in the usage of Internet.

VAT SOFT for CTO Office Bidar: Online VAT Monitoring System for Commercial Tax Office Bidar was implemented in the year 2006 and is working successfully.

BPL Survey Database: Technical support was provided to the Zilla Panchayat for capturing the BPL survey information.

Sahakara Darpan: Updation of Cooperative Audit reports over the Web is being done regularly.

Elections Management: Support was provided to the District Administration for the conduct of various Election related activities for the General Elections & ZP/TP Elections.



Spandana- Single Window Public Service Counter

Some of the projects planned for the year 2007 are Sachivalya Vahini Web based Letter and File Monitoring system for DC office Bidar. Career Guidance Portal for Rural High School Students of Bidar at bidar.nic.in. Sugar Portal attached to bidar.nic.in with supply and value chains of Bidar District Sugar cane farmers and sugar industry as Bidar District is off late a major sugar cane growing area. 

For further Information, contact:

Phone- 08482-226111

Email: lingaraj.t@nic.in

NIC Bidar District Unit

Lingraj Tirlapur

District Informatics Officer

e-Nagrik Sewa Kendra - Jharkhand

With the motto of providing good governance to the common citizens through the usage of ICT, the government of Jharkhand took an important step, that of setting up e-Nagrik Sewa Kendras, the first of which was inaugurated at Dhanbad recently. NIC Jharkhand developed an application for providing G2C services from the Kendra. The web interface (<http://www.jhr.nic.in/csc>) presents a Citizen and a Government interface. The e-Nagrik Sewa software facilitates submission of application forms by the citizens for issue of certificates like Caste, Birth, Death, Residential and Income. The citizen interface provides for the submission, tracking and monitoring of applications along with the facility to download forms and guidelines issued by the government from time to time. The Government interface provides for updating the status of the applications submitted and generates the Certificates using the utility link.



Prashant Belwariar
Informatics Regional Editor
prashant.b@nic.in

Development Platform

The software has been hosted on state of the art Data Centre of NIC. The development team has used windows environment with ASP.Net as the front end and SQL server database as its backend.

Features of the Application

❖ Citizen applies for the issue of Certificates like Caste, Birth, Death, Domicile (Residential) and Income at the kendra. The authority at the kendra helps in generating the required application form and the list of required documents through the web downloads. After receiving the filled up application and the prescribed fees, a receipt with acknowledgment number is generated. The acknowledgment number is used for tracking the status of the application.

- ❖ The applications are processed through the normal channel of the office. The concerned officer updates the status of application at his/her end, as Received, Ready or Issued with remarks, if any.
- ❖ The designated operator enters the necessary parameters after it is processed in the office. The incharge of the concerned certificate will verify the entry. Then the certificate is printed, signed and issued. Subsequent modification/duplicate printing is allowed after authentication. 

For further Information, contact:

Shahid Ahmad

State Informatics Officer

sio-jhr@nic.in

or

Amar Sinha

Technical Director,

amarsinha@nic.in

On 25th of April 2007, the first “e-Nagrik Sewa kendra” was inaugurated at the block headquarter, Dhanbad by Sh. A. K. Basu, Principal Secretary, IT, Govt. of Jharkhand.

Speaking after the inauguration, the Principal secretary announced that the system will be extended up to the Panchayat level as well under the CSC program of the Govt. of India. He thanked NIC, Jharkhand for developing the software within a record time. The function was attended by Smt. Beela Rajesh, D.C, Dhanbad, Shri J. P. Singh, DDC, Shri Anil Kumar Singh, Circle Officer, Shri Birendra Singh, Block Development Officer, Smt. Rashmi Sinha, DPRO, Shri Shahid Ahmad, SIO and other officials from the state government and NIC. The event was coordinated by Shri M. N. Singh, DIO, Dhanbad.



Election Personnel Deployment System

Uttar Pradesh took a major step forward by automating & customizing the Election Personnel Deployment System during the current Vidhan Sabha elections in April-May 2007. The 'Election Personnel Deployment System' or EPDS has been jointly developed by NIC, State Unit, Lucknow and NIC District Unit Rae Bareilly. It has been rolled out in all the districts to have a common software across the state. The application takes care of all the guidelines issued by the Election Commission of India and generates various kinds of reports required by the District Administration, State Election Commission and Election Commission of India.



Anshu Rohatgi
Informatics Regional Editor
anshu.rohatgi@nic.in

The EPDS system has been developed after a detailed study of various packages developed by different district centres, it has adopted best practices from other applications, and has also taken into account the suggestions and feedback given by Election Commission. The technology used is Visual Basic-6.0, SQL Server 2000 and Crystal Reports 7.0, while some of the distinct features are -

- ❖ The fully menu driven software helps district administration in entire process of Personnel Management.
- ❖ Based on randomisation technique, it is used for the Deployment of Polling Personnel, Polling Parties, Counting Personnel, Sector Magistrates and Zonal Magistrate using randomization technique.
- ❖ It helps in preparation of Route Chart, and provides information of Booth Entry, Sector, Zone Entry, Constituency Details etc.
- ❖ User/Role base security has been inbuilt into the system for each job like personnel data entry, booth entry, route chart entry, deployment etc. This prevents unwanted access to the database and defines responsibilities of the staff.
- ❖ The application generates different reports as per the requirement of District Administration/Election Commission which help the local administration.

This software has standardized the election personnel deployment

system across the state. It has not only benefited the district administration but has also provided a platform to manage and monitor the process at the state level. The project has been appreciated far and wide and the efforts of the entire team of Sh. S.B. Singh, SIO, UP, Sh. SFA Naqvi, Project Incharge, Sh. U.B. Mall, DIO, Rae Bareilly and Sh. Rajeev Lakhera, SOE are praiseworthy for bringing about a welcome change in the process.

Appreciation received from one of the Polling Observers

On behalf of all observers, I would like to record our appreciation for the methodical manner in which the entire work related to data entry and randomization of personnel has been done in the district.

Tejveer Singh,
General Observer (PB1194)

Many other districts like Shahjahanpur, Sant Ravidas Nagar, Agra, have received similar appreciation from the polling observers and district administration. The efforts of NIC officials have been lauded and the EPDS system complimented. 

For further details contact
S.B. Singh,
State Informatics Officer
NIC UP State Unit
sio@up.nic.in
Phone 0522-2238415,
Fax 2238977

International e-Gov Update

Estonia conducts world's first national elections through Internet

The Baltic state of Estonia recently became the world's first country to allow voting in a national parliamentary election via the Internet. Estonia, on March 4th conducted its latest parliamentary election, in which 3% of the ballots were cast electronically. Estonia has gained a reputation for computer literacy since it left the Soviet Union in 1991 and allowed Internet voting in local elections in 2005, when about 10,000 people voted online.

This feat has been made possible by Estonian ID cards, which function on an electronic crypto-processor, based on smart-card technology. It includes personal certificates and private keys of the card-owner. To vote, Estonians had to put their state-issued identification card, which has an electronic chip on it, into a reader attached to a computer and then enter two passwords.

The implementation of ID-card involved establishment of a new nation-wide infrastructure in Estonia. The structure includes certification service provider (certification centre and its subunits), who issues certificates, and catalogue service provider, who takes care of making these certificates available for everyone. Pursuant to the Estonian Digital Signatures Act, the structure also includes time stamp service provider who issues time stamps for digital signatures.

Mrs. Marika Priske, Secretary General from the Ministry of Economic Affairs and Communications, Govt of Estonia, said, "Promotion of the national ID card in the use of public sector e-services is vital in order to increase citizens' trust for e-services and make them feel at ease in their communication with the state over the internet"

Source : Reuters News Feb 21,2007

m-Dubai Initiative

The Government of Dubai has launched an initiative called m-Dubai to provide information and services to its citizens on mobile phones. The initiative has put Dubai among one of the leading governments in Middle East that have taken the lead in mobile-Government initiatives. The Company that is providing these services is promoted by an Indian entrepreneur from Bangalore. Under the m-Dubai initiative, the government of Dubai will soon be enabling the payment based transactions on mobile phones.

The initiative is an innovative channel for communication between customers and Government Departments via SMS introduced by Dubai eGovernment. Under this service, the customers can request information from various government departments anytime through SMS. There are two distinct modes of this service :-

SMS Push: The service pushes information from Various Government Departments through SMS to registered customers. Some of the Departments providing information through the SMS push service include

- ♦ Dubai Civil Defence
- ♦ Dubai Development Board
- ♦ Department of Economic Development
- ♦ Dubai eGovernment
- ♦ Dubai Chamber of Commerce and Industry
- ♦ Dubai Civil Aviation
- ♦ Department Of Health & Medical Services
- ♦ Dubai Media Incorporation
- ♦ Dubai Police
- ♦ Dubai Ports, Customs and Free Zone Corporation
- ♦ Dubai Courts

SMS pull: This service allows customers to initiate a communication by inquiring on Government Services by sending a keyword along with the requisite parameter to a pre-specified short code of Dubai eGovernment and receive an instant response to their inquiry. Some of the services which are currently being provided through 'SMS Pull' include Flight Information (Dubai Civil Aviation), Traffic Fines (Dubai Police), Trade Licenses Status and Fees (Dubai Economic Department) etc.

For more detailed information, log on to - www.mdubai.ae

Denmark tops Networked Readiness Index

For the first time, Denmark tops the rankings of The Global Information Technology Report 2006-2007's "Networked Readiness Index", as a culmination of an upward trend since 2003. Denmark's outstanding levels of networked readiness have to do with the country's excellent regulatory environment, coupled with a clear government leadership and vision in leveraging ICT for growth and promoting ICT penetration and usage.

With record coverage of 122 economies worldwide and published for the sixth consecutive year, The Global Information Technology Report (GITR) has become the world's most respected assessment of the impact of information and communication technology (ICT) on the development process and the competitiveness of nations. The Networked Readiness Index (NRI) measures the propensity of countries to leverage the opportunities offered by ICT for development and increased competitiveness. The NRI is composed of three components, assessing the environment offered by the country in question, the attitude of its key stakeholders, and the uptake of ICT among those stakeholders.

It also establishes a broad international framework mapping out the enabling factors of such capacity.

The Report is produced by the World Economic Forum in cooperation with INSEAD, the leading international business school. As compared to last year, United States has fallen six places to seventh position.

Sweden, Singapore and Finland are in second, third and fourth places, respectively. India ranks 44th in the list, after going down four positions as compared to last year.

Read the full report at <http://www.weforum.org>

Operation Village Health : Cambodia

The utilization of telemedicine to bring sustainable and quality health care to underserved populations' has got a new dimension with the successful 'Operation Village Health', a cross-cultural programme providing email-based physician support to Cambodian health workers in two remote sites, allowing Harvard-affiliated specialists to share their knowledge and collaborate with underserved communities on the other side of the globe.

Through this Programme, two monthly telemedicine clinics, held in remote areas of Cambodia, give patients access to physicians at Massachusetts General Hospital, Brigham and Women's Hospital, and Partners/Dana Farber Cancer Care.

The two villages where these clinics are held, Rovieng and Banlung, are extremely remote. Prior to the development of these clinics, neither of these villages had access to medical specialists. Most villagers had never seen or met a physician before in their life yet alone have received medical care. This program shows how healthcare knowledge can transcend geographic boundaries to provide effective medical care through simple low-cost technology.

As part of the Operation Village Health initiative, a visiting nurse from Phnom Penh makes an arduous six-hour trip by truck to each of the villages. Here he or she interviews, examines and digitally photographs patients, then transmits the information by satellite to physicians in Boston using a solar-powered computer. Within hours these physicians respond with medical opinions and treatment recommendations. Hundreds of clinical consultations have been performed since the inception of these telemedicine clinics.

The rate of offsite patient referral and the duration of chronic medical problems among villagers have decreased since program inception. A random survey of patients demonstrated that they are satisfied with the telemedicine service and that most are willing to pay an average of \$.63 per visit. Overall, this ICT-enabled initiative seeks to provide a model of enhanced and affordable local care for underserved communities.

The implementing organization behind the initiative is 'Partners Telemedicine'(now known as Centre for Connected Health), a US based organization in the area of remote health care and the Project has been operational since 2001. For its outstanding service in improving health conditions in a place like Cambodia using ICT, the Operation Village Health Initiative won the prestigious Stockholm Challenge Award in 2006.

For more information, visit http://www.stockholmchallenge.se/data/operation_village_health

Pensioners' Portal

Pensioners Portal, a Mission Mode Project under the National e-Governance Plan (NeGP) of the Government provides the much needed information and services to the pensioners online. Pensioners' Portal, (www.pensionersportal.gov.in) is a one stop source for accessing online information useful for the central government pensioners (especially civil pensioners) spread across the country. The highlights of the portal include online pension calculators, pension rules and procedures, pension circulars, FAQs on Pension Acts and Rules, Guidelines for Pensioners, Pension Process Map/Time Frame, Pension-related Forms, PG Nodal Officers of various Ministries and Departments, interactive services such as PPO Status enquiry etc., besides links to a number of web sites related to pensioners.



Dr. J Dass
Senior Technical Director, NIC HQ
drjdass@nic.in

The Portal was inaugurated recently by Sh. Suresh Pachouri, Hon'ble Minister of State (Personnel) in the presence of Smt. Rajni Razdan, Secretary (ARPG & Pension) Sh Satyanand Mishra, Secretary (DOPT), Sh Jainder Singh, Secretary (IT) and Dr. B.K Gairola DG (NIC).

Pensioners' Portal has been developed and hosted by NIC in association with Department of Pension and Pensioners' Welfare. Role of the NIC team working on the Project, led by Dr. VVS Rao, DDG and head, Personnel and Administrative Reforms group was well appreciated by all those present at the occasion. The Team is being supported by Director (Pensions) of DoP&W for content authentication.

The pensioners' portal would also facilitate online lodging and monitoring of pension grievances when integrated with the Centralized web-enabled Pension Grievance Redress and Monitoring System (CPENGRAMS)

CPENGRAPMS

CPENGRAMS is an online web-



enabled system over NICNET developed by NIC in association with the Department of Pension & Pensioners' Welfare with an objective of speedy redress and effective monitoring of grievances. This system aims at providing a faster access to the public, besides offering online facilities to lodge grievances, send reminders and view the Action Status. CPENGRAMS is now been taken up by DoP&W for implementation in various Government Offices. **i**



Sh. Suresh Pachouri, MOS(Personnel) inaugurating the Pensioners' Portal, seated along with (from his right) Secretary (ARPG & Pension), Secretary(Personnel) and (from his left) Secretary(IT), DG(NIC), DDG (NIC) and other senior officials of Ministry of Personnel and NIC.

**For further information,
please contact**

PersInfotech Division, NIC
persinfotech@nic.in

e-Governance - Vision and Priorities

Sh. R Chandrashekhar, Additional Secretary (e-Governance), talks to Informatics about the vision of Indian Government behind the e-Governance initiatives and the critical factors for their success...

i Government has set a vision to make India an IT Super power by 2008. What role does e-Governance play towards the realization of this vision?

RC: Being an IT super power is not only about having a broad range of IT capabilities or a vast number of skilled people. The vision of an IT superpower is also one of a Country which uses IT extensively for its own development, progress and efficiency within the country.

e-Governance plays a very major role in this, particularly in terms of encouraging proliferation of resources in the Country. Use of technology in the government, economy and society have a great synergy with each other. In the absence of progress in one sphere, it is very difficult to imagine major progress taking place in the other spheres. Quite often, e-governance can act as a significant trigger or a catalyst for progress in different spheres. Another point is that in case of e-governance, the entire development effort largely has to be done within the country, which gives an opportunity to our IT industry to work at the highest end of projects.

i How significant is National e-Governance Plan (NeGP) in bridging the digital divide in the Country?

RC: NeGP broadly has two major aims, first to make government



services available electronically. And second, to enable the common man, in particular the citizens in rural areas, to have access to such services. In a country like India where we have Assisted Community Access, the implication of this is that while creating the access of government services, you are also creating access to all other kinds of services, which could be developmental, economic, employment generating or maybe even in the area of entertainment, because the pipe for communication and access is the same. Therefore in the attempt to create and make these services available, we would also be bridging the digital divide to a significant extent as a part of the NeGP.

i What is the Government's vision behind setting up Core infrastructure for e-gov implementation including 100,000 rural Common Service Centres and SWANs across the Country?

RC: Basically the government is

concerned about making services available electronically, not just in cities and by well-to-do people who can afford computers but also by those who are not well off and in the rural areas. So the wide area networks aim to push the connectivity right upto the villages.

The government has also set up universal service obligation fund to provide connectivity to rural areas but from our point of view, we look at services and connectivity as being hand in hand. One without the other is not of much use. The other key reason why we would like to have most of these CSCs and SWAN in place by the second half of 2008 across most of the country because there is always a debate on which comes first, services or infrastructure. The short answer to that is neither comes first and neither can exist in the absence of other. If you just create the infrastructure and not have any services, it would be a waste of resources. On the other hand, if you create the services and not have the infrastructure, then nobody can avail these services. So while DIT has initiated this programme and a lot of Public Private Partnership has been used in the creation of this infrastructure, there is a need to work at the back-end with the departments to create the services in tandem. So that by the time infrastructure is ready, services are also ready. Initially of course there will be fewer services but they will grow with time.

i How far have the Mission Mode Projects under the

NeGP progressed and how would they make a difference to the lives of common citizens in the Country. Do you have any personal favorites among Mission Mode Projects?

RC: A lot of ministries and departments, both at centre and states have been covered under the mission mode projects. While significant progress has been made in the use of IT to bring about internal efficiency as well as in digitization of data, in most of the cases we are at a very preliminary stage in terms of actually making services available remotely. This is really the next level that we have to reach. Among these projects, my favorites are all those which are delivering the services because that is really where the true work is being made visible on the ground. I would therefore feel that the best referee of the services is the common man who has actually availed of the services. In central projects, we have examples like Income tax, passport, company affairs. In states there are areas like land records, transport, registration etc. In several of these projects and states, people have begun to see the benefits. That is why the government is putting emphasis on these areas. Because government policies don't exist in a vacuum. They are reinforced by citizen feedback, citizen pressure and media. All of these have to be seen as healthy indicators of progress and that's where one can attempt to emulate the good efforts.

i What does the future hold for the e-Gov scenario in our Country?

RC: With the kind of emphasis being placed on e-governance, obviously, it will become more important as we move forward. A key question would really be how to measure the progress being made. To my mind there are two main indicators; first, the percentage of government services being made available electronically and secondly, the percentage of people who have access to these services. This is the true measure of the progress of e-governance and our aim should be to maximize both of these.

Another key point is that as we move from IT to E-governance, the nature of the efforts that need to be made have changed. We are no longer talking about use of IT or even e-Governance. It is about transformation, i.e transforming the processes by which the government functions, interacts and delivers the services. As this transformation is sought, what becomes critically important is the vision of the people who head the domains. It is therefore very important for people who head organisations to have a clear vision, not necessarily

an IT vision but on how the organization should develop in the new era. That kind of leadership from within the domain is a critical element and will determine the speed and effectiveness of progress in e-governance.

i What has been NIC's contribution towards the progress of e-governance?

RC: I would be stating the obvious if I were to say that NIC has been responsible for a large part of progress made in the area of e-governance in the country. That's known to everyone and is a well established fact. Yet, there are changes taking place in the environment around us which have a significant impact on the qualitative aspects i.e the nature of the role which needs to be played.

In the past, NIC has played a sterling role in inducting technology, establishing networks and infrastructure, developing applications and software, managing data and information of government. In short, it has been a one stop shop for every IT need of the government. Today the scenario has changed for two major reasons -

First, the needs of the government has multiplied several fold. In that sense, it is the earlier efforts of NIC which have led to this increase. Secondly, there has been a vast growth in capability and skills outside of the government and we have over 2 million IT professionals outside of government. The need is to recognize this and adapt to the change.

While the government needs to use these outside skills to meet the increased demand, there are some aspects that it needs to be careful about. For eg, the government needs to ensure continued control over the data which will increasingly become digital and today that is a major area of threat. Another consideration is in terms of creation of infrastructure. Today there is a lot of capability outside of government to create infrastructure and it should be used. But even while doing that, government would need to maintain control over the entities that are setting up and creating that infrastructure and the right kind of control can be exercised only by a competent organization like NIC.

Similarly in case of applications, irrespective of who develops them, government needs to retain an appropriate and adequate degree of strategic control on a long term basis. That is the kind of a role which an organization like NIC is expected to play. We are entering an era where challenges of security and control are major areas. As the main technical arm of the government, obviously the responsibility of ensuring the continued control would largely rest on an organization like NIC. **i**

ICT in Modernization of Police

A.K. Srivastava

Joint Secretary (Police Modernisation)
Ministry of Home Affairs
aksrivastava@nic.in

Police forces across the country today have to face challenges like terrorism, naxalism, extremism, fundamentalism and organized crime. The crime scenario has become complex with criminals acquiring modern gadgets and using sophisticated technologies, including extensive use of ICT. Ministry of Home Affairs has been assisting State Governments in modernizing their police forces under a scheme known as Modernization of Police Forces (MPF) for over 35 years



Ministry of Home Affairs has been assisting State Governments in modernizing their police forces under a scheme known as Modernization of Police Forces (MPF) for over 35 years. Under this scheme, assistance is provided to the State Governments through a wide range of items namely the construction of secure police stations, outposts, police-lines, vehicles, modern weaponry, security, surveillance, communication, computerization, forensic equipment, upgradation of training infrastructure, police housing, etc. The scheme includes some specific areas of focus, such as Mega City Policing, Desert Policing, naxal affected States, POLNET & Common Integrated Police Application (CIPA).

Common Integrated Police Application (CIPA)

Information & Communication Technology has been substantially and effectively used in modernizing the state police functioning. While some States have taken individual initiatives to use IT in their police functions, e.g. e-Cops of Andhra Pradesh, the most significant all-India venture of ICT is an ambitious Mission Mode Project (MMP) under the National e-Governance Plan, known as the

Common Integrated Police Application (CIPA). With a view to automate police functioning at police station level for prompt response to the public, CIPA has been launched across the country, initially in 10% police stations, by the Ministry of Home Affairs with the assistance of National Informatics Centre as its implementing agency. As CIPA introduces an element of transparency in the working of police, by significantly reducing manual record / register maintenance at police stations, eliminating duplicate and inconsistent record keeping, facilitating maintenance of record of crime and criminals, keeping track of the status of crime, facilitating investigating officer with availability of records, generating various reports from time to time, ensuring supervision by the senior officers, the victims will be the prime beneficiaries. With the police stations being primary source of data, the derived data required at different levels e.g. district, State & Central, will automatically flow. For this purpose, a bridge software is under development by NIC, which will enable automatic transfer of data from CIPA to already existing Crime & Criminal Information System (CCIS).

Crime & Criminal Information System (CCIS)

CCIS is a national database containing relevant information about crime and criminals, which helps police officers in investigating crimes. It was upgraded in 2005 as a multi-lingual application with facility for five languages namely Marathi, Gujarati, Tamil, Kannada and Gurmukhi

MPF Scheme

The crime scenario today has become complex with criminals acquiring modern gadgets and using sophisticated technologies, including extensive use of ICT. Cyber crime and diverse economic offences are the latest menace. Primarily, these challenges have to be dealt with by State Governments, as 'police' is a state subject under the Constitution of India. However, considering the gravity and magnitude of these challenges, and in keeping with Union's obligation under Article 355 of the Constitution of India, the state police forces are aided by Central Para-Military Forces (CPMFs) under the Ministry of Home Affairs. The Government has also found it necessary that police forces be provided with latest equipment and technology to enhance their capabilities.

besides English and Hindi. Crime analysis feature has also been introduced through data warehousing. The application has been web enabled so that the field level investigating and supervisory officers can access the database at the national and State levels through internet anywhere and anytime.

Police Net

This is the most significant application of communication technology to network police organizations across the country. The inter-state and also intra-state police telecommunications are carried through Police Net, commonly known as POLNET, up to local police station level with 852 VSATs at various State capitals/district headquarters and selected CPMFs. From district headquarters VSAT police stations, to police stations, the communication is to be achieved through Multi Access Radio Telephones (MART). The project is aimed at facilitating direct police station to police station connectivity.

A total of 11,502 Multi Access Radio Telephones (MART RSU) terminals are proposed out of which 2,141 systems have already been established. The voice connectivity is extended to police stations through MART systems. POLNET station at headquarters includes a HUB with 11 meters dish antenna located at New Delhi, which supports total VSAT network of about 1,000 locations. At state capitals, a hybrid topology is employed for VSAT networking with 3.8 meter dish antenna with star and mesh connectivity.

Modernisation of Central Para-military Forces

There are seven Central Para-military Forces (CPMFs) under the administrative and operational control of the Ministry of Home Affairs. These are Assam Rifles (AR), Border Security Force (BSF), Central Industrial Security Force (CISF), Central Reserve Police Force (CRPF), Indo-Tibetan Border Police (ITBP), National Security Guard (NSG) and Sashastra Seema Bal (SSB). To upgrade the operational capabilities of these CPMFs by introduction of modern and sophisticated weaponry, communication equipment, surveillance equipment, computers, training equipment and transport, etc., a modernization plan for CPMFs is also under implementation.

The CPMFs have also effectively employed ICT in the context of their modernization plans and derived substantial benefits in improving their operational efficiency.

◆ CRPF

The first major ICT application has been implemented in CRPF, the largest of all CPMFs. Known as Intranet SELO;

it is a web-based intranet Application Software covering almost all functions of the force viz. operations, personnel management, inventory management, budget and finance, mail messaging, workflow and document management system. In first phase of the project, it has been implemented at 84 offices / locations across the country. The Intranet is being extended to 30 newly created offices in its second phase.

The project has been found very useful as it provides on line functioning of the force from Directorate General's office down to Group Centers. Since all offices are connected on WAN environment, any information required is readily available online. The pay roll system, TA/DA and supplementary bills are working successfully on SELO Network. All communications between various offices are being carried out through mail messaging through the network. The workflow has been implemented in all SELO connected offices.

BSF

BSF is in the process of launching a similar project called Intranet PRAHARI for computerizing its operations and office functioning.

SSB

SSB has created LANs at force headquarters and all its three frontiers, viz. Lucknow, Patna and Guwahati. Inter office information is being exchanged through the LAN via broadband connection. For quick interaction, decision making process and maximizing operational communication over ISDN lines, a video conferencing system between force headquarters, Guwahati frontier and IT&T Training Center, Faridabad has been established.

ITBP

ITBP, under its modernization plan, has provided VSAT terminals at 16 locations and employed BEST equipment and SMART equipment. VSAT terminals have enabled reliable real-time long distance communication, which was hitherto difficult through HF communication. This also provides voice communication.

CISF

CISF has established LAN at its sector headquarters, zonal headquarters, group headquarters, NISA, Hyderabad, recruitment training centres and reserve battalions. A software, e-samarth is being developed by NIC for GPF solution to connect all four RPAOs with central server at NIC where GPF details will be accessible to all CISF personnel online. In the second phase, CISF will be able to register grievances regarding errors in GPF accounts online using this software. 

Designing a Data Centre Facility

With emphasis on electronic governance, on-line access to government information and electronic delivery of citizen services, the need for unified, high quality, secure and scalable e-governance infrastructure spread across the nation has become very vital. Data Centres form the foundation pillars of the e-governance Infrastructure. They shall become repositories of Government data & information be it primary data captured and digitized at the source, secondary data such as meta data, processed data, analysis reports to tertiary data about the usage or processing of the data such as transaction logs, usage logs, access & authentication data.



Neeta Verma
Senior Technical Director, NIC HQ
neeta@nic.in

Government Data Centres are expected to house wide variety of applications, using varied spectrum of technologies with varying service level requirements with respect to performance, availability & Security. Setting up a Data Centre is a time & resource intensive activity and also requires a highly skilled & experience professionals to set up and manage the data centres (DC). Once set up, these DCs are expected to cater to the requirements of e-governance applications for a long time. Thus they should be designed with a lot of flexibility & scalability to meet the ever growing demand of forthcoming technologies as well as applications. Setting up a data centre involves two broad aspects. :

- ♦ Basic Site infrastructure inclusive of site preparation, power distribution system, cooling and fire protection & physical security
- ♦ ICT infrastructure inclusive of Computing, Storage, Backup, Networking and Security infrastructure.

While computing infrastructure grows over time, the core ICT infrastructure such as Storage System, Communication Network, Security infrastructure has to be planned in the beginning to ensure coordinated growth of DC Infrastructure over time.

Generally people do not pay as much attention on the Basic Site Infrastructure as is needed and face a lot of issues relating to power & cooling capacity in the DCs as they grow . During the past few years there has been a tremendous rise in the heat density of ICT equipments putting in a

lot of pressure with respect to power & cooling requirements in existing DCs. Making any unplanned changes for something as basic as enhanced cool & power capacity may require huge shutdown and at times may not even be feasible. Therefore it is important to analyse and understand the present and forthcoming requirement of DC's physical Site infrastructure and do an extensive planning prior to designing the specifications. This Basic Site infrastructure should be generally planned & designed for about 10 years.

While flexibility & scalability should be the principle objectives behind this exercise, one should take a holistic approach in planning, designing and setting up the data centre. This shall essentially require work around following subsystems of the data centres:

Site Preparation

Location and Type of Building plays an important role in the overall performance of the Data Centre. If one is constructing the building from the scratch , then even the location of the building should be selected carefully keeping in view the Signal Interference, availability of utilities, accessibility, security , vulnerability to natural disasters, etc. However Quite often Data Centres are set up in the existing buildings. Following are some of the important features to look

- ♦ **Site Preparation**
- ♦ **Power Distribution**
- ♦ **HVAC System**
- ♦ **Fire detection & Suppression**
- ♦ **Security System**

for during the selection of building for DC:

Large Column Bays & High Ceiling
Floor Strength (Industrial Types)

Availability of adequate power sources

Freight Lift & adequate riser space for Cables & Ducts, if DC is in a multi-story building

Adequate space to install Power & Cooling Equipments

Most of the material used for Site Preparation for DC right from Flooring, Wall Panels, Glass Partitions, Ceiling should be thermal resistant. Further to facilitate maximum floor loading one should consider using cast aluminum floor tiles or something equivalent in the equipment area.

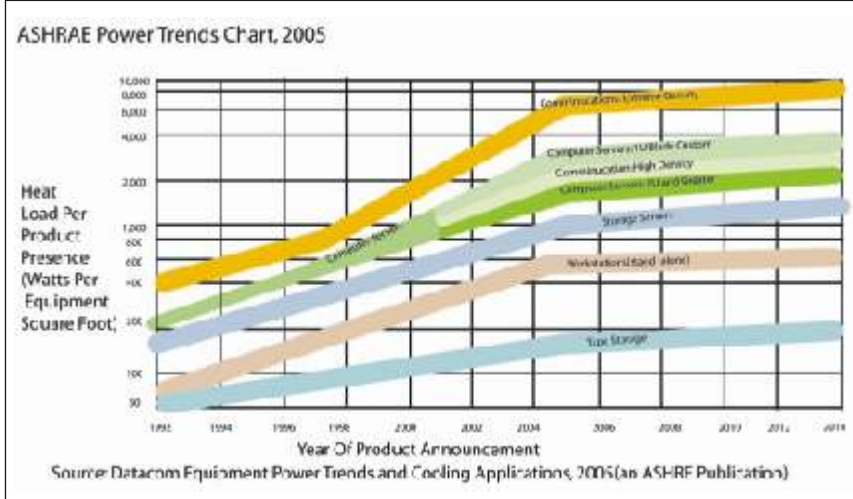
Power Distribution

Another key parameter is estimating the power rating for the data center. This includes power rating for the UPS system as well as for Diesel Generators. Power rating for UPS system is estimated based on the power requirement of the present & future ICT equipment to be housed in the data centre while total estimated power consumption of DC including power required for ICT equipment, Air conditioning system, Lighting etc. will determine the power rating of the standby diesel generators.

Due to constantly growing power ratings of ICT equipment, requirement for power has grown manifold in data centres (refer power trend chart) and it's expected to rise further for next five years. In view of this, one should design the power distribution system with sufficient scalability. One should also build additional capacity into the main electrical components to accommodate future growth.

Some of the guidelines for designing the power distribution system in Data Centre are :

1. Power to data centre shall be preferably provisioned from two independent sources
2. Provision for maintenance bypass and emergency shutdown.
3. Provide Redundancy in all critical components
4. Provision for a grounding system signal reference grid (SRG) to reduce high-frequency impedance.
5. UPS should be planned with enough battery backup to enable activation of DG Sets or graceful shutdown of the ICT systems in case of emergency



Heating, Ventilation and Air Conditioning (HVAC) System

Due to tremendous growth in heat density of ICT equipments as well as need for vertical growth in Data Centres, provision of adequate and appropriate cooling is one of the major challenge for Data Centre Managers. Correct estimation of cooling capacity, selection of cooling technology and distribution of cool air vs placement of ICT equipment to position of floor tiles are important parameters/ factors to be considered during the design of HVAC system in the DC. One should also plan for redundancy in cooling solution by installing multiple HVAC units, rather than a single, centralized Unit.

Cooling technology could be refrigerant based or water based. However, to avoid risks due to water leakage in the data centres, in small & medium size data centres refrigerant (DX) based cooling is used. While in very large data centre with very high heat density (20-25 KW) water



based cooling becomes more economical. Under floor distribution of air can be an effective means of cooling.

Raised Floor

If underfloor cooling is deployed, height of Raised Floor shall be adequately selected. Height of raised Floor is determined based on two factors :

Size of the DC, particularly equipment or Server Area. Larger equipment area shall require higher raised floor to achieve requisite air flow.

Heat Density or cooling requirements of the ICT equipments, proposed to be installed in the data centre. Higher Heat Density shall require higher raised floor.

However one needs to look into cost effectiveness of the solution as beyond a certain point (more than 10 KW per rack), under-floor cooling is not effective and one needs to augment it with supplementary cooling technologies such as in row cooling, in rack cooling etc.

Cold Aisles & Hot Aisles

To achieve more-efficient cooling, server racks are placed in a manner (ref diagram) to create alternate cold aisles and hot aisles. Further , perforated tiles are positioned in the raised floor to direct adequate chilled air into the racks. Layout of cable trays & ducts should also be so designed that it does not obstruct the airflow making cooling less effective. Generally all cable trays should be aligned in Hot Aisles. Over head cable trays could also be considered wherever possible, particularly if one is not able to get adequate raised floor space.

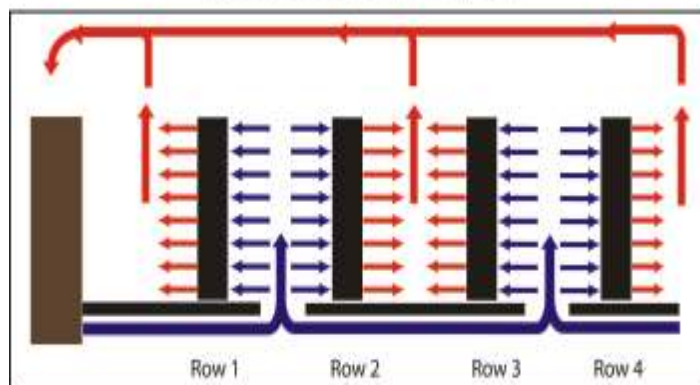
Effective Airflow

Airflow is another important parameter to be considered during the design of HVAC system. Layout & positioning of Equipment in DC affects the movement of air through, between and over the rack area and if not planned properly, it can lead to formation of hot spots. One can use special purpose software to achieve optimum airflow through appropriate location of racks, air-conditioning units and high-density equipment leading to enhanced cooling efficiency and reduced costs.

The power and cooling challenge will not be a perpetual problem. A series of innovations will converge during the next five years that will stabilize the growth in power, particularly for cooling high-density equipment. Innovations are occurring at every level of this ecosystem. The leading processor manufacturers are striving hard to produce increasingly energy-efficient chip sets. Server manufacturers are employing more-efficient power supplies, heat sinks and power management systems, and are also offering a host of in-rack cooling solutions.

- Gartner

Hot Aisle / Cold Aisle Rack Arrangement



Fire Detection & Suppression system

Protection from Fire should be one of the important criterion while designing the specifications for DC. As stated above all the material used in building including the furniture & other equipment should be thermal resistant and should have minimum fire propagation or smoke generating properties.

Comprehensive fire suppression system should be installed in the DC consisting of highly sensitive smoke & heat detection, pre-action and fire suppressants. Fire Suppressant system should meet the building codes recommended by the government agency.

Fire suppression system shall deploy FM-200 or Inergen based gas suppression systems as they are human safe and do not harm the servers. These detectors should be arranged in a manner that they activate the suppression system zone wise to cater to only the affected area and thus

optimise the cost. Fail-safe alarm system should also be in place to prevent false discharge of gas or tampering. Additionally, Portable Extinguishers shall be placed at strategic locations in the Data Centre.

Multi Grade Security

As stated above, Data Centres form the foundation pillars of the e-Governance Infrastructure. They shall be the repositories of Government data & Information. Hence Security is of paramount importance to the Government Data Centres. One needs to devise multi-grade security Infrastructure.

The Data Centre shall be divided

contd... Pg.-48

IPv6- the Next Generation Protocol !!

It has been quite sometime that everyone in the Internet has been hearing about IPv6 (Internet Protocol Version 6) without actually seeing any of its commercial implementation. Though the policies on IP allocations, protocol support and standardization, implementation strategy etc. have matured to a large extent, the use of IPv6 is still very less. Most of the serious business in the Internet is still on v4. The reason for this slow acceptance of the IPv6 is more political than technical. Also, technology like the proxy, network address translation etc. has acted as a first aid for IPv4. The progress and usage of IPv6 is more in Asian countries than in the USA in the initial years. Countries like Japan, Korea, Taiwan etc have gone well ahead into this.



R.S Mani
Senior Technical Director, NIC HQ
rsm@nic.in

IPv6 has 128 bit long address space making it possible to think of more than huge number of IP address in a sq meter of area on the earth. The IP addresses that one can achieve using the 128 bits will be $2^{128} = 340,282,366,920,938,463,463,374,607,431,768,211,456$

The header of IPv6 is quite similar to the IPv4 header and many of the fields in v6 are same as the v4. The key difference is, the header length of v4 is a variable where as in v6 it is fixed. Keeping the header size fixed enables faster processing of the headers as the address field has quadrupled. IPv6 addresses are of different types just as the IPv4 address space and is mentioned in RFC 1918 ad 3330.

IPv6 addresses are scoped and hence the IP address assigned to an interface IP is not necessarily the IP of the machine (RFC 3350). v6 address is separated by colon unlike IPv4. Normally IPv6 address is written in the form of BASE16 numbers. A v6 address looks like a grouped 4 digit hexadecimal number as shown below: 2001:4408:0000:0000:1213:0000:00:6782. This can be written as 2001:4408::1213:0000:0000:6782 too by removing zeros and representing the same with :: and thereby making it easier to represent. However, such representation of 0's can be done only once in an address. Also a group of four zeros can be represented by a single zero. Like 2001:4408::1213:0:0:8724

IPv6 Address Types

IPv6 has the following types of addresses:

Unicast addresses: A packet is delivered to particular interface on a particular node. It is something like a point to point communication.

Multicast addresses: Same as in IPv4. The communication is typically from one to many or many to many.

Anycast addresses: Typically used in root DNS (in IPv4) and in this a packet is delivered to the nearest of many nodes (interfaces). This will be the nearest available node.

IPv6 Address Scope

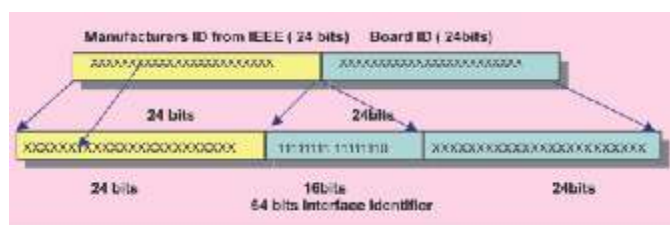
The IPv6 addresses have scope of operations too. A **Link local address** falls in the range : FE80::/64 This means all the link local addresses will have the first 10 bits as 11111101000 and the rest 54 bits as 0's and the rest 64 bits will represent the node or the interface. A link local address will never need a router as the segment is same and there is no need for a router to direct the traffic. A link local address never crosses a link and hence it does not need any router. A **Site local address**, as the name suggests remains within an organization and is not normally routed globally. It is somewhat similar to the IPv4 private address (RFC 1918). This address starts from FEC0::/48. The first 48 bits are fixed and the rest is left for local distribution in the site. Unlike the link local, a site local address requires a router to communicate between various links. A **Global**



Unicast address looks like the one given below. As the name suggests the scope of this address is global and the

address is routable across the organizations.

The best part of the IPv6 is its capability to auto configure when ever there is a change in the address. IPv6 has a strong network Discovery protocol and there are protocols like DAD (duplicate address detection) to detect the duplicate address. Encryption is a part of the v6 protocol implementation and thereby increases the security features. The interface id as shown in figure is normally a 64bit id and the host automatically creates the id from the MAC address (link layer address). The MAC address is 48 bit long and to create a 64 bit, a standard was created called the EUI-64. In this the first 24 bits of the MAC address is appended to a 16 bit field **FFFE** and then the next 24 bit



field of the MAC is appended to 64 bits long interface id. In the modified EUI-64 the 7th bit is made "1" and the rest is same as above.

Just as v4, v6 also has IGP (Interior Gateway Protocol) like the RIPng, OSPFv3, IS-IS etc. and EGP (exterior gateway protocol) like the BGP4+.

IPv6 Test Net

To test the implementation of IPv6, a test bed was created by interconnecting various v6 networks together under one umbrella called the **6bone**. A huge number IP's were allotted for the 6bone to do testing on IPv6. This has been in operation for several years and was discontinued last year.

IPv6 Transition

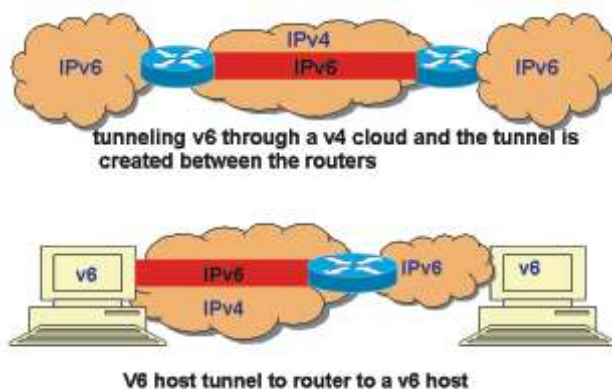
Transition of IPv4 to IPv6 is like shifting a house from one location to another. Imagine shifting the whole world!! It is a humongous task. This has to be carried out in vary cautious manner and one has to run both the versions of IP for a good amount of time before v6 takes over completely. The designers of IPv6 knew that the transition from the commercially well established v4 to v6 is going to be tough task and hence they have taken care of certain aspects of transition by which the users can get benefited. There are multiple mechanisms for transition and some of them are listed below

❖ **Dual Stack:** In this the TCP stack caters to both v4 and v6 and the router / switches can cater to packets coming from both v4/v6 nodes and both can co-exist. This is the easiest way to start and platforms like the routers, switches

and variety of OS support dual stack. For instance, when a host queries the DNS, the DNS shall respond with v4 or v6 address based on the query type. Let us say if the query comes for www.nic.in in IPv4 then the answer to that query will be 164.100.52.39 but if the query comes to DNS as a IPv6 packet for www.nic.in then the answer may be 2001:4408::1213:0:0:8724.

❖ **IPv6 to IPv4 Translation:** In this mechanism the device is designed to take the IPv6 packets and translate the same to IPv4 packets. These packets are then sent to the IPv4 destination. The packets coming in the reverse direction are treated the same way. One of the most common and widely used and accepted methods of translation is NAT-PT.

IPv4 Tunneling of IPv6: This is used in a scenario when IPv6 network has to communicate to another v6 network on an under laying v4. The v6 datagram will be encapsulated in IPv4 packet and sent across the v4 network to reach the destination. There are a number of implementations such as Tunnel Brokers, 6to4, ISATAP, Teredo, DSTM etc.



The transition from v4 to v6 is not going to be simple, though a huge number of options are available. Initiatives have already been put in place at NIC to procure network related equipments that has full support for v6. One has to look at the business and other aspects like the Human resources (retraining), Interoperability, Security, instability of technology (number of protocols which have not yet been put to full test) and the cost of transition (plays an important role too). Once put on production the performance limitation needs to be analysed. One can go through the site <http://www.ipv6forum.org> for resources on IPv6. NIC is putting efforts in building up a site which will soon display various tests and configuration templates at <http://ipv6.nic.in>. The actual transition/ migration will be done in a phased manner and may be spread over few years.

Cyber Governance

A look at some of the recently launched Indian Government Websites...



Mumbai Customs (<http://mumbaicustoms.gov.in/>)

The website covers air cargo custom procedures, news notices, bill status checking and various other informations related to seizure of goods, currency, bullion or information leads to detection of duty evasion including wrong declaration of quantity, description, value etc. Besides, one can access vital information associated with policy formulation and implementation on all matters relating to Customs, Central Excise and Service Tax including the prevention of smuggling.

Darjeeling District (<http://darjeeling.gov.in/>)

With an aim to showcase the land of modern tea- Darjeeling in a more vibrant way, the District's official website has been launched recently. Sh. Rajesh Pandey, IAS, District Magistrate, Darjeeling inaugurated the website. One can browse through an array of information about the district related to its history, geography, census data, tourism information, education, health and of course about the six T's i.e. Tea, Teak, Tourism, Toy Train, Tiger Hill and Trekkers'. The website also gives emphasis on different downloadable forms as needed by the residents of the Districts to avail Government services.



Directorate of Pension & Pensioners Welfare, Rajasthan (<http://rajpension.nic.in>)

The website, designed & hosted by National Informatics Centre and maintained by Directorate of Pension & Pensioners' Welfare, Govt. of Rajasthan provides useful information on any matter related to pensions rules, benefits, budget, circulars forms, Rajasthan State Pensioners Medical Concession Schemes etc. Since the Directorate of Pension & Pensioners department is working continuously for disposal of pension cases for retired employees of the state and all India Services officer of Rajasthan Cadre and miscellaneous others, the

launch of the website is a boon to improve their service on a larger scale.

Airport Health Organisation, Kolkata (<http://apho-ccu.gov.in/>)

Airport Health Organisation, N.S.C Bose International Airport, Kolkata is the Local Health Authority controlled by PH(IH) section under Directorate General of Health services, Ministry of Health & Family Welfare, Govt. of India to ensure implementation of International Health Regulation, International Sanitary regulation and Indian Aircraft (Public Health) Rules in N.S.C. Bose International Airport, Kolkata.

The official website is a one stop source for accessing all the addresses of the health officials along with the benefits and functions of APHO Kolkata.



National Portal Update

'india.gov.in', the National Portal of India provides single window access to information and online services for citizens and other stakeholders. The portal provides a unified interface to over 5000 Indian Government websites and is a Mission Mode Project under the National E-Governance Plan (NeGP). It provides comprehensive, accurate, reliable and up-to-date information about India and its various facets with exclusive sections on Citizens, Business, Overseas, Government, Know India, Sectors etc. Sections targeting special interest groups such as Government Employees, Students, Kids etc are also present. A variety of citizen services being provided by the Government across sectors and states/UTs can also be accessed from the Portal. You can access Government Tenders, Documents, Policies, Forms, Schemes and Maps too, on the National Portal.



Spotlight.... focussing every month on an issue of National Importance or an e-Governance initiative. Visit 'india.gov.in' to know more about these..

National Rural Health Mission

NRHM is aimed at ensuring effective healthcare, especially to the poor and vulnerable sections of the society. The mission was launched on 12th April'05 for a period of seven years (2005-2012) with special emphasis on 18 states. The Spotlight discusses the Mission Strategy and what the initiative envisions. A highlight is the information about a unique component under NRHM called Accredited Social Health Activists (ASHAs) who act as a link between the health centers and the villagers. Know more about how you too can volunteer to become an ASHA in your region.

Consumer Empowerment and Grievance Redressal

The Spotlight also focused on the ever significant issue of Consumer Empowerment in the Country. As consumers, you have certain rights and privileges given to you by your Government so that no company or business organization takes you for a ride. National Portal tells you about these rights and how to use WWW as a powerful and quick medium to lodge your grievance as a consumer and obtain fast redressal.

Exam Results on the Net

The results of several academic, entrance and recruitment examinations held by several Boards/Institutions/Universities in India are being simultaneously published on the Internet by NIC, through a specialized Exam Results Portal (<http://results.gov.in>).

The Spotlight focussed on the online services in this whole ambit available to the students, i.e not just results at the click of a mouse but other useful services such as downloadable admit cards, detailed mark sheets, application forms, online admission counseling and a lot more..

Senior Citizens Corner

National Portal recently introduced a special Senior Citizens' Corner which has been designed to be a useful resource for the benefit of Senior Citizens in our Country. Check out this section to know useful information and tips on health facilities, travel and housing benefits as well as tax concessions & incentives being provided by our Government for the elderly.



In the News

e-Granthalaya Lecture Held

The Library & Information Services Division at NIC Headquarters conducted a one day e-Lecture through e-Learning mode on “e-Granthalaya: Installation, Use and Troubleshooting”. Over 60 participants from NIC Centres and User Departments across the Country actively participated in the live session. Sh. P.K. Upadhyay, Officer In Charge, NIC Library and Sh Sushant K. Panigrahi gave the demonstration and lecture on e-Granthalaya software where the functionality and various modules were explained in detail.

Sh. M. Moni, Deputy Director General NIC also addressed the audience on the movement of e-Granthalaya and its roadmap. The participants of the Programme asked a lot of questions about the working of the e-Granthalaya system. The participants were also informed about the forthcoming versions of the software.

Sushant Panigrahi, NIC HQ

Bi-lateral Cooperation Endeavours with Lao PDR



The selected Laotian participants who shall undertake 3 year MCA Programme in India from July'2007.

Under Lao PDR India Bilateral Cooperation on ICT, National Informatics Centre successfully completed training in four modules under Capacity Building Programmes for Human Resources Development for 150 Officials of the Lao Government.. The topics covered as a part of the training were Office Productivity Tools, Database Design and Analysis, Web Services, Portal and Content Management, Basic Software Engineering Technologies and Methodologies. The training on last module “Basic Software Engineering Technologies and Methodologies” was conducted during February 26 to April 6, 2007 at Lao-India ICT Lab at Science Technology & Environment Agency (STEA), Prime Minister's Office (PMO), Vientiane.

Further, 30 Laotian students were selected for the Masters in Computer Applications (MCA) Programme through

Common Entrance Test and Interview process by team of Guru Gobind Singh Indraprastha University (GGSIPU), New Delhi, NIC and Indian Embassy recently at Vientiane, Lao PDR. After the selection process, 2 day orientation programme was conducted for the benefit of the students. The 3 year residential MCA Programme will commence from the current academic session by GGSIPU.

Alka Mishra and I.P.S Sethi, NIC HQ

Workshop on Health Information System (HIS) at MP

NIC Madhya Pradesh has developed a web-based application 'Computer Compatible Health Information System (HIS)' for the Public Health & Family Welfare Department of Madhya Pradesh. The application monitors the electronic flow of health data from the District to State Level and is equipped to deliver a variety of reports including the weekly epidemiological report on Cholera and Plague, monthly report on communicable and non-communicable diseases and some annual reports on health infrastructure. The application has brought about a drastic reduction in the time lag in data flow.

A one-day workshop on the application was organized by the Health & Family Welfare Department in association with



Demonstration of HIS software in Progress

NIC, Bhopal. 48 district Assistant Statistical Officers of MP, and statistical personnel working at DHS MP attended the workshop, which was inaugurated by Dr Ashok Kumar, DDG & Director, CBHI, New Delhi. Dr Yogiraj Sharma, Director, State Public Health & Family Welfare and Sh. M. Vinayak Rao, State Informatics Officer, NIC Bhopal were other dignitaries present on the occasion.

Sh. Rahul Chatterjee, SSA, and Sh. Vinod Tiwari, Programmer, (from NICMPSC) demonstrated the HIS software during the workshop.

Santosh Shukla, Madhya Pradesh Correspondent

One Day Workshop on SCORE at Patna



Dr. B.K. Gairola, DG, NIC, Hon'ble Minister Ms. Sudha Srivastava, Dr. Saurabh Gupta, STD & SIO, Bihar Sh Amir Subhani, IAS, Secretary-cum IG Registration, GoB

A one day workshop on “SCORE Ver. 2 (Vinayak) and implications of HOHB Model in Bihar” was organized by Registration Department, Govt. of Bihar at Patna. Ms. Sudha Srivastava, Hon'ble Minister for Registration, Excise & Prohibition, Govt. of Bihar inaugurated the workshop and released the SCORE CD and complimented the entire team of NIC for extending all kind of support and putting extra efforts for the Registration Department, Government of Bihar. Dr. B. K. Gairola, DG, NIC, Sh. Amir Subhani, IAS, Secretary cum IG Registration, Govt. of Bihar, Dr. Saurabh Gupta, STD and SIO, Bihar and many other senior bureaucrats and government officials along with District Sub-registrars and Districts Informatics Officers of the state were also present during the inauguration.

Speaking on the occasion Sh Amir Subhani appreciated the pivotal role of NIC and its contribution in developing & implementing a complete ICT based solution at 109 registry offices of Bihar. Sh Dilip

Kumar, AIG, Registration briefed the gathering on evolution of SCORE (System for Computerised Registration) by NIC team and formulation of HOHB model of implementation in the state. Dr. B. K. Gairola, in his key note address praised the efforts of the state government & emphasized the concept HOHB which has yielded manifold benefits without much investment.

NK Prasad, Bihar Correspondent

Workshop on “Biomedical Information Retrieval”

The Indian Medlars Centre conducted a oneday workshop on “Biomedical Information Retrieval” at National Institute of Ayurveda, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy, Jaipur on 15th May 2007. Over 80 doctors, researchers and scholars attended the workshop. The workshop, conducted by Ms. Rekha Gupta, PSA, NIC highlighted NIC's biomedical information services and the programme covered exhaustive and comprehensive demonstration of search topics related to Ayurveda and Ayurvedic from various resources available over the Internet. The demonstration also covered Indian Medlars Centre's databases IndMED (<http://indmed.nic.in>), medIND (<http://medind.nic.in>), OpenMED repository (<http://openmed.nic.in>) and Uncat (Union catalogue of Biomedical Periodicals) and other support services

Prof. Banwari Lal Gaur, Chancellor of National Institute of Ayurveda, inaugurated the workshop in presence of Prof. M.C. Sharma, Director of NIA and Ms. Indu Gupta, SIO Rajasthan.

Naina Pandita, NIC HQ

District Jan Seva Kendra at Navsari (Gujarat)



Hon'ble. Min. Sh. Mangubhai Patel issuing a Certificate along with Sh R.C. Meena, Collector and DM, Navsari

With the mission to provide a friendly, affordable, speedier and efficient interface between the government and the public, a District level "Janseva Kendra" was inaugurated at Navsari district (Gujarat) by Hon'ble Minister for Forests & Environment and Tribal Welfare Sh. Mangubhai C Patel on 14th April 2007.

Sh. R.C. Patel, Hon'ble. MLA and Sh. R.C.Meena, Hon'ble. Collector & DM, Navsari along with other officials were also present on the occasion, which was held at Collectorate campus.

NIC has developed the software which is being used in the Janseva Kendra for issuing all types of certificates (income, caste, domicile etc.), all type of affidavits and Ration Cards. District Collector and all other officials appreciated the efforts of NIC District Centre for promoting E-Governance activities effectively in the district.

Amit Shah, Gujarat Correspondent

Land Record Computerisation Project Inaugurated at Serchhip District, Mizoram



Sh. Hmingthanzuala, Revenue Secretary, Govt of Mizoram speaking after the inauguration.

On 26th April 2007 the Land Record Computerization project, officially named as "ZORAM", was inaugurated at Serchhip district, by Sh. Hmingthanzuala, Revenue Secretary, Government of Mizoram. The function was also attended by Sh. Nghaklianmawia, Director, Land Revenue & Settlement, Sh. Lalthlamuana, Deputy Secretary, Sh. Rolianthanga, Joint Director along with other government officials, village council members and media persons.

Speaking after the inauguration ceremony the Revenue Secretary emphasized that the new system will be of immense benefit not only to the people of the district but will also greatly help in maintaining the land related data. Sh. T. P Singh, TD & SIO, NIC Mizoram stated that the West Bengal model of the software has been successfully adopted in the district.

Later Sh. Gordon Nongkynrih, DIO, Serchhip gave the live demonstration the software.

Lalmachhuani, Mizoram Correspondent



District Court Computerisation Project inaugurated in Assam

Sh. P.G. Agarwal, Hon'ble Justice, Gauhati High Court inaugurated the first ever District Court Computerization project in the North East Region under Capital City Courts Project and District Judiciary website of Kamrup District at the District Court premises. Sh D.K. Debroy, District & Sessions Judge and other Judges of the District Court & CJM Court, Gauhati High Court officials and Officials from NIC were present on the occasion. Hon'ble Judge Sh P.G. Agarwal

appreciated the efforts put by NIC in computerization of the Judiciary and urged all to avail the facilities provided. A well-equipped Computer Training Centre was also inaugurated on the same day in the District Court premises. Sh. Deepak Goswami, SIO, Assam and Sh A.H.N. Sinha from Court Informatics Division, NIC (HQ) also spoke on the occasion. The Project in Assam is coordinated by Sh. Sumitav Saikia, Scientist-D, NIC Guwahati.

Tasiruddin Ahmed, Assam Correspondent

CIC Nyoma - the highest Cyber Café in the World

Community Information Centre, Nyoma has staked a claim in the Limca Book of Records for having the highest Internet Kiosk/ Cyber café in the world at an altitude of 13,772 feet at Nyoma, Leh. The café is bridging the communication gap for people from all walks of life, be it students, army, Govt. officials or the nearby community. With a capacity of 20 people in the user room, CIC Nyoma is engaged in providing outstanding services related to internet surfing, computer training and facilitation counter for the community G2C. Nyoma is the one of the Block Headquarter of district Leh in the State of Jammu and Kashmir. The activities of the CIC centre are being co-ordinated by Sh. Jamyang Namgial, DIO NIC Leh.



DC/CEO Sh. M. K Dwivedi, IAS inaugurating CIC Nyoma through VC



A view of the CIC Nyoma Centre

Jit Raj, J&K Correspondent

e-Gram Sampark Services launched in Chandigarh



Administrator UT Chandigarh inaugurating the first eGram Sampark centre.

UT Administrator and Governor of Punjab, H.E. Gen. (Retd.) S.F. Rodrigues, PVSM, VSM dedicated to the citizens of Chandigarh Union Territory, e-Gram-Sampark project by inaugurating first e-Gram-Sampark centre at village Khuda Jassu on 7th May 2007. Continuing its commitment to bridge the digital divide, especially amongst the rural population, 17 e-Gram Sampark Centres are being set up across all the villages of Union Territory of Chandigarh.

The citizens will be able to use all the 17 G2C services and 3 B2C services which are presently available through the eSampark Centres situated in the urban areas. Since these Centres will provide the rural citizens an opportunity to have an access to the huge amount of information, using high speed connectivity, these centers will emerge as Rural Knowledge Centres for the rural population, especially the disadvantaged. Information services in these Centres will be provided free of cost, on the lines of Jan Sampark Services. These Centres will emerge as one-stop solutions to the rural population.

Vivek Verma, Regional Editor

*For latest and up-to-date news and information about e-Governance activities across the Country, visit **Informatics Newsonline***

<http://informatics.nic.in/newsonline>

Business Intelligence and Data Mining - on higher growth path in the Government

Data Mining methods are used for different purposes and goals. The discovery-oriented Data Mining techniques are based on inductive learning, wherein, inductive approach is that the trained model is applicable to future unseen examples



Ravi Kant Gupta
Deputy Director General, NIC HQ
rkg@nic.in

The dynamic business scenario with trends of liberalization, privatization and globalization is posing new challenges before the management with multiple levels of complexity. Key emerging managerial issues relates to free flow of information, e-governance, RTI act in place, cross-cultural management, technological change, organizational restructuring, multi-disciplinary information management, ever-changing ultimate users needs, systems approach to integrated planning processes and increasing competitiveness. The management at all levels is expected to be very responsive to these changes and can only survive, with higher adaptability to the state-of-the-art tools and technology. The dynamic inter-play across the range of alternatives (often conflicting in real life) is essential by exercising the freedom of choice with minimum time and effort for effective management.

Apparently, there is a need to improve

the system (as a process) by adopting methodology, which is both efficient and cost effective than ever before. Likewise, the desire to develop a computer system as a process that can learn by themselves and improve decision-making is an on-going role of information technology viz. the neural network techniques of today may need change? However, the goals of developing computer system as a process, that run the very best exercises and leads to scientific evaluation, unbiased decision making will remain to take high priority in the government.

Information Management Systems are in use within the different government departments within the country, which are being updated maintained and regularly used for day-to-day functioning.

The integration of various independent RDBMS systems gives power to know what has happened, what is happening and how important for the planners within the governments. Besides, what is going to happen? The most important for a planner while, what and how? it has happened, is important for both planners and decision makers. Business Intelligence (BI) technology takes care of above on near real time basis. In short, it gives a path, to track the progression from 'how much?' and to 'How well?'. The technology gives operational feasibility, collaboration and near real time actions. The BI initiatives are an indicator of how a disciplined implementation can achieve operational improvements, even in the government.

Besides, Data Mining methods are used for different purposes and goals. Taxonomy, helps in understanding the variety of methods, their interrelation and grouping viz key distinctions between two main types of Data Mining : verification and discovery-oriented. The discovery oriented consists of prediction versus description methods.

Descriptive methods, which focuses on understanding for example by visualization while Prediction-oriented methods, aims to build a behavioral model, and to develop patterns which form the discovery knowledge in a way which is understandable and easy to operate upon. The discovery-oriented Data Mining techniques are based on inductive learning, wherein, inductive approach is that the trained model is applicable to future unseen examples. While, verification methods, on the other hand, deal with the most common methods of traditional statistics, like goodness of fit test, tests of hypotheses and ANOVA. These methods are less associated with Data Mining then their discovery-oriented counterparts, because most data mining problems are concerned with discovering and hypothesis out of a large set of hypotheses rather than testing the known one. Much of the focus of traditional statistical methods is on model estimation, as an opposed to one of the main objectives of data mining: model identification and construction, which is evidence based. Prediction methods are supervised learning, as opposed to unsupervised learning. While, unsupervised learning covers only a portion of the description methods. For instances it covers clustering methods, but not visualization methods.

Thus, there is an urgent need for the development and operationalization of super Data warehouse, data-marts besides, objectives based building data warehouse/data marts on a near real time bases for strengthening the decision making process at all levels in government hierarchy. The framework of unbiased, optimal scientific decision making systems with a well defined, long term strategic/tactical decision making as a process is very much essential for higher economic growth and long term sustainability, with discipline implementation for visible operational efficiency. **i**

Perspectives on Free and Open Source Software (Fellar et al)

The book is quite thoughtful and offers something to every one ranging from economists to the people working in software business.

Reviewed by:



Vinay Thakur
Technical Director, NIC HQ
vinay@nic.in

The book “Perspectives on Free and Open source Software” is a compilation of distinguished works of many experts in their respective domains that defines “free and open source software” as the free use, modification and redistribution of software product. The book provides lots of quantitative and qualitative information to software engineers about “free and open source software” (F/OSS). The book provides provocative, exemplary research and thinking by the experts from various disciplines and F/OSS researchers. The book has been divided into five perspectives.

In the First Perspective, “Motivation in Free/Open Source Software Development” it has been seen that large number of first time observers are troubled to find that large number of highly skilled software developers dedicate ample amount of time and efforts to the creation, expansion and ongoing maintenance of free products

and services. However, it has been revealed that more than 60% of participants working in F/OSS projects found it to be most creative work of their life. They have cited that intellectual stimulation while coding, improving programming skills and ideological beliefs led them to work on these projects.

In the second perspective, “The Evaluation of Free/Open Source Software Development” the authors have tried to address the issues related to security, reliability, and maintainability etc on F/OSS process and products. The authors believe that there is unexamined hype which has been created about F/OSS and any implementation using F/OSS tools requires robust research and hard evidence. The book also discusses the quality of zOpen Source Software and studied implementation of TCP/IP on Linux. It says that the code was poorly documented with complex interfaces and stressed that design should be precise with up-to date description of architecture and interfaces. The book echoes that F/OSS has potential to be better than proprietary software. Five case studies have been evaluated to support this fact.

In third perspective, “Free/Open Source Software Processes and Tools” authors have studied two major F/OSS projects i.e. Apache Server and Mozilla to find out the capacity of F/OSS development. The book also looks at the development cycle of releases of FreeBSD OS and concludes that well defined software engineering process is

needed for project success.

In fourth perspective “Free/Open Source Software Economic and Business Models”, it has been argued that F/OSS offers extraordinary examples of the power of user innovation independent of manufacturing firms. The book also presents a stimulation structure to describe the decentralized and

micro-level decisions that allocate programming resources to F/OSS developers.

The fifth and final perspective, “Law, Community and Society”, presents research focused on legal, cultural and social issues. In the seven chapters under this perspective, authors have drawn a broad picture of social implications of F/OSS and have linked F/OSS model with the future of open society and free communication of ideas. Further, the complex issue of F/OSS licensing and copyright has been defined accurately and succinctly. Finally the authors present a thoughtful and informed essay on F/OSS as an expression of “commodification of software”, “network enabled collaboration” and “software customizability (Software as a service)”. By examining next generation applications, we can begin to understand long term significance of the open source paradigm shift. If we have to benefit from “the revolution”, our understanding must penetrate the foreground elements of the free and open source movements and instead focus on its causes and consequences. 



into multiple zones with graded security for restriction of physical movement and entry into the Data Centre. Access should be controlled through proximity cards, biometric identification, pin number etc. One can also use a combination of these technologies in different zones in DC to provide desired level of security without causing any inconvenience in operations. Access policy could be based on the role, responsibility as well as on time zone. Further, all activities in the DC should be monitored using CCTV surveillance system with Recording and Replay facilities.



Data Centres form the foundation of e-Governance infrastructure in the country and play a very significant role in electronic delivery of government information and services to the citizens. Performance, Security & Scalability of Data Centre Services is one of the critical factor behind the success of any citizen oriented e-governance initiative. Data Centres should therefore be designed with utmost care & thorough understanding of the present & future need of ICT technologies as well as e-governance applications proposed to be hosted in the Data Centre.

Upcoming ICT Events

eINDIA 2007: India's Premier ICT4D Event

31st July- 03 August

The Taj Palace Hotel, New Delhi

India

<http://www.eindia.net.in/>

EGOV 2007 The International Conference of the EGOV Society

Regensburg, Germany

Date: 3 - 7 September 2007

Organised By: European eGovernment Society.

<http://www.egovonline.net/events/events-details.asp?EventID=231>

Indo ICT Expo and Forum

Jakarta Convention Centre

Jakarta, Indonesia

Date: 11 - 13 September 2007

<http://indoict.com/>

Broadband World Forum Europe 2007

Estrel Convention Centre

Berlin, Germany

Date: 8 - 11 October 2007

<http://www.iec.org/events/2006/bbwf/>

m-GovWorld 2007 - Enabling Government@24/7

New Delhi

Date- 25 October 2007

<http://www.mgovworld.org/Members/vikash/m-govworld-2007-enabling-government-24-7>

4th International Conference on Distributed Computing & Internet Technology

28-30 December 2007

Hyderabad

India

www.iceg.net/2007