

Procurement is the complete process of acquisition of goods, works or services at the best possible total cost, in the right quality and quantity, at the right time, in the right place and from the right source for the direct benefit or use of Corporations, Individuals, or Governments. In its most basic form, procurement is nothing more than the steps that are used in the acquisition of Goods, works and Services. Whether for business or for the home, there are progressive steps that we all follow as we work towards procuring those items that we desire.



**K. SRINIVASA RAGHAVAN**  
Senior Technical Director  
NIC Chennai  
[ks.raghavan@nic.in](mailto:ks.raghavan@nic.in)



**M. MANIVANNAN**  
Senior Technical  
Director NIC Chennai  
[mvn@nic.in](mailto:mvn@nic.in)

# Government e-Procurement System of NIC

**P**ROCUREMENT is one of the important functions in all Government departments, where large amount of funds are spent towards floating and processing various types of tenders covering Goods, Works and Services across the country. e-Procurement is the process by which the physical tendering activity is carried out using internet and associated technologies in a faster and secure environment. e-Procurement facilitates the user, simplicity of use and improves efficiency without compromising on the required procedures of the organization. Government e-Procurement System of NIC (GepNIC) has been built using Open Source tools and Standards which adheres to industry standard best practices and technologies. It also provides for greater transparency, saving time and money through shortening of procurement cycle time and facilitates ease of operations for the implementing organization as well as the bidder community. In view of its importance, Government of India has identified e-Procurement as one of the Mission Mode Projects (MMP) under the National e-Governance Plan (NeGP).

- The first step in the process of procurement is the need or wants for a particular good or service.
- Then it is important to qualify the

specifics of what will lead to satisfaction.

- Next step involves the evaluation of potential suppliers. This will involve getting to know more about vendors who can offer Goods, Works or Services that will meet all the specifications, including the price range. This may involve taking bids on a project, negotiating prices, or accepting proposals. Over a period of time, one or two or more suppliers are likely to stand out from all other vendors. Once the final decision is made between the remaining suppliers, the time has arrived to move on to the final stage of the procurement process.
- The last step involves accepting the desired Good, Works or Service, ensuring that the item is in compliance with all the claims made by the supplier, and rendering payment according to the terms worked out with the supplier. In some cases, it may be possible to engage in the acquisition of Goods, Works or Services prior to supplying payment. At other times, payment may be necessary before taking possession. With both scenarios, the consumer usually has a short period where it is possible to reverse the acquisition and move on to another option. One of the basic rules of procurement is that in the end, it is important to think in terms of the total

cost of ownership. This includes not only the purchase price, but also time and resources that are expended in the pursuit of the ownership. By understanding the steps involved in the procurement process, it is possible to get a better understanding of the real cost involved for obtaining any Goods, Works or Service.

**BACKGROUND**

National Informatics Centre (NIC) has developed e-Procurement software solution namely, GePNIC as a product for electronic procurement in the Government. The development of the application started in July 2007 and the first e-Bid Submission took place in November 2007 from Tamil Nadu State Government. Orissa State Government showed keen interest in the solution. The e-Procurement solution was made operational in the Government of Orissa from March 2008 onwards. An eProcurement mission team was setup by Orissa Government fully dedicated to look into the roll-out aspects for the various departments in the State. Extensive training to Government officials as



Screenshot of the GePNIC system

well as bidders were carried out.

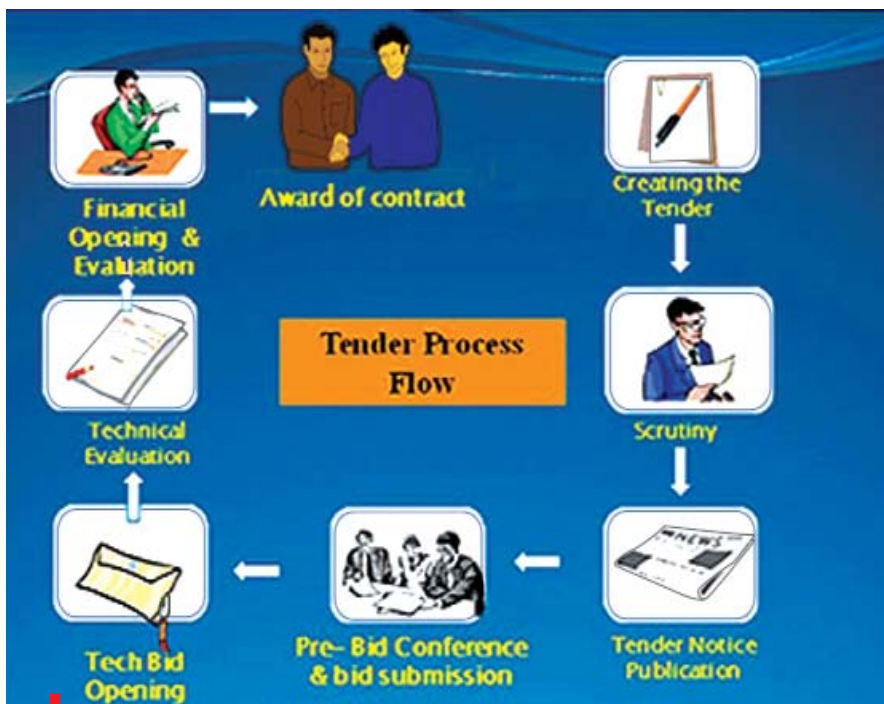
**CURRENT IMPLEMENTATIONS**

After the successful implementations in Tamil Nadu and Orissa, Other Government Departments in the States including West Bengal, Haryana, Uttar Pradesh, Chandigarh

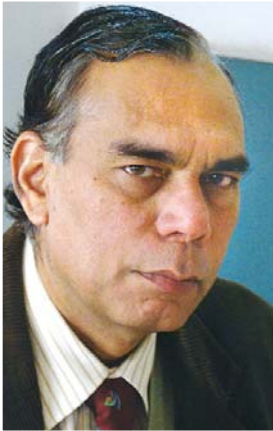
UT, Jharkhand, PWD Punjab and other Public Sector Organizations, like Mahanadi Coalfields Limited (MCL) Orissa, and Visakhapatnam Port Trust have implemented this solution. At the Central Government level, GepNIC has been implemented for procurements under Pradhan Mantri Gramin Sadak Yojana (PMGSY) scheme of Ministry of Rural Development in 21 states, covering some of the North Eastern States. Using the GePNIC solution, around 52080 tenders, worth over 85089 Crores, have been published successfully till 28th Feb 2011 across the States and Organisations indicated.

**ABOUT THE SOLUTION**

The GePNIC solution is generic in nature and can easily be adopted for all kinds of procurement needs such as Goods, Services and Works, by all Government offices in the country. It aims at transparency and non discrimination amongst bidders, by allowing free access to tender documents, clarifications. It also enables secure on line bid submission and access to bid opening event to all concerned, from any place on 24 x 7 basis, using the GePNIC system through Internet. The



Pictorial representation of the GePNIC system functionality



**Dr. Y. K. Sharma,**  
Deputy Director  
General, NIC

Procurement is one of the major activities in the government. Application of ICT to the process of procurement is expected to go a long way in making this key aspect of the functioning of government highly transparent and efficient. The e-Procurement solution developed by NIC (named as GePNIC) has, over the last 3 years, received tremendous support from state governments. Beginning with initial induction in Tamil Nadu and Orissa, this solution has now been deployed in 21 states. PMGSY has become the largest national scheme to go full-fledged in e-Procurement mode across the country. As of March 2011, 54134 tenders of aggregated value of Rs. 86937 crores have been processed using GePNIC. With a view to facilitate quick deployment of e-Procurement by various Departments/ organizations of the government, GePNIC has been deployed as a hosted service so that user organizations do not have to worry about technology and infrastructure aspects of using this service. NIC recognizes that the success of e-Procurement depends not only on internal preparedness of the government but equally on the Bidders community. Extensive training of bidders is therefore an integral part of implementation of e-Procurement. State level support structure and a national Help Desk service have been created to ensure help is available to users whenever they need support in using the system. The lead story in Informatics on this key service, I hope will help create more awareness about this important service in the government.

system has been designed taking into account of the tender rules followed in various states and also the periodic guidelines issued from Central Vigilance Commission (CVC) on e-Procurement. Major functionalities are:

- Registration/Enrollment of Government officials (in various roles) and Bidders
- Tender Creation and Publishing (Multiple Packets)
- Publishing of Corrigendum
- Publishing of Pre bid meeting decisions / documents
- Online Bid submission/ resubmission/withdrawal as per the needs (configurable),
- Facility for offline/ online payment (Payment Gateway) of Tender Fee and EMD
- Encryption of bids submitted by the bidders
- Facility for single/two/multi cover bid system
- Online tender opening by designated Officials
- Live bid opening for the bidders
- Facility to update committee recommendations at each stage of tender process
- Award of the contract
- eAuction - Forward and Reverse
- Limited Tender/Expression of Interest(EOI)
- General Technical Evaluation
- Multi currency provision
- Digital signing of all documents which are uploaded
- Comprehensive Report/MIS module

The solution can be configured for use by an organization at its apex level, and at multiple subordinate levels, at which tenders could be independently floated. Bidder categories/ classes are also configurable.

**TENDER STATUS - VIEW FROM HOME PAGE**

Tender Status is the window to the outside world which informs the various stages of tenders at any given point of time. The information facilitates any public, bidder and academicians to know the various tender related activities that are undertaken and awarded at various points of time. A sample screen shot showing the tender status is displayed below: Detailed information can be seen by clicking on the view button against each stage.

### Salient features

- Enhanced Transparency
- Two factor authentication
- Adherence to IT ACT 2000
- Adhering to Guidelines of Asian Development Bank, Central Vigilance Commission procurement rules & World Bank guidelines
- Accessibility of Information at all stages to all parties from any place on 24 x 7 basis
- Secured storage of Data
- User Friendly Software
- Security Audited by two agencies.

### SECURITY ASPECTS

The solution has strong in-built security features including two-factor Authentication with Digital Signature Certificates (DSCs) as per IT Act, Usage of SSL, Role-based User Access and Bid-encryption at Client end, using PKI technologies. The solution has been security audited by two independent agencies. The security is implemented in both, at the level of content and payments. The following security features are built in as an integral part of the GePNIC system.

- Usage of legally valid class of Digital Signature Certificate as per IT Act 2000 for authentication and non repudiation at all levels, by all users interacting with the system



- Time stamping of all critical events
- 128 bit encryption with SSL security
- Access to sensitive contents such as price bid based solely on authorization
- Roles/Privileges allocation are such that, it ensures only authorized personnel to perform the assigned tasks
- Complete compliance to the IT Act 2000 for legal sanctity
- Security Audit certificate from the CERT-IN recommended certified auditors
- Encryption of the password of the users and the Bid submitted by bidders and other sensitive fields.
- Two factor authentication with Digital Signatures
- Bid Encryption at Client System
- Multiple Bid Openers need to be configured. Minimum two and a Maximum of three Bid Openers.
- Audit trail of each activity
- Replication of data & backup facility

### AUDIT LOG

The GepNIC system has been built in with comprehensive audit log facility for detailed auditing on all the transactions that are taking place. The audit logs are maintained in a secured and tamper proof environment with provision to provide the details to an authorized user for auditing purposes.

### DIGITAL SIGNATURE CERTIFICATES (DSC)

The Digital Signature Certificate is an integral part of the entire e-Procurement process. DSC's are to be used by both the Government Officials as well as the Bidders to ensure the security of the transaction, authentication of the users of the system and the digital signing of the documents published in the e-Procurement site at various points of time. DSC's are legal requirements under the Indian IT Act 2000. Department Officials are required to use dual key pair of the certificates and the bidders should use single pair of certificates.

GePNIC supports multivendor DSC's/eTokens provided by various agencies such as NICCA, TCS, SIFY, nCode, eMudhra etc. GePNIC is the first application in NIC, which has used DSC in the system, as per the IT Act 2000.

### APPROACH FOR IMPLEMENTING GEPNIC AS A MISSION MODE PROJECT

The project encompasses to enable the following elements for quick and successful roll out within the Mission mode project (MMP) framework: -

- Creation & operationalization of Back-end Server infrastructure and Disaster Recovery infrastructure at the respective NIC/ NICS Data centers (States & Central) and their sustained operations/ usage, including maintenance and manpower etc.
- The customization of the GePNIC software, and its operationalization for the intending State Government Departments, including the software maintenance and developmental activities for application enhancements, as required.
- Creation and operation of a 24x7 Helpdesk, for phone/email support to GePNIC users of each Government Department and its suppliers, and
- Initial, as well as, continuous Training and Handholding support,

to the identified department users, as per the needs at defined levels.

### TECHNOLOGY

The System has been developed using Open Source Tools and the following components are used.

- Operating System - Linux
- Web Server - Apache Tomcat
- DataBase - PostgreSQL
- Front End - Java/J2EE

### BENEFITS OF IMPLEMENTING GEPNIC SYSTEM:

- Fast and efficient process, reduces the procurement cycle time.
- Introduces transparency at each stage. The system captures the justification and comments of Approving Authorities at each stage and thereby enables Approving Authorities associated with the transaction to justify their decisions.
- Encryption ensures integrity of the bids submitted.
- Promotes Open Competition
- Reduction in the cost of doing business for the suppliers which in turn will reduce the prices quoted by the bidders.
- Retendering has come down.
- It is observed that, the number of Legal Issues relating to tenders have come down because of the enhanced transparency in the system.

The screenshot shows a web dashboard for a bidder. At the top, it says 'Welcome Usha Saxena, Roles : Tenderer'. Below this are several icons for 'View Profile', 'Edit Profile', 'Change Password', 'Digital Signature Certificate', 'Switch User', 'My Documents', 'Alert On Product Category', and 'Select State'. There are two tables: 'Latest Active Tenders' and 'Latest Corrigendums'. Both tables have columns for 'Tender Title', 'Reference No', 'Closing Date', and 'Bid Opening Date'.

Tender Title	Reference No	Closing Date	Bid Opening Date
1. test	TEST/HP	31-03-2011 09:35 PM	31-03-2011 09:35 PM
2. Construction of Road Mar 24	AR/Mar/24	24-03-2011 11:00 AM	24-03-2011 01:00 PM
3. Const of Road Test12	PMGSV/2011-2012	31-03-2011 01:00 PM	01-04-2011 11:00 AM
4. demo	ad/wrd/demo/17032011	15-04-2011 02:00 PM	21-04-2011 02:10 PM
5. Hdpipe	udd/mc/bsup2	24-03-2011 09:00 PM	26-03-2011 12:00 PM

Corrigendum Title	Reference No	Closing Date	Bid Opening Date
1. change of dates	ad/wrd/demo/17032011	15-04-2011 02:00 PM	21-04-2011 02:10 PM
2. BOQ changed	Baramulla/2011/2012	25-03-2011 04:00 PM	26-03-2011 11:30 AM
3. Financial bid changed	Baramulla/2011/2012	25-03-2011 04:00 PM	26-03-2011 11:30 AM
4. tender date changed	Baramulla/2011/2012	25-03-2011 04:00 PM	26-03-2011 11:30 AM
5. BOQ changed	Baramulla/2011/2012	25-03-2011 04:00 PM	26-03-2011 11:30 AM

■ Bidder login dashboard

### BENEFITS TO BIDDERS

- Zero Cost to Bidders, No Per-Bid Charges, No registration charges.
- Eliminates requirement for submission of bulky and multiple copies of bid in paper form.
- 24 x 7 access enables the bidder to submit bid documents and view the tender status from anywhere
- Provision to modify the bid documents till bid closing time
- After the bid submission, the bidder can track the status of submitted bids online
- Information on all tenders is available at one place to the suppliers
- Cuts down unnecessary trips to collect details on the tenders published
- Increased reach as the bidder has access to the tenders of all the departments
- The system inspires confidence among the bidder community as being fair and transparent

### ROLL OUT MODEL

NIC has standing arrangements through NICSII to facilitate the imple-

mentation/ rollout of the GePNIC solution, including domain specific 3rd party agencies to act as Facility Management Partners and provide manpower support for handholding, training and toll free Helpdesk facilities as per the needs of user department, on payment of suitable charges. Continuous training is conducted by FMP personnel to the user department. NIC provides technical support on a continuous basis, as required by the user departments.

The Involvement of all the implementing organisations and the support from the Local NIC including the District Level Officers resulted in successful roll out of this project till now.

### COMMON MANAGED SERVICES

It is also proposed to roll out the application as a managed (SAAS) service where in a user department shall start using the Generic application with very minimal or without changes from day one.

### FUTURE PLANS - MMP

In view of the obvious perceived

gains, Government of India has been envisaging early and fast adoption of the e-Procurement, in different Government departments and offices both at Central and State levels, through the Mission Mode Project (MMP) on e-Procurement. The same is being pursued by the Ministry of Commerce, with the help of the Dept. of Information Technology at the Centre.

Ministry of Commerce (MoC) has decided towards wider adoption of e-Procurement quickly in selected willing Government Departments of State Governments, being facilitated centrally through a dedicated mission mode project in this regard. This will facilitate the replication of the generic GePNIC solution, to different departments of any willing State Government with no initial set up cost for servers and related expenditure. This would facilitate the quick roll out of the e-Procurement system across the country, in the Government domain, within a short span of time.



### Awards and Recognitions

GePNIC has bagged CII award for MCL eTenders in March 2011, Skoch-Challenger Award 2010, G2B Initiative of the year 2009 - eIndia Award, India-Tech Excellence Award - 2009 for the Orissa Implementation.

The team from Asian Development Bank (ADB) and World Bank (WB), have gone through the GePNIC System fully and certified its compliance as per their guidelines for adaptability by the States as applicable.