

# INNOVATIONS IN DEVELOPMENT

## KARNATAKA SPEARHEADS MUNICIPAL E-SERVICES Karnataka Municipal Reform Project

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# SUMMARY

## Karnataka spearheads municipal e-governance reforms across the state

**K**arnataka is the fifth-most urbanized state in the country, with 23.6 million urban residents spread across 213 municipalities, or Urban Local Bodies (ULBs). Municipalities are responsible for providing an ever-growing urban population with services that greatly impact the livability of cities including water, sanitation, waste disposal, drainage, local transportation, street lighting, and other services.

In 2004, the Government of Karnataka (GoK) began an extensive process of municipal reforms to improve services and increase transparency. While traditionally municipal e-governance reforms had been driven at the local level, this was the first initiative of its kind in India where a standardized set of systems and processes was introduced for all municipal bodies across the state.

The scale and complexity of the effort posed a huge challenge. State-level champions were needed to spearhead these reforms as well as tackle difficult political economy issues, such as bringing un-assessed properties into the tax net and placing municipal budgets and other financial information online.

Reforms are now bringing about a quiet revolution in towns and cities across Karnataka. A computerized system for the payment of property taxes is enabling property owners to calculate their property taxes online, doing away with middlemen and

reducing corruption. Birth and death records for the last decade have been computerized and can be searched and viewed online. When water mains break or street lights do not work, citizens can lodge complaints online and track their status in real time.

New GIS mapping systems have brought unregistered properties into the tax net and municipalities are collecting more taxes and fees for services. City officials are now able to identify critical bottlenecks in service delivery, better plan the use of funds, and direct resources where they are most needed.

Citizens are better informed. Municipalities have posted their financial data and details of ongoing and completed works online. A new accounting system has brought to light the real financial situation of ULBs and assets worth crores of rupees have been brought on record.

The municipal reforms process began in 49 of the largest municipalities under the Nirmal Nagar Project (NNP), an initiative of Karnataka's Directorate of Municipal Administration, with financial support from the Asian Development Bank. It was expanded to the remaining 164 municipalities under the Karnataka Municipal Reforms Project (KRMP) with support from the World Bank. Karnataka's municipal reforms program has won three national awards and offers several important lessons for other states.

**B**efore the reforms began, municipalities were incurring significant losses while citizens faced considerable difficulties. Paying property taxes was a cumbersome and time-consuming procedure, fraught with financial irregularities. Information was recorded on paper files, and records were often tampered with. There was no uniform procedure to assess and collect property taxes. Every five years, revenue officers reassessed these taxes, exercising considerable discretion.

A large number of properties were not assessed at all and, without proper mapping, it was difficult to trace unauthorized and unregistered properties, track defaulters, and recover arrears. The collection of fees for other services too, such as birth and death certificates, was low. The costs of running various services, particularly the key municipal function of providing water, were not separated, making it difficult to assess efficiency and improve financial sustainability. When complaints were lodged, there was no way of knowing whether any action would be taken and when. Streamlining municipal procedures involved several challenges:

### **Daunting scale and complexity**

First, the sheer scale and complexity of the effort was daunting. The 213 municipalities were of vastly different sizes<sup>1</sup> and spread across

<sup>1</sup> ULBs range in population from 10,000 to almost a million, with Bangalore, the state capital, reaching almost 9 million. (Reforms in Bangalore were undertaken under a separate initiative.)

a vast area—several are a full day’s travel from the state capital. Each had its own elected local government and municipal staff, its own priorities, issues, and procedures, and its own ways of operating. Standardizing systems and procedures required large-scale restructuring of functions, breaking ingrained ways of doing things, and touching upon entrenched vested interests.

### **Need for stronger, specialized capacity on a large scale**

Second, the human resources needed to implement and maintain such large-scale computerization were significant. Capacity across ULBs was very limited. At the lowest level, where most of the interactions between citizens and officials take place, staff lacked the requisite information technology (IT) skills, and new functions such as IT engineers and accountants needed to be provided for. At the state level, specialized skills needed to be sourced from the private sector, which required appropriate enabling policies. State training institutions did not have adequate expertise to conduct the large-scale training programs required.

### **Need for extensive IT infrastructure**

Third, an extensive IT infrastructure of fiber optic cables was needed to provide high-speed internet connections to all municipalities and enable them to share a common online platform.



The Municipal Reforms Cell

In 2005, a Municipal Reform Cell (MRC) was created exclusively for the implementation of computerization and other reforms in the ULBs<sup>2</sup>. The Cell, managed by professionals hired directly from the market, was responsible for software development, implementation, verification, and maintenance. It developed various municipal applications (payment of property taxes, registration of births and

deaths, public grievance redressal processes, financial management, etc.) in collaboration with the eGovernment Foundation. The MRC continues to provide extensive training and hand-holding to ULB officials and technical staff as new modules are implemented. Up to now, almost 10,000 officials have been trained under the project.

## 1. Aasthi GIS-based Property Tax Information System

Before the reforms, the ULBs in Karnataka were following the Annual Rateable Value system of property taxation. The government used to appoint Assessing Officers to carry out revisions of assessments once every five years, with officers exercising considerable discretion in the revision of assessments. As property tax details were maintained in paper registers, it was difficult for the ULBs to track tax defaulters

<sup>2</sup> MRC was created under the Directorate of Municipal Administration (DMA), Urban Development Department. DMA is responsible for supervising the functioning of municipalities, developing suitable human resource policies, exercising disciplinary control over staff of municipalities, monitoring property tax collection, laying down policies for transparency in expenditures, hearing appeals, releasing the Government transfers to the ULBs, and monitoring implementation of state and central government schemes. As such, it had the authority needed to implement municipal governance reforms.

as well as unauthorized and under-taxed properties. This resulted in poor coverage, low revenues, and an inefficient tax management system. As part of its urban reforms process, the state government introduced a Capital Value Based property taxation system. The Revenue offices of all ULBs were computerized. Field surveys were conducted to collect information on all properties, and digitized Geographic Information System (GIS) maps of all urban properties were created in collaboration with the Survey of India. Untaxed properties were thus brought into the tax net. Each property was given a unique identification number and details including the plinth area, built-up area, ownership, occupants, and taxes paid since 2002 were recorded. The system is the largest in the country to date.

Property taxes were rationalized and tax assessments made transparent. A free online, easy-to-use tax calculator was introduced, enabling citizens to calculate their taxes. It will soon be possible to pay property taxes

online with debit or credit cards, without any transaction charges. Citizens can get a printout of their payments over the counter, which they need to be eligible for other services, such as new water supply and sewerage connections, transfer of ownership, approval of building plans etc.

Where implementation is complete, municipal authorities can generate reports of property taxes paid at the city, ward, and street level, making it easier to monitor compliance. Defaulters can be tracked, and notices issued automatically.

As a result, 1.2 million previously unassessed properties (32 percent of the total) have been brought into the tax net, increasing revenues by 30-40 percent. Citizens' complaints of calculation errors have also declined dramatically.

The GIS maps have many other uses. For example, the width of each road can be assessed and encroachments by private property owners

**Table 1: Properties Assessed**

Project	ULBs covered	Number of properties already registered	Number of unassessed properties identified	Total number of properties assessed	Increase in number of properties assessed
NNP	49	1,483,919	800,982	2,284,901	35.1%
KMRP	164	1,121,521	400,650	1,522,249	26.3%
Total	213	2,605,440	1,201,632	3,807,150	31.6%

Note: Data refer to January-February 2013. Source: MRC (<http://www.mrc.gov.in/gisreport>).

on public right-of-way can be easily identified and addressed. Under a separate initiative, Karnataka's Directorate of Town and Country Planning, is preparing scientific base maps of urban areas using information from aerial photography and satellite images combined with on-the-ground survey data. Maps for all ULBs are at various stages of preparation; when complete, property tax information will be integrated into the new two-and three-dimensional maps.

## 2. Birth/Death Registration

ULBs in Karnataka were maintaining birth and death information in hard copy and registration was done manually. The issuance of birth and death certificates used to take a long time as records had to be manually searched and certificates written by hand. The national and state Registrar offices did not have easy access to the ULB birth and death databases. As part of the reforms process, GoK computerized birth and death records and introduced online registration and computer-generated certificates.

Computerized birth and death registration is ongoing in all 213 ULBs through municipal offices and at hospitals. Records since 1990 have been computerized and citizens can now view more than 10 million records online and receive certificates over the counter. Registrar offices can also extract population data in real time. Since it went live, more than 2.2 million births and deaths have been registered and over 2.6 million certificates issued, and revenues from fees have increased.

**Table 2: Cumulative Birth/Death Registrations and Fees Collected Over Time**

	Total records entered since system went live	Total Fee collected In Rs.
Dec-11	1,956,995	22,100,850
Feb-12	2,061,110	23,765,785
Apr-12	2,160,932	25,246,300
Jun-12	2,241,065	26,709,190
Aug-12	2,324,915	28,290,230
Sep-12	2,396,780	29,580,330
Dec-12	2,512,143	31,337,040
Feb-13	2,607,682	33,017,830

Source: MRC (<http://mrc.gov.in/banddonlinereport>)

## 3. Public Grievances and Redressal

Traditionally, citizens would file complaints in hard copy or through phone calls. It was difficult for them and for ULBs to track complaints and address them in a timely way. Under the reforms initiative, Public Grievance and Redressal cells were set up in each municipality, managed by NGOs and open 24 hours a day in some cities. In addition to phone calls and paper forms, complaints can now be submitted online, and can be tracked by the type of the problem and its location. They can be prioritized and assigned to the appropriate officer. A system to use SMSs to report back to complainants, alert officers, escalate where needed, and provide information on response times to higher-level officials is being tested.

The number of grievances received and attended

to are collated monthly, and municipalities are alerted where a significant proportion remains unattended. The system has not only helped to redress citizens' complaints in a timely manner, but has also enabled municipalities to understand what kinds of problems occur in which parts of the city at what time of year, so they can better plan the use of funds and the timing of works.

#### 4. Financial Management

Earlier, ULBs were maintaining accounts using a single-entry cash-based system. This was an incomplete accounting system as ULBs were not fully aware of what they owned and what they owed. There were no financial reports generated by the accounting system for fund management, resource mobilization, and budgetary control. The Karnataka Government initiated the implementation of a Fund-Based Double-Entry Accrual Accounting System. As part of this initiative, the new Karnataka Municipal Accounting and Budgeting Rules were introduced in 2006. ULB accounts were computerized. Accountants were appointed and the new rules were implemented in phases, with assistance from Certified Chartered Accountants appointed as consultants for one year.

Municipal accounts are now maintained in three funds: a General Fund, a Water Supply and Sewerage Fund, and an Enterprise Fund. Income and Expenditure Accounts and balance sheets are prepared for all three funds. Accrual accounting brought to light the real financial situation of ULBs; fixed assets were recorded,

and assets worth crores of rupees brought on record. With the use of a Chart of Accounts, the accounting process has been standardized, facilitating comparisons across ULBs. Financial information for all municipalities is now easily available, the public is better informed, and public participation in the preparation of budgets makes ULBs more responsive to community needs.

#### 5. ULB Websites

Under the Right to Information Act, municipalities are expected to make information about services, tenders, accounts, elected and appointed officials available to the public. Accordingly, website templates were developed and IT technicians appointed to fill out and maintain the information. Now each ULB has a comprehensive website where citizens can not only find information, but also submit applications and grievances online.

#### Web portal of Belgaum municipality

The screenshot shows the website of Belgaum City Corporation. The main content area features a table titled "Belgaum City" listing Aadhaar enrollment centers. The table has columns for S.No., Center Name, and Address. Below the table, there are navigation links for Home, About Us, Services, and Contact Us. The right sidebar contains a "City/Town Summary" with various statistics.

S.No.	Center Name	Address
1	Karamandi	Karamandi, Talabandi, Belgaum
2	APMC	APMC Building, Belgaum, Belgaum
3	Hotel Factory	Hotel building, Hotel Factory, Belgaum
4	Kankhore	Health Staff Office, Kankhore, Belgaum
5	Anazi	Sanath South Building, Anazi, Belgaum
6	Chandrashekar Nagar	State Community Hall, Chandrashekar Nagar, Belgaum
7	Vaidyanath	Government Higher Primary School No. 11, Vaidyanath, Belgaum
8	Prasad	Prasad, Belgaum
9	Chandrabhai	Chandrabhai, Belgaum
10	Pinka Road Durgam	Pinka Road Durgam, Belgaum
11	Vaidyanath Nagar	Home Guard Office, Vaidyanath Nagar, Belgaum
12	Maheshwar Nagar	Maheshwar Nagar, Belgaum

The website provides a gateway to online applications.

Information about the progress of public works is being further developed. The Bangalore municipal corporation (Bruhat Bangalore Mahanagara Palike, or BBMP) has already put in place a system for this under a separate project. Citizens can follow the progress of more than 20,000 works being executed by BBMP in real time. If a project is put on their watch list, alerts are sent out whenever the website is updated. Citizens can also provide feedback and upload photographs onto the site to flag problems.

Some of the most innovative approaches taken were:

#### **A centralized IT platform was set up**

To facilitate state-wide deployment, reduce development costs and ensure that municipalities did not need to maintain any server infrastructure locally, MRC worked with the eGovernments Foundation (created by Infosys's former chairman Nandan Nilekani and Srikanth Nadhamuni) to develop a common IT platform, with a standardized set of systems and procedures for all ULBs. As soon as new software modules are developed - currently, modules covering building plan approvals, water taxes, and trade licenses are under preparation - they can be rolled out immediately to municipalities across the state. With databases maintained centrally at the Municipal Data Centre, economies of scale for hardware and high standards of data security

could be ensured. Municipalities could share information and experiences and comparisons between them could be made. While this centralized approach did not address every need of every municipality, it freed local officials to focus on improving services without having to worry about hardware and software. The centralized platform will also make it possible to quickly expand the systems to any new ULBs—an important concern in Karnataka, where an additional 119 rural Gram Panchayats have been recommended to be upgraded to ULBs after the 2011 Census.

#### **Human resource practices were modernized**

The right human resources were positioned at various levels in the system. Cadres and staffing guidelines were revised, 57 redundant cadres were abolished, and 92 cadres were reduced to 40, creating space for new skills and positions such as Environment Engineers, Accountants, and IT Engineers. Policies that allowed the private sector to fill the skills gap were enacted so that contract staff could be brought in where skills were needed for short periods of time, both locally and at the central level. A massive training effort was undertaken, helping to build capacity in ULBs.

#### **Public and private sector expertise was combined**

Experts from the eGovernments Foundation, who knew software development well, worked under a PPP agreement with the staff of the MRC (which included a former Municipal

Commissioner), who understood well what municipalities needed. This close interaction made it possible to address collaboratively the challenges that emerged over time, in a way that would not have been possible if the state had simply contracted out the design of the system. Moreover, capacity was built in-house to sustain and upgrade reform efforts. The flexibility of MRC and the Karnataka Municipal Data Society to bring in skills from the private sector and work with various professional partners ensures that the right expertise is available for the time required.

### **An autonomous agency was set up to ensure sustainability**

To ensure that the initiatives remained sustainable after the externally-supported

projects ended, the Karnataka Government created the Karnataka Municipal Data Society (KMDS) in 2007. The KMDS has the mandate to manage e-governance initiatives in ULBs. While the cost of running the system and databases are partly covered by municipalities, the Society can also generate its own resources by taking up work for state and federal agencies. This self-sustaining revenue generation mechanism makes it possible to maintain a professional and technically competent workforce, which may not have been possible solely through contributions by municipalities. KMDS is also set up to address another aspect of sustainability, namely the constant creation and augmentation of skills through large-scale training of local-level staff.



**T**he reform effort has increased municipal revenues and contributed to a vastly improved interface between citizens and local administrations:

### **Unassessed properties taxed**

The GIS-based property tax system has brought 1.2 million previously unassessed properties (32 percent of the total) into the tax net, increasing municipal revenues by 30-40 percent. Citizens can now pay their taxes easily, and their complaints of calculation errors have declined dramatically.

### **Birth and death records computerized**

Citizens can now register births and deaths online and receive computer-generated certificates.

### **Citizens' complaints addressed**

The public grievances and redressal system has not only helped to redress citizens' complaints in a timely manner, but has also enabled municipalities to better plan the use of funds. In the 10 months from April 2012 to January 2013, about 390,000 grievances were registered in the system, and 98% were redressed.

### **Assets worth crores brought on record**

The new accounting system has brought to light the real financial situation of ULBs and assets worth crores of rupees have been brought on record. The placing of financial information for all municipalities online has introduced far greater transparency, and people are better informed of public works and expenditures.

## LESSONS

In retrospect, the Karnataka experience offers several important lessons:

- ▶ Reforms, to be effective, require a combination of multi-faceted innovative initiatives. State-wide and sector wide reforms cannot be effectively implemented only through policy, process, technology or HR initiatives. The real benefits come from a combination of initiatives which jointly address the overall challenges.
- ▶ In developing systems, a close interaction between developers and users is crucial to ensure that the system is both technically strong and meets the needs of users. In Karnataka, this was achieved through close collaboration between technical experts and users and staff at the central and local level.
- ▶ Improving e-governance is not just a matter of introducing IT systems but also of reforming processes. In Karnataka, process re-engineering and standardization of operating procedures were the driving force behind the e-governance initiative. If software had been introduced without reforming processes, staffing, and procedures, it would have probably remained unutilized.
- ▶ High-level support was crucial. "Champions" at the state level helped introduce and enact key reforms (for

example on accounting rules) and overcome politically difficult issues, such as bringing untaxed properties into the tax net (a reform which has encountered significant resistance in other states) and introducing greater transparency in the local management of public funds.

- ▶ Thinking ahead about financial and technical sustainability helps develop solutions that last over time. The KMDS serves municipalities but also does other work to increase revenues, making it possible to support a highly professional workforce.

The Municipal Reforms program has won three national awards: a Bronze Award for the property registration system under the category “Excellence in Government Process Re-engineering” in 2010-11; the Citizens’ Choice category of the e-INDIA Awards 2010 for “Municipal IT Private Sector Initiative of the year” (awarded to the eGovernments Foundation); and the 2010 ICT Excellence 2010 Award. The program is serving as a model for other states.

Credit for the success of the initiative goes to all municipal stakeholders (elected representatives and staff) who, under the leadership of Directors/Commissioners of Municipal Administration since 2002, contributed their efforts to the reforms; the State’s political leadership, Secretaries of the Urban Development Department, and the Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC), and the

staff of ADB and World Bank who supported the project.



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