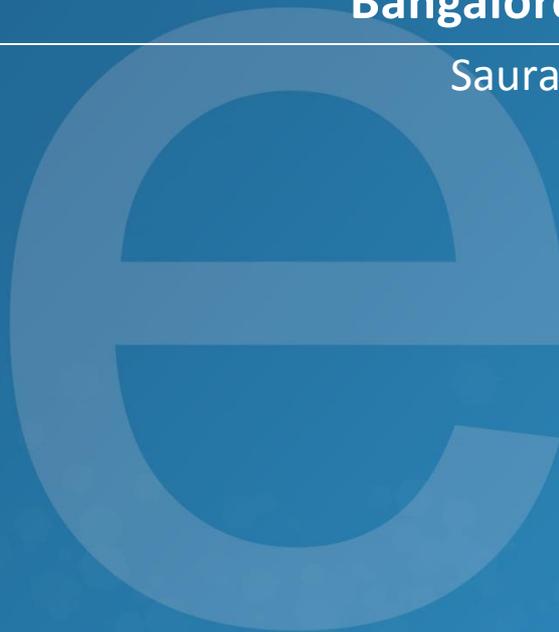


# Case Studies on e-Governance in India

Bangalore Traffic Police

Saurabh Bhattacharya



## **Bangalore Traffic Police**

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## About the Initiative

This publication is a part of the Capacity Building initiative under the National e-Governance Plan (NeGP) by NeGD with an aim to draw out learnings from various projects implemented in various States/ UTs and sharing this knowledge, in the form of case studies, with the decision makers and implementers to benefit them, by way of knowledge creation and skill building, from these experiences during planning and implementation of various projects under NeGP.

Conceptualised and overseen by the National e-Governance Division (NeGD) of Media lab Asia/DeitY these case studies are submitted by e-Governance Practitioners from Government and Industry/Research Institutions. The cases submitted by the authors are vetted by experts from outside and within the Government for learning and reference value, relevance to future project implementers, planners and to those involved in e-governance capacity Building programs before they are recommended for publication. National Institute for Smart Government (NISG), working on behalf of this NeGD provided program management support and interacted with the authors and subject matter experts in bringing out these published case studies. It is hoped that these case studies drawn from successful and failed e-Governance projects would help practitioners to understand the real-time issues involved, typical dilemmas faced by e-Governance project implementers, and possible solutions to resolve them.

## Acknowledgment

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## 1. Abstract

Diligent Traffic Enforcement is a major problem across India, often mired in corruption and in complaints of harassment; it is a subject of major reforms initiated by senior management of all Traffic Police establishments in India. Yet policy makers have been finding that these reforms *are* falling short of achieving their expected outcomes. Bangalore Traffic Police attempted to overcome the problems, by converging People, Process and Technology. The department has been able to deliver one of the most successful m-Governance initiatives in the country. This case study is an attempt to present the success story of the department in a manner where key learning/s can be easily identified and emulated.

## 2. Keywords

Police Reforms, Traffic Police, m-governance, Traffic enforcement, Change Management, Portal Solution

## 3. Note to Practitioners

People reading this case may take note of the benefits derived by applying the following principles:

- Breaking of jurisdictional barriers by implementing anywhere and anytime delivery of services.
- Integrating all participating stakeholders so as to ensure smooth transfer of information.
- Planning and Prioritizing the project rollout before moving ahead with tendering & procurements.
- Incentivization of using new Technology for all department officials, thus ensuring smoother change.
- Identification of Key Performance Indicators and the basis of their measurement in order to evaluate project success.

The above principles can be applied across all spectrums of e-Governance projects in India or abroad. The key is to involve people in implementing change and making project success measurable. If these two factors are addressed, major risks associated with any project will get mitigated.

## 4. Project Description

### 4.1. Background

**4.1.1.** The traffic police enforcement systems have been plagued by a number of issues like lack of transparency, lack of accountability etc. Such issues resulted in revenue pilferage and greater disorder in traffic management. The manual process of fining and collection lacked oversight of senior officers which allowed the scope for unaccountable/rent-seeking behavior. Often major violators would go scot free by manipulating the law enforcement personnel, which not only caused loss to the exchequer, but more importantly gave enhanced confidence to the violators, thus adding to the woes of the traffic managers. The fine collection from traffic enforcement hovered at around a few lakhs, while violations on street kept on increasing.

**4.1.2.** Traffic enforcement is done in two stages, namely:

- I. **Spot fining** – Where a violator is caught while doing violation and is slapped with a spot fine against his violation. The violator is required to pay the fine amount immediately.

Spot fining in a manual process allowed the scope for the violator and the traffic personnel to manipulate the fine amount to their own interest as the violator would pay a lesser amount as bribe to the personnel and the personnel would in his own end not record the violation. In cases where a fine was imposed, paid and recorded, the manual process did not provide any scope for identifying habitual violators, as it was impossible to check whether the violator had any previous violation history.

- II. **Fine against notices** – Where a violation is noticed and fine details are mailed to the violating vehicle’s registered address, as a notice for payment.

Fine against notices had its own share of problems. A vehicle seen performing a violation would be validated against the database of registered vehicles and subsequently a notice for payment of violation dues would be mailed to the registered address. While the process looked simple, the challenges were manifold, the first being to verify the authenticity of the violation. Since the violations were recorded by traffic personnel manning the streets, it was important to ensure that the violation recorded and the vehicle seen doing the violation were correct. The second challenge lied in validating the correct address for delivering the notice; this had its own share of problems, namely:

1. Finding addresses of vehicles registered at RTOs outside Bangalore city.
2. Finding correct & updated addresses of vehicles which frequently changed hands and ownership.
3. Getting the latest version of the registered addresses from the RTOs.

All these problems were coupled by the fact that most of the RTOs were not computerized and the mechanism of data exchange between RTO and Traffic Police was manual, sometimes leading to a backlog of 11 months.

The third challenge was getting the citizens to pay for the violations. The problems here were primarily because of the cumbersome mechanism of payment options available with citizens. In order to make a payment, a citizen was required to visit the police station under whose jurisdiction the violation was recorded, which would mean that a person may have to travel a huge distance to make the payment. While he may reach the place to make the payment, he may find the police station inhospitable to make the desired payments, which may result in him paying a bribe and getting away with the violation.

## **5. Project Overview**

### **5.1. Project Description**

With all these challenges plaguing the department, the department needed a solution and the solution lied in the use of technology. A detailed plan for implementation of technology was drawn, while technology was planned as the main backbone of the initiative, it was also realized that only technology would not be able to address all concerns and a steady mix of policies and procedures would be required to make the initiative a success.

The technology implementation was planned in two phases to achieve higher levels of road safety for all road users—

- I. Implementation of mobile governance in tracking enforcement done at roads and junctions. Important sub-components of this activity were -
  - a. Capacity Building, both in terms of human capital and technology enhancements.
  - b. Development of a comprehensive management information system.
- II. Implementation of e-Governance in notice generation, delivery and payments. This phase was again sub-divided into two sub-phases, namely,
  - a. Process Automation;
  - b. Citizen Service Delivery Channel Development

Under the first phase, officers' upto the level of a sub-inspector were provided with handheld blackberry devices and handheld printing devices. These devices had small application software deployed for capturing traffic violations and generating receipts against payments made. These devices were connected with a centralized server system kept at the state data center using a GPRS / EDGE based mobile network. This helped the police officers capture & record violations online into a central database.

The second phase emphasized on process automation. Under this activity a central data repository was created at the state data center and the central repository was connected with all police stations using a VPN network. This ensured that all violations noticed and recorded got consolidated at a central place, accessible to all police stations, which provided the citizen with an option of paying at any police station instead of the station under which the violation was recorded.

Another key activity which was performed under process automation was the online connectivity between Transport Department and Traffic Police department. This involved two activities,

1. Connecting all regional offices or RTOs of Transport Department with a central repository kept at the State Data Centre.
2. Connecting the central Transport Department data repository with the Traffic Police IT system; for automated vehicle and address validation.

Under citizen service delivery channel development, facility of paying violation notices was extended to citizen facilitation centers, managed by the e-Governance department and also to the online web portal of the traffic police department.

## 5.2. Objectives & Priorities

The purpose of the technology implementation plan was to address all the deficiencies within the system in a planned manner. The table below shows the deficiencies within the system and their causes, identified through root cause analysis –

Deficiencies	Cause
<b>Financial losses to the exchequer.</b>	<ul style="list-style-type: none"> <li>• Lack of visibility on the field activities being performed by traffic personnel.</li> <li>• Difficulty in fixing accountability.</li> </ul>
<b>Inability to identify and track habitual offenders.</b>	<ul style="list-style-type: none"> <li>• No centralized information repository which can be used to store and track violations using violating vehicle details.</li> <li>• No institutional mechanisms either within processes or through technology, which can allow capturing and consolidation of violation details.</li> </ul>
<b>Inability to validate the authenticity of the violation recorded.</b>	<ul style="list-style-type: none"> <li>• Complex methodology of performing such validations, which make it humanly impossible to perform such activity without having some automation.</li> <li>• Lack of full and updated vehicular data from RTOs.</li> </ul>
<b>Inability to capture latest vehicle registration details from RTOs.</b>	<ul style="list-style-type: none"> <li>• Distributed nature of database maintenance at RTOs.</li> <li>• Lack of online connectivity with Transport Department in order to receive a regular update.</li> <li>• Manual process of data synchronization caused huge delay in getting latest data.</li> </ul>
<b>Difficult and cumbersome process of citizen interactions, including the process of fine payments and also grievance redressal mechanism.</b>	<ul style="list-style-type: none"> <li>• Lack of centralized repository of all violations.</li> <li>• Lack of connectivity between police stations.</li> </ul>
<b>Lack of management information system required for taking key decisions.</b>	<ul style="list-style-type: none"> <li>• No central repository of information.</li> <li>• No definition of key performance indicators.</li> </ul>

**Table 1 : Root cause analysis of deficiencies in the system**

While the purpose of the initiative was to address all these deficiencies, the priorities were set to address the causes resulting in these deficiencies. The objective was to

perform the following series of activities; the activities are listed as per the priority set:

**Priority I** – Create a central hardware infrastructure for hosting centralized knowledge repository.

**Priority II** – Deploy local IT setup at each police station and connect the central hardware infrastructure with police stations.

**Priority III**–Create a central data repository and connect it with the local systems for regular data sharing and synchronization.

**Priority IV**–Develop mobile governance program by creating a mobile infrastructure by distributing handheld devices, connected to the central repository using EDGE / GPRS network, to officers on the field. This would include training to the field officers on handling and using these devices.

**Priority V** – Develop citizen service delivery channels, including website and payment facilitation centers.

### **5.3. Implementation Strategy**

There were two levels of strategy of implementation which were adopted.

**5.3.1.** The first level was to identify partners who would bring with them knowledge and expertise to create and deploy an information system which would help the department in achieving its objectives. The second level was to implement policies and procedures which would help in creating an impact of the technological implementation. As part of the first level the plan was to identify two strategic partners,

- I. First partner would create the appropriate infrastructure and perform capacity buildup at police stations.
- II. Second partner would create the mobile governance infrastructure for field level communication and tracking.

Two tenders were floated for finalizing appropriate partners.

As part of the first tender the following roles were expected from the selected partner:

- Procure and deploy a central hardware infrastructure.
- Procure and deploy client nodes at police stations.
- Automate business processes and deploy them using n-tier architecture and a web based delivery mechanism.

- Integrate with strategic partners such as Transport Department, CID, Law & Order Police, etc.
- Conduct training of police personnel in handling IT resources
- Create a process of facility management.

The second tender envisaged the following roles from the selected partner –

- Development of a secured mobile network which can be used to connect field personnel with central data repository using EDGE / GPRS network.
- Distributing handheld blackberry devices and printers, deployed with a host application system for recording traffic violations online.
- Training traffic personnel in using and handling the handheld devices effectively.

**5.3.2.** The second level of strategy emphasized on policies and procedures to be adopted for ensuring effectiveness of the implementation –

1. Replacing the paper based challan system with the new blackberry based challan and receipt generation system.
2. Aligning the IT systems and the information generated through it with the administrative procedures. This became more relevant with MIS as new reports being generated through it became part of day to day administrative activities.
3. Educating personnel at various levels on the level of accountability, IT automation brings with it management oversight over the performance of individuals.
4. Implementing performance driven incentives.

#### **5.4. Mode of transformation**

The transformation was carried on in the twin vehicles of technology and policies, with technology playing the role of an enabler and policies playing the role of an implementer. While strategic partners brought with them expertise and did a flawless implementation, the senior department officials ensured effective implementation of policies and corresponding procedures.

The contribution made by partners can be summed with the following points –

- Capacity building, including the following,
  - Human Capital enhancement performed using adequate training.
  - Technological enhancement performed using advance ICT infrastructure deployment.

- Automating business processes and procedures for effective delivery of services.
- Identifying MIS requirements and implementing the same.

The contribution made by senior department officials can be summed with following points –

- Identification of bright & capable elements within the department and promoting them to responsible positions.
- Effective communication and change strategy implementation.
- Closer alignment of technology with department’s processes and procedures.

### 5.5. Outcomes

The initiative started yielding results from the first day itself. The changes and the impact were dramatic and exceeded the expectations of the department. Here it is essential to state that the objective of the entire exercise was not to increase the revenue collections but to enhance the quality of enforcement by ensuring that violations are recorded and violators are penalized. There were two objectives which were in focus, namely:

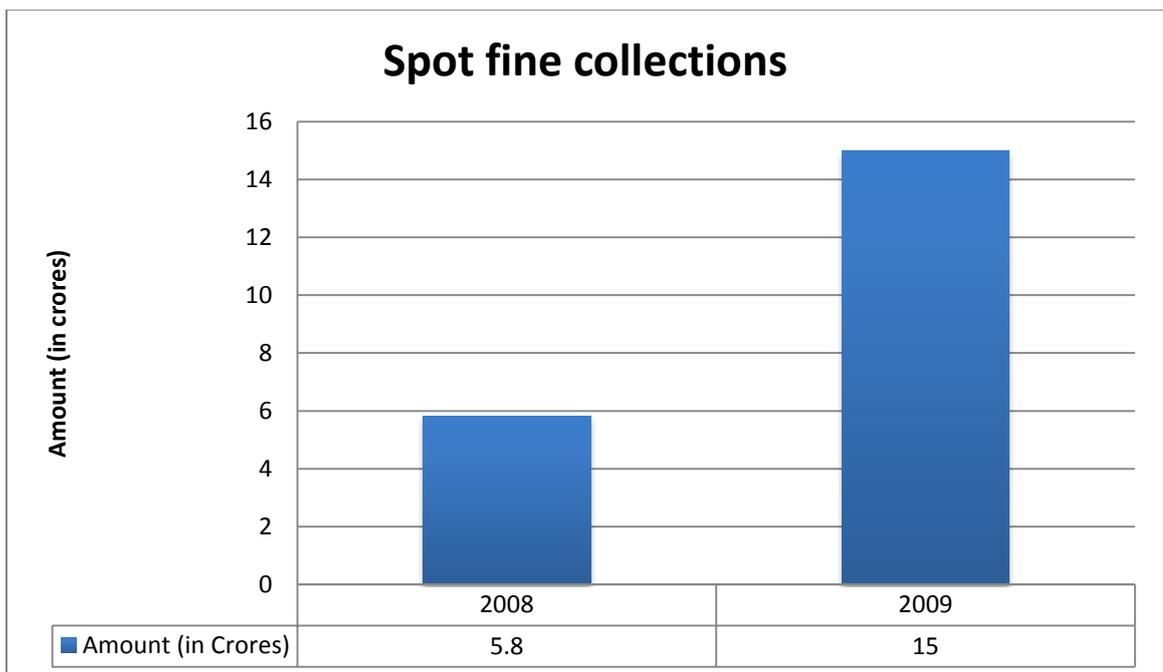
- Bringing in more discipline on roads by instilling fear of law within the minds of violators.
- Stopping pilferage of fine amount.

In order to identify success of the objectives set forth, some key performance indicators (KPI) were identified. These KPIs and its relation with the expected impact has been presented in the following table –

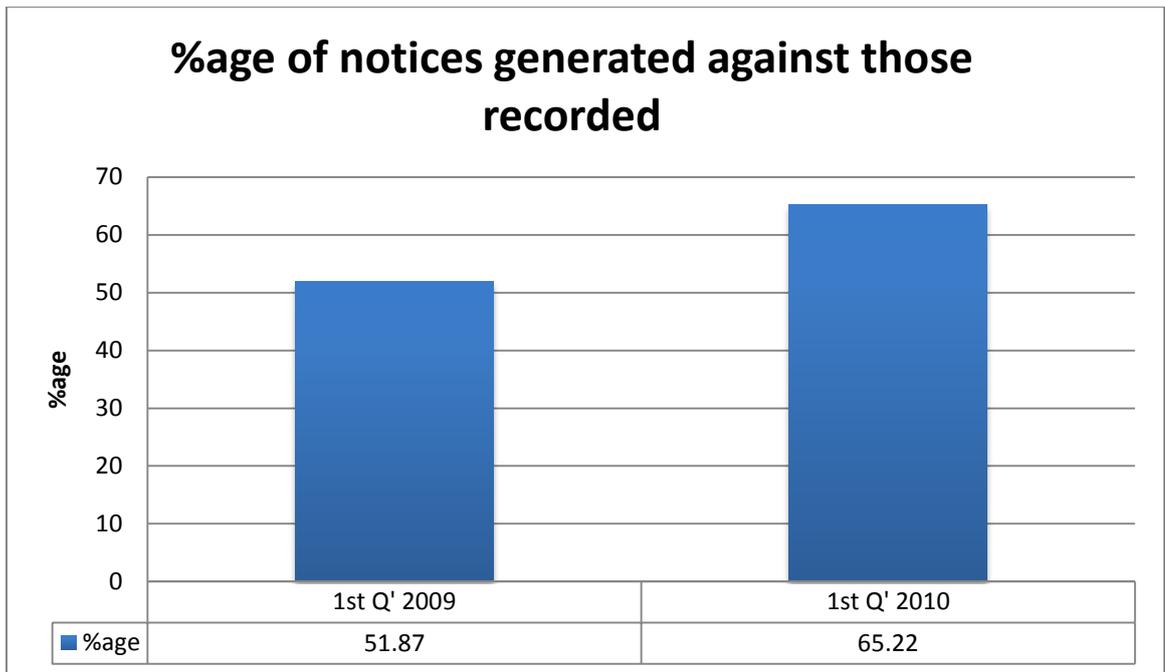
S. No.	Key Performance Indicator	Impact
1.	Accidents recorded on the roads of Bangalore.	➤ A lesser number of accidents would mean that a disciplined enforcement process is having a positive impact over the traffic behavior of citizens which is resulting in Bangalore roads becoming safer.
2.	The number of violations recorded.	➤ A lesser number of violations would mean that a disciplined enforcement process is having an impact over the traffic behavior of citizens.
3.	The amount of collections achieved through spot fining.	<ul style="list-style-type: none"> <li>➤ A higher amount would project that the pilferage of fine amount is reducing thus signaling a higher level of transparency in dealings between citizens and traffic personnel.</li> <li>➤ A higher amount would project greater number of violations getting caught thus creating a sense of fear among habitual violators.</li> </ul>
4.	The percentage of notices generated and delivered against	➤ A higher percentage would project a better coordination between the Transport department and the Traffic Police department in terms of data sharing, which would validate

	those recorded.	the correctness of the information recorded.
5.	The total revenue collection from enforcement processes including spot fining and notice payments.	<ul style="list-style-type: none"> <li>➤ A higher amount would project greater number of violations getting caught, thus creating a sense of fear among habitual violators which would result in better traffic behavior among citizens.</li> <li>➤ A higher amount would mean that more people are paying fines against the notices received, which would mean that the means of payments are more readily accessible for citizens to avail.</li> </ul>

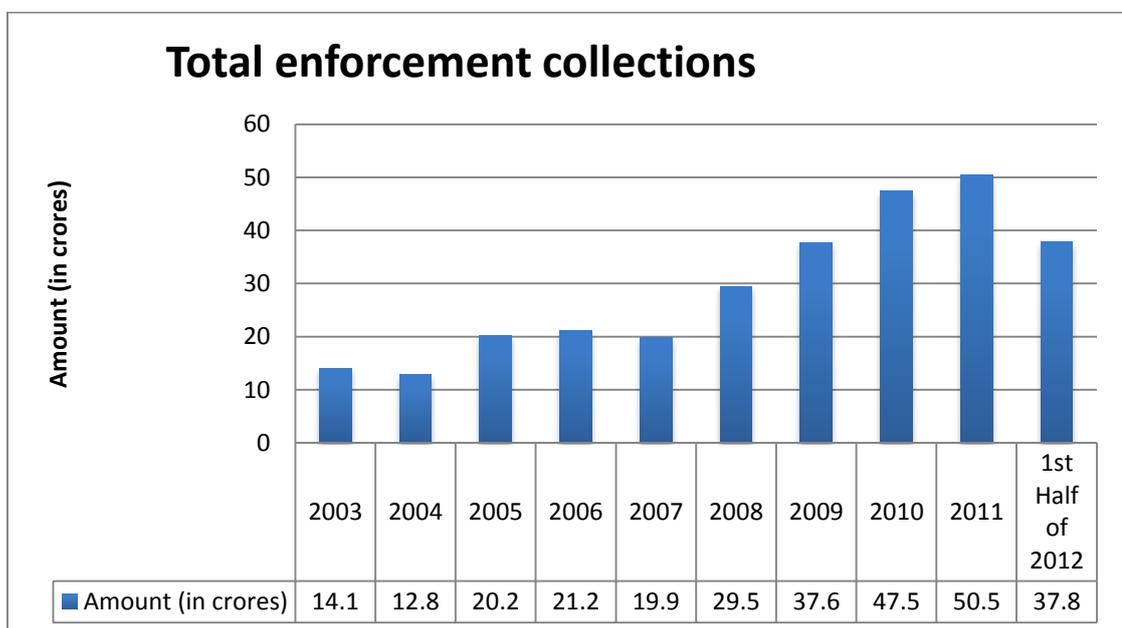
Results of each performance indicator, in comparison to the previous values are presented below:



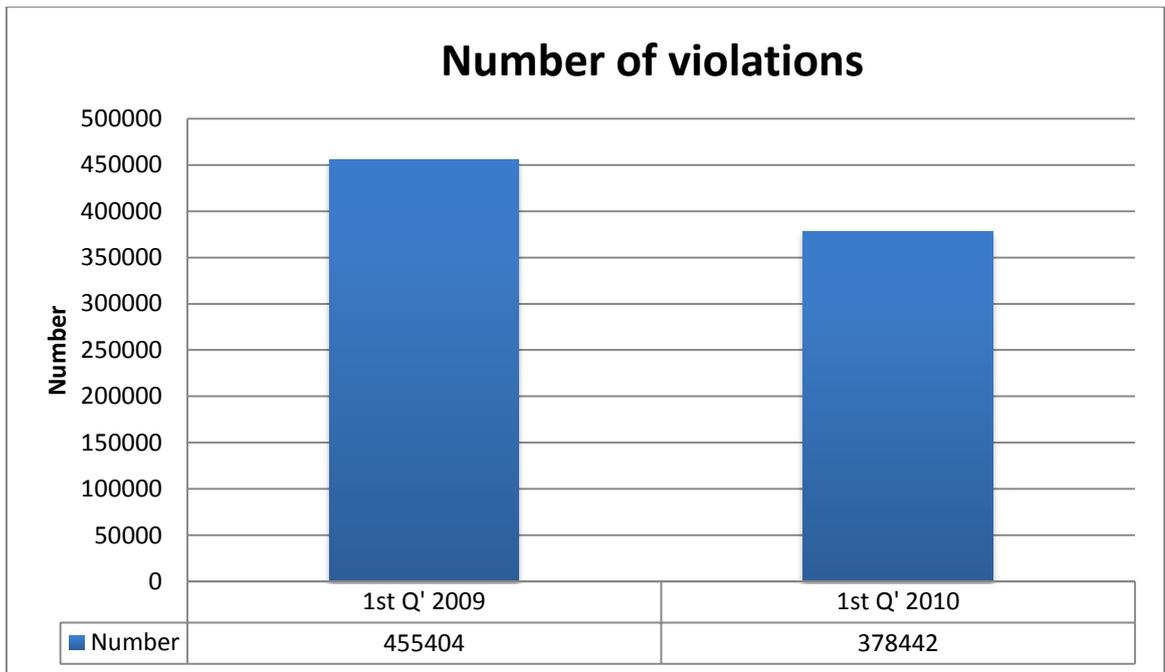
**Figure 1 : The amount of collections achieved through spot fining just before and after implementation**



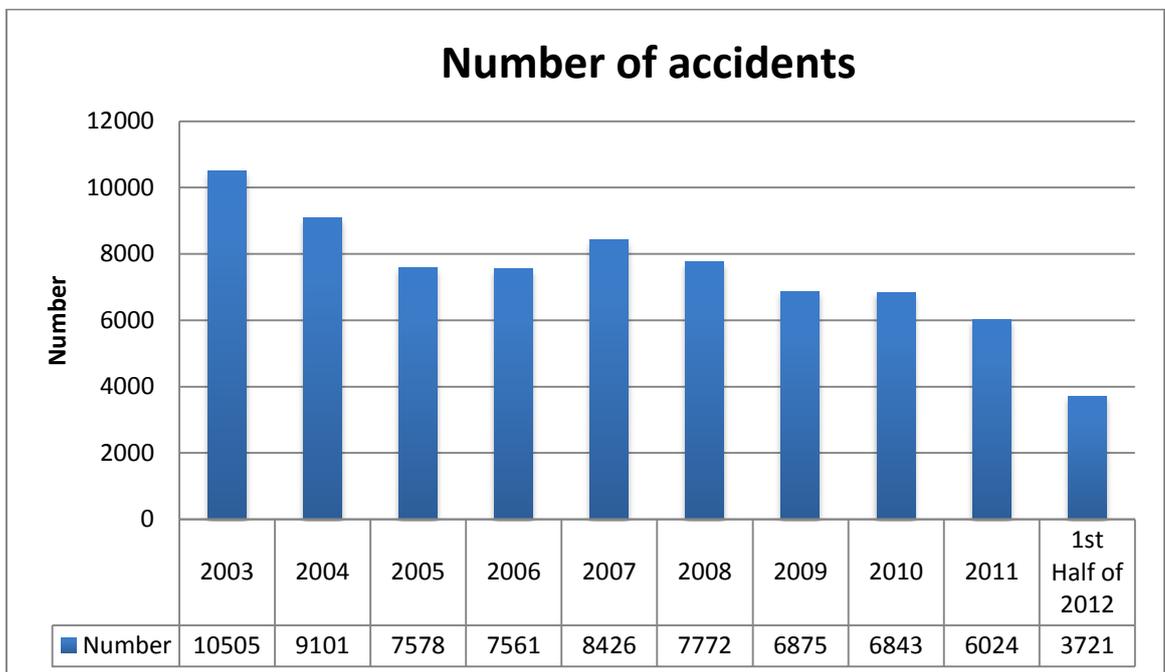
**Figure 2 : The amount of notices generated and delivered just before and just after implementation of the project**



**Figure 3 : The total revenue collection from enforcement processes including spot fining and notice payments year on year, kindly note that the project went live in April 2009**



**Figure 4 : The number of violations recorded just before and just after the implementation of the project**



**Figure 5 : Accidents recorded on the roads of Bangalore**

## 6. Key Lessons/Achievements

The initiative brought-in great amount of changes in the way processes were being implemented. The initiative resulted in some sub-initiatives which had far reaching impact on the government and created a role model on how two departments can integrate to provide better services to citizens and bring in greater efficiency in citizen services delivery. Some key achievements of the initiatives are presented below:

1. Integration between multiple departments :
  - a. Transport department and Traffic Police integration is one of the pathbreaking achievement within the Government of Karnataka. It had two major impacts, One, that in order to get integrated, the Transport department had to upgrade its IT systems and digitize its databases. Two, it ensured that integration resulted in greater amount of accuracy in data exchanges which caused correct people getting the notices thus reducing the amount of harassment a citizen had to undergo because notices were delivered at wrong addresses.
  - b. Traffic Police and e-Governance department integration resulted in utilization of shared IT infrastructure of the state. The initiative banked upon resources such as State Data Center (SDC) for deploying its centralized IT infrastructure and citizen facilitation centers such as BangaloreOne for delivery of services.
2. Online delivery of services and workflow driven grievance redressal – With online portal of the department becoming active, citizens had a channel to do the following –
  - a. Check for pending violation notices against their vehicle.
  - b. Pay their pending violation notices online.
  - c. Connect with department for reporting the following –
    - i. Harassment in the hands of department officials
    - ii. Traffic related problems
  - d. Department officials could work on complaints, submit status report or forward it to appropriate authority for further action online through a workflow.
3. Lessons learnt and enhancements in the extension phase– The process developed and the initiative taken have been extended further to include all the traffic personnel upto the Asst. Sub Inspector (ASI) level. The new extension tried to address the lessons learnt during the initial phase. The first rollout had underlined the importance of a single contract for managing end to end operations as well as creating a robust service level agreement. Maintenance & robustness of systems was another key issue which was identified in the first phase as a key concern area. The extension contract handled all these loopholes and ensured that the next rollout was smooth and resulted in creation of a more robust system.
4. Replication – The Bangalore experience is being lauded across all forums as one of the good examples of m-Governance. The success story and management lessons are worth a case study. The challenges faced and the steps taken to overcome them have also been replicated in some other e-Governance projects in the state of Karnataka. The

three pillars of people, process and technology re-engineering are easily replicable across any e-Governance project.

## 7. References

1. Bangalore Traffic Police – <http://www.bangaloretrafficpolice.gov.in>

### Profile of author

**Saurabh Bhattacharya** is working with Government and Infrastructure Advisory division of Grant Thornton India. Saurabh obtained his management qualification from Indian Institute of Management Bangalore. He also has masters in Computer Applications. Prior to joining Grant Thornton, Saurabh also worked with PricewaterhouseCoopers. He has more than 13 years of work experience with almost 10 years in e-Governance during which he has worked with various local & national Government agencies. Saurabh has written a paper on e-Governance standards.

Email: [saurabh.bhattacharya@gmail.com](mailto:saurabh.bhattacharya@gmail.com).

### Project Case Fact Sheet

- The 1st phase of project was launched in January 2008 and became fully operational in April 2009. This phase covered around 280 officers, who were responsible for traffic management.
- The 2nd phase was operationalized by April 2010. This phase covered around 350 officers. With this phase the paper based system was completely phased out.
- Bangalore Traffic area covers 1000 Sq. Kms which includes, 4500 Kms of Road, 40,000 Intersections, 330 Signalized Intersections, 600 Manned Intersections





**National Institute for  
Smart Government**

**Hyderabad**

YSR Bhavan, Financial District, Nanakramguda,  
Hyderabad - 500032

Telangana, India.

Ph: 040-66545352, Fax: 040-66545300

**Delhi**

Mahanagar Door Sanchar Sadan, 9, CGO Complex,  
Residential Complex,

1st floor New Delhi-110003

Ph: +91-11-24321445, Fax : +91-11-24321444

Website : [www.nisg.org](http://www.nisg.org)



National e-Governance Division

**National e-Governance Division**

Department of Electronics and Information Technology (DeitY)

Ministry of Communications & Information Technology

(Government of India)

Electronics Niketan, 6, CGO Complex,

Lodhi Road, New Delhi- 110 003

India

Ph. +91-11-30481624

Website: [www.negp.gov.in](http://www.negp.gov.in)