# TRANSFORMATION OF HEALTH SYSTEMS AND GOVERNANCE: CASE OF SURAT CITY, GUJARAT

**Ms Priyanka Jariwala* Mr Sathish Selvakumar** Mr Anuj Ghanekar* Dr Vikas Desai***
**Urban Health and Climate Resilience Centre (UHCRC), Surat, India*
***Indian Institute for Human Settlements (IIHS), Bengaluru, India*

Surat is one of the fastest growing cities in India with a total population of 48, 49,213 (2011 Census), of which, the migrant population constitutes 58 per cent. Disaster-prone Surat witnessed a remarkable change in its governance by Surat Municipal Corporation (SMC) after the floods in 1994 and the subsequent plague outbreak. This study assessed how urban governance by the SMC evolved in the aftermath of the plague outbreak. The assessment was conducted through the thematic analysis of semi-structured interviews with key informants who included officials of SMC, members of the Surat Climate Change Trust, academics and citizens. The study traced various factors that led to the institutional transformation in public health management by the SMC after 1994. These include the revamping of SMC structure to instate a decentralized approach to governance, the commitment of SMC towards the welfare of citizens, strengthening of disease surveillance systems, involvement of academic institutions in research projects, working with international agencies on health and climate issues, e-governance initiatives, setting up an early warning system, trust of community members in the city's leadership and the "Surati" attitude of cooperation.
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**Keywords:** Institutional Transformation, Municipal Governance, Urban Management, Surat Municipal Corporation

## 1 Introduction

Public service delivery systems play a vital role in the lives of citizens. The need for transparency, social accountability, and fair governance has triggered many experiments and innovations in public systems. Good governance and sustaining reforms are the need of the hour. UNDP (1997) defined the following principles associated with the concept of good governance: participation, rule of law, transparency, responsiveness, consensus orientation, equity, efficiency and effectiveness, accountability and strategic vision. According to the definition proposed by World Bank (1992), governance is defined as the "the manner in which power is exercised in the management of the country's economic and social resources for development". This involves the procedure of selection, monitoring and replacement of government, formulation and implementation of sound policies and the respect of the citizens [1]

The institutional development of urban local bodies (ULBs) is underpinned by facets of good governance such as accountability, transparency, civic engagement, efficient service delivery and sustainability. [2]. This in turn, will lead to structured administration within the system, orientation of services to larger masses, enhanced participation of stakeholders and citizens in decision making and implementation of various programmes and effective linkages with civil society.

Although there is no causal relationship between the two, crises provides opportunities for reforms [3]. In this case, the plague that happened in Surat in the aftermath of the floods in 1994 opened up opportunities for change. The incident necessitated an overhaul in governance and public delivery systems in Surat. The aim of the paper is to explore the transformation in the Surat Municipal Corporation (SMC) governance post 1994 plague episode by identifying the pattern of changes in the system due to the institutional reforms and their impact on the access and coverage of service delivery to the citizens. The study focuses on administrative restructuring and policy reforms adopted by SMC post 1994 to transform the city's image. The study captured community perceptions and views in terms of development of SMC after 1994 as an institutional structure for the provision of basic services. The study also identifies the various new initiatives that SMC undertook post

1994 towards improved governance in the city. The lessons drawn from the study will help in reforming public service delivery across sectors.

# 2 Conceptual Framework

In the face of rapid urbanization, strengthening the institutional capacity of the municipal administration to deal with urbanization and its challenges is a vital aspect of governance. The city of Surat, which is highly vulnerable to flooding caused by river Tapi, and other slow onset impacts such as increasing monsoonal precipitation and public health concerns, has evolved in governance post 1994[4]. The experience of major disasters and impacts has meant that the focus of the local government is predominantly on public health, flooding, water supply, rapid urbanization, poverty alleviation, and resilient economic and industrial development.[5] Thus, policy makers and practitioners can draw lessons from the journey of SMC, its evolution, and assess their own situation and adopt best practices.

Based on the above mentioned aspects of the study, a conceptual framework was designed. The objective of the conceptual framework was to answer the following research questions:

(a) What type of administrative restructuring and policy reforms were adapted by SMC post 1994?

(b) What were the actions undertaken by SMC in order to counter Surat's image as one of the dirtiest cities in the country post 1994?

(c) What are the citizens perceptions and views in terms of development of SMC post 1994 as an institutional structure for provision of basic services and tackling frequent disasters such as floods in the city?

(d) What are the new initaitives undertaken by SMC towards improved governance in the city?

Transformation of governance in SMC involved three building blocks, namely:

1. Capacity Development and System Level Reforms
2. Attitudinal Change
3. New Initiatives and Innovations

## 2.1 Capacity Development and System Level Reforms

Capacity development along with an enabling environment plays a mutually reinforcing role in institutional reform. The term "capacity" here refers to the ability of the institution to deliver on its responsibilities. The enabling environment, in the presence of good governance and political will, fosters bottom-up involvement in the planning process. Capacity development has four main components (i) local government (ii) local community (iii) leaders or agents of change (iv) the environment in which capacity development takes place [6] Please see Figure 1.

*Polidano et al* (1999) has defined public sector capacity through three important elements: *policy capacity* that is the ability to structure the decision-making process, coordinate it throughout government, feed analysis into it and ensure that the analysis is taken seriously; *implementation capacity* that is the ability to execute and enforce decisions, within the public sector as well as in the wider society and *operational efficiency* referring to the cost effectiveness of the internal operations of the public sector and the quality of the services.[8]

In case of Surat, the SMC underwent remarkable changes in terms of building its capacity in the aftermath of the plague. System reforms such as decentralized decision making, accountability and transparency evolved due to the then City Commissioner in 1995-96. Reforming intra-organization processes such as breaking down silos, empowering deputy and assistant commissioners, and insisting that officers 'learn from the field,' constituted a major part of the restructuring[9] . Due to these reforms, inter-agency coordination was strengthened within the system.

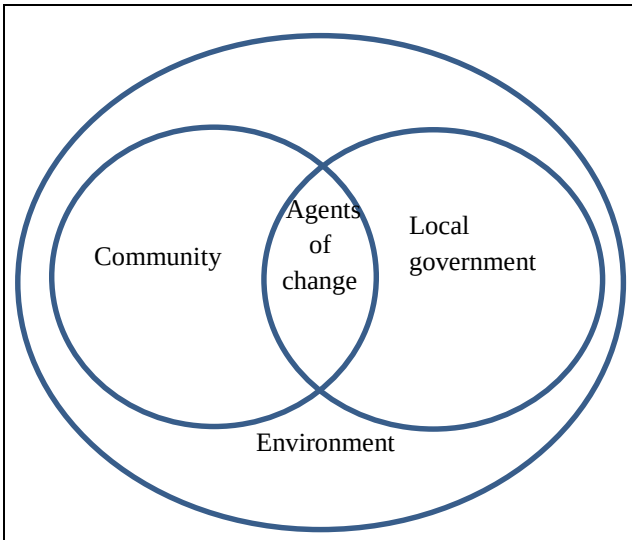
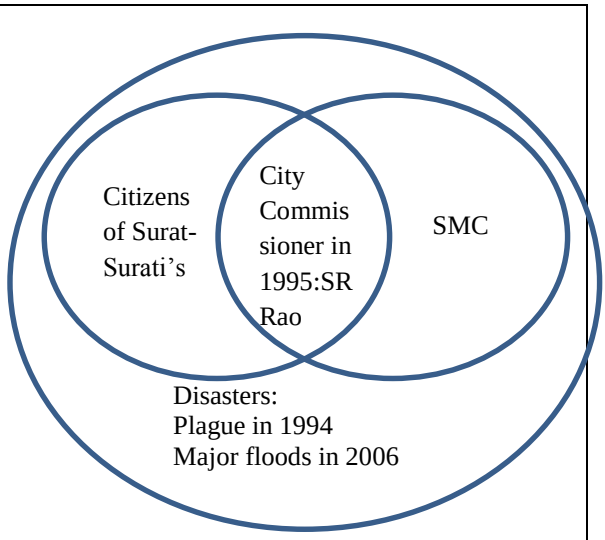



Figure 1 - Elements of Local Capacity – (Source Asmita Tiwari et al)




Elements of Local Capacity in Surat City's context

Community capacity consists of networks, organization, attitudes, leadership and skills that allow communities to manage change and sustain community led development [8]. Agents or leaders of change who lead transformational change are an interface between the government and community. This is an area which is important for the government and community partnerships to evolve and strengthen in order to implement changes.

These change agents work amongst varied tensions and stresses that characterize the space and inhibit or reward innovations [10]. Both government and community capacity exist within enabling or disenabling environment. In the case of Surat, the plague outbreak after the 1994 floods, and the major flood in 2006 that also led to a Leptospirosis outbreak, acted as triggers.

## 2.2 Attitudinal Change

Attitudinal change is a function of a perspective shift. A disease outbreak can trigger behavioral responses that are focused on minimizing the effect of the diseases onto themselves and to prevent others from contracting the diseases [11]. Depending on the behavior associated with a given disease, heightened levels of awareness give rise to preventive measures that alter the infectivity and immunity within the community. Ability of the community to rebuild and adapt are governed by their attitudes, since a community is more vulnerable psychologically when it feels victimized and fatalistic. [12]

Prior to the plague episode there were wide open drains, pollution of groundwater sources, crowded living in industrial areas, open piles of rotting garbage, pools of overflowing sewerage and absence of latrines. All these contributed to the turning of the Silk City to the Sick City. Subsequent to the disaster, the attitude of the citizens changed and they diligently tried to improve their living conditions [13]. This study explored this change on the part of the community through interviews with citizens.

The exact impact of these factors on disease dynamics is difficult to quantify and is often subject to speculation. Various mathematical modeling are used to identify crucial parameters in the interaction between a spreading disease and associated behavioral responses in the population [14] The Health Belief Model was applied for the use of facemask during 2003 Hongkong SARS epidemic and is documented as an example of behavior change in response to a disease outbreak [15].

Motivating community to undertake specific behavioral patterns related to hygiene has proved to be effective in containing outbreaks of infectious diseases [16]. A study on the knowledge, attitude and perception of the community of Surat after the plague episode shows that the level of scientific information in the area of health and hygiene in general and plague in particular was very high in the community. Only in the absence of access to required information and proper civic amenities citizens do resort to unhygienic acts [17]. Studies show that the

community is more likely to comply with health related recommendations if they are perceived to be effective [18-20].

Understanding perceptions and behavior of the community and at the same time engaging them to adopt precautionary measures post disaster or during disease outbreak can help health communicators to improve their messages to prevent the spread of any new infectious diseases.

## 2.3 New Initiatives and Innovations

Institutional innovations and reforms in different cities take form in different ways. With the rapid urbanization and globalization phenomenon, various cities are facing pressure to improve service delivery and becoming responsive to public needs. City governance is further challenging because the spatial structures are constantly changing. These inadequacies can be addressed by institutional innovations under partnership mode (apart from governance reforms). Governance reform is also essential to ensure that the local governing bodies are made accountable through alternate institutional structures and at the same time monitored to ensure development takes place. There are some traditional and modern tools that are being deployed in improving governance in Indian cities, which are briefly categorized and presented in Table 1 below:

| ***Reform area*** | ***Reform action*** |
|---|---|
| Private sector involvement | Contracting out government services to private parties |
| Management improvement | Service contracts, management contracts and delivery contracts in routine and non-core functions |
| Better Financial Management | Accounting and budgetary reforms reflecting modern practices e.g., double entry book keeping |
| Resource planning and Mobilization | Realistic assessment of resource requirements of services; mobilization through own sources and accessing markets |
| Process improvements | Deployment of e-governance models in select services |
| Improved accountability | Citizens' charters have been introduced by some Urban governments to act as accountability mechanisms to public. |

Table 1 - **Urban governance reform and actions**

Source - Ramakrishna Nallathiga "Institutional innovations of Urban Governance: Some examples of Indian cities" *Urban India Vol XXV, No. 2 (2005): 1-28* [21]

The Surat Municipal Corporation has undertaken most of the reforms stated above in Table 1. For e.g. Surat has a citizen charter and has also received an award for the country's best grievance redressal system. Also SMC has outsourced and/or contracted some of the functions/tasks related to collection of garbage and SWM; construction and maintenance of roads; and day-to-day maintenance and repair of sewage and water plants. [22]

Thus, institutional innovations can evolve in governance space to fill in the gap of government failures or the absence of government interventions [23]. Studying such innovations is important to explore the possibility of replicating them elsewhere with different structure, objectives and methods.

Based on the above framework, the study of Surat city in Gujarat was conducted. The analysis focused on identification of factors essential for SMC's transformation after the plague outbreak in 1994.

# 3 Research Methodology

The year 1994 was a turning point in the history of public health management in Surat. Twenty years have gone by since various reforms were undertaken by SMC. At the same time, the citizens of the city have evolved in terms of facing any disaster and demand services from the local governing body. Thus, the study captured perceptions of both the administrative staff and the community.

### 3.1 Population and Sample

The study was carried out in the city of Surat in Gujarat. Interviews of various stakeholders were conducted in two sections:

(i) Officials of:

i. Surat Municipal Corporation.
ii. Key resource persons
iii. NGOs, trusts and associations.
iv. Academic institutions
v. Local business owners

(ii) Community members residing in Surat since 1994 who had witnessed the plague in the city. The study area selected was the central zone of the city with an assumption that the long term residents of the city would be residing in that particular part of the city. The areas of the central zone surveyed were Nanpura, Sagrampura and Salabatpura areas.


*India* *Gujarat State* *Surat City*

Figure 2 – Map of the study area-(Google Images)

The total sample of interviews in the research was 17 interviews of citizens and 17 key informant interviews of those that worked with stakeholder institutions. The number of interview respondents from different organisations are given in Annexure 1.

### 3.2 Data Collection Procedure and Analysis

The study was based on primary and secondary data sources. Extensive literature search and semi structured interviews of stakeholders and citizens of the city were carried out for the study. Existing documents including government policy documents, reports, reviews and program evaluation reports were reviewed. The review was followed by semi structured interviews that lasted about thirty to forty minutes. The qualitative data were manually coded into themes and analyzed.

## 4 Findings and Discussion

The findings presented align with the conceptual framework discussed in section 2. Capacity development and system level reforms focus on the overall reforms in Surat Municipal Corporation post 1994 and the influencers of the reforms followed by the evolution of health department of SMC. New initiatives and innovations talk about the enhancement of public health systems, public private partnership, intersectoral convergence, e-

governance reforms and system responsiveness after disasters. Attitudinal shift focuses on the community views of the development of SMC post 1994 and lessons learnt by them.

## 4.1) Capacity Development and System Level Reforms

Capacity development post disaster is a locally driven process of transformation that is dependent on the combined efforts of local organizations, citizens and other agents that leads to disaster resilience. This section focuses on the overall reforms in Surat Municipal Corporation post 1994 and the influencers of the reforms followed by the evolution of health department of SMC.

### 4.1.1) Administrative Restructuring

After the plague, SMC underwent reforms at many levels, right from the administrative transformation to financial and taxation reforms. The structure of SMC was amended from a rigid vertical hierarchy to a more interactive horizontal structure. [24] The various administrative strategies adopted at SMC were decentralization of power, authority and accountability, collective decision making, regular monitoring and surveillance, setting up of grievance redressal system, coordination with elected representatives, maintaining strict discipline and work culture, demolition of illegal constructions and strengthening municipal income and expenditure. [24, 25, 26]

According to a SMC official, creation of posts with specific public health responsibilities and regular monitoring through weekly reviews increased the efficiency of the system. This practice has evolved over the years.

Administrative revamping was carried out in April 1994 wherein the corporation area was divided into six administrative zones but the zonal officers were also without much power and authority. Thus the first initiative taken after 1995 by the SMC was delegation of decision making power and financial authority to the zonal officer in charge. Each zonal office was headed by a Deputy or Assistant Commissioner with support staff managing the planning. This phenomenon was described as 'Six-by-Six-by-Six' and 'AC to DC' by the then Municipal Commissioner. Due to the former approach his daily workload reduced from 666 to 66 decisions as a result of executive decisions being taken at the six zones by the zonal officers. The latter approach was based on the transition from air-conditioned (AC) offices, cars and homes to daily chores (DC) as the top officials had to spent minimum of five hours every day in the field as to expose them to the hardships of field work and make them more considerate and humane. [26]

The above findings align with the elements of the public sector capacity such as policy capacity and organizational capacity as mentioned in the conceptual framework. After the plague, SMC developed an ability to uphold authoritative and effective rules of governance and at the same time revamped the internal organization and management structure by distribution of functions, effective planning and decision making.

### 4.1.2) Evolved Culture of SMC

The transformed work culture of SMC post 1994 was a factor that stood out in the study. Tangible changes like compulsory uniform and obligatory field duty in morning for each SMC official were reported as important changes. Also, intangible aspects were spelt out like sense of belonging and pride in public sector work. A health officer emphatically stated that he is proud of what he does and working for SMC is unlike any "government" job.

Informants also reported "invisible or hidden" compulsion of sustaining the initiatives by officials. The roots can be found in tarnished image of city in 1994 and subsequent responsibility of improvement successfully taken up by city officials after 1994.

A former municipal commissioner expressed that those working with SMC feel proud of their jobs. This is a unique organizational strength as the officers show a high commitment to the city. The staff is professionally qualified and possesses technically sound knowledge. The majority of the staff is committed to their work, which is a quality typically not seen in other government departments.

### 4.1.3) Exceptional Leadership

Surat Municipal Commissioner, Mr. S. R. Rao (appointed on 3rd May 1995) had taken major initiatives in city cleanliness, system reforms, road widening, demolition of illegal constructions etc. Dr. Ghanshyam Shah, in his book, "Public health and Urban Development: The Plague in Surat" calls the performance of Rao as "exceptional". He further reasons that most of the bureaucrats holding similar positions are not involved in the job which they are expected to perform. Personal commitment, priorities, determination and style of functioning he reported as individual competencies shown by Mr. Rao. (Shah, 1997).

A professor at the Center of Social Studies, Shah recollected how as a citizen he experienced the bold decision making of Commissioner S. R. Rao. Despite protests against road-widening, he took steps towards the overall cleanliness of the city through both action and design. The results Rao brought about were a) increase in sanitation coverage from 63% to 96.5%, b) increase in daily garbage collection to 98% to total garbage collection, and c) achieved 97% in tax arrears recoveries [27]. The effect of Rao's 20 months in Surat is still visible today and has enabled Surat to become a model city with tremendous civic pride and citizen politician municipality cooperation. Strong leadership in both administrative and political areas is necessary for good governance initiatives and long term sustainability. It may be possible to implement administrative strategies to deal with issues of public health if they are underpinned by strong work ethics, community awareness and participation. This leadership example correlates with one of the components of capacity development that is leaders or agents of change shown in Figure 1. S R Rao was the interface between the community and government. He led the process of transformational change and worked within an environment with multiple ongoing tensions and incentives that ultimately rewarded the city.

### 4.1.4) Evolution of the SMC Health Department

Surat used to suffer from several seasonal epidemics like malaria, typhoid, jaundice, gastroenteritis and influenza before plague. Water borne diseases had the highest reported cases. The Health Department of the SMC has separate wings for epidemic control, filariasis and malaria control, leprosy control, vaccination, etc. However, the functioning of the Health Department could not cope during the plague period. In the pre-plague days, SMC's health infrastructure was not only inadequate but also suffered from various limitations like inadequate medical and paramedical personnel, irregular supply of medicines etc (26). After the plague, the health indicators improved due to the strengthening of health infrastructure, revival of work ethics among health workers, meticulously planned disease monitoring system and extensive sanitation drive. In 1991, there were six urban health centers which increased to 42 urban health centers in 2014. Likewise, the health department also strengthened its Vector Borne Disease Control Department and water supply department to curb the water borne diseases and carry out regular water testing.

### 4.1.5) Evolution of Vector Borne Disease Control Department

Surat was prone to Filariasis in the 1950s. Introduction of underground drainage in 1958 reduced the transmission of the disease. The humid climate of Surat is conducive for Culex mosquito breeding. Even with a drop in the density of Culex mosquito, the transmission of disease continued for which the Surat Municipal Corporation implemented the National Filariasis Control Programme. The years 1988-93 saw the worst incidence of malaria in Surat.

A SMC official stated that before 1994, the main problem of Surat city was malaria. At that time, more than 50,000 to 52,000 positive cases of malaria occurred in a year when the population was only around 14, 00,000. Thus, the incidence was high. In 1989-90, the slide positivity rate was 32 (Out of 100 slides, 32 cases were positive for malaria including Falciparum).

There was no separate malaria control department established in SMC till 1985 when it was funded by Government of India. But in the 1980s, the funding ceased as Gujarat had achieved the lowest malaria incidence. SMC had a Filarial Control Programme but there was no focus on malaria control. It took the health department five years to sensitize law makers that there is a need for a department devoted to malaria control. This led to the malaria control department staffed by primary health workers. At present, this functions as a full-fledged vector borne disease control department, and has an entomologist.

The development and strengthening of the health and vector borne disease departments of SMC enhanced the capacity of SMC to anticipate disease outbreaks and its readiness to deal with it.

## 4.2) New Initiatives

This section focuses on the enhancement of public health systems, public private partnership, intersectoral convergence e-governance reforms and system responsiveness post disaster. The initiatives can be correlated with the reform areas as stated in Table 1.

### 4.2.1) Enhancing Public Health Systems

Surat has one of the most comprehensive and effective urban health systems that integrate national and state level health programs with local initiatives.

- Sexually Transmitted Disease (STD) Care Project commenced in 2000 as a pilot program in eight urban health centers and maternity homes. The project expanded to all urban health centers eventually.
- While the funding from Gujarat State AIDS Control Society discontinued in December 2007 due to National AIDS Control Program-III guidelines, the project was sustained from SMC's funds.
- The above project had been integrated with Reproductive and Child Health and Integrated Child Disease Surveillance (ICDS) programs. All the ICDS workers started working as peer educators in STD care Project.
- From October 2008,
    - All maternity homes were upgraded to PPTCT (Prevention of parent to child transmission)
    - Urban Health Centers were converted to Integrated Counseling and Testing Center (ICTC).
    - The Project won the award for excellence in the year 2008-09 for STI (Sexually Transmitted Infection) clinics as well as award for special initiatives for HIV counseling and testing in STI clinics [(28)].

A public health professional stated that SMC has established STD clinics with a counselor in every urban health center and also established HIV testing centers. SMC has invested in the disease surveillance system of the city. SMC is the only corporation that funds the vector borne disease control department from its own budget.

#### 4.2.1.1) Model Urban Health Centres (UHC)

SMC has adopted the goal to establish one Urban Health Centre (UHC) per one lakh population. At present, there are 42 UHC and 11 maternity homes. All these UHCs have primary health care delivery systems and carry out preventive and curative activities. All the national health programmes like Reproductive and Child Health Programme, Vector Borne Disease Control, Revised National Tuberculosis Control Program, Mass Drug Administration, school health check-ups etc. are implemented through the UHCs.

Since 2007, a particular design for urban health centers has been adopted to standardize the facilities and reduce the cost and time taken in design development. All new UHCs are constructed as per the above criteria and have about 369 sq.m built up area with facilities for OPD, laboratory, medical officers consulting room, and vaccination room [28].

#### 4.2.1.2) Public Health Mapping

A public health mapping exercise commenced in 1995 for plotting health-related data. Parameters included quality of drinking water, leakage of water pipes and occurrence of major diseases. For documentation and mapping purposes, SMC has developed a network of 274 surveillance centers that includes two municipal

hospitals, nineteen urban health centers, seven major hospitals and private medical practitioners. This exercise helped the city officials to predict the trends as well as focal points of epidemics in the city [25].

#### 4.2.1.3) Solid Waste Disposal Management

Post plague, rapid cleaning was undertaken by SMC. A major drive was launched for slum improvement and solid waste management in the city. Micro level planning was introduced for uniform distribution of resources, manpower, machinery and finances. The sanitary activities were contracted out to private agencies. Privatization initiatives included hiring of private vehicles with driver for garbage collection, cleaning of roads, employing private sweepers for transporting municipal refuse from collection points to disposal points [29].

Under JNNURM, the biomedical waste management project was started in 2003 and the door to door garbage collection was commissioned in 2005. [30, 31] This initiative aligns with the reform action as shown in Table 1 where in contracting out government services to private agencies has resulted in improved service delivery at local level and has improved accountability.

### 4.2.2) Responsiveness during disaster and post disaster

#### 4.2.2.1) System preparedness to combat disasters

After the devastating floods of 2006, a "Rule Level" policy was implemented for the Ukai dam. Daily water carrying capacity was decided so that the reservoir cannot store more water than the permitted level. A benchmark level was created for the water level in the reservoir and is monitored throughout the year. An emergency response center was also established in SMC.

According to an engineer in the hydraulics department of SMC, only a few departments prepared contingency plans.

But now, contingency planning is carried out by every department with respect to floods in the month of May for the coming season. In case of water supply, estimate of available manpower, deployed agencies, and the possible actions they need to undertake is planned. Before 2006, there was no departmental review by SMC. Now, such reviews are regularly conducted.

From 2001, Disaster Management Plan (DMP) was formulated year wise. Information is updated every year regarding various stakeholders and DMP is accessible to citizens. After 2006, a pre-monsoon conference is held and a press release is done. Meetings with NGOs are carried out by SMC. Post 2006, NGOs and authorities have started working together.

Based on the 2006 experience, the disaster management plan of the city is prepared ward-wise. Earlier it was prepared zone-wise. Even the details of community volunteers and NGOs who can be of help during disasters have been incorporated into the DMP.

#### 4.2.2.2) Disaster Risk Reduction (DRR)

Anguelovski et al (2013) characterize climate change adaptation process of Surat as "internationally driven" in comparison with other South Asian cities. Resilience efforts going on in the city since long were brought together and institutionalized in 2008 under the Rockefeller Foundation's Asian Cities and Climate Change Resilience Network (ACCCRN) program. Between 2009 and 2011, the Rockefeller Foundation, in partnership with local and international consultancies, assisted Surat with designing pilot projects and drafting a City Resilience Strategy.

A former president of Southern Gujarat Chamber of Commerce and Industries, highlighting the role of international agencies stated that "Before the ACCCRN initiative, there were individuals who were working in silos. They did not understand that their efforts were collectively contributing to combating climate change."

The role of a consulting firm based in Surat was emphasized in bringing together people together who were otherwise working in silos to combat climate change. The City Advisory Committee formed under ACCCRN

was acknowledged by SMC commissioner for prioritizing the initiative. Sectoral studies conducted under ACCCRN facilitated gathering the scientific and technical information.

The Urban Service Monitoring System (UrSMS) was developed under the ACCCRN project to improve monitoring and grievance redressal for health, water supply, sewerage and solid waste services.

#### 4.2.3) Partnering for Development

##### 4.2.3.1) Partnership between private health service providers and SMC

The SMC and private practitioners entered into a public-private partnership (PPP) in 1995 after the plague. Such partnerships are helpful in managing the health care delivery system of the city. The partnership is need-based and a long one.

Data regarding various diseases is very important and government disease statistics alone cannot give the accurate health scenario of the whole city. To arrive at that, disease data from private institutions is very essential. In 1996, during the tenure of Dr Rao, Commissioner SMC, five private doctors whose practice was very good were identified. They were ready to share the data from their clinics with SMC. A health worker used to go to their clinics and collect the data.

This partnership was triggered due to the outbreak of plague in the city and is unique in health surveillance system. Now it has increased to include more than 380 private practitioners empanelled with SMC. Major hospitals which include the Civil hospital, SMIMER hospital and Maskati hospital are part of this initiative. Eleven trust hospitals are also part of this system of data sharing. They constitute a part of the passive disease surveillance system.

The partnership between SMC and private doctors evolved with the Malaria project in Surat (1997 -2000) with the help of consensus mapping exercise. Moreover, 15 Indian Medical Associations were brought together and played a very important role in enabling this partnership. Post 2000, SMC maintained and sustained this relationship through regular engagement. PPP is successful when the partners understand the value in working together. This partnership can be associated with the reform area in table 1- 'management improvement and process improvement' wherein establishing mechanisms ensure improvements in current service delivery.

#### 4.2.4) Intersectoral Convergence

The line departments of SMC work together and procedures are followed with a defined protocol. For example, the Disaster Management Plan (DMP) designed for Surat City elaborately highlights the coordination of various departments of SMC during disasters. This type of convergence is evident in day to day operations and disaster events such as floods have been a driving force for the emergence of such processes.

An SMC official in the Hydraulics department mentioned that monthly meetings with Corporators, MP, MLA, Mayor, city engineers, additional city engineers are carried out wherein development and monitoring issues are discussed. Engineering and health issues are discussed on weekly basis.

Co-ordination between various departments of SMC such as engineering, water supply, sanitation, urban planning, health and VBDC undoubtedly impact overall health outcomes in the city.

#### 4.2.5) E – Governance Reforms

SMC has been applying information technology systems and applications over the last two decades for improving operational efficiency and increasing ease of interaction with citizens. At present, SMC has a robust IT infrastructure with more than 750 terminals connected to an intranet. The procurement of goods and services was brought on to e-tendering system in 2007 and about 873 e-tenders have been successfully floated and processed. SMC website was launched in 2001 and it has rich information on facilities and activities undertaken by SMC. SMC has taken various initiatives with a view to utilize IT for improving service delivery and operation efficiency. They are city civic centers, m-governance, information kiosk, SMC helpline and a public health engineering MIS system.[32] M-governance initiatives include the launch and use of a smartphone app and getting grievances through WhatsApp.


Figure 3: e-governance Initiatives (Source: SMC website)

## 4.3. Attitudinal change – Battle against Plague

This section focuses on the community views of development of SMC post 1994 and lessons learnt by them. Plague was a harsh warning of what could be the repercussions of negligence in the area of solid waste disposal and maintaining cleanliness. The transformation of the city from the filthiest city to the cleanest city within the span of 18 months can be largely attributed to both SMC and efforts of the community. People also realized that they could not leave the city at the mercy of God or civic authorities. This attitudinal shift inculcated in them a sense of belongingness and pride for the city , along with a concern for cleanliness. [25, 34, and 35]

A tax commissioner who worked in Surat in 1994 acknowledged the active support of common citizens. Some residents organized themselves into Rao Senas (armies) to defend the civic authorities against opposition. A former Deputy Mayor stated that people even volunteered to take down their own building extensions which encroached into already narrow streets.

This behavioral change can be associated with the components of Health Belief Model (section 2.2) - that is perceived severity (the adverse consequences of contracting the disease), perceived benefits of the behavior (how effective the behavior would be in protecting the individual) and self-efficacy (one's confidence in his or her ability to execute the behavior). This in turn can alter the disease dynamics and lower the incidence rate.

A community member stated that the city is expected to be clean. The bar has been raised since Rao's tenure. [34].

### 4.3.1) Development of SMC post 1994 – Perspectives from the Community

Community insights are very useful in substantiating the findings. The study explored the community memory of plague of 1994 and floods of 2006 that struck the city and first response of SMC in both cases. The other aspects that were explored included capturing the community views regarding:

- the transformational factors that led to the emerging as a clean city post 1994
- institutional reforms of SMC
- evolution of SMC in last 20 years in terms of service devliery
- prepardness of the system and community to face future disasters
- complaint management system of SMC and
- suggestions for improvement of service delivery of SMC.

Different yet useful insights were gleaned from the respondents. Twelve community members responded positively when asked that whether SMC has evolved from 1994-2015 as an insitution. One citizen mentioned that one of the reasons that SMC improved after 1994 was due to the leadership of SR Rao, who worked diligently towards the welfare of the city. ..

Community members believed that the plague was the trigger point that led to the improvment of the service delivery of SMC such as rapid garbage removal, cleanliness drive, and easy accessbility to services.

A citizen stated that before 1994 there were only 250-300 workers for cleaning the city but now there are about 1000 workers. Apart from increase in human resources, SMC started providing free dustbins to community. They asked the community to dispose it off at one common point and SMC workers come and collect the garbage from there. Then they commenced door to door garbage collection. At the same time, SMC even started imposing fines upto Rs 500/- for throwing garbage on the streets.

The community's sense of pride in the SMC is very strong owing to the proactive actions and responsiveness of the corporation.

**4.3.2) Community views regarding new initiatives in SMC post 1994**

The study captured community insights about new activities initated by SMC after the plague episode. The most common response was the initation of door to door garbage collection. Another initiative that found mention was the night cleaning exercise. These days, even during festivities such as Ganesh Visarjan, immediate cleaning is done by SMC. Citizens also feel that it is their moral duty to keep the city clean.

Household-level disease survelliance also found mention in community narratives. Citizens said that they received medicines for Filarisis and even for Swine Flu.

# 5 Conclusion

Crisis situations provide opportunities for initiating reforms in governance systems, which can produce better results. Resistance to change is considerably low in such situations. This study shows that Surat made a remarkable change in its governance systems after the plague outbreak in 1994. Exceptional leadership, political will, systemic reforms and community support facilitated the improvement in urban management. This was underpinned by the decentralized approach to governance, an insistence on accountability and transparency. These transformations in governance and community interactions have improved the resilience of Surat to disasters and post-disaster impacts.

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**ABOUT THE CONTRIBUTORS**

Ms. Priyanka Jariwala works as Consultant Public Health Management at UHCRC, Surat. At UHCRC, she is responsible for "Vector Borne Disease Research" project. Her core research interests lies in field of urban health governance and community participation in Vector Borne Disease Control.

Mr. Sathish Selvakumar is responsible for the Urban Practitioners' Programme at Indian Institute for Human Settlements (IIHS), Bangalore. In this capacity, he is working on capacity development programmes in partnership with the Ministry of Housing and Urban Poverty Alleviation (HUPA), State Institute for Urban Development (SIUD) Mysore, Tamil Nadu Institute of Urban Studies (TNIUS) Coimbatore, UNDP and HUDCO. His expertise lies in Leadership Development, Capacity Development for Working Professionals, and GIS.

Mr. Anuj Ghanekar works as Consultant Social Anthropologist at Urban Health and Climate Resilience Centre (UHCRC), Surat. At UHCRC, he is responsible for "Building Community Resilience" project. His urban area specific research focuses on community participation climate and health governance, social determinants of health and qualitative methods.

Dr. Vikas Desai is a qualified and experienced personnel in Public health, community Nutrition and Reproductive and child health and has 38 years in public health teaching & training to Medical, Health, Nutrition & Public health engineering students, in service candidates and faculty. At UHCRC, she is focusing as Technical Director on various studies on health vulnerability on climate change, heat effect on all cause mortality and development of training manuals for Urban Planners in relation to climate change.

**Annexure 1 – Summary of interviews conducted**

| *Stakeholders* | *No of respondents* |
|---|---|
| Surat Municipal Corporation | 6 |
| Academic institutions –SVNIT*, CSS**, SCET***,Medical College | 4 |
| NGO-Saurashtra Jal Dhara | 1 |
| Industry- SGCCI**** | 1 |
| Retired SMC officials | 2 |
| Trust official-Surat Climate Change Trust | 1 |
| Associations – Indian Medical Association(Katargam Surat) | 1 |
| Private consultant- TARU Private Leading Edge | 1 |
| ***Total*** | ***17*** |
| Community leader -Limbayat Area- South East Zone | 1 |
| Old city- Nanpura | 9 |
| Old city – Sagrampura | 4 |
| Old city-Salabatpura | 3 |
| ***Total*** | ***17*** |

** SVNIT- Sardar Vallabhabhai Patel National Institute of Technology*
*** CSS-Center for Social Studies*
**** SCET-Sarvajanik College of Engineering and Technology*
***** SGCCI- Southern Gujarat Chamber of Commerce and Industry*