



DELHI CITIZENS' HANDBOOK 2016

PERSPECTIVES ON
LOCAL GOVERNANCE IN DELHI

DELHI CITIZENS' HANDBOOK 2016

Perspectives on Local Governance in Delhi



CENTRE FOR CIVIL SOCIETY
Social Change Through Public Policy

Friedrich Naumann
STIFTUNG

FÜR DIE FREIHEIT

Centre for Civil Society Publications

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First published in 2016
by Centre for Civil Society

Cover design and layout by
Usha Sondhi Kundu,
Centre for Civil Society

Support by
Friedrich Naumann Foundation

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ISBN: 978-81-87984-26-9

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Acknowledgement

The Delhi Citizens' Handbook 2016 is the product of the perseverance, dedication and zeal of 24 college students who participated in the Researching Reality Internship Program organised annually by the Centre for Civil Society (CCS). Choosing the sweltering heat over a comfortable summer break, the interns braved the reluctance and indifference of the government officials, covered vague and far-flung distances of office locations and talked to those affected by these offices. Rigorously selected from 310 applications from all across India as well eleven international students, the interns spanned all academic backgrounds, be it Economics, History, Commerce, Political Science, Journalism, and Engineering from top colleges in India and abroad.

We salute and congratulate our interns Akshay Thakre, Anshu Kumari, Archit Jain, Devika Chopra, Devishi Dar, Keval Patel, Naomi Hazarika, Nithya Srinivasan, Parnika Barara, Pragya Jat, Prarthna Tandon, Priyasha Chawla, Ragini Khurana, Rahul Singh Chauhan, Razi Iqbal, Rishabh Rekhade, Sanchi Gupta, Saumya Joshi, Shaurya Arora, Shreshtha Sharma, Tanya Seth, Tanya Sharma and Tanay Raj Bhatt.

Research guides Amir Ullah Khan, Chakshu Roy, Shantanu Gupta, Shreekant Gupta, Kanika Malhotra, Smriti Parsheera and Debolina Kundu gave constant guidance and encouragement to help the interns through the ups and downs of the research, analysis and writing of their final papers. Their comments and inputs helped improve the cogency and clarity of each and every chapter.

We are thankful to the Friedrich-Naumann-Stiftung für die Freiheit for their belief, interest and long term support towards the internship program. Throughout the internship program, a wide range of experts from different walks of life provided inputs to develop their skills in not just research, analysis and writing but also the multiple dimensions of governance principles and issues. Parth J Shah (President, CCS) introduced them to the theory of Public Choice. Mohit Satyanand (Chairman and Founder, Teamwork Arts) and Bhuvana Anand (DFID) helped interns critically analyze the challenges and opportunities for civil society, and the citizen and voluntary sector involvement in urban governance.

Somnath Bandyopadhyay (Internship Director, CCS) and Sanna Bedi (Internship Coordinator, CCS) provided the overall structure, planning, coordination and supervision for both the internship program and the publication. The quality and consistency of the chapters were ensured by the timely input of Srijan Bandyopadhyay (Manager Content, Academy, CCS), Arushi Vats (Project Associate, Academy, CCS) and Manasi Bose (Manager, Programs, CCS) who painstakingly copy-edited the volume.

The credit for the layout and design of this publication goes to Usha Sondhi Kundu (Associate, Web & IT, CCS). The constant administrative and programmatic support from other CCS team members was invaluable to the smooth running of this program.

We would like to express our gratitude to the Delhi Dialogue Commission for their support and encouragement. We thank the many current and former government officers, experts, academicians, activists and other contributors for their generosity of time and information and finally to you, the reader, for caring about the state of governance in Delhi.

Introduction

New Delhi, India's capital territory, is defined by unique complexities of governance that arise from the intersection of local, state, and national jurisdiction. According to the 2011 Census, the population of Delhi stands at 16.8 million. The geographical area covered by Delhi is 1,484 square kilometres.

The Government of the National Capital Territory of Delhi (GNCTD) is officially a Union Territory, which has been granted special status by The Constitution (69th Amendment) Act, 1991. This provides for Delhi having a directly elected Legislative Assembly (the Vidhan Sabha) and a Council of Ministers. The State Government manages transport, industrial development, revenue administration, power generation, food and civil supplies, and health and family welfare.

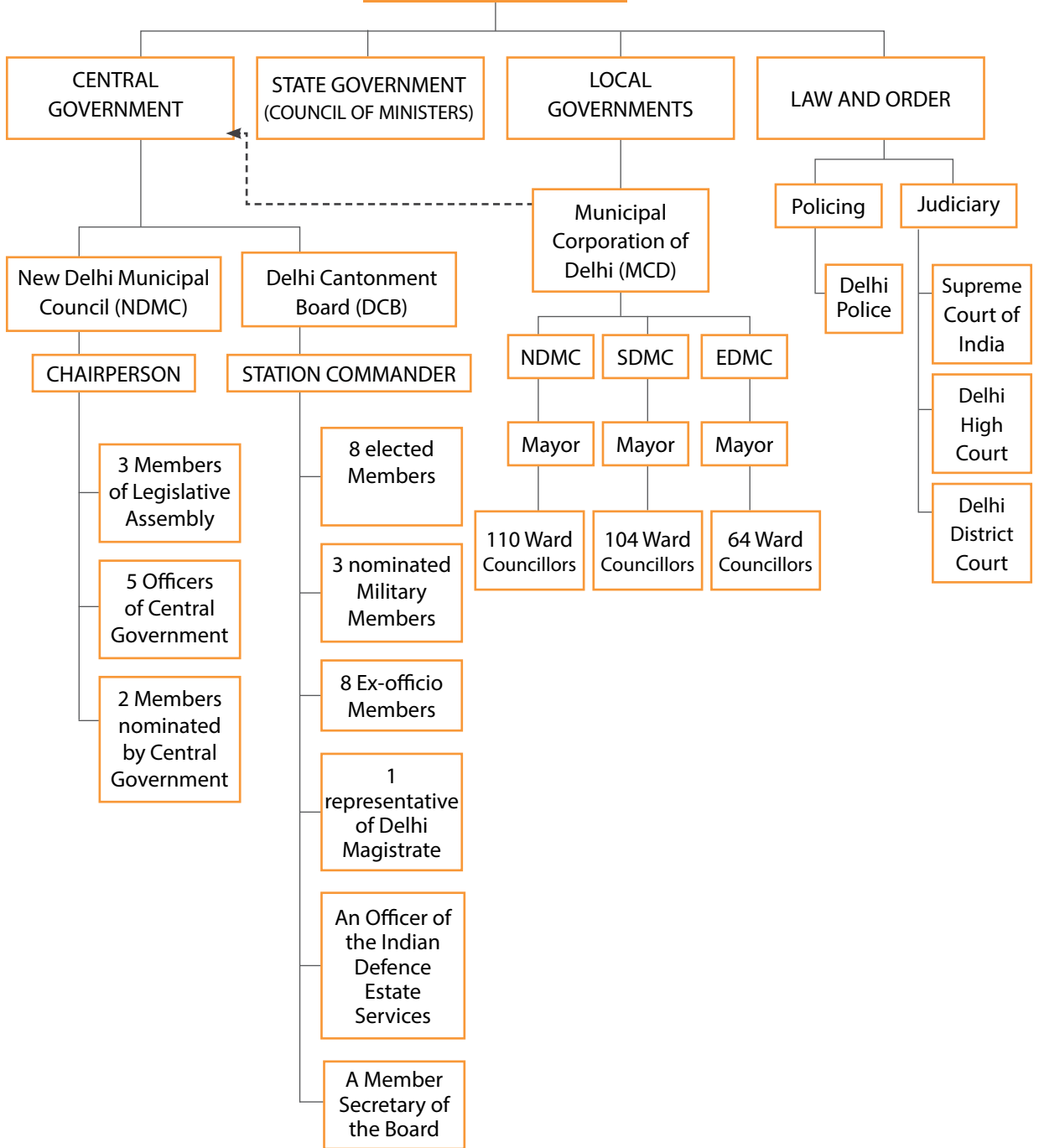
While the Legislative Assembly has the power to make laws with respect to the State List or in the Concurrent List of the Constitution, it does not have the power to make laws relating to police, public order, or land; as these areas remain the purview of the Parliament of India. The functions vested with the union government are looked over by the constitutional head of Delhi, the **Lieutenant Governor (or LG)** of Delhi, who is appointed by the President of India. The **Delhi Development Authority (DDA)** established in 1957, is a body of the union government, and is responsible for all physical planning and development of land and housing in Delhi.

Delhi's local government comprises of five urban local bodies: the **New Delhi Municipal Council (NDMC)**, the Delhi Cantonment Board (DCB), the North Delhi Municipal Corporation, the South Delhi Municipal Corporation, and the East Delhi Municipal Corporation. The New Delhi Municipal Council (NDMC) was established through the NDMC Act, 1994, amended in 2011, and includes about 3% of Delhi's area under its jurisdiction. Its mission is to build efficiency in its service functions via transparent and participative measures in order to create 'A Model Well Planned Metropolitan City'.

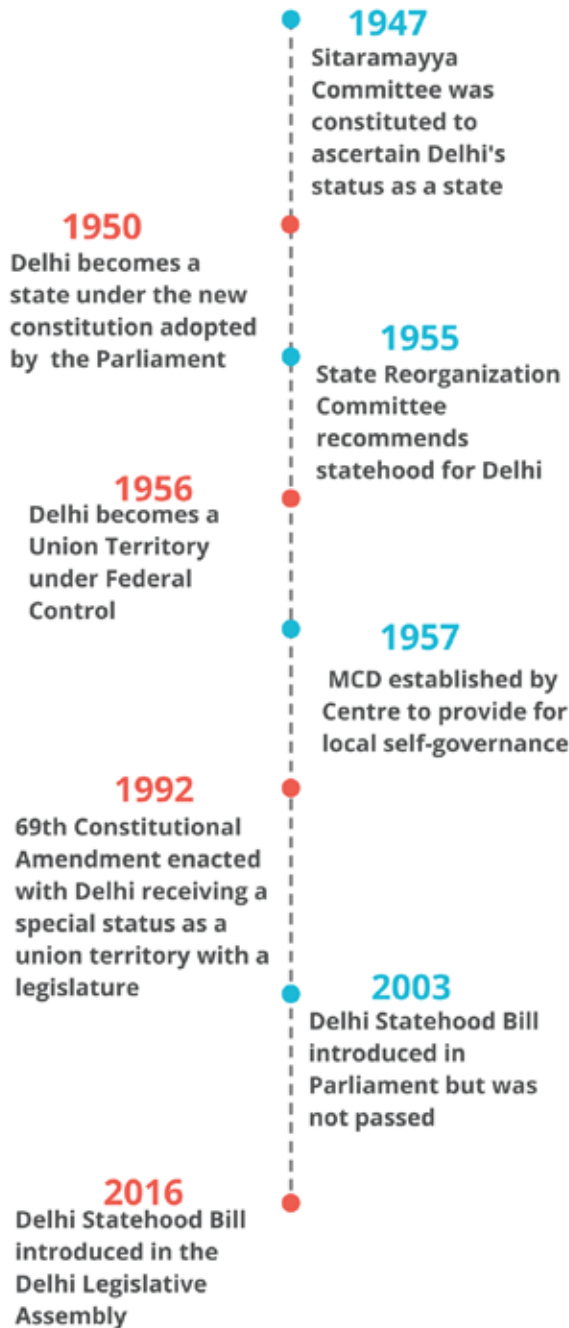
Established in 1914, the **Delhi Cantonment Board (DCB)** is legislated by The Cantonments Act, 1924. It also has about three per cent of Delhi's area under its jurisdiction. The NDMC and the DCB are directly answerable to their union government ministry. This local municipal body seeks to carry out developmental activities in the Delhi Cantonment area of 10,791.88 acres.

A majority of Delhi's land area falls under the jurisdiction of the three Municipal Corporations of Delhi (MCD). Established through the Delhi Municipal Corporation Act of 1957 as an autonomous body, (in 2011, an amendment led to the trifurcation of the MCD into three smaller municipal corporations; the North Delhi Municipal

GOVERNANCE IN DELHI



DELHI STATEHOOD BILL TIMELINE



Corporation, East Delhi Municipal Corporation and the South Delhi Municipal Corporation). Its mission is to give efficient and accountable civic administration to the citizens and prompt redressal of their grievances.

Statehood of Delhi Bill, 2016

The bill seeks to create a state of Delhi out of the current NCT. It also seeks to bestow greater administrative, executive, and legislative powers to the state of Delhi, by altering the governance structure in Delhi. The current scenario of governance in Delhi is complicated for the citizens, and is inefficient. For example, if a road needs repair, it is not clear which authority should be approached. Roads are looked after by six agencies: Public Works Department under the Delhi government, Municipal Corporation of Delhi, NDMC, DDA, National Highways Authority of India (under the central government) and Delhi Cantonment Board (under the ministry of defence).

Similarly, housing is looked after by the Municipal Corporations of Delhi, DDA, Ministry of Urban Development and Ministry of Housing and Urban Poverty Alleviation. There is a discussion about the arguably faltering law and order situation in Delhi whenever a case highlighting the same emerges. There is a clear conflict in the handling of the Delhi Police; as the Union controls it, often it is the Delhi government which is held answerable about the Delhi Police.

CHANGES PROPOSED BY THE BILL

- **Transfer of Delhi Police from Central Government to State Government:** The Delhi Police Act 1978 gives powers of regulation to the Lt Governor of Delhi, appointed as Centre's representative. The Statehood Bill seeks to amend these provisions and bring the Delhi Police under the purview of the proposed state of Delhi.
- **Transfer of Delhi Development Authority from Central Government to State Government:** Delhi Development Authority Act 1957 gives the Central Government control of urban development in Delhi. The Statehood Bill seeks to transfer control of Delhi's land and housing jurisdiction to the proposed State Government.
- **Transfer of Municipal Corporation of Delhi from Central Government to the State Government:** The Delhi legislature may presently pass an amendment, but for it to become law it would have to get the approval of the Lieutenant Governor, the President and also the union ministries of Urban Development and Home Affairs. The Bill seeks to streamline this process.
- **Creation of separate cadre for state of Delhi for State Government services:** Entry 41 of the State List empowers states to legislate on State Public Services and the State Public Service Commission, but does not apply to Union territories including Delhi. Part VIII of the Statehood Bill proposes the creation of a cadre for the state of Delhi as well as a Delhi State Public Commission.
- **Powers related to taxation:** The Bill discussed increasing financial autonomy of the state of Delhi as it currently depends heavily on the centre for fund allocation. By giving Delhi a larger share of the tax revenues of NCT, Delhi would be less dependent on the centre for its sustenance.
- **Change of powers and title of Lt Governor of Delhi to Governor of State of Delhi:** Section 58 of Statehood Bill 2016 seeks to change the title of Lt Governor of Delhi to Governor of State of Delhi.
- **Addition of state of Delhi to first schedule of the Constitution in the list of states:** Part II of the Statehood Bill seeks to include Delhi in the list of States in the first schedule of the constitution and remove it from the list of Union Territories.

Impact of the Changes

The draft State of Delhi Bill aims to empower the State Government further through the extension of its jurisdiction over land, police, bureaucracy and municipal corporations.

The bill states that the Central Government should continue to control the New Delhi Municipal Council (NDMC), which administers ‘Lutyens’ Delhi’, the central zone of the city which houses the Union Government, Parliament, Supreme Court, and several embassies.

International Comparisons

It is, however, difficult to ascertain the exact impact of the proposed changes. For example, if Delhi becomes a state, then it will control the Delhi police. This means that the NDMC which controls the area providing governance and diplomatic missions of the country will require a separate police force for its security. This may result in a conflict of interest over territory and jurisdiction.

The budget presented by the Government of the NCT of Delhi needs prior approval of the President, exercised by the Home Minister, before being presented to the Delhi Legislative Assembly. Delhi makes the cut as a state in fiscal terms due to its high per-capita income levels—three times the national average—with an estimated revenue surplus of ₹5,543 crore in the year 2016–17 (PRS. Delhi Budget Analysis 2016-17 2016). Delhi becoming a state will lead to greater financial autonomy.

Delhi’s special status of being a National Capital Metropolis gives rise to multiple and overlapping power structures. The Statehood of Delhi Bill 2016 seeks to clear the muddled power structures and streamline them for the benefit of Delhi’s citizens.

Delhi Citizens’ Handbook 2016

The **Delhi Citizens’ Handbook 2016** is a project undertaken by the **Centre for Civil Society** to identify the challenges and concerns of the citizens through an assessment of various policies and schemes that are being implemented by the government. The study is conducted by a group of interns recruited under CCSs flagship program called the **Researching Reality Internship**. The Handbook features research papers assessing the impact and relevance of policies that shape the lives of ordinary citizens in the national capital. Analyzing eight core areas of urban governance: **Governance, Water, Environment, Trade & Commerce,**

INTERNATIONAL COMPARISONS

CANBERRA, AUSTRALIA:

The Mayor of Canberra functions as the chief minister of the Australian Capital Territory (ACT). There is no separate administrator, equivalent to LGs in Indian UTs, for ACT, unlike other federal territories. Laws passed by the Canberra assembly can be reversed by the Australian parliament; earlier this could be done administratively by the federal government. Functions of ACT administration are limited to education and training, health, economic development, environment and justice; far less powers and responsibilities than Delhi's elected government (James 2012).

PARIS, FRANCE:

The Paris region, comprising different municipalities is similar to the NCT of Delhi. The delegate-general of the Paris region is part of the office of the president of France (like having Delhi's LG as part of PMO) with no elected chief minister. The Paris region does not hold all administrative powers, with the French Government reasoning that this is necessitated by "special difficulties posed by the physical planning of the capital". This is similar to the reasons successive central governments in India have given for retaining control over land in Delhi. The French police have a centralised structure under the interior (home) ministry, with no local control of elected authorities (Rober and Schroter 2004).

WASHINGTON DC, US:

It is a curious case amongst world capitals, being a federally demarcated area for governance. The Home Rule Act, 1973 gave DC its own local governance but the Congress retained overriding powers for any legislative decision. Unlike Delhi, DC citizens do not have full voting rights to elect their own representatives to Congress. They have to pay federal taxes but have no say in mandating their own taxes. There is a long-standing demand for DC statehood like in Delhi (E. A. H 2016).

Urbanisation, Power, Health, and Education, it is envisioned as a critical resource for productive public intervention and a tool for ensuring an informed discussion on achieving effective and accountable governance.

After concluding a comprehensive study of each thematic area, specific issues of urban governance were identified and field research was conducted to provide key findings, a detailed analysis and long-term policy recommendations.

Transparency in **governance** implies openness and ease of access to essential public information, thereby contributing to good governance. Under the theme Governance, the paper seeks to assess the Accuracy and Consistency of Information Displayed under RTI Section 4, through an audit of 10 government websites in Delhi. The paper analyses the reasons behind the compliance scores of various departments and finds a large variance among departments. It recommends a reworking of Section 4 to include penalties in case of non-compliance and empowering the Central Information Commission to facilitate enforcement of the 'Duty to Publish'.

Delhi's **water** supply has often been crippled by reasons other than that of demand and supply. In fact the major risks for Delhi's water supply system do not lie within the city's borders, but outside. The paper seeks to develop a framework for assessing the citizen's vulnerability to water supply shocks and the hazards of raw-water extraction. The findings show the need to bridge the gap between perception and a broader perspective of risks that have been given a miss in the disaster management plans for Delhi's water supply. The paper provides a conceptual framework which can be used for more detailed study, and recommends key changes to Delhi's water supply management.

Addressing the problems of **sanitation**, the central government launched Swachh Bharat Mission (SBM). The paper examines the issue of open defecation and access to toilets in Delhi in the context of the SBM, by tracking the funds allocated by the Centre to the ULBs in Delhi and simultaneously assessing access to toilets in *Jhuggi-Jhopri (JJ)* Clusters. The results of the study point to ineffective implementation of the Mission in Delhi with targets for the construction of toilets and solid waste management being grossly un-met. The paper proposes a new model for implementation of the Mission in Delhi.

One of the main problems faced in the field of **trade and commerce** in Delhi is the stringent labour regime that governs it. The paper on the Delhi Shops and Establishments Act (1956) identifies a strong case for the repeal or significant amendment of the Act and argues that the Model Shops and Establishments Act, 2015 is an insufficient improvement. It further explores alternative models of

organising worker-employee relationships, and recommends adopting a labour welfare system based on contract law.

Efficient supply of **housing** for migrants in the city is a matter of paramount importance since failure in housing provision leads to illegal settlements which lack basic facilities. In order to address the issue of housing, particularly for low-income migrants, the paper traces the developments and analyses the Delhi Rent Control Act 1958. The study identifies that there is an acute need to balance the rights of the tenants and the landlords, and recommends the adoption of the Draft Model Tenancy Act, 2015 as a solution.

The Government of NCT of Delhi has pledged to generate 1 GW of solar **power** and recently passed the Delhi Solar Policy 2016. With the objective of understanding the cost-benefits and receptivity towards the Delhi Solar Policy 2016 in city households, the paper examines the economic viability of residential solar rooftop systems in Delhi for consumers from varying power consumption levels. The study finds that adoption of rooftop solar systems will prove cost-beneficial for households, and also provides recommendations for addressing structural problems such as ballooning peak demand and pollution.

Identifying **health** needs of citizens in Delhi, i.e. access to primary healthcare and the lack of preventive healthcare, the paper reviews the effectiveness of the Mohalla Clinics system. It further recommends community participation for preventive public health. The study proposes that Mohalla Clinics shift from being sub-centres with primarily curative functions to wellness centres targeting the varying health needs of respective neighbourhoods.

The Right to **Education** Act, 2009 mandates the creation of School Management Committees (SMCs) in order to increase the role of parents in the management of schools. The paper assesses the functioning of School Management Committees (or SMCs) in Delhi's Directorate of Education (DoE) Schools. The study identifies four key issues with the functioning of Delhi SMCs and makes recommendations for addressing these: lack of clarity in the wording of the Delhi SMC rules; lack of awareness amongst parent members of SMCs; irregularity of meetings; and lack of recognition preventing parents from conducting random visits to schools.

The findings of each paper create a strong case for broadening our policy frameworks. Moreover, they establish a sense of urgency to address the issues being faced by the citizens of Delhi. The objective of the Delhi Citizens' Handbook is to place first and foremost, the perspectives of ordinary citizens in the discourse on public policy. These essays capture how legislations translate into ground realities, and highlight nuances which can only emerge from a sustained engagement with citizens and their concerns.



GOVERNANCE

An audit of Government Websites Based on a Revised Duty to Publish Index

Prarthna Tandon, Devishi Dar, Akshay Thakre

EXECUTIVE SUMMARY

Transparency in governance implies openness and ease of access to essential public information, thereby contributing to good governance. The Right to Information Act, 2005 provides a comprehensive framework for transparency in Indian public systems. One of the most important parts of the Act is Section 4, which provides for proactive disclosure of information by public authorities. It lists out the points of compliance which provide for disclosure of essential information to be made public.

An audit of 10 government websites in Delhi was conducted to assess their compliance with Section 4 guidelines. The paper analyses the reasons behind the compliance scores of various departments and finds a large variance among departments. It identifies the provisions of Section 4 of the RTI as vague and loosely worded, which allow government departments room for subjectivity in deciding what information to publish. It recommends a reworking of Section 4 to include penalties in case of non-compliance and empowering the Central Information Commission to facilitate enforcement of the 'Duty to Publish'.

KEY FINDINGS

1. Delhi Jal Board (DJB) is the most compliant authority with a score of 81%. The Delhi Transport Corporation was found to be the least compliant with a score of 31%
2. The Health Department and Education Department of all 3 levels of governance, MCD, NDMC and Delhi government were audited. Delhi government's health department performed the best out of the 3, with a score of 54%. MCD Health Department performed the worst. NDMC Education Department performed the best with a score of 59%. MCD Education Department performed the worst.
3. Of the 10 websites audited, only 3 public authorities provide complete information about their budget allocation.
4. 8 out of 10 websites provide an incomplete organisational chart that does not outline the complete hierarchy of each department.
5. Information is not labelled appropriately in 5 out of 10 websites, which makes it difficult to navigate through the website and creates confusion.
6. 5 out of 10 websites do not have a provision of a helpline number on the websites to register a complaint.
7. The websites of the Directorate of Vigilance and Delhi Commission for Women provide outdated information.

8. 2 out of 10 websites, namely Delhi Commission for Women and NDMC - Education Department, provide full contact details of the Public Information Officers (PIOs).
9. A few officials are unaware of the provisions of Section 4 of the RTI. This problem is most evident in Delhi Commission for Women.

Introduction

Transparency is generally defined as the open flow of information (Park and Blenkinsopp 2011). The presence of transparency in governance processes implies that “official business is conducted in such a way that substantive information is available to and understandable by people, subject to limits protecting security and privacy” (Johnston 2002). With transparency and disclosure of information, there is a better understanding of the decision making process and therefore greater accountability of government (Ansari 2008). The “culture of secrecy” (Ansari 2008) is eradicated; every action has to be validated by a reason. The 2015 manifesto of the Aam Aadmi Party, which currently forms the Government of the NCT of Delhi, lays stress on the idea of *Swaraj* or self-governance and how the citizens of Delhi should be equal stakeholders in governance (Aam Aadmi Party Manifesto 2015).

An assessment of the status of governance in Delhi found the main problems affecting the functioning of government bodies to be corruption, complex bureaucratic structure, red tape, and jurisdictional conflict, which can be grouped under the macro-level issue of lack of transparency and access

to information. Without access to information, it will not be possible for citizens to know about the dealings of government, what money is going where, and for what purpose (Transparency International 2012). When people are not aware of the decision making processes of government, the opacity leads to red tape and bureaucratic struggles. Government officials have room to be lax regarding decision-making when they know that citizens have no clear way of monitoring their activities.

In order to improve ease of access within the website and general layout, departments should strive to comply with Guidelines for Indian Government Websites, set up by the Standard Testing and Quality Certification (STQC) Directorate. In May 2016 an audit revealed that only 31 out of a total of 957 government websites complied. For websites to become user friendly, this compliance is imperative (Indian Express 2016).

Right to Information Act, 2005

In India, the primary law in place to combat the absence of transparency is the

Right to Information Act, 2005. It was passed on 15 June 2005 as the mechanism for ensuring the Right to Information, a fundamental right under Article 19(1) of the Constitution. The Act provides for this in two possible ways: citizens can demand information from public authorities by filing an RTI application, and public authorities are required to proactively disclose information.

Section 4 of the RTI Act is particularly important as it sets guidelines for disclosing information to the public on a proactive basis, making the functioning of public authorities more transparent (Government of India 2013). In addition, it aims to reduce the number of individual RTI applications filed, as most information would be readily available.

Section 4(1)(a) of the RTI Act recommends computerisation of information held and Section 4(3) mentions various ways in which information can be disclosed and disseminated.

The concept of *suo motu* disclosure is defined in Section 4 of the RTI Act. It shifts the responsibility of maintaining transparency from citizens to government. Instead of citizens having to specially file RTI applications to get information, Section 4 seeks to make transparency the norm rather than the exception (Aiyer and Anklesaria 2004).

The Duty to Publish refers to the provisions of Section 4 which require public authorities to automatically publish information, without citizens having to go through the arduous filing procedure.

Compliance of Ten Government Websites in Delhi with Section 4 of the RTI

The basic draft of the Index was drawn from a previous paper published by Centre for Civil Society. It was reviewed and modified on the basis of ease of accessibility and wider dissemination of information. The websites were audited in order to assess the degree of disclosure of information on the basis of the following 40 points of compliance.

The websites audited are a mix of Delhi State Government websites and local municipal body websites (Municipal Corporation of Delhi and North Delhi Municipal Corporation) and represent essential service providers to citizens of Delhi:

- 1 Department of Health & Family Welfare
- 2 Directorate of Education
- 3 Delhi Jal Board
- 4 Delhi Commission for Women
- 5 Delhi Transport Corporation
- 6 Directorate of Vigilance
- 7 New Delhi Municipal Council – Education Department
- 8 New Delhi Municipal Council – Public Health Department
- 9 Municipal Corporation of Delhi – Education Department
- 10 Municipal Corporation of Delhi – Public Health Department

Each website was audited in order to check whether information relevant to each point of compliance was disclosed. Points were awarded thus:

Figure 1: Section 4(1)(b) of the RTI Act which provides for proactive disclosure.

Subsection of the RTI Act	Parameter
4(b)(i)	The particulars of its organisation, functions and duties
4(b)(ii)	The power and duties of its officers and employees
4(b)(iii)	The procedure followed in the decision making process, including channels of supervision and accountability
4(b)(iv)	The norms set by it for the discharge of its functions
4(b)(v)	The rules, regulations, instructions, manuals and records, held by it or under its control or used by its employees for discharging its functions
4(b)(vi)	A statement of the categories of documents that are held by it or under its control
4(b)(vii)	The particulars of any arrangement that exists for consultation with, or representation by, the members of the public in relation to the formulation of its policy or implementation thereof
4(b)(viii)	A statement of the boards, councils, committees and other bodies consisting of two or more persons constituted as its part or for the purpose of its advice, and as to whether meetings of those boards; councils, committees and other bodies are open to the public, or the minutes of such meetings are accessible for public
4(b)(ix)	A directory of its officers and employees
4(b)(x)	The monthly remuneration received by each of its officers and employees, including the system of compensation as provided in its regulations
4(b)(xi)	The budget allocated to each of its agency, indicating the particulars of all plans, proposed expenditures and reports on disbursements made
4(b)(xii)	The manner of execution of subsidy programmes, including the amounts allocated and the details of beneficiaries of such programmes
4(b)(xiii)	Particulars of recipients of concessions, permits or authorisations granted by it
4(b)(xiv)	Details in respect of the information, available to or held by it, reduced in an electronic form
4(b)(xv)	The particulars of facilities available to citizens for obtaining information, including the working hours of a library or reading room, if maintained for public use
4(b)(xvi)	The names, designations and other particulars of the Public Information Officers
4(b)(xvii)	Such other information as may be prescribed; and thereafter update these publications every year
4(c)	Publish all relevant facts while formulating important policies or announcing the decisions which affect public
4(d)	Provide reasons for its administrative or quasi-judicial decisions to affected persons

Figure 2: The Index on the basis of which the audit was conducted

Serial No.	Subsection of the RTI Act	Points of Compliance
1	4(b)(i)	Aim or why was the department set-up?
2	4(b)(i)	Organisation chart (Clearly defined office hierarchy from director/secretary to clerk/peon)
3	4(b)(i)	Functions and duties of public authority
4	4(b)(ii)	Powers and duties of officials and employees
5	4(b)(iii)	Procedure followed for decision-making
6	4(b)(iii)	Channels of supervision and accountability
7	4(b)(iv)	Norms set by the public authority for discharge of its functions (personnel, financial, administrative, etc.)
8	4(b)(v)	List of rules/regulations/manuals used by employees of the public authority while discharging functions
9	4(b)(v)	Links to rules/ regulations/manuals used by employees of the public authority while discharging function
10	4(b)(vi)	Categories of records/documents held by/under control of the public authority
11	4(b)(vi)	A detailed listing of the sub-heads/sub-categories of documentation
12	4(b)(vii)	List of committees/councils/boards where the public is represented
13	4(b)(vii)	Particulars of constituents of committees/councils/boards where the public is represented
14	4(b)(viii)	List of internal boards, councils, committees and other bodies constituted as part of the public authority
15	4(b)(viii)	Particulars of constituents of such internal boards, councils, committees and other bodies constituted as part of the public authority
16	4(b)(viii)	Information regarding whether meetings of such boards, councils, committees and other bodies are open to the public?
17	4(b)(viii)	Minutes of meetings of such boards, councils, committees and other bodies
18	4(b)(ix)	Directory of officers and employees
19	4(b)(x)	Monthly remuneration including system of compensation received by officers and employees
20	4(b)(xi)	Budget allocated to each agency (all plans, proposed expenditures and reports on disbursements made)
21	4(b)(xii)	Manner of execution of subsidy programmes

Serial No.	Subsection of the RTI Act	Points of Compliance
22	4(b)(xii)	Amount allotted to subsidy programmes
23	4(b)(xii)	Details of beneficiaries of subsidy programmes
24	4(b)(xiii)	Particulars of recipients of concessions, permits or authorisations
25	4(b)(xiv)	Information available to the public authority or held in an electronic form and available on its website
26	4(b)(xv)	Particulars of facilities available to citizens for obtaining information (working hours of the library/ reading room, internet, notice boards, newspapers)
27	4(b)(xvi)	Name of the Public Information Officer
28	4(b)(xvi)	Designation of the Public Information Officer
29	4(b)(xvi)	Contact details of the Public Information Officer (official phone number, e-mail address, postal address)
30	4(c)	List of completed schemes/ policies/ projects
31	4(c)	List of schemes/ policies/ projects underway
32	4(c)	Procedures/ guidelines for the above schemes/ policies/ projects
33	4(c)	Budget/ grants for the above schemes/ policies/ projects
34	4(c)	Nodal officers for the above schemes/ policies/ projects
35	4(c)	Details of identifiable/ measurable outputs/ outcomes
36	4(c)	List of administrative/ quasi-judicial decisions
37	4(c)	Link to the full decision
38	4(3)	Provision of screen reader for the visually impaired
39	4(3)	Provision of helpline number or e-mail address for complaints on website
40	4(3)	Appropriate labelling of information provided through RTI Section 4

- For full disclosure: 1 point
- For partial disclosure: 0.5 point
- For no disclosure: 0 point

and multiplying it by 100.

- Percentage Score = (Total Score/ 40) x 100

Each website was given a score out of 40 and further, a percentage score was calculated by dividing the total score by 40

Officials of a few public authorities were also interviewed on the telephone or in person to assess their awareness of

Section 4 and its provisions.

The sample size chosen is small and therefore not representative enough to form a generalised view of transparency and disclosure of information in governance processes within Delhi. It simply aims to provide an indication of the compliance of Delhi government website to Section 4 of the RTI.

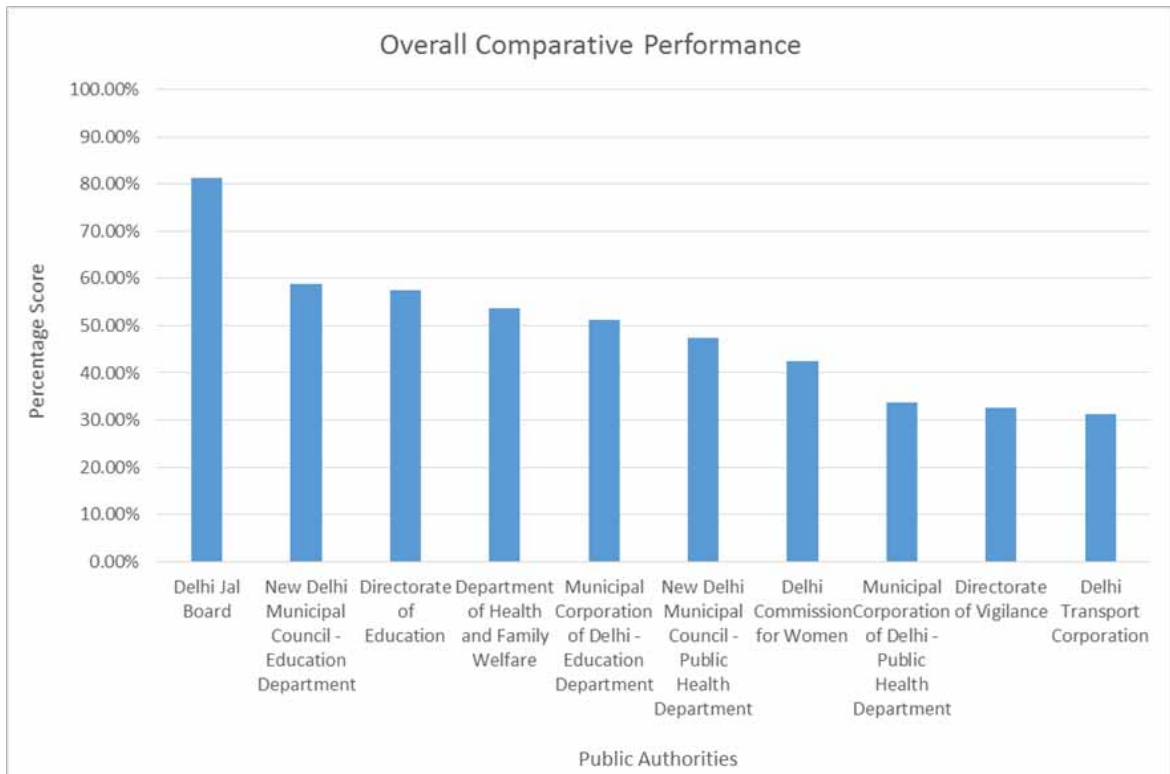
DELHI JAL BOARD Score: 32.5 (81%)

STRENGTHS:

- Highest compliance and regular updating of the 17 manuals.
- Provision of contact details of RTI Nodal Officer mentioned on the website.
- Clearly defined duties of Public Information Officers (PIOs).
- RTI Nodal Officer showed maximum

Findings and Analysis

Figure 3: Findings from the Audit



awareness of Section 4 and its compliances.

- The website's aesthetics and design make it easy to navigate it.

WEAKNESSES:

- The names of PIO's are not provided on the website.
- Full contact details of PIO's are not provided on the site.
- Website does not have provision of screen reader for visually impaired people.

DELHI TRANSPORT CORPORATION
Score: 23.5 (59%)

STRENGTHS:

- Particulars of receipts of concessions and permits are mentioned clearly in detail.

WEAKNESSES:

- The information is incorrectly labelled on the website.
- The information provided on the website is outdated.
- All manuals are not provided on the website.
- The website layout makes it difficult to navigate and search for information.
- No provision for screen reader for the visually disabled.

DELHI GOVERNMENT HEALTH & FAMILY WELFARE DEPARTMENT
Score: 23 (58%)

STRENGTHS:

- This was the only website to provide for a screen reader for the visually disabled.

WEAKNESSES:

- The website did not provide for a helpline or a complaint number for citizens.
- Organisation chart is not disclosed.
- Completed schemes undertaken by the department are not provided

DIRECTORATE OF EDUCATION
Score: 21.5 (54%)

STRENGTHS:

- The organization chart provided was comprehensive and extensively detailed.
- The PIO showed satisfactory awareness of Section 4 and its points of compliance.

WEAKNESSES:

- There was no provision of screen reader for the visually disabled.
- Information provided is not comprehensive for all the branches of the department.
- Subsidies provided for are only mentioned for some branches such as sports.

DELHI COMMISSION FOR WOMEN

Score: 20.5 (51%)

STRENGTHS:

- The functions have been clearly mentioned and its duties clearly defined.

WEAKNESSES:

- The website has no provision for filing of a complaint.
- The website was not disabled friendly.
- Vital information is missing from many manuals, circulars, orders etc.
- Information provided was outdated and often irrelevant.
- No provision for a helpline for distressed women.
- Information provided is not enough to allow approaching the commission.
- Officials were found to lack awareness of Section 4.
- Information is provided on solicitation and in physical presence of applicant.

DIRECTORATE OF VIGILANCE

Score: 19 (48%)

STRENGTHS:

- Provision of 24 hour helpline to lodge graft complaints.

- Clear demarcation of the jurisdiction within which it operates.

WEAKNESSES:

- The information provided is outdated and irrelevant in many manuals.
- Information is incorrectly labelled in the manuals.
- Names and contact details of PIOs are not provided.
- The site is difficult to navigate and is not user friendly.

NEW DELHI MUNICIPAL COUNCIL – EDUCATION DEPARTMENT

Score: 17 (43%)

STRENGTHS:

- The name and contact details of the respective Public Information Officers have been clearly mentioned.
- The information is comprehensive and detailed according to different categories.

WEAKNESSES:

- The information is not appropriately labelled, leading to confusion which causes difficulty in navigation.

MUNICIPAL CORPORATION OF DELHI – EDUCATION DEPARTMENT:

Score – 13.5 (34%)

STRENGTHS:

- Clearly defined decision making process. Comprehensive flow chart is provided.

WEAKNESSES:

- There is wrong labelling of information among different departments of the MCD, and also within the MCD Education Department
- Information provided is not detailed enough and is not systematically organised. This makes it very difficult for a citizen to navigate through the website.

NEW DELHI MUNICIPAL COUNCIL – PUBLIC HEALTH DEPARTMENT

Score: 13 (33%)

STRENGTHS:

- Detailed list of administrative/ quasi-judicial decisions
- Links to rules/regulations/instruction manuals used by the public authority while discharging functions was presented in a systematic manner

WEAKNESSES:

- Organization chart does not show the clear hierarchy present in the organisation.
- No information regarding committees/councils/boards where the public is represented.

- Procedure regarding schemes is not mentioned.

MUNICIPAL CORPORATION OF DELHI – PUBLIC HEALTH DEPARTMENT

Score: 12.5 (31%)

STRENGTHS:

- The aim and objective is defined clearly and well stated.
- Directory of officers and employees along with monthly remuneration is presented in a systematic manner.

WEAKNESSES:

- There is wrong labelling of information among different departments of the MCD, and also within the MCD Public Health Department.
- Due to incorrect labelling of information, it is extremely difficult to navigate through the website.

No Penal Clause in Case of Non-Compliance

The study shows that there exists great variation in compliance among the 10 websites. Delhi Jal Board has the highest score of 81%, while Delhi Transport Corporation has the minimum score of 31%.

This can be explained by the fact that Section 4 of the RTI, while mandatory, does not call for any penalty in case of non-compliance. It provides the guidelines that government bodies are required to follow, but does not provide instruction on how these guidelines are to be put

Comparison between MCD, NDMC and Delhi Government Websites

Rank	Website	Authority	Percentage
1	Department of Health and Family Welfare	Government of NCT of Delhi	53.75%
2	New Delhi Municipal Council - Public Health Department	Central Government	47.50%
3	Municipal Corporation of Delhi - Public Health Department	Central Government	33.75%

Rank	Website	Authority	Percentage
1	New Delhi Municipal Council - Education Department	Central Government	58.75%
2	Directorate of Education	Government of NCT of Delhi	57.50%
3	Municipal Corporation of Delhi - Education Department	Central Government	52.25%

into practice (Department of Personnel and Training 2013). Even though the Central Information Commission has the power to direct a public authority to provide information under Section 4, if it receives a complaint about the same, it is virtually not possible to invoke Section 18 whenever there is non-compliance. Public authorities therefore do not have the fear of a penalty in case of non-compliance, and show varied levels of compliance.

Ambiguity in Wording of Section 4

There is a great difference in the quality and type of information provided on the different websites. Information regarding decision-making processes of public authorities is provided by most departments. While some like the MCD Education Department show a clearly defined hierarchy, others have not mentioned the decision making process.

This is primarily because of the ambiguous wording of Section 4 itself

which allows public bodies' room for interpretation on what information is to be disclosed. Further, there is no provision stating that information should be regularly updated, leading to variation in frequency of updates.

Lack of Clear Ownership of Disclosure Duties

In most public bodies audited, it is the IT Division that is tasked with updating the website. However, it is not always clear which department should ensure that the required information is disclosed for Delhi Government websites, as each department has a separate IT Division within the organisation, which takes care of the website. In the NDMC and MCD, there is one centralised IT Department which does this work. The common finding was that within the organisation, these departments shift the responsibility and blame of non-compliance to each other.

Comparison between MCD, NDMC and Delhi Government Websites

The Health and Education departments of all three levels of governance, NDMC, MCD and Delhi Government were audited in order to compare the compliance among them.

Best Practices Identified

The Delhi Jal Board has the best performing website showing a compliance of 81%. DJB has been consistently performing well in this aspect; the study conducted by CCS in 2006 (California State Auditor 2015) also showed DJB to be the highest performing body. This can be attributed to the fact that DJB is the only body out of those studied to have an RTI Nodal Officer appointed. The duty of this officer is to direct RTI applications to the PIOs (Public Information Officers) of the concerned departments, apart from ensuring that the 17 manuals of the RTI are updated. There is thus a clearer demarcation of duties related to proactive disclosure when compared to the system in other departments. Upon interaction with the officials of the RTI Cell, it was observed that the organisation promotes an attitude of openness and transparency, with most officials having a clear sense of what is expected from them. The DJB example is evidently a step in the right direction, and stands as a model that other departments can look to follow.

Recommendations

Section 4 of the RTI Act, which lays down the guidelines for websites, should be reworked in order to ensure better compliance. In the current version of the law, proactive disclosure (Section 4) is not given as much importance as the filing of RTI applications (Section 7) is. This needs to change in order for *suo motu* disclosure to become a reality.

There are two areas under which recommendations can be given; those involving a reworking of Section 4 and those involving other holistic approaches of achieving transparency.

Recommendations for Provisions of Section 4 of the RTI

- Currently, there is no provision of a penalty in case of non-compliance under Section 4. Section 20, the section which deals with penalties, should also include non-compliance with Section 4 under its purview.
- There should be a provision in Section 4 specifying how frequently information should be updated.
- More powers should be given to the Central Information Commission (CIC) regarding facilitation of Section 4 to ensure the following:
 - In 2013, the CIC issued certain guidelines to be followed under Section 4 (Department of Personnel

and Training 2013) wherein departments were told to disclose information regarding Public Private Partnerships (PPPs), RTI applications, citizen charters, foreign tours of ministers and grants, among many others. However, the follow-up to these guidelines remains to be seen as departments have not gone forward to disclose more information.

- Clearer instructions about what information is to be disclosed should be given. The CIC can play an important role in this respect, delineating the correct and standardised interpretation of each of the 17 subsections of Section 4(1)(b). Currently, each website has given different types of information corresponding to each subsection. A quality standard awarded on the basis of Section 4 compliance in order to incentivise departments to disclose more information should be set up. Presently, the STQC (Standardisation Testing and Quality Certification) Directorate awards a 'Certified Quality Website' on the basis of accessibility guidelines outlined in the GIGW (Guidelines for Indian Government Websites).
- The position of a Transparency Officer, who is in charge of ensuring implementation of Section 4 should be instituted. The CIC had issued a directive regarding the same, in 2010. However, with the CIC having insufficient powers regarding Section 4, it was not seriously followed (Edara 2015).

Recommendations Involving Other Approaches to Transparency

- A regular third party audit should be conducted in order to check compliance of websites with Section 4 and find areas for improvement. In the US, State Auditors often conduct audits of government websites with respect to accessibility of information (California State Auditor 2015).
- Apart from measures focussing on improving disclosure, authorities should seek to bridge the gap between the providers and the users of information. In addition to raising awareness about the 'duty to publish' through Section 4, public bodies should aim to make their websites more user-friendly.

Conclusion

Section 4 of the RTI is a tool to bring about transparency and accountability at all levels of governance. It was the first to oblige public authorities to publish information into the public domain and increase ease of access to information.

Our study demonstrates, albeit with a limited sample size, that there is a clear difference in the degree of disclosure of information among various public authorities in Delhi. This variation arises as the law does not lay down clear guidelines on what is to be published and in what time frame. While some authorities such as Delhi Jal Board show significant compliance with Section 4, others such as Delhi Transport Corporation fail to provide even basic information such as its functions and duties.

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WATER

Water Supply Shocks in Delhi: Hazard Identification, Risk Assessment & Vulnerability Analysis

Tanya Sethi, Anshu Kumari, Rahul Singh Chauhan

EXECUTIVE SUMMARY

Delhi's water supply has often been crippled by reasons other than that of demand and supply. In fact the major risks for Delhi's water supply system do not lie within the city's borders, but outside. This paper aims to develop a broad conceptual framework for risk detection and identification, its assessment and estimation, and propose a comprehensive risk mitigation framework for Delhi's water supply. The study identifies the major risks as reduced availability of groundwater due to insufficient recharge and disappearing water bodies, and the occurrence of contaminants such as ammonia and heavy metals at intake points. It also conducts a comprehensive vulnerability assessment and analyses the risks posed to the water treatment plants based on the hazards it faces due to geographical and physical proximity to the sites of hazards.

KEY FINDINGS

1. The trend of average precipitation in the city shows decline of nearly 2.28 mm per year. This implies that the seasonal rainfall has reduced by over 20% over the past half a century.
2. Water depth in Yamuna has been declining over the years, and this has a serious impact on the total water resource availability. The likelihood of risks is "likely" and the severity of this hazard to Delhi's water supply is high.
3. The rate of extraction of groundwater in the city is estimated to be 145% higher than the rate of replenishment, although groundwater is a contingency measure for Delhi's water supply. In such a situation a falling groundwater table may spell disaster to the city's livelihood and economy. (Likelihood: "likely" and severity: high)
4. In 2016 itself, Chandrawal and Wazirabad Water Treatment Plants had to be shut down thrice owing to hike in concentration of ammonia at Wazirabad pond (19, 20 Jan; 16 Feb; 29 Feb). In last 5-6 years, it has happened 7-8 times, based on news report and visits to DJB officials, it is understood to be rather frequent. (Likelihood: "high" and severity: very high)
5. TERI (2012) has pointed out to accumulation of heavy metals in Yamuna at various locations in Delhi and Haryana (Christopher, Kaur and Singh 2012). (Likelihood: "likely" and severity: high)

About the Study

HAZARD IDENTIFICATION:

For the purposes of Hazard Identification, a comprehensive list of all the plausible hazards was made through reading case studies of water supply shocks across the world.

RISK ASSESSMENT:

The risk was assessed qualitatively by gauging the likelihood of the occurrence of identified hazards and associated severity of their consequences.

DESCRIPTION OF LIKELIHOOD:

Likelihood in the context of the present study means the probability of occurrence of the hazard. The paper utilises a qualitative assessment of grading the likelihood under five heads. In a qualitative assessment, likelihood may be determined using one or more of the following:

- a **Historical Data:** In this method historical data is utilized to calculate likelihood from the incidence of occurrence in the past, and calculating the aggregate frequency of occurrence.
- b **Trend Analysis and Forecast:** Trend analysis takes into account the trend of historical occurrence of hazards and forecasts the trend by extrapolation.
- c **Anecdotal Evidence:** Opinion-based likelihood calculation is based on expert opinion on the tendencies of occurrences, which does not take into account numeric empirical evidences of occurrences but rather anecdotal evidence.

All the three methodologies have individual limitations. In the case of historical data, the analysis may not reflect present likelihood of occurrence, may have sampling and reporting errors due to change in technology, and may not reflect changes in the conditions under which the hazards occur. In the case of calculation through anecdotal evidence, we encounter the problems of arbitrary judgment. Further, the robustness of the anecdotal evidence may also be a limitation.

The difference between historical data analysis and trend analysis is that we take a moving average trend of previous year's data and extrapolate the trend line to get a forecast of an approximate frequency of occurrence. In the present case we use a logarithmic trend line to calculate the moving average and extrapolate. In this case we may see an increasing trend of occurrence of the hazard. However this does not mean a higher prediction of future frequency.

The reasons are:

- I. The logarithmic function is a monotonically increasing function. Since it may be used to calculate the trend of maximum values of a functions, in this case it gives us the approximate maximum likelihood of occurrence.
- II. Due to improvement in the instruments of measurement, we may see a rise in the frequency of observed hazardous events. Hence in this case, it does not indicate a prospective rise in the frequency of the hazard.

Point Risk:

A point risk reflects the risk posed by abrupt and unpredictable events that last for a short duration but may endure larger and long term damage.

Level	Description
Highly Unlikely	Probability or Past Frequency below 2% in a given time period
Unlikely	Probability or Past Frequency between 2-10% in a given time period
Somewhat Likely	Probability or Past Frequency between 10-25% in a given time period
Likely	Probability or Past Frequency between 30%-50% in a given time period
Highly Likely	Probability or Past Frequency above 50% in a given time period

Severity Index

Extent of Shortage in Water Supply	Severity of Risk
Major part of water cut for 30 days or more	Extreme
Minor part of water cut for 30 days or more; Major part of water cut for five days or more	Very High
Minor part of water cut for 15 days or more; Major part of water cut for 1 day or more	High
Minor part of water cut for 7 days or more; Major part of water cut for 1 day or more	Average
1-5% of water cut	Low

Risk Matrix Score

RISK SCORE	Low	Average	High	Very High	Extreme
Highly Likely	11	16	20	23	25
Likely	7	12	17	21	24
Somewhat Likely	4	8	13	18	22
Unlikely	2	5	9	14	19
Highly Unlikely	1	3	6	10	15

Risk Prioritisation

RISK SCORE	Low	Average	High	Very High	Extreme
Highly Likely	15	10	6	3	1
Likely	19	14	9	5	2
Somewhat Likely	22	18	13	8	4
Unlikely	24	21	17	12	7
Highly Unlikely	25	23	20	16	11

Hazard Identification and Risk Assessment

Hazard	Type	Likelihood	Severity	Risk Score
Earthquake	Low Intensity <3.5	Highly Likely	Low	11
	Medium Intensity 3.5 - 4.5	Likely	Average	12
	High Intensity > 5.5	Somewhat Likely	High - Very High	13-18
Flood	Major water levels above 205m	Unlikely	High	9
Climate Change	Reduced river flow	Persistent and constant rate of decline: Likely	High	17
	Reduced groundwater recharge	Persistent and Increasing rate: Likely	Very High	21
	Disappearing water bodies	Persistent, Irreversible and Increasing rate: Highly Likely	Average	16
Contamination	Ammonia	Highly Likely	Very High	23
	Heavy metals	Likely	High	17
	Eutrophication	Somewhat Likely	Average	8
	Organic contamination	Somewhat Likely	Average	8
Mining	Floodplain and riverbed	Persistent and Constant rate	High	17
Accidents	Drowning water tragedy	Somewhat Likely	Average	8
	Chlorine leakage	Somewhat Likely	Average	8
	Fire	Highly Unlikely	Very High	10
Power cut	WTPs, Tube wells	Likely	High	17

Hazard	Type	Likelihood	Severity	Risk Score
Non-water related acts of violence	Deliberate Sabotage	Somewhat Likely	High-Very High	13-18
Water Development Disputes	International water development disputes	Highly Unlikely	Extreme	15
	Intra-national water development disputes	Unlikely	High-Very High	9-14
Adverse change in inter-state water sharing agreements	Inter-state Yamuna-water sharing	Highly Unlikely	Extreme	15
	International sharing of Indus river basin	Highly Unlikely	Extreme	15
	Inter-state sharing of Ravi-Beas river	Highly Unlikely	Extreme	15
	Inter-state Ganges water sharing	Highly Unlikely	Extreme	15

From this analysis of the likelihood of occurrence and severity of hazards, it is evident that the major risks stem from reduced availability of groundwater and occurrence of ammonia at the intake points. The analyses of these two risks are presented in detail.

Climate Change & Resource Depletion

Climate change is a complex phenomenon linked to global events. Most significantly, El Nino and La Nina are known to impact both the Southwest Monsoons as well as the Western Disturbances that are responsible for precipitation in Delhi. However, for the purposes of this research paper, it is sufficient to analyse the trends in the average total rainfall in the city.

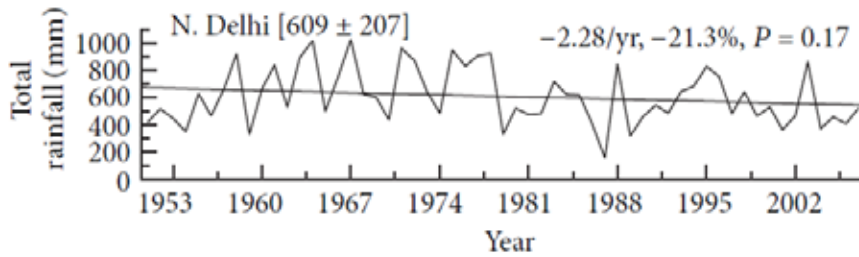
The trend of average precipitation in the city shows decline of nearly 2.28mm

per year. This implies that the seasonal rainfall has reduced by over 20% over the past half a century.

Reduced precipitation poses the following risks to the water supply of the city

- 1 Alteration of Yamuna River's stream flow.
- 2 Decline in Groundwater Recharge.
- 3 Drying up of the city's internal water bodies.

Trend of seasonal rainfall in Delhi (After Kharol 2013)

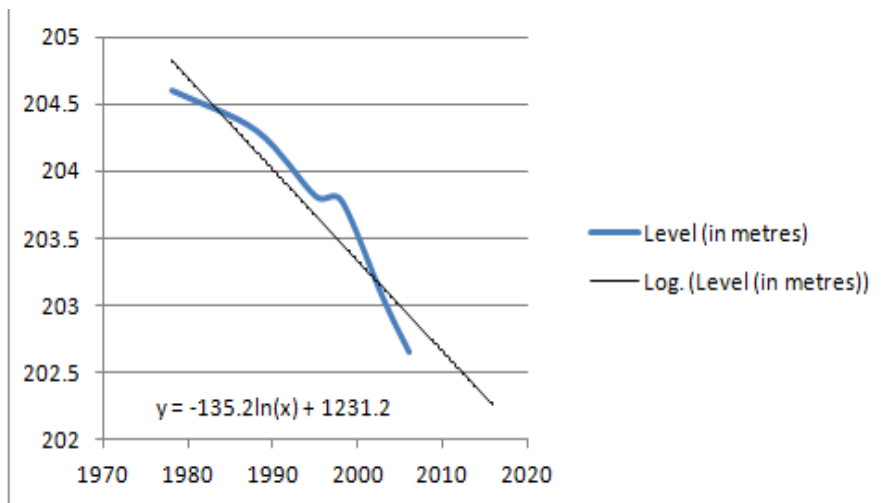


Alteration of Yamuna River's Stream Flow

Water depth in the Yamuna has been declining over the years. The graph indicates a declining trend of aggregate water levels in the river. Such a decline has a serious impact on the total water

resource availability. Since the rate of decline is persistent, the likelihood of risks is 'likely' and since the rate of decline is rapid, the severity of this hazard to Delhi's water supply is high. The trend of average precipitation in the city shows decline of nearly 2.28mm

Aggregate Level of Yamuna at Delhi



Source: Agrawal, Kharya and Gupta 2006

Insufficient Groundwater Recharge

The rate of extraction of groundwater in the city is estimated to be 145% higher than the rate of replenishment. In the case of Delhi, groundwater is a contingency measure for the water supply system, which is crucial not only to domestic consumers, but also industries in the city. In such a situation a falling groundwater table may spell disaster to the city's livelihood and economy. The severity of this hazard is accorded as 'high'.

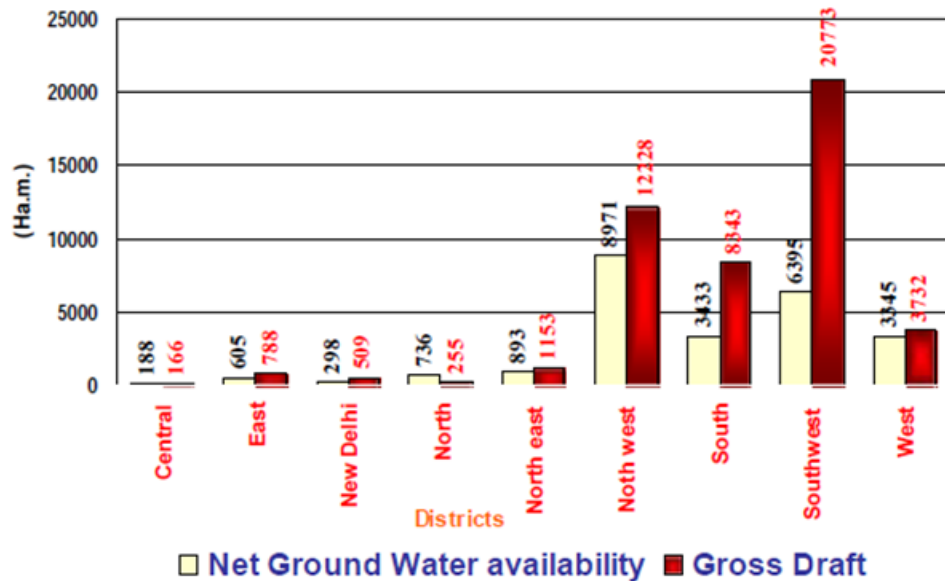
Central Ground Water Board's long-term groundwater level trend analysis in the district over the last ten years period shows the following statistics in four districts of Delhi (Shekhar, Purohit and Kaushik 2013)

Risks Due to Excessive Groundwater Abstraction

- Increase in pumping/ lifting costs
- Reduced borehole yield
- Reduced spring flow/river base flow
- Phreatophytic vegetation stress (both natural and agricultural)
- Aquifer compaction/transmissivity reduction
- Saline water intrusion/ Ingress of polluted water (from perched aquifer or river)
- Land subsidence and related impacts
- Aquifer diffusivity characteristic
- Aquifer storage characteristic
- Drawdown below productive horizon
- Depth to groundwater table
- Aquifer compressibility
- Proximity of saline/polluted water
- Vertical compressibility of overlying/ inter bedded aquitards

District-wise Aggregate Depth Level	Pre-Monsoon Depth Level (in meters below ground level)		Post-Monsoon Depth Level (in meters below ground level)	
	2002	2012	2002	2012
District	2002	2012	2002	2012
South West	0.30	6.90	0.07	6.08
New Delhi	0.04	2.58	0.03	3.11
West	0.18	2.20	0.53	2.12
North East	0.51	1.68	0.96	2.34

Figure 2: Annual Net Groundwater availability and Annual Gross Groundwater draft (ha m)



Source: Shekhar, Purohit and Kaushik 2013

With the rate of decline of water table ranging between 0.17 - 0.66m per year, the rate of harm to the water resource is persistent and at an increasing rate, which gives a likelihood of risk as 'likely'.

Disappearing Water Bodies

Estimates of the number of water bodies in the city vary from 674 to 1,012 (Sharma and Singh 2016). However, according to MCD data, nearly 190 to 274 of these water bodies have dried up due to scanty rainfall, encroachment and construction in the catchment area. This shows a persistent, irreversible and increasing rate of decline and damage to the water resource (Roychowdhury 2014).

Although these water bodies were not the present sources of the city's water supply, they do have the potential to hold surface water for contingency, and their decline means a lost opportunity in watershed management. Water bodies form an important ecosystem in the city's hydrology, and their decline signifies a worrying trend. The severity of the risk is hence accorded as 'Average'.

Contamination

Water in the Ganges and Yamuna are no longer the pristine water flowing down from the Himalayas. It is today mostly the sewage and agriculture runoff in the upper basin. Various forms of

contamination are evident with both short as well as long term implications. A few of these are discussed below.

Heavy Metals


Heavy metals are chemicals which become toxic after a certain level of concentration. Increase in concentration happens in individual organisms through bioaccumulation (since the body is unable to reject these chemicals), and biomagnification (increase over the food chain), leading to major ailments. Some of these, like mercury and lead, are particularly harmful. TERI (2012) has pointed out to accumulation of heavy metals in Yamuna at various locations in Delhi and Haryana (Christopher, Kaur and Singh 2012). At present, the treatment process at WTPs does not consider heavy metals as parameters for contamination. In the coming years, when these heavy metals will begin crossing the tolerable level, if the treatment technology is not upgraded, the supply of water will be affected greatly. Thus, heavy metals pose persistent damage with their concentration increasing over time.

This has therefore been characterised as 'likely' with 'high' severity.

Ammonia

The desirable level of ammonia for drinking water, as per CPCB standards, is 0.5ppm. However the level of ammonia has gone beyond this level in the past at Wazirabad pond due to discharge of industrial and sewage flow, combined with natural ammonification process. A high level of ammonia is not suitable for human consumption. The Chairman of the Delhi Jal Board, Kapil Mishra, informed us that “if the quantum of ammonia in raw water increases to 0.5/ppm or mg/l and beyond, the operation of raw water has to be suspended as ammonia when mixed with the treating agent chlorine gives rise to Trihalomethane which is carcinogenic in

Heavy Metals in Yamuna



POISON WATERS						*Detected only at two places Source: Toxics Link
	Lead	Chromium	Cadmium	Mercury	Arsenic	
Pre-monsoon	71-239 16.2 (avg)	72-90.2 40.3	0.2-0.4 0.3	0.8-1 0.9	1.2-4.9 3.3	
Post monsoon	15.4-55.7 23.9 (avg)	28.9-796.7 207.3	Below detectable levels	3.2* & 4.7* 3.9	5.3-11.4 7.7	
Standard	0.1	0.5	0.01	0.001	0.2	

All figures in ppm (parts per million)

Source: Toxic Links, from Indpedia.Com

nature”. Thus in the absence of technology to treat high concentration of ammonia, WTPs at Wazirabad and Chandrawal are sometimes shut down. Together, these WTPs supply 340 MGD water. Apart from WTPs, the production Ranney wells situated in the Yamuna floodplains are also affected due to rising ammonia levels. However, the damage caused by ammonia contamination is temporary in nature. Thus the severity of high ammonia level has been classified as 'very high'.

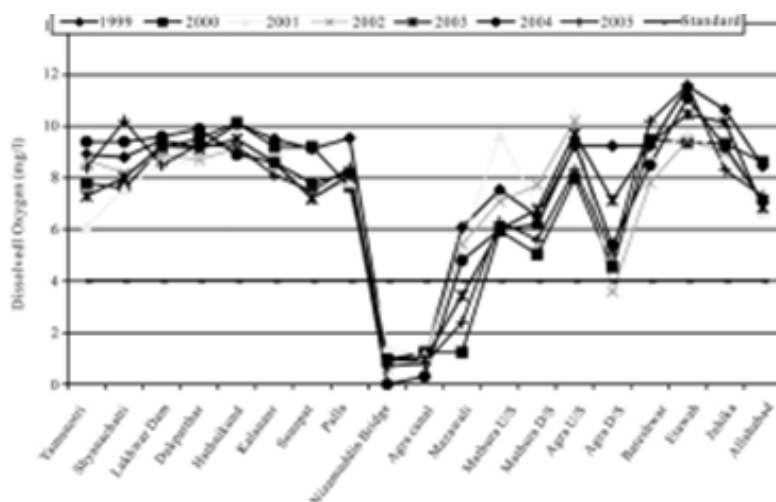
The likelihood of occurrence of this hazard is 'very likely'. In 2016 only, Chandrawal and Wazirabad WTPs had to be shut down thrice owing to hike in concentration of ammonia at Wazirabad pond (19, 20 Jan; 16 Feb; 29 Feb). In the last five to six years, it has happened at least seven to eight times¹. Due to frequent incidents, it has also been considered as inter-state river water dispute by CBCP.

Eutrophication

Eutrophication is the increase of nutrient levels in water, which can lead to the formation of algal blooms. The growth of these algae leads to reduced oxygen and release of some toxic chemicals into the water. The factors responsible for eutrophication are phosphate and nitrate levels, which arise due to the presence of detergents, agricultural runoff, and industrial waste and domestic sewage.

A paper on ‘Accelerated phosphate and nitrate level: factors to blame for Eutrophication in Yamuna River’, shows the level of nitrate and phosphate in Delhi’s Yamuna to be high and increasing over time (Kaur and Singh 2012).

The figure below reveals that the level of dissolved oxygen for Delhi’s stretch of Yamuna is lower than the standard level



¹ Based on news report and visits to DJB officials, it is understood to be rather frequent.

for 1999 -2005. The dissolved oxygen concentration is now almost zero. Thus there is persistent, reversible, increasing rate of damage due to Eutrophication.

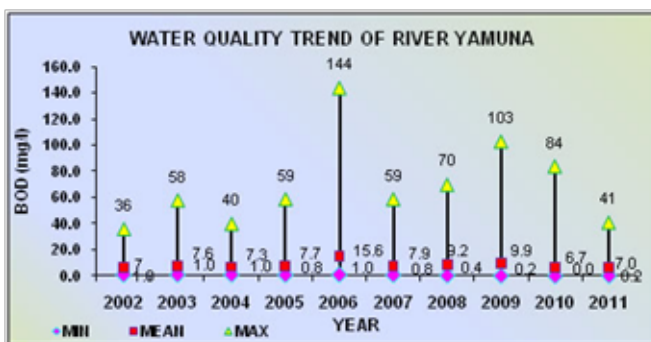
Organic Contamination

The large quantity of sewage being disposed into the Yamuna through various drains has constantly deteriorated the quality of river water (BOD² graph). Even the level of total coliform and faecal coliform for the river Yamuna reveals the same pattern. Thus it is persistent, reversible and has constant rate of contamination.

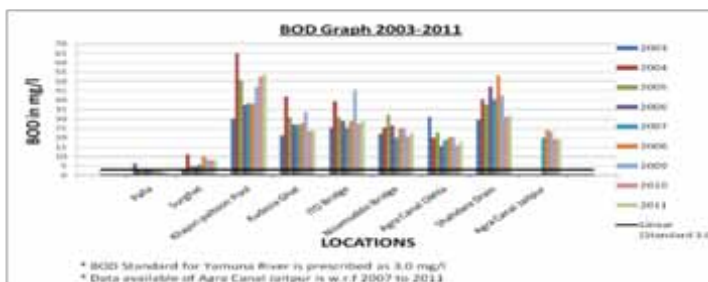
However, the high level of biological waste increase only after the water is extracted for treatment purposes.

The raw water intake at treatment plants doesn't demonstrate such high level of contamination. Even the biological contamination is treated at WTPs through chlorination of water and does not lead to any cut in water supply.

Organic contamination has therefore been characterised as 'somewhat likely' with low severity'.



Source: CPCB



Source: DPCC

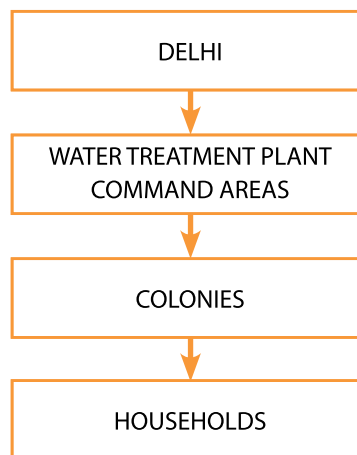
² Biochemical Oxygen Demand is the amount of dissolved oxygen needed by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period.

Vulnerability Assessment

Any risk assessment is incomplete without taking into account the ‘degree of tolerance’ to the impact of the particular hazard. A comprehensive vulnerability assessment has been attempted through a four-level design—the city level, the command areas of water treatment plants, the colony level, and the household level.

Spatial vulnerability assessment takes into account the vulnerability of water treatment plants and their corresponding command areas due to the virtue of their location. Here, we analyse the risks posed to the water treatment plants based on the hazards they face due to geographical

and physical proximity to the sites of hazards. We derive it from the gradation given under the risk matrix.



Vulnerabilities at the WTP level

WTP	Source of Raw Water	Production (Proportion of Total Supply)	Vulnerabilities	Risk Points	Total Risk Exposure ³	Total Impact ⁴
Chandrawal	Wazirabad Pond	10.43%	High earthquake vulnerability zone ⁵ , Flood prone zone Effect of climate change on Yamuna, Ammonia, Power cut, Accident (all), Heavy metals, Mining, Change in inter-state water sharing patterns	13 -18 +9 +13 +23 +17 +8 +8 +10 +17 +15	135.5	14.1
Wazirabad	Wazirabad Pond	14.98%	High earthquake vulnerability zone, Flood prone zone, Effect of climate change on Yamuna, Ammonia, Power cut, Heavy Metals, Accident (all), Mining, Change in inter-state water sharing patterns	13-18 +9 +13 +23 +17 +8 +8 +10 +17 +15	135.5	20.3

³ Taking average risk in case of range

⁴ Total impact is defined to be Risk Points*Production proportion of Severity

⁵ With reference to the Zonal Seismic Hazard Map

WTP	Source of Raw Water	Production (Proportion of Total Supply)	Vulnerabilities	Risk Points	Total Risk Exposure ³	Total Impact ⁴
Haiderpur	WYC	25.08%	Moderate earthquake vulnerability zone, Power cut, Accidents (all), Heavy Metal, Non-water related act of sabotage, Water development conflicts, Change in inter-state water sharing patterns	12 +17 +8 +8 +10 +17 +13 -18 +9 -14 +15	114	28.6
Sonia Vihar	Upper Ganges Canal	15.64%	High earthquake vulnerability zone, Power cut, Accident (all), Non-water related act of sabotage, Water development conflicts, Change in inter-state water sharing patterns	13 -18 +8 +8 +10 +17 +13 -18 +9 -14 +15	100.5	15.7
Nangloi	WYC	4.43%	Moderate earthquake vulnerability zone, Power cut, Accident (all), Heavy Metals, Non-water related act of sabotage, Water development conflicts, Change in inter-state water sharing patterns	12 +17 +8 +8 +10 +17 +13 -18 +9 -14 +15	114	4.9
Bhagirathi	Upper Ganges Canal	11.87%	High earthquake vulnerability zone, Power cut, Accident (all), Non-water related act of sabotage, Water development conflicts, Change in inter-state water sharing pattern	13 -18 +8 +8 +10 +17 +13 -18 +9 -14 +15	89	10.6
Dwarka	WYC	4.77%	Moderate earthquake vulnerability zone, Power cut, Accident (all), Non-water related act of sabotage, Water development conflicts, Heavy metals, Change in inter-state water sharing patterns	12 +17 +8 +8 +10 +17 +13 -18 +9 -14 +17 +15	131	6.3
Bawana	WYC	1.66%	Moderate earthquake vulnerability zone, Power cut, Accident (all), Non-water related act of sabotage, Water development conflicts, Heavy metals, Change in inter-state water sharing patterns	12 +8 +8 +10 +17 +13 -18 +9 -14 +17 +15	114	1.9
Okhla	Recycled Water from Chandrawal	2.21%	Low earthquake vulnerability zone, Power cut, Accident (all), Eutrophication	11 +8 +8 +10 +17	54	1.2

Caveats:

- Ranney wells (12 in number) and Tube wells (4,400 in number) are used in DJB water supply and form nearly 11 % of the total water supply. However due to their presence across the city, a location specific vulnerability assessment is difficult. However, zones of over-exploitation, increasing rate of extraction and the issues associated with groundwater recharge help make an assessment.
- The difference in functioning of WTPs is ignored.

Vulnerability at Household Level

To gauge vulnerability to water supply shocks vis-à-vis water procurement method of the households, two assessments were conducted. In the first assessment, telephonic interviews of RWA's presidents were conducted and the general response mechanism of the colony was recorded. In the second assessment, household-level data was collected through in-person interviews.

Assessment I

For the survey, a random sample of 50 Residence Welfare Associations (RWA) from Central and South West districts of Delhi was taken. Both these districts were affected by the sabotage (DJB press release). RWAs of both planned and unplanned colonies were chosen through methods of random sampling from telephone directory.

All the RWAs interviewed were registered

with the government. Out of the 41 localities that get piped water supply from DJB, 15 had reported either some serious concern about quality, or regularity. Of the nine colonies that did not get piped water supply from DJB, six were either UACs or JJ. Of the same 9 localities, 6 received water through DJB tankers. Of the total colonies interviewed, 41 colonies had access to groundwater. At least some houses of 38 localities had provision of individual borings. 12 localities had community boring provision either in the form of DJB boring connected to households through pipeline, boring at parks, or boring at other community areas.

Impact of Jat Agitation

All the colonies of the sample with access to DJB's piped water supply were affected by the water supply cut during the Jat agitation in Haryana in February 2016. Localities without access to DJB's piped water supply or those who were not dependent on them were also affected during the Jat agitation, although to a lesser extent. The intensity varied for different colonies: for 42 localities, the supply cut lasted for a maximum of one week, while for four localities, it lasted for more than one week.

Coping Strategy

The typical response for 72% of the localities was the use of underground water from boreholes. Localities without access to groundwater were worst hit. Out of the eight localities without access to groundwater, 5 had to incur additional

costs for cans and private tankers, spending additionally in the range ₹280 to ₹780. Seventeen localities procured water from tankers, of which 7 localities were served by private tankers, incurring costs above ₹500 for individual households. The cost was primarily incurred for procuring drinking water in most localities. For non-potable purposes water was either available free or at low cost from boring or tankers, for most houses.

The following factors seemed to have determined the vulnerability of localities facing water cut:

Availability of Boreholes in the Locality:

Though 25 of the 40 localities that had access to boreholes depended primarily on external water supply during the water cut, the average out-of-pocket payments for households were lower than colonies without access to groundwater. This was because the demand for non-potable water was met by the underground water.

Ease of Accessing DJB tankers:

Ease and assurance of access to groundwater is certainly greater than the DJB tankers. A few localities complained that they did not get a DJB tanker during the period even after repeatedly calling the DJB emergency service number. They either had to incur additional costs of private tanker services or limit their water consumption. There were incidents of public servants and people's representatives facilitating procurement of DJB tankers, usually at the insistence of the RWA office bearers. However, there were also instances of violence and extortion. Since tankers form an important

contingency measure, lack of transparency and deep political interests further increases the vulnerability of localities, especially for those lacking political power.

Unsustainability of Contingency Measures

It is evident that groundwater can be helpful even when there is a piped supply of water. However, once the access to groundwater is lost, there is no contingency measure in case of any shock to the supply system. Even in the present situation, since the groundwater has depleted in many regions and is not fit for drinking, households are forced to buy drinking water, adversely affecting the poor.

Assessment II

Three different kinds of localities were visited for interviews. It was observed that if water was provided by tankers once or twice a week, people became habituated to consuming less water. During the Jat agitation, water tankers in Bharat Vihar were delayed by a day or two. Though some people had to buy drinking water cans, the community as a whole did not face much of problem.

People habituated to piped water supplies faced a lot of problem when the supply is cut off. However, living in a society reduced the vulnerability, as collective action helped. Most societies have boreholes to access water for non-potable consumption. The only cost involved, then, relates to procuring drinking water, that too for households without an RO filtration unit and no access to groundwater.

Vulnerability Assessment	OUT-OF-POCKET PAYMENTS →			
SCARCITY OF WATER ↓		Low (0-2)	Moderate (2-4)	High (4-6)
	Low (0-2)	Houses with Borings	(-)	(-)
	Moderate (2-4)	(-)	Houses with Borings in Neighbourhood	Society
	High (4-6)	Jhuggi Jhopris	(-)	Colonies without Borings

Policy Recommendations

The objective of the study is to conceptualise a framework of risk assessment for Delhi's water supply. The results establish the priority of interventions, aligning them to disaggregated vulnerabilities, and showing the need to bridge the gap between perception and a broader perspective of risks that have been given a miss in the disaster management plans for Delhi's water supply. The given conceptual framework is however limited in terms of available data and the choice of qualitative analysis over quantitative analysis, highlighting the scope for further study in the area.

Dynamic and Periodic Risk Assessment of Delhi's Water Supply

Water supply of Delhi is exposed to multiple hazards, many of which were either undiscovered or neglected. The

city needs to have a periodic and real time risk analysis of its water supply and resources. Such an analysis will utilise real-time data; to assess the dynamics of these hazards, and also to collate policy correspondingly.

Creation of Water Inventories and Contingency Storages

The rationale of creating water inventories is to address the dynamic variability in water demand of the city, when supply is in deficit or the risk of supply disruption is high. Water storage is a quintessential issue in the development of contingency arrangements in the city. These inventories may be constructed:

- 1 At or near the water treatment plants, where water, on increasing demand, may be treated immediately and supplied through the existing network.
- 2 By rejuvenating water bodies for surface storage. The measures include protection of existing water bodies from encroachment and construction,

investment in watershed development to rejuvenate dried-up water bodies, and maintenance of existing water bodies.

- 3 Through community-level storages. This is a further decentralised method of creating inventories at the colony/local level as a common-pool resource.
- 4 Keeping in mind that storage itself is vulnerable to structural damage caused by hazards like earthquakes, and hence they need to be sufficiently robust in order to provide water in any kind of emergency.

reaching out to them. Further, half of the RWAs either haven't met the officials or felt the meetings were a formality, while the other half argued against the closure of *Bhagidari* and weakening of RWAs. Indeed, the closure of *Bhagidari* took away the relevance of RWAs, rendering them ineffective. When it comes to mitigating risks, efforts at the society-level rather than individual level can yield better results. Conducting meetings of RWAs regularly and strengthening them will enable citizens to solve problems related to water supply shocks.

Utilising Storm Water Drains for Groundwater Recharge rather than Sewage Treatment

Rainwater harvesting is often restricted solely to rooftop harvesting. However, a grossly dysfunctional storm water drainage network often leads to urban floods and wastage of water. In many places, the storm water drains are connected to the sewage network, leading to further problems. A functional storm water system, as part of a larger 'green infrastructure' plan for the city, has the potential to recharge groundwater, provide public waterscapes and add to water security.

Empowering RWAs

Problems related to water are normally addressed to the local representative (MLA) and the DJB officials. 62% of RWAs interviewed faced problems in

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ENVIRONMENT

Toilets in Delhi: Evaluating progress of the Swachh Bharat Mission

Keval Patel, Prateek Pillai, Sanchi Gupta

EXECUTIVE SUMMARY

The central government launched the Swachh Bharat Mission (SBM) with the aim of creating an 'Open Defecation Free' nation by 2019, with Urban Local Bodies (ULBs) entrusted with implementation of the Mission (SBM-Urban). The Swachh Bharat Cess has been introduced to fund the mission, by imposing a levy of 0.5% on taxable services, raising the Service Tax rate from 14% to 14.5%. This paper examines the issues of open defecation and access to toilets in Delhi in the context of the SBM, by tracking the funds allocated by the Centre to the ULBs in Delhi and simultaneously assessing access to toilets in Jhuggi-Jhopri (JJ) Clusters. During the course of this study, various stakeholders were interviewed such as government officials, citizens living in JJ Clusters and private players.

The results of the study point to ineffective implementation of the Mission in Delhi with targets for the construction of toilets and solid waste management being grossly un-met. The reasons for the failure of the Mission can be traced to policy weaknesses within the SBM Guidelines and Delhi's complicated and fragmented governance structure. Finally, taking forward the thematic focus on sanitation, a comparative study was carried out between publicly and privately maintained public toilets in Delhi. The paper concludes by proposing a new model for implementation of the Mission in Delhi.

KEY FINDINGS

1. Delhi will receive a total of ₹360.01 crores over the course of the entire Mission Period (Oct 2014-19). As of May 2016, Delhi has received ₹139.60 crores.
2. For the financial year 2015-16, the North Delhi Municipal Corporation (NDMC) received ₹46.28 crores under the SBM. Currently, the entire corpus of these funds is lying unutilised. Out of the ₹31.63 crores received by the South Delhi Municipal Corporation (SDMC), only 0.25% (or ₹7.93 lakhs) has been spent.
3. The SBM Guidelines were formulated with the assumption that ULB(s) are consolidated organizations, holding considerable power. In Delhi however the ULB(s) do not control water supply or sewage. Furthermore, slums and JJ Clusters do not lie within their jurisdiction.
4. DUSIB is not an ULB and thus, is not entitled to funds under the SBM. However, the State Mission Directorate has re-allocated funds worth ₹51 crore by transferring them from the ULB(s) to DUSIB. This amounts to 36.5% of the total money allocated to Delhi till May 2016.

5. Since the beginning of the Mission (October 2014), no Household Toilets have been constructed (as against a target of 30,107 by 31st Mar 2016). Delhi was supposed to build 1,982 Community Toilets by the end of the Mission Period, but has far exceeded this target by building 4,656 Community Toilets (the numbers are in terms of toilet seats, and not complexes). However, a majority of these Community Toilets have been constructed by DUSIB.

Open Defecation: Health and Environmental Hazard

A 2013 Delhi Government report found that 79% of children (below the age of three years), living in slums and poor settlements, defecate in the open (Saxena and Singh 2013). Expressing concern over open defecation in the national capital, the Delhi High Court has said the lack of public toilets in the city was “disgraceful” (Iqbal 2016). Both problems of open defecation and urination can be linked to the lack of sanitary public or community toilets in Delhi. Lack of household toilets is a comparatively smaller problem in the city—confined chiefly to the *Jhuggi Jhopri* Clusters where only a quarter have access to individual toilets (Pandit 2016).

The river Yamuna fulfils 70% of Delhi’s water requirements. However, Delhi is responsible for 80% of the pollution of the river while accounting for just 2% of its catchment area (Centre for Science and Environment 2009). Over 11 million people are directly affected by the pollution of the river. An RTI reply revealed that 60% of the total sewage generated by Delhi remains untreated (PTI 2015). These untreated faeces either seep into the ground or flow into the Yamuna, eventually polluting the water resources. Probable reasons for this inefficient sewage system include

the practice of open defecation and the widespread use of insanitary toilets (toilets that are not connected to a sewer line).

Moreover, open defecation is an environmental hazard that also has direct consequences on health. Recent studies have found that open defecation leads to mal-nourishment and stunting in children. A child in India is, on average, shorter and more malnourished than a child living in a poorer African nation (Harris 2014; Spears, *The long and short of open defecation* 2013). Despite efforts of the Indian government to subsidize food, malnourishment continues to persist as the bacteria released into the environment from the untreated faeces hampers ability to absorb nutrients from food in the long term (Spears, *The nutritional value of toilets* 2013). According to a Delhi Government report, “the fact that excreta is out in the open and not confined in a safe manner poses a health risk to the surroundings. So whether 10% or 20% of members defecate in the open, the risk is the same for any household” (Saxena and Singh 2013). Alarming, polio infections occur through the fecal-oral route and they

are strongly correlated with lack of sanitation and personal hygiene.

Table 1: Percentage of household members using open spaces for defecation in Delhi

Total Households Surveyed	19,683
Adult Male	11%
Adult Female	9%
Boys above 3 years	48%
Girls above 3 years	56%
Children below 3 years	79%

Source: Saxena and Singh 2013

About the Study

The objective of the study is to track the funds allocated by the Centre to the ULBs for the implementation of the Mission in Delhi. Two parallel approaches have been employed: a top-down approach to track the funds allocated by the Centre (National Mission Directorate) to the State (State Mission Directorate), the State to the ULBs and finally, the utilisation of the funds by the ULBs; and a bottom-up approach to evaluate the condition of toilets in Delhi from Community Toilet Complexes in JJ Clusters to public toilets.

The study draws upon qualitative data collected by interviewing state and local level government officials and citizens living in JJ Clusters in the city of Delhi.

The data collection tools include in-depth unstructured interviews and direct observation. In essence, every interview conducted was unique and all conversations were transcribed verbatim for later analysis.

It is to be noted that the sample size of the number of JJ Clusters visited is fairly small and the findings cannot be generalised for all of Delhi. These field visits however do provide a glimpse of the ground realities.

The Swachh Bharat Mission (SBM-Urban)

With the aim of eliminating open defecation in India, the central government launched the SBM to achieve two objectives during the 'Mission Period' (2 October 2014-19):

- An 'Open Defecation Free' Nation through the Construction of Toilets
- Modernisation of the Municipal Solid Waste Management Systems

The Mission also aims to effect a behavioural change and generate awareness regarding sanitation practices.

Fund Allocation for SBM

The estimated cost of the implementation of SBM (Urban) is ₹62,009 crores. The Centre's share, as per approved funding

pattern, amounts to ₹14,623 crores. In addition, a minimum additional amount (equivalent to 25% of the Centre's share), amounting to ₹4,874 crores shall be contributed by the States. The balance funds will be generated through various other sources such as private sector participation, additional resources from State Government/ULBs, user charges, Swachh Bharat Kosh, Corporate Social Responsibility etc. These have been set up to attract Corporate Social Responsibility (CSR) funds from Corporate Sector and contributions from individuals and philanthropists to carry out the effective implementation of the SBM.

To fund the Mission, the central government has levied a 'Swachh Bharat Cess' of 0.5% on all taxable services, effectively raising the Service Tax rate to 14.5%. It is estimated that the cess will raise close to ₹10,000 crore per year for implementation of the Mission.

The Mission has laid out guidelines for the construction of three types of toilets (Ministry of Urban Development 2014).

Individual Household Toilets

The Centre provides an assistance of ₹4,000 for every household toilet identified.

This sum is given out in two instalments of ₹2,000 each. The first instalment is made to the beneficiary's bank account on the approval of an application to the ULB. The second instalment is made once construction is verified as per the directions of the respective State Government.

Community Toilets

The Centre provides an incentive for the construction of each community toilet block in the form of a 40% grant. The remaining funds are to be generated by the State/ULB(s). All community toilets constructed under SBM must have a minimum five-year maintenance contract.

Public Toilets

The Centre does not allocate any funds for the construction of public toilets. State and ULBs are to identify land for public toilets and encourage the private sector to construct and manage public toilets through a PPP (Public-Private Partnership) agreement. The projects are to be prepared, sanctioned and implemented by the ULB(s). All public toilets constructed under SBM must have a minimum five-year maintenance contract.

Table 2: Patterns of fund sharing between the Centre and the State

Centre	75%	25%	States (excluding North Eastern States)
	90%	10%	North Eastern States
	100%	0%	Union Territories

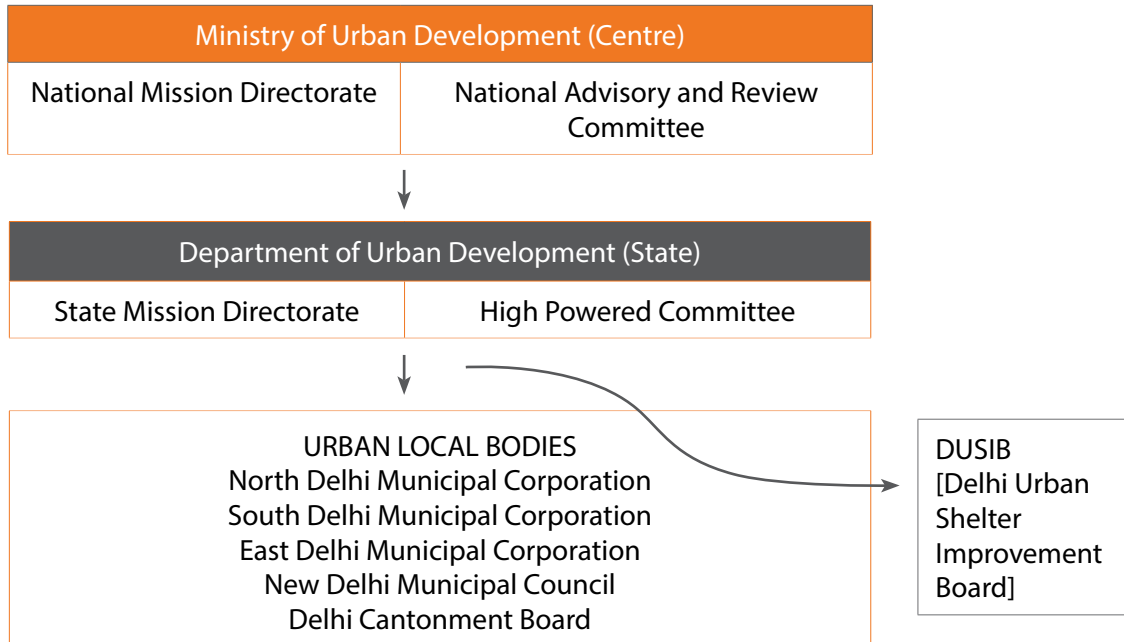
Structure and Process

The primary implementing agency of the SBM (Urban) is the ULB. The Centre has set ‘physical targets’ (for example: number of household toilets to be constructed) for each ULB, across the nation, basis the 2011 Census Report. The Centre allocates funds to the states in the form of instalments, made after the assessment of the ‘Utilization Certificate’ provided by the state to the Centre, the contents of which are based on the utilisation certificates provided by each ULB to the state. Thus, the responsibility of the state government is limited to transferring funds and monitoring the activities of the ULBs.

Implementing the Swachh Bharat Mission in Delhi

The Delhi government, as a part of its plan to create an open defecation-free capital, has set a target of building the required number of toilets by 2018. The government has allocated about ₹100 crore for this purpose. However, the linkage of individual and private household toilets with sewer lines remains a huge challenge.

GOVERNANCE STRUCTURE



Financial Allocations

Delhi is to be allocated a total of ₹360.01 crore over the Mission Period (2 October 2014-19). Out of this total amount, ₹10.25 crores will be retained by the Central government. The remaining ₹349.79 crores will be allocated to Delhi in instalments. In the first instalment (2014-15), Delhi was allocated ₹8.05 crores. In the second instalment (2015-16), ₹96.7 crores was allocated to Delhi.

During the first two years, Delhi was classified as a 'state' under the Mission fund-sharing pattern, and was obliged to contribute ₹34.85 crores to the SBM effort. However, from 2016 onwards, Delhi has been re-classified as a Union Territory and no longer obliged to contribute funds. As a result Delhi has received a total of ₹139.60 crores under the Mission. The findings listed in Table 3 are based on interviews with government officials at the State Mission Directorate (SBM), Delhi.

Unspent Money, Unmet Targets

As can be observed from Tables 5 the targets for the SBM in Delhi have not been met. Indeed, in the case of Household Toilets the work is yet to begin whilst the progress on Public Toilets has also fallen behind. The construction of Community Toilets has far exceeded the targets: 4,656 Community Toilets have been built, which is roughly four times the overall mission target of 1,982.

The East, South and North Corporations have not utilised the Mission Funds for

the construction of toilets for similar reasons. The SBM guidelines mention that to use the funds, the ULB must raise a proportion of the required funds on its own. Further, SBM funds can be used only for new projects, and cannot be utilised for the maintenance of existing toilets.

SBM directives mandate the ULBs to construct Individual Household Toilets, Community Toilet Complexes and Public Toilets, but the corporations claim there is no demand for Household and Community Toilets within their jurisdiction. While constructing Public Toilets lies within their sphere of responsibility, central funds cannot be used for the construction of these toilets. Instead, they choose to outsource the construction and maintenance of Public Toilets to private firms. To achieve the physical targets laid out by the Centre, these corporations use CSR funds or builds toilets on a BOT (Build, Operate and Transfer) basis. Since a majority of the municipal corporations in Delhi face a severe cash crunch, these models prove to be more feasible, and hence, more popular.

However the situation at the New Delhi Municipal Council, considered to be one of Asia's richest municipal bodies, was different. NDMC officials claimed that they had not received any funds under the SBM, despite a proposed allocation of ₹3.72 crores in the Financial Targets (Table 3). Whatever the allocations—NDMC has the lowest and the North Corporation has the highest—the corpus of funds allocated in the financial year 2015-16 is lying largely unutilised.

Table 3: Financial targets for the entire Mission period (in crores)

	Household Toilets	Community Toilets	Solid Waste Management	Information, Education and Communication (IEC)	Capacity Building	Total
Delhi	50.16	5.15	263.68	24.61	6.15	349.76
North Delhi Corporation	13.07	2.67	118.53	10.36	2.59	147.21
East Delhi Corporation	2.69	0.50	56.78	6.178	1.54	87.69
South Delhi Corporation	10.21	1.87	78.58	6.99	1.75	99.40
NDMC	0.16	0.03	3.20	0.26	0.07	3.72
Delhi Cantonment Board	4.68	1.06	6.58	0.95	0.24	13.51

Table 4: Physical targets for the entire Mission period

	Household Toilets	Community Toilets
Delhi	1,25,398	1,982
North Delhi Corporation	32,663	1,027
South Delhi Corporation	25,515	718
East Delhi Corporation	56,734	91
NDMC	399	13
Delhi Cantonment Board	11,694	408

Table 5: Utilisation of SBM funds for 2015-16 (in lakhs)

	Total Funds Allocated	Expenditure	Expenditure (in Percent)
North Corporation	4,627.66	0.00	0.00
South Corporation	3,162.66	7.93	0.25
East Corporation	4,198.66	N/A	N/A

THE ODD CASE OF DUSIB

DUSIB is a state body responsible for the provision of civic amenities in JJ Clusters. It was earlier a part of the Municipal Corporation of Delhi (MCD) as its Slum and JJ Rehabilitation Department and later carved out as a separate department of the Delhi Government under the DUSIB Act, 2010. Although DUSIB undertakes the construction of community toilets in JJ clusters, it is not entitled to SBM funds since it is not a ULB. Thus, it was not included in the Financial Targets set by the central government (Table 3). According to DUSIB officials, ₹51 crores has been re-appropriated to it under the SBM, because of the non-utilisation of the Household and Community Toilet funds by the ULBs in Delhi.

ULB officials claim that the funds have not been transferred. There are other discrepancies with this figure such as the fact that combined funds for Household and Community Toilets under the SBM till 2019 amount to a little over ₹55 crores and Delhi has received ₹139 crores till date. Further, DUSIB does not construct Household Toilets despite there being strong demand for them in the JJ Clusters. According to officials, DUSIB's mandate, which is set by the Urban Development Department of the Delhi Government, only outlines the construction of Community Toilets.

The Elephant in the Room – JJ Clusters

Informal settlements in Delhi are of three types: Rural Villages, Unauthorized Colonies and JJ Clusters. The estimated population in:

- Unauthorised Colonies is 7.40 lakhs (5.3% of the total estimated population)
- Rural Villages is 7.40 lakhs (5.3% of the total estimated population)
- JJ Clusters is 20.72 lakhs (14.8% of total estimated population)
Source: (Centre for Policy Research 2015)

While the first two have access to basic municipal services, the inhabitants of JJ Clusters have to struggle to gain access to basic civic amenities such as water supply and sewerage.

A quick field assessment confirmed the official data on individual household toilets and provided insights on private spends on toilets and sanitation infrastructure.

Table 6: Data from field visits

Name of Settlement	Type of Settlement	Governing Agency	Number of Households	Number of People (approx.)	Individual Household Toilets	Community Toilet Complexes
Ekta Vihar	JJ Cluster	DUSIB	1,856	4,000 +	0	1
Indira Camp	JJ Cluster	DUSIB	522	1,700 -1,800	Richer houses have toilets	1
Tigri Village	Rural Village	SDMC			Everyone has household toilets	0
Sanjay Camp	JJ Cluster	DUSIB	915		0	2
Dakshin Puri Extension	Unauthorised Colony	SDMC			Everyone has household toilets	

SANITATION SERVICES IN JJ CLUSTERS

EKTA VIHAR: JJ Cluster in R.K Puram where over 4,000 people use one Community Toilet Complex constructed approximately 20 years ago and is maintained by a family that lives in the JJ cluster. It remains open from 9 am to 10 pm and charges a fee ranging from ₹2 to ₹10. Users had several complaints with regard to the toilet such as an irregular cleaning schedule and restricted timings that sometimes force them to defecate in the open. Households within the cluster are not connected to the sewage lines and they do not get water supply. Furthermore, though Ekta Vihar is listed as a JJ Cluster on the DUSIB website, DUSIB officials claim that it no longer lies within its jurisdiction.

INDIRA CAMP: With a population of approximately 1,700-1,800, it is a relatively better off JJ Cluster. Richer households have constructed toilets within their homes and set up sewer lines by pooling money. However,

poorer households continue to use the sole Community Toilet in the area. Maintained by DUSIB, this toilet is both cheaper (₹1-₹3) and remains open for longer (4:30 am-10:30 pm) than the one in Ekta Vihar. Indira Camp is a good example of the viability of constructing Household Toilets in JJ Clusters. While the SBM encourages the construction of Household Toilets in unauthorised settlements or slum areas, the agency responsible for JJ Clusters in Delhi (that is, DUSIB) claims that the construction of these toilets does not fall within its jurisdiction.

SANJAY CAMP: Compared to the previous examples, Sanjay Camp has seen some progress since the launch of the SBM. Two Community Toilet Complexes were recently built by DUSIB to serve the needs of the 915 households in the area, charging a fee of ₹1-2. Before these were constructed, citizens of Sanjay Camp had to defecate in the open.

Maintaining clean and usable public toilets in Delhi

According to SBM Guidelines, a Public Toilet is a facility provided for the general public in areas where there is considerable footfall such as markets, train stations, tourist places, near office complexes, etc. States and ULBs have to ensure that a sufficient number of Public Toilets are constructed in each city, with facilities for men, women and the disabled.

Under the SBM, the Centre provides no financial support to the ULBs for construction of public toilets. Instead, the guidelines encourage participation from the private sector “to construct and manage public toilets through a PPP agreement”. The financial incentives for the private players will be the revenue generated from advertisements displayed on the toilets.

The Publicly Maintained Model

The ULB is responsible for the construction and maintenance of public toilets. Since these toilets are free of charge and do not have designated spaces to display advertisements, the ULBs do not generate much revenue under this model. As a

result, there is no incentive to ensure that the toilets are clean, sanitary and usable.

The Privately Maintained Model

The ULB outsources construction and maintenance of the toilet to a private firm on a BOT (Build, Operate, and Transfer) basis. The private firm that acquires the tender will construct the toilet using their own funds and maintain it for a minimum of five years. While the toilets are free of charge, they are constructed with designated spaces for advertisements and firms earn revenue from these. If the toilet is not maintained, the firm is at risk of losing the contract and the corporation will transfer the contract to a competing firm. As a result, there is an incentive to ensure that toilets are clean, sanitary and usable.

The findings of this study indicate that:

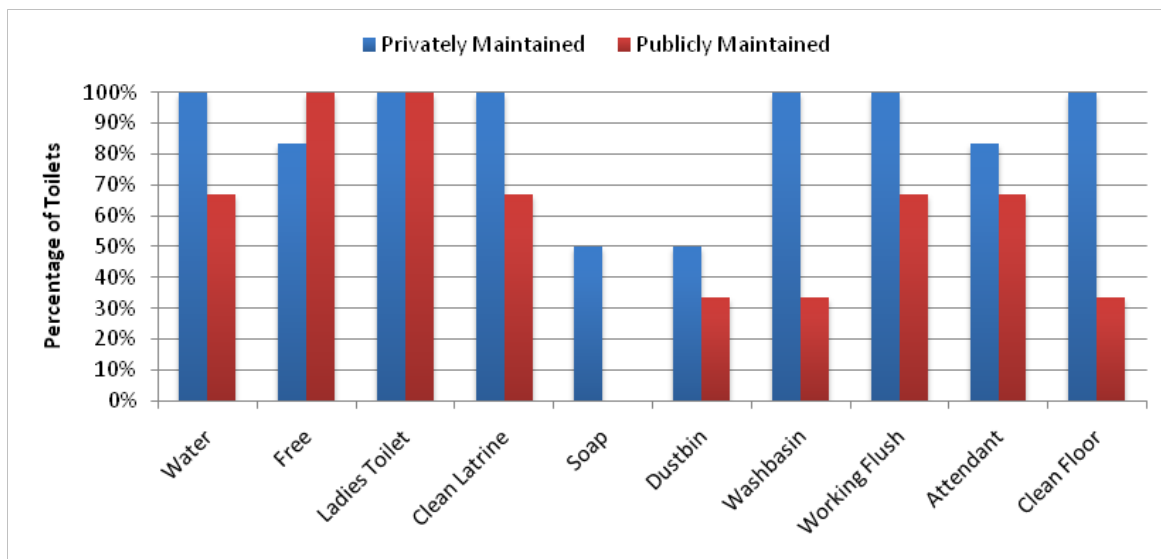
- Privately maintained toilets remain open to the public for longer hours each day.
- Availability of soap and dustbins are more likely in privately maintained toilets.
- Publicly maintained toilets are more likely to be free, while the privately maintained ones are more likely to be clean, and hence more usable.

Table 9: Targets for public toilet in Delhi

Number of Public Toilets built in Delhi (till 31 March 2016)	Number of Public Toilets required in the SDMC area (as of 7 April 2016)	Number of Public Toilets required in the NDMC area (as of 7 April 2016)	Number of Public Toilets required in the EDMC area (as of 7 April 2016)
1,120	5,318	3,311	2,508

Source: *The Hindu* 2016

Facilities Available at Public Toilets



Analysis and Recommendations

According to various public officials, governance in Delhi suffers from two basic problems: a) lack of political cooperation, and b) existence of multiple civic agencies. Coupled with these deficits in governance, the ‘Mission Guidelines’ that guide all SBM-related activities themselves suffer from policy weaknesses.

Why Budgets remain Unspent

Since the Centre allocated funds to each ULB in Delhi on the basis of the 2011 Census, an accurate assessment of how and where to use these funds could not be made. The top-down approach employed by the Centre failed to take into account the fact that the ULB(s) in Delhi are not

as powerful as other ULB(s) across the country, since water supply, sewerage and JJ Clusters do not fall within the ambit of their responsibilities.

Furthermore, ULB officials from the North, South and East Municipal Corporations claimed that while a sizeable sum of money had been assigned for the construction of Household Toilets, this money could not be utilised due to a “lack of demand or need for such toilets in their jurisdiction”. In fact, they claimed that the need for such toilets existed only within JJ Clusters, which lie within the jurisdiction of DUSIB.

There are several other restrictions on the use of the money provided under the SBM to the ULB(s). The funds provided under the SBM can only be used if the respective ULB raises its own share of

funds for the project, but most of the corporations do not have such fundraising capacity. Moreover, some of the ULBs already face a severe cash crunch and are unable to provide salaries for their employees (NDMC and EDMC) and thus any additional funds raised are first used to pay remuneration for their employees.

The SBM guidelines emphasise that funds can only be used for the development of “new assets” and not for the maintenance or upkeep of existing facilities. Thus the funds effectively remain frozen with the ULB.

Why JJ Clusters remain Un-Served

The bulk of the households which require Household and Community Toilets live in JJ clusters and slum areas. Due to Delhi’s convoluted governance structure, these do not fall within the purview of the ULBs. Instead, the jurisdiction of these areas rests under DUSIB, which is under the state government and not a ULB, and thereby not supposed to receive any funds from SBM. Money transferred to DUSIB has been in reaction to the non-utilisation of funds by the ULBs.

Such a discrepancy exists because SBM Guidelines have been applied unilaterally across the country. While ULBs in other states are powerful bodies with control over water supply, sewage and slums, ULBs in Delhi share overlapping responsibilities with the state government.

It is the Delhi Jal Board that has the authority to lay down sewer lines to

houses, without which toilets cannot function. The SBM does not provide any funds to the Delhi Jal Board for laying sewage lines. Even if Household Toilets were built, individuals would have to pay the Delhi Jal Board separately for laying sewage lines to their house.

The following recommendations aim to overcome Delhi’s complex governance structure by including all the relevant institutions and identifying a clear chain of responsibility and accountability for their implementation:

- 1 ULBs are authorised to use SBM funds for activities other than the creation of ‘new assets’, such as the maintenance of existing toilets and facilitation of the existing Municipal Solid Waste Management system.
- 2 DUSIB and the Delhi Jal Board are brought within the purview of the SBM.
- 3 The mandate of DUSIB is expanded to include building/facilitating Household Toilets.

A regulatory body is set up by the Centre to periodically evaluate the progress of construction and maintenance of toilets. Additional funding is approved by the regulatory body on the basis of performance and outcome.

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TRADE & COMMERCE

Assessment of the Delhi Shops and Establishments Act, 1954

Ragini Khurana, Priyasha Chawla, Tanay Raj Bhatt

EXECUTIVE SUMMARY

One of the main problems faced in the field of trade and commerce in Delhi is the stringent labour regime that governs it. This study analyses the relationship between labour laws and the ease of doing business in Delhi by examining the Delhi Shops and Establishments Act, 1954, and presents key findings from interviews conducted with the two main stakeholders of the sector: officials from the Office of the Labour Commissioner of Delhi, and shop-owners. Finally, it explores alternative models of organising worker-employee relationships.

On the whole, the study identifies a strong case for the repeal, or significant amendment of the Delhi Shops and Establishments Act, and argues that the Model Shops and Establishments Act, 2015 is an insufficient improvement. The study suggests that moving to a more flexible and pertinent labour regime can be achieved by adopting a labour welfare system based on contract law.

KEY FINDINGS

1. A key purpose of the Act is to collect data on the number of shops and establishments in Delhi, yet the information currently available with the government is inconsistent and unreliable. As per Economic Census of 2013, 8.93 lakh establishments were found to be operating in Delhi, which is in conflict with the figure obtained from the Labour Commissioner's office in Delhi which claimed that only 340,000 shops and establishments are registered under the Delhi Shops and Establishments Act 1954.
2. There is close to little awareness about the existence and provisions of the Delhi Shops and Establishments Act amongst shopkeepers interviewed. Despite this, there is a high degree of self-regulation amongst shopkeepers with regards to maintenance of registers, provision of workers' rights, etc.
3. A large majority of the shopkeepers interviewed claimed that they would not like to keep their shops open till late or open their shops on Sunday even if they were allowed to do so under law.
4. All provisions of the Act are covered by central laws governing employment, mainly the Minimum Wages Act and the Industrial Disputes Act, thereby rendering it redundant.
5. Certain provisions of the Act are excessively cumbersome and unnecessary, and therefore unenforceable. For instance, occupiers of establishments are required to notify the Chief Inspector in case of any change in the information that was provided in the registration form within 30 days of such change and give three days of advance intimation to the inspector when an employee is required to work overtime.

Introduction

Trade and commerce are the drivers of the modern international economy. They are essential, not only for growth and prosperity, but also for the mere survival of a society. These blanket terms include



everything from the local *kirana* store and *paanwala* to countries negotiating free trade agreements. In light of the prominence of this sector, the Government of India and the Delhi government have taken several initiatives to improve the ease of doing business in India. The need for these measures were highlighted by India's ranking as 142nd in the World Bank's *Doing Business Report 2015*, which examines the ease of doing business in 189 economies.

Businesses and traders in Delhi face several obstacles that limit their economic freedom, reduce the ease of doing business, and prevent them from expanding their capacities. Reforming India's business environment to make it easier and more attractive for firms to operate here is a priority for the government. In order to achieve this, it is imperative that there is an overhaul of the country's labour regulations.

Labour laws affect employment generation, productivity, profitability, and labour rights, and therefore have a significant role to play in a country's economic and social development. The anachronism of the static labour legislations in India becomes all the more evident when it is juxtaposed with the changes that have emerged in the nature of the workplace. The prevalence of part-time, temporary, home-based work, and self-employment; the shift to longer and unconventional working hours; and a decline of the regular working week are some of the phenomena that necessitate a review of the current approach to regulating work. Labour laws should no longer be viewed merely as a negative restraint on the employers' powers, but as an enabling medium of achieving worker and business

efficiency and supporting the development of a competitive and successful economy (Mitchell 2007).

Labour Regulation in India

Indian labour laws have been characterised by three main features: they are numerous, over-lapping, and ineffective. According to a report by FICCI (Note on Labour Policy Reforms 2014), there are around 44 central and 100 state laws governing labour in India. The abundance of labour laws can partly be attributed to the fact that the constitution lists labour under the concurrent section, which means that both the state and central governments have the power to legislate on it. Both levels of government have used this power extensively, which has resulted in a “maze of overlapping rules, regulations, compliance requirements and regulatory authorities” (Arvind 2014, 3). A second reason for this multiplicity is the piecemeal way in which these regulations were formulated. Each new law came up in response to some specific need for regulation. Since these laws were drafted independently of each other, not only did labour regulation proliferate, but also provided various, and often contradictory definitions of the same terms (The Challenge of Employment in India 2009). This behemoth of regulations is undesirable and has several repercussions for both firms and employees.

The Firms

Over-regulation of business can stifle growth, as firms get caught in keeping track of various laws and obligations—a task that costs them time and money. The existence of very specific and trivial obligations also

increases the probability that firms will end up not fulfilling some requirement or the other, albeit unintentionally. This makes businesses more vulnerable to harassment and extortion by inspectors (Pachauri 2014). Combined, these factors incentivise firms to restrict expansion and function in the informal sector in order to circumvent over-regulation, a fact that has been proven by Besley and Burgess (2004) in their study on the relation between state-level labour regulations and employment in the formal manufacturing sector.

The Workers

The rigidity and abundance of labour laws has led to the increasing informality of the labour market—94% of Indians work in the informal sector—countervailing the very purpose of the laws. According to the World Bank, labour regulations that are too strict or too loose can be counterproductive as they could lead to losses of employment. A 2013 study by Hasan, Mitra and Sundaram shows that, “India uses more capital-intensive techniques of production than predicted by its level of development” (Hasan et al 2016, 22). Conversely, another study finds that labour reforms leading to more flexible labour requirements could increase employment in Indian retail stores by 22% of the current level for an average store (Amin 2015).

Given these factors, it is certain that labour reforms will benefit both firms and workers in India.

The Central government has already taken heed of the situation described above and initiated the process of simplifying the

labour laws of the country. The table below enlists some of the reforms that have been proposed by the government so far. As emphasized by Department of Industrial

Policy and Promotion Secretary Amitabh Kant however, “the big ticket labour changes are still due” (PTI 2015, 29).

Reforms in India’s labour laws

ACT	PROPOSED AMENDMENTS
Labour Code on Industrial Relations Bill, 2015	Integrates three laws- Trade Unions Act, 1926; Industrial Employment (Standing Orders) Act, 1946 and Industrial Disputes Act, 1947;
	Employers with up to 300 workers would not require government permission for retrenchment, layoffs, closure;
	30% of workers required to sign for creation of labour union against current requirement of 10%.
Labour Code on Wages Bill, 2015	Integrates four laws- Payment of Wages Act, 1936; Payment of Bonus Act, 1965; Minimum Wages Act, 1948; Equal Remuneration Act, 1976.
The Small Factories (Regulation of Employment and Conditions of Service) Bill, 2014	Exempts small factories with up to 40 workers from 14 labour laws including Factories Act, Industrial Disputes Act, Shops and Establishments Act.
Child Labour (Protection and Regulation) Amendment Bill, 2012	Children below 14 years of age are allowed to work in family enterprises.
Contract Labour Act	Exempts companies employing less than 50 workers from provisions of the Act.
Employees Provident Fund and Miscellaneous Provisions (Amendment) Bill	Positions National Pension System as alternative to Employees’ Provident Fund.
Payment of Bonus (Amendment) Bill, 2015	Raises salary ceiling for bonus payments to ₹ 21,000 per month.
Maternity Benefits Act, 1961	Increases maternity leave to 28 weeks from current 12 weeks.
Arbitration and Conciliation (Amendment) Bill, 2015	Sets 12 month time-limit for arbitrators to rule on disputes
Model Shops and Establishments Act, 2015	Allows shops to stay open 24x7

Delhi Shops and Establishments Act (DSEA), 1954

Of the laws that have been listed in the table above, only the Shops and Establishments Act is a state law. The purpose of the act is to regulate the conditions of service of employees in shops and establishments, with the Act defining what qualifies as a shop or establishment.

The main provisions laid down under the Act pertain to the following categories:

- i) Registration of establishments
- ii) Maximum working hours
- iii) Conditions of payment of wages
- iv) Payment of overtime wages
- v) Intervals for rest and meals
- vi) Procedure for dismissal of workers
- vii) Restrictions on employment of women and young persons (defined under the Act as those aged between 12-18 years)
- viii) Opening and closing hours of establishments
- ix) Compulsory weekly close day
- x) Maintenance of records listing out details of employees as well as their conditions of employment
- xi) Cleanliness, lighting, ventilation and precautions against fire in the workplace

Section 4 of the Act gives the State Government power to exempt an establishment or a category of establishments from some or all provisions of the Act, a power that has been used liberally. Schedule 1 of the law lists the establishments that have obtained exemption under the Act, the obligations from which they are exempted

and the validity of this exemption.

The enforcement of the Act is the responsibility of the Chief Inspector of Shops and Establishments, an office that is usually ascribed to a Deputy Labour Commissioner of Delhi, according to the System Analyst of the Office of the Labour Commissioner, Delhi. In addition, nine district inspectors are appointed under the Act, who are accountable to the Deputy or Assistant Labour Commissioner of their respective district (Government of NCT of Delhi 2014).

The Delhi Shops and Establishments Act contains most of the flaws that characterise India's labour regime in general. The Act, which was passed in 1954, has not been amended since and has therefore lost much of its relevance in the prevailing environment. Moreover, it allows for little flexibility in deciding the conditions of work. And finally, several provisions of the Act overlap with or contradict similar provisions in other laws. The following section seeks to examine these deficiencies in greater detail. The section is based primarily on insights gained from an interview with a former Deputy Labour Commissioner of Delhi.

The DSEA derived its relevance from three main provisions:

1. Opening and Closing Hours:

Section 15 of the law provides for compulsory opening and closing hours for shops and establishments. According to the former

Commissioner, these timings became a way for the government to deal with the power shortages in Delhi. Shops were required to shut down around the time that people came home from work, so that demand could be controlled and scarce electricity could be supplied to households.

2. Compulsory Close Day:

The DSEA was the only Act that mandates a compulsory close day for establishments under Section 16. However, with shopping malls being allowed to stay open all seven days of the week and the rise of e-commerce firms, these provisions increasingly disadvantage traditional shops against their new competitors. Interestingly, most of the exemptions granted by the government under the Act relate to Sections 15 and 16, which is in itself an indicator of the impracticality of these provisions.

3. Registration:

The Act prescribes the registration with the Chief Inspector of Shops and Establishments under Section 5. The provision was included primarily to meet the government's need for data on the number of shops in Delhi and the number of people employed there. Since 2009, registration has been shifted online. However, there was never any procedure for verification of the information provided via the registration form, which means that a registration certificate can be obtained even with fictitious or false information. This has led to several discrepancies over the years.

Relevance

Originally, registration under the Act was to be renewed every year, but the validity of the certificate was continuously extended, given the tediousness of renewal, and stands at 21 years today. According to the former Commissioner, registration certificates issued under the act were misused by people, especially in the Chandni Chowk and Mori Gate areas of Delhi, to attain commercial status for their residential properties. This led the government to keep the requirement of registration under abeyance in November 1989. But the need for data resurfaced and the government decided to make registration mandatory once again. Unfortunately, the concerns about authenticity persisted, a fact that came up in our interview with the System Analyst at the Office of the Labour Commissioner of Delhi. He informed us that 340,000 shops were currently registered, but there was no way to be sure the data was reliable. Even assuming the number to be genuine, he admitted that it was a gross under-estimation of the actual number of establishments in Delhi. Therefore, it is safe to say that the data collection purpose of the Act has been largely unsuccessful.

Overlap and Redundancy

Brown (1994) defines “overlap” as a situation where we have more than one government operating in the same policy

domain. Such overlap is quite evident in the case of the DSEA and results in redundancy, which means that the involvement of an additional level of government is of no benefit at all. Apart from those mentioned above, all provisions of the Act are covered by central laws governing employment, mainly the Minimum Wages Act and the Industrial Disputes Act.

Minimum Wages Act, 1948

- Article 13 of the Act provides for fixing the maximum number of working hours in a day, inclusive of specified intervals of rest, and for a compulsory day of rest in every period of seven days. Rule 24 of Minimum Wages (Central) Rules, 1950, sets the maximum working hours at nine hours for adults.
- Article 14 of the Act provides for the payment of overtime wages, while Rule 25 of Minimum Wages (Central) Rules, 1950, states that overtime is to be given at double the rate of ordinary rate of wages.
- Article 18 of the Act provides for the maintenance of registers enlisting the particulars and conditions of work of employees.

Industrial Disputes Act, 1947

- The Act provides for compensation of workers in case of lay-offs or retrenchment and also provides an institutional mechanism to resolve disputes arising between employers and employees.

Furthermore, several laws, such as the

Factories Act, 1948, the Shops and Establishments Act and the Payment of Wages Act, 1936 provide for nearly the same rights but for different classes of workers. This is indicative of the piecemeal nature of Indian labour legislation. Integration of these several laws under a common comprehensive law would simplify the labour regime and make enforcement easier.

Unenforceability

Finally, certain provisions of the Act are excessively cumbersome and unnecessary. For instance, occupiers of establishments are required to notify the Chief Inspector in case of any change in the information that was provided in the registration form within 30 days of such change, and give three days of advance intimation to the inspector when an employee is required to work overtime. Thus, it is not only inevitable but also desirable that the Act remain unenforced, for if these obligations were to be fulfilled, they would suffocate business.

The impracticability of the laws has been recognised by the government itself and has prompted it to largely do away with inspections required under the law and move to complaint-based enforcement instead.

The Central Government has also responded to the irrelevance of the Act by introducing the Model Shops and Establishments Act, 2015, the provisions of which have been examined in the box below.

THE MODEL SHOPS & ESTABLISHMENTS ACT

The Model Shops and Establishments (Regulation of Employment and Conditions of Service) Act, 2015 was formulated by the Ministry of Labour after three-way consultations between the government, trade unions and employers' associations (AK 2016). It was approved by the Cabinet on 29 June 2016 and will function as a recommendation to all states, which can choose to adopt the law as it is, or amend it. So far, states like Rajasthan, Maharashtra and Gujarat have moved towards aligning their respective Shops and Establishments Acts with the Model Act.

The Model Act has done away with some of the superfluous and irrelevant aspects that exist in the Delhi Shops and Establishments Act:

- Registration under all labour laws integrated by the introduction of the *Shram Suvidha Portal*, which requires firms to obtain a unique Labour Identification Number.
- Women have been allowed to work night shifts i.e. between 9 pm and 6 am on the conditions that the employer provides a rest room, a night crèche, a ladies toilet and transportation from place of work to the female employee's residence.

- Has allowed for work to be organised in shifts.
- Allows shops to remain open on all days of the week.
- Requires that the workplace provide drinking water, urinals and latrines, crèches, canteens and first aid.
- Has replaced inspectors with facilitators.

While these are definitely steps in the right direction, the Model Act has not gone far enough. It continues to dictate the terms of work as well as the nature of the relationship between employers and employees to a large extent. It sets down the maximum working hours as well as the permissible amount of overtime; it continues to require the maintenance of registers and records, and explicitly details the leaves that workers have a right to. In the last section of this paper, we investigate whether it is possible to have a labour regime wherein employers and employees have the flexibility to negotiate on all the terms of work, while also ensuring that workers' rights are protected.

Comparison of the Delhi Shops and Establishments Act and the Model Shops and Establishments Act

SECTION	PROVISION	OVERLAP WITH	MODEL SHOPS & ESTABLISHMENTS ACT
Section 5	Registration	Registration required under DVAT Act, 2014	Common online registration on <i>Shram Suvidha Portal</i> to obtain Labour Identification Number
Section 8	Hours of Work	Minimum Wages Act, 1948	Same as DSEA, 1954
Section 8	Overtime Wages	Minimum Wages Act, 1948	Same as DSEA, 1954
Section 10	Intervals for rest and meals	Similar provisions in the Factories Act, 1948, but covers only workers in factories, not those in shops and establishments	No provisions
Section 14	Restrictions on work of young persons & women	None	Women allowed to work in night shift provided certain conditions are fulfilled by the employer
Section 15	Opening and Closing hours	None	No provisions
Section 16	Close Day	None	Shops and establishments allowed to stay open on all days of the week
Section 17	Weekly Holiday	Minimum Wages Act, 1948	Same as DSEA, 1954
Section 19, 20, 21	Payment of wages and related claims	Minimum Wages Act, 1948, Payment of Wages Act 1936 (does not cover workers in shops and establishments) & Industrial Disputes Act, 1947	No provisions
Section 22, 23	Leave	Similar provisions in Factories Act, 1948	Same as DSEA, 1954
Section 25, 26, 27, 28	Basic conditions of work	None	Adds provisions for drinking water, latrines and urinals, crèches, first aid and canteens, but no specifications for fire safety, lighting and ventilation as these have been replaced by a general obligation to protect the health and safety of workers
Section 30	Dismissal	Industrial Disputes Act, 1947	No provisions
Section 33	Maintenance of Records	Minimum Wages Act, 1947	Gives state governments the power to prescribe maintenance of registers & records

Exploring the Field: Methodology, Assumptions and Limitations

With an objective to assess the degree of efficiency of the Act, a field study was conducted on the basis of the following premises:

- 1 Awareness and the extent of enforcement of the Act with respect to
 - i) Registration and renewal of registration of shops and establishments under the Act.
 - ii) Prominent display of certificate of registration in the premises of the shop or establishment.
 - iii) Maintenance of records and registers as prescribed under Section 33 of the Act by the occupier of shop or establishment.
 - iv) Opening and closing hours dictated by the government.
 - v) Compulsory close day for certain shops and establishments and.
 - vi) Inspections of shops and establishments conducted by labour inspectors appointed under the Act.
- 2 The extent to which following the provisions of the Act confine the ease of doing business for owners of shops and establishments in Delhi.

For the purpose of collecting primary data, in-depth personal and email interviews were conducted of owners of shops and establishments in Delhi as well as government officials at the

Labour Commissioner's office. Secondary information was collected from sources available online such as the Economic Survey of Delhi 2014-15.

25 owners of different shops and establishments were interviewed to gauge the present-day situation and get an array of opinion (Questionnaire attached in Appendix 1). The shopkeepers interviewed were based in four areas: Chandni Chowk, Connaught Place, Sadar Bazaar and Rajouri Garden. The areas were not selected randomly and are therefore not statistically representative of the shops and establishments in Delhi. The aim of the field research was to get a qualitative idea of the current situation in Delhi, which is why shopkeepers in the central trading districts of Delhi were chosen. The field study is not quantitative in nature.

The **limitations** of this paper could include:

- 1 The possibility that information shared by shopkeepers in personal interviews was not accurate.
- 2 The conversational nature of the interviews which did not follow a strict structure. Therefore, there was not a high degree of uniformity in the way questions were posed in the personal interviews.
- 3 In some cases, sensitive questions were posed in an indirect manner to shopkeepers. Consequently, we had to deduce the answers on the basis of responses to indirect questions.

Findings and Analysis

- As per Economic Census of 2013, 8.93 lakh establishments were found to be operating in Delhi. These exclude the 911,697 unincorporated trade and service sector enterprises. This is in conflict with the figure obtained from the Labour Commissioner's office in Delhi. As per the Senior System Analyst at the office, only 340,000 shops and establishments are registered under the Delhi Shops and Establishments Act 1954. Since the online registration process introduced in 2009 lacks any mechanism to attest the information provided during registration, the database lacks authenticity and validity.
- 9 out of the 25 shop owners interviewed said they did not get their shops registered under the Delhi Shops and Establishments Act 1954 since it was not mandatory according to them.
- Out of the 16 shop owners who said they had gotten their shops registered under the Act, only 4 said that they had displayed the registration certificate in their shops since it was compulsory for them to do so under the law.
- The Act requires shops and commercial establishments to apply for renewal of applications every 21 years since the validity of the registration certificate expires after that period. However, although 20 shop owners alleged that they have been running their shops for over 21 years and 16 confirmed that they had registered their shops under the Act, only 2 admitted to have applied for renewal of registration certificate.
- When asked whether they would open their shops for longer hours if the government no longer dictates the opening and closing hours of shops and commercial establishments, only 3 of the shop owners interviewed said that they would. Those who said they would not do so reasoned that since the entire market closes down at the same time, it would not be profitable for them to keep their shop open till late.
- Majority of the shop owners keep their shops closed on one day of the week. All these shop owners claimed that they take a day off because of personal reasons and not because they are bound to, by law.
- More than half of the total shop owners maintain daily records and registers as prescribed under Section 33 of the Act. All of them do so because they feel it simplifies the process of keeping track of their workers and hence it is beneficial and not because it is a mere obligation.
- While the Act provides for appointment of one Labour Inspector in each of the nine districts of Delhi, 16 shop owners confirmed that no Labour Inspector visited their shop to conduct an inspection. Information obtained from the government officials at the Labour Commissioner's office revealed that inspections are conducted only when a complaint is filed by a worker.

These findings lead to the following deductions:

a) Lack of awareness

There is little to no awareness about the existence and provisions of the Act amongst shop owners interviewed. A lot of shop owners do not comply with the provisions of the Act and those who do, do so because it is in their best interest.

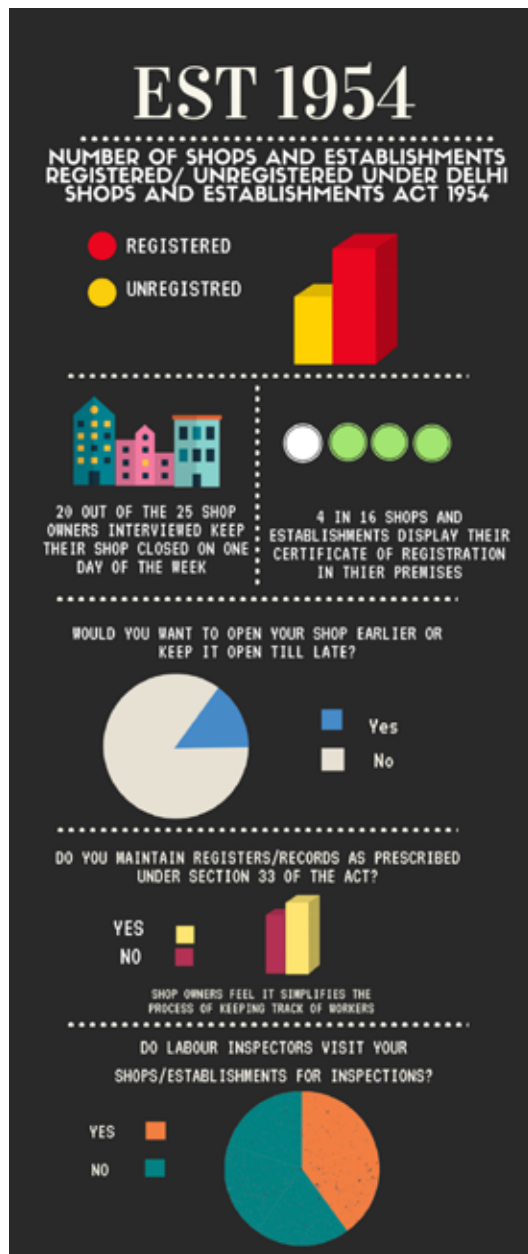
b) Self-Enforcement

As pointed out above, certain obligations under the Act, such as the maintenance of registers and closing of shops once a week, are observed by shop keepers as matters of practicality and self-interest. Thus, there is little need for a law necessitating these practices. Moreover, for shops employing two or three employees, provisions about maintenance of registers and similar regulations were meaningless.

c) Invalid Database

The only purpose that registration of shops and establishments under the Act served was to develop a database of the number and category of the shops and establishments operating in Delhi. However, the online system of registration introduced in 2009 lacks a mechanism to verify the information provided by the occupier of shop/ establishment. As a result, the online database fails to serve its purpose and gives a false picture of the current situation in Delhi.

From these interviews, it became clear that, for standalone shops in central trade districts of the city, the Delhi Shops and Establishments Act holds no relevance.



LABOUR FREEDOM & EMPLOYMENT CONTRACTS: THE SWISS MODEL

The Global Competitiveness Index measures the set of institutions, policies, and factors that set the sustainable current and medium-term levels of economic prosperity (Schwab 2016). One of the factors on which the competitiveness index is measured is “labour market efficiency” and Switzerland has been securing first rank in overall competitiveness as well as labour market efficiency consistently. Switzerland is also ranked among the top five countries with highest level of economic freedom by Heritage Foundation, which maintains Economic Freedom Index (Index of Economic Freedom: Country Rankings 2016).

Swiss labour legislations are not codified. A distinction can be drawn between private labour law, whose provisions pertain to the employment contract, public labour law, which imposes minimal standards for worker protection, and collective labour law. Collective agreements and standard contracts play a key role. Employment contracts are governed by Articles 319-362 of Code of Obligations. Moreover, the scope and applicability of collective agreements are also laid out by the Code of Obligations. The collective labour law is just governed by two provisions viz. the provisions for collective labour agreements and industrial disputes. No special form is required for an individual employment contract. However, when the duration of employment relationship is unlimited or of more than one month, the employer must inform in writing to the worker about specified work conditions such as name of the parties, the date of the beginning of the employment relationship, job description, salary conditions and weekly number of work hours. All these provisions are agreed upon and set by the parties to the contract. On the contrary, basic legislations regarding protection of workers, employment-worker relationship, unemployment assurance and social security are set by the Confederation. Moreover, the constitution prohibits manoeuvres like discrimination on any ground and payment of unequal wages for equal work. It also guarantees free choice of occupation and free access to an economic activity (Peterson and Muller 2007).

Conclusion and Recommendations

As discussed above, the Model Shops and Establishments Act does address some of the weak points in the Delhi Shops and Establishments Act, but like most other labour reforms being undertaken, it reflects an outdated and patronising approach to securing labour welfare, with the government largely dictating the conditions of work. Currently, shop or establishment owners in Delhi face three major problems with regard to labour:

- i. Variation in demand for labour
- ii. Lack of skilled labour
- iii. Lack of flexibility in hiring

On the other hand, the major concern of workers in shops and establishments is poor wages. But neither the present Act, nor the Model Act adequately addresses this issue. Moreover, the attempt by the Acts to dictate the conditions of work is misguided and unlikely to result in a situation beneficial to both workers and employers. Terms and conditions of work are not something which can, or should, be imposed upon the shop owners or workers. Instead, they should be negotiated and agreed upon directly by the concerned parties. The sequence and system of affairs must be left at the discretion of the direct parties involved (Epstien 1995). This negotiation and agreement between the shop owner and the workers would entail a legal contract. And it is perhaps a better way to go about employer-worker relationships, as it gives greater autonomy to the parties who are directly involved in the framework.

Moreover, this would also account for the issues actually faced by shop owners and their employees, such as those discussed above. Setting up a new contract-based system would also reduce administrative costs that have to be borne by the government in order to implement these terms on the one hand and on the other, set desirable incentives for both the parties (Epstien 1995).

Certainly, the government can and should set some customary rules to ensure that parties select only that sequence of affairs which minimises the likelihood of breach of contract by either party, but that should be the limit of government intervention.

The idea of repealing such legislation on shops or establishments may sound outrageous, but there are instances where such steps were taken. Britain is perhaps the most illustrative example. Until 1950, nine to ten legislations regarding opening or closing of different types of shops persisted in Britain. These were repealed and replaced with the Shops Act 1950, an act similar to the Shops and Establishments Acts. By the end of 1994, the Shops Act was repealed and replaced with the Deregulation and Contracting Out Act, 1994.

An application of a law of contract would be a better alternative than any Model Shops Act for the sole reason that the entire approach behind a contract-based system is far more innovative, yet simpler to enforce.

Looking at the Bigger Picture

Labour legislation can essentially be distinguished as collective labour law, individual labour law and labour standards. Individual labour law pertains to relationship between an individual employer and a worker. Collective labour law pertains to a group of employees. Labour Standards are statutes regarding protection of workers and related issues. An ideal labour regime would be so designed that it is based on individual labour law, regulated through minimal labour standards, while providing for collective labour law in certain areas. This approach towards labour legislation would ensure a higher degree of labour freedom which is positively correlated with labour market efficiency. On the contrary, economies with tighter labour standards and more collectivist laws such as India tend to have weak labour markets.

Individual labour laws provide a better labour regime because each individual member of society has a different set of needs, views and objectives. The rules set by the government are based on a single set based on its understanding of individuals in a society. However, this single set would never be able to satisfy each and every individual that is a part of the society. In fact, it will satisfy a very small share of individuals whose set of needs, views and objectives happen to coincide with that of the “model individual” that the government assumed for laying out the rules which are now being imposed over individuals who are far different from each other. The status quo is so that the government can function efficiently only so far as it plays the role of a mediator, allowing the members of society to set the rules



themselves by directly interacting with each other and thereby reaching a negotiation which satisfies both ends.

The problems discussed in this paper would be addressed to a significant extent if one could alter the composition of labour legislations from a static set of rules to a dynamic decision-making process directly involving the parties which are most concerned. The most rudimentary attribute of a contract is that it treats the parties involved as equals, ignoring the respective roles they play

in a society. It would then not matter to the law that one end of this contract is employer and the other is employee. Opponents of contract law argue that ignoring the inherent features of social relationships could never lead to a thorough understanding of how labour markets work, but they fail to address the fact that treating the parties involved as equals would imply that these parties act in their self-interest, rather than leaving the employee at the disposal of government to direct the employers actions (Epstien 1995).

APPENDIX 1: Questionnaire

- 1 Since when have you been running the shop/establishment?
- 2 Is the shop/establishment registered under Shops and Establishment Act?
- 3 Is the Certificate of Registration (obtained under Delhi Shops and Establishments Act 1954) displayed in the shop?
- 4 Have you applied for renewal of registration?
- 5 Did you get the shop/establishment registered online or offline? Did you do it yourself?
- 6 What are the opening and closing hours of the shop?
- 7 If you were allowed to open earlier and stay open till late, would you do that? If not, why?
- 8 Do you have a close day? If yes, have you applied for an exemption? Why do you prefer to close your shop/commercial establishment on one day of the week?
- 9 Do you maintain records to keep a track of your workers (leaves, in and out time etc)? Do you think maintenance of records is beneficial for you and the workers working under you or it is a mere legal obligation?
- 10 Do you have inspections by Labour Inspectors? How often do they visit your shop/commercial establishment?

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URBANISATION

Housing for Low-Income Migrants and the Impact of Delhi Rent Control Act, 1958

Parnika Barara, Razi Iqbal, Shaurya Arora

EXECUTIVE SUMMARY

The Delhi Rent Control Act was enacted in 1959. Though there may have been justification for such a legislation at the time of its constitution, today its provisions are markedly obsolete, violating Articles 14, 19(1) (g) and 21 of the Constitution due to changed circumstances (Jain 2012). This paper seeks to address the issue of housing through an analysis of Delhi Rent Control Act, 1958 and its impact on the housing industry in Delhi, particularly for poorer migrants.

The study finds that there is an acute need to balance the rights of the tenants and the landlords. It argues that if rents remain shackled to low levels and eviction of tenants remains difficult, the desired results will not be achieved. Finally, it analyses the Draft Model Tenancy Act, 2015 as a solution to the problems created by the Delhi Rent Control Act, 1958. The paper finds that the adoption of the MTA would establish a better framework for regulation of rent by balancing the rights and responsibilities of landlords and tenants, and provides for faster adjudication in resolving disputes.

KEY FINDINGS

1. Every year 78,000 people move to Delhi in search of economic opportunities and to elevate their socio-economic status (Planning Department 2013).
2. 3 types of unplanned settlements house nearly 40% of Delhi's population: Slum Designated Areas, Jhuggi Jhopri Clusters and Unauthorised colonies (Heller, et al. 2015).
3. The provisions dealing with standard rent do not take into account the ever-rising consumer price index and the huge costs required for maintaining the tenanted premises.
4. The increase in rent under Section 6A is not commensurate with the dwindling value of rupee. There is a huge difference between the value of rupee in 1939, 1944, 1947 and 1958, etc. on one hand and its present estimation.
5. There is also no justification for not updating the near-frozen rents in view of the returns from alternative investments. Frozen rents and difficulty of securing eviction of tenants have resulted in illegal transactions like 'key money' and pugree.
6. Section 14 of the Act, which deals with protection of tenants from eviction, implicitly turns a contractual contract into an obligatory one, and jeopardises the right of the landlord to act according to his own wishes with respect to his property.
7. Every year 10,000 fresh cases are registered under the Delhi Rent Control Act 1958, and 10.5% of all cases pending before districts courts are a result of this Act (Garg 2016).

Shortage of Low-Cost Housing

Efficient supply of housing for migrants in the city is a matter of paramount importance since failure in housing provision leads to illegal settlements which lack basic facilities like sewage systems, electricity, water supply, and waste disposal. There are seven categories of unplanned settlement as per the government of Delhi, out of which three (Slum Designated Areas, *Jhuggi Jhopri* Clusters and Unauthorised colonies) house nearly half of Delhi's population. Number of *Jhuggi Jhopri* Clusters (JJC) in Delhi is approximately 675 (Heller et al. 2015).

Developing affordable housing in Indian cities faces significant challenges due to economic, regulatory, and urban issues. While lack of availability of land, rising costs of construction, and regulatory issues are supply-side constraints, access to housing finance on the part of low income groups is a major demand-side constraint. The above factors lead to unplanned housing on the periphery of cities, like *Jhuggi Jhopri* Clusters and slums.

The shortage of urban land for housing has been exacerbated by poorly conceived national and local policy frameworks. In Delhi, the development of land and marketability of land parcels becomes difficult due to overlap of jurisdictions among organizations such as DDA, NDMC, MCD and PWD.

Regulatory mechanisms also inhibit the growth of low-cost housing in Delhi. Real estate development has to

undergo a lengthy approval process which results in escalating construction costs. India is ranked 177 out of 183 countries with respect to dealing with construction permits (Doing Business Index, World Bank).

Private developers, due to the above factors, have focused on luxury and high-income housing, leaving the development of housing for LIG (Lower -Income Group) and EWS (Economically Weaker Sections) to the government. At the same time, government agencies have been unable to cope with the rising demand for housing, leading to growth of slums and JJC (Jones Lang Lasalle 2011).

In urban India, 1.2 crore completed homes are lying vacant while at the same time, the present urban housing shortage is at 1.88 crore units (Ministry of Finance 2014-15). The number of houses vacant in Delhi is 26,759 (Sharma 2016).

Investors control the real estate market in India. The nature of this activity results into increase in housing demand owing to investment. However, increase in house ownership does not lead to increase in availability. The rental yield (i.e. annual rent dividend by the market price of the home) currently varies between 2-4% (Kaul 2015). Hence, the return is not good enough to compensate for the risks involved in letting the house out on rent.

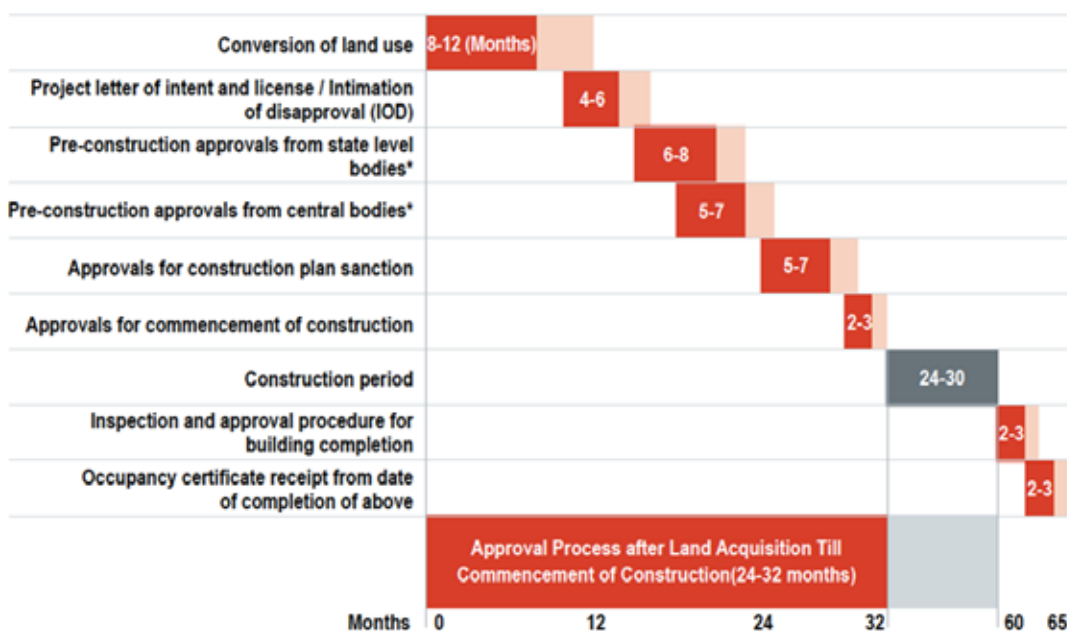
It has been estimated that between 2003 and 2012, the total amount of black money leaving the country jumped from

\$10.1 billion to \$94.8 billion (Kar and Spanjers 2015), a jump of more than nine times, and that a lot of this black money has found its way into real estate, due to the ease of parking it there. This has pushed up real estate prices.

About the Study

Provision of low-cost housing for EWS has been one of the biggest bottlenecks to sustainable urbanisation in Delhi. The current housing deficit in India is 22 million units, 95% of which is in

the EWS section (PTI 2015). The policy focus so far has been to improve the living conditions of those in unplanned housing, rather than a forward-looking approach which tackles the root of the problem. While provisioning of basic services to JJsCs and slums is an important mandate of DDA and DUSIB, it is imperative to look at the lacunae in regulations and working of the real estate sector for a holistic approach towards the solution.



Source: CREDAI-Jones Lang LaSalle Real Estate Transparency Survey 2011

Note: The stages - Pre-construction approvals from state-level bodies and central bodies can happen simultaneously

Delhi Rent Control Act (DRC), 1958

The Delhi Rent Control Act 1958 seeks to “provide for the control of rents and evictions”. The DRCA has been amended six times since its inception, most recently in 1988. Due to the archaic nature of the law, which gave more than proportionate rights to tenants and was deemed to be out of sync with the needs of a healthy housing market in the city, the Delhi Rent Act 1995 was passed. The proposed Act obtained the assent of the President but could not be notified due to opposition from various stakeholders viz. tenants. Subsequently, it was decided that the Act would be brought into force after certain amendments. The Delhi Rent (Amendment) Bill, 1997 was introduced in Parliament but could not be passed because of the dissolution of the 11th Lok Sabha. In March 2012, in a meeting between the Government of the National Capital Territory of Delhi and the Union Ministry of Urban Development, it was decided that a new Bill was to be drafted and placed in the public domain for discussions. The Delhi Rent Act, 1995 was to be repealed through the Delhi Rent (Repeal) Bill, 2013. The Delhi Rent (Repeal) Bill, 2013 was introduced in the Rajya Sabha on 29 August 2013 by the Minister of Urban Development, Mr. Kamal Nath (PRS Legislative Research 2013). The Delhi Rent Control Act, 1958, with amendments, is thus still in force.

The Act was supposed to serve two main purposes:

- 1 To protect the tenant from eviction from the house where he is living except for defined reasons and on defined conditions; and
- 2 To protect him from having to pay more than a fair/standard rent.

The Delhi Rent Control Act 1958 is, thus, skewed towards tenant protection, and is an archaic law aimed at controlling rents in the capital. It tries to protect tenants from eviction and from having to pay more than a fair/standard rent amount.

In 2015, the Ministry of Housing and Urban Poverty Alleviation tabled the Model Tenancy Act in Parliament. The Model Tenancy Act proposes to establish a framework for the regulation of tenancy matters (residential and commercial) and to balance the rights and responsibilities of landlords and tenants, including a provision of fast adjudication process for resolution of disputes. It is envisaged as a Model Act to be adopted by state legislatures across the country. Aligning their rent control laws with the Centre’s Model Act is one of the mandatory provisions for states under the ‘Housing for All’ scheme.

HISTORY OF RENT CONTROL LEGISLATION IN INDIA

**Bombay's Rent Control Act 1918 was passed
Calcutta and Rangoon passed their rent controls in 1920**



**Outbreak of the Second World War led to
Defence of India Rules, 1939**



**Provisions of Punjab Urban Rent Restrictions Act, 1941 were
implemented in 1942**



Defence of India Rules, 1944 supplemented the previous Act



The Delhi and Ajmer-Merwara Rent Control Act, 1947



**Parliament passed Delhi Rent Control Act, 31 December 1958
This was enacted on 9 February 1959**



**1988 Amendment in DRC Act, 1958 adding Section 6A which
allows 10% increase in standard rent every three years**



**DRC (Amendment) Bill 1997 was introduced in the Parliament but
was NOT passed**



Repeal to the Delhi Rent Act, 1958 was introduced in 2013



**Ministry of Housing and Urban Poverty Alleviation tabled the
Model Tenancy Act in the Parliament**

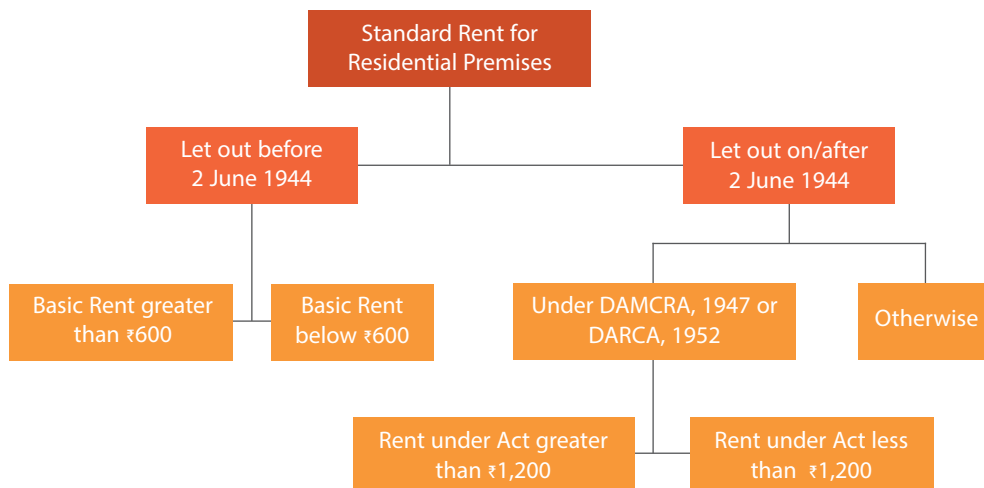
Fixing Standard Rents for Residential Premises

Section 6(1)(A) deals with the fixing of standard rents for residential premises. It creates a distinction between residential properties: those let out before 2 June 1944 and those rented out after. For the former, the standard rent is fixed at the value of the basic rent for properties whose basic rent was less than ₹600. If rent was greater than ₹600, then standard rent is basic rent plus 10% of basic rent.

For properties let out after 2 June 1944, there is another sub-distinction made: those whose rent had been fixed under the Delhi and Ajmer-Merwara Rent Control Act, 1947, or the Delhi and Ajmer Rent Control Act, 1952; and those properties which were not.

For the ones under the Acts of 1947 and 1952, the standard rent is the rent as fixed under those Acts if the rent was less than ₹1,200. For rent above ₹1,200, the standard rent will be the base value plus 10% of such rent. If the property does not come under either of the two Acts, then standard rent will be 7.5% of 'reasonable cost of construction' plus market price of the land, but if such calculation results into standard rent of more than ₹1,200, the standard rent will be 8.25% of the same.

The Act makes further sub-divisions in Section 6(2). For premises constructed on or after 2 June 1951 but before 9th June, 1955, annual rent for the month of March, 1958; or if property was not let out at that



point of time, rent when the premises was last let out shall be the standard rent for seven years from the date of completion of such premises.

For premises constructed after 9 June 1955, rent agreed upon between landlord and tenant when the premises was first let out shall be the standard rent for five years.

Lawful Increase in Standard Rent

Section 7 of the Act permits increase in rent only in the event of the landlord incurring any expenditure on improvement, addition or structural alteration in the premises and that too with the approval of the Rent Controller. The lawful increase cannot exceed more than 10% of such cost, a figure raised from 7.5% in 1988.

By far the most contentious part of this Act is Section 6A, an amendment (Act 57 of the parliament) which took effect in 1988. It states: “Notwithstanding anything contained in this Act, the standard rent, or, where no standard rent is fixed under the provisions of this Act in respect of any premises, the rent agreed upon between the landlord and the tenant, may be increased by ten per cent. Every three years.” The other major facet of this amendment was that the premises for which the monthly rent exceeded ₹3,500 were taken out of the purview of the Act.

Procedure to Increase the Rent

According to the Act, any increase in standard rent as per Section 7 has to be done through an application to the Rent Controller, before which he cannot increase the rent. Section 9 lays down the exact procedure for the same. On an application made to him by either the landlord or the tenant, the Rent Controller shall fix the standard rent in accordance with the provisions mentioned under Section 6. However, if for any reason, it is not possible to determine the standard rent of any premises on the principles set forth under Section 6, the Controller may fix such rent as would be reasonable having regard to the situation, locality and condition of the premises. He shall also look into the amenities provided therein and where there are similar, or nearly similar premises in the locality, having regard also to the standard rent payable in respect of such premises.

Charging Rent in Excess of Standard Rent

Section 4 disentitles the landlord from claiming any rent in excess of standard rent of the premises as defined and to be fixed under Sections 6 and 9 of the Act.

Provisions Regarding Control of Eviction of Tenants

Section 14 prohibits landlords from recovering possession from the tenant

save on the grounds mentioned therein and after satisfying the Rent Controller. The grounds for eviction are narrow and include the following (not the exhaustive list):

- 1 Rent has not been paid since two months of serving a notice for non-payment of rent. At the same time, Section 15(1) says that the Controller shall hear both the parties and then order the tenant to pay the rent upto the preceding month of the order. Only when the tenant defaults on the payment of rent for three consecutive months again can the eviction under 14(1) (a) actually take place.
- 2 The tenant has been using the premises for purpose other than for what they were let. However, Section 14(5) says that the landlord has to give a notice in the prescribed format to stop such misuse and eviction is possible if the tenant fails to comply within one month of notice. No order of eviction will be made unless the Controller is satisfied that such misuse leads to public nuisance, or damage is actually done and is detrimental to the landlord's interests.
- 3 The premises are required bona fide by landlord for additions or alterations which cannot be done without the premises being vacated. The condition attached to this clause, as described by 14(8) of the Act, is that eviction will not happen unless the Controller is satisfied that the proposed reconstruction will not

radically alter the purpose for which the premises were let, or that such radical alteration is in the public interest, and that the plans and estimates of such reconstruction have been properly prepared and necessary funds for the same are available with the landlord.

- 4 The most controversial section of this Act is the Section 14(1)(e). Eviction can only be done if the landlord needs the residence for himself or any other members of the family who are dependent on him, but this can be done only if the landlord or such person has no other 'reasonably suitable' residential accommodation. Additionally, the landlord is not entitled to obtain possession before the expiration of a period of six months from the date of the order of eviction.

Case Studies

In February, a bench comprising of Justices B D Ahmed and Sanjeev Sachdeva sought a list of properties under rent control in the city and it was observed that most of these properties were located in the prime areas of the city. Almost every colony in Delhi has houses fetching rents lower than ₹3,500 even when market rents hover above 15-20 thousand (Garg 2016). The issue is not specific to a particular area, and hence case studies of varying circumstances are able to provide valuable insights.

Case Study 1

A district court advocate, Mr. Kapil Kumar (name changed), is currently representing various landlords in the court cases filed under Delhi Rent Control Act, 1958. One of his clients, Mr. Atul Marwaah (name changed) is a freehold owner of a three-storey residential building spread over 200 sq. yards in Kamla Nagar area of North Delhi (Category D, Civil Lines Zone). The building was constructed in 1967 by his father, Manohar Lal (name withheld). Four years after the building was constructed i.e. in 1971, the first and second floors were rented out to a business class family who migrated to Delhi in the same year. An informal written agreement was laid between the tenant and the landlord that specified all the negotiations and terms and conditions, such as standard rent and their parts of liabilities.

The monthly rents of ₹200 and ₹140 for first and second floor respectively were decided as standard rents. But no tenancy period was specified before the property was let out. Despite several requests in the consecutive years, there was no increase in standard rent. This continued till 1988, when 10% increase every three years was mandated by an amendment in Section 6 of the DRC Act, 1958. By the year 1997, the standard rent for the same property had become ₹280 and ₹200 for each floor respectively, a mere 40% increase in 26 years. In order to get better returns from the property, Mr. Atul asked the tenants to vacate both the apartments on the refusal of which Mr. Atul filed a legal suit.

Since limits on rent increase had kept the rent below the ₹3,500 mark, the Act continued to govern the property. Other than imposing restrictions on increase and correction of rent, the Act through Section 14 also controlled eviction of the tenants. Mr. Atul is now stuck in a cycle of low rents due to the Rent Control Act. He has requested eviction of the tenants under Section 14(1)(e) putting forward his need of the property as a bona fide need.

A large amount of money and time has gone into fighting the case but even today the case remains pending in front of the district court. According to Mr. Atul, about ₹3 lakhs has been spent on the court case. Moreover, a stay has been put on the property which inhibits the landlord from selling it further.

The maintenance cost of the property turns out to be as high as 8-10 thousand per year. This cost includes expenditure on plumbing, pest control, maintenance of common areas such as staircase, ventilation shaft etc. Due to low rents, the landlord, Mr. Atul, is highly reluctant to incur these costs. As a result, the quality of housing as well as the property has deteriorated sharply.

After four decades, the rent figure has reached ₹856 and ₹482 respectively for the first and second floor, a mere four-fold increase; whereas the land prices in same area have increased multiple-fold leading to similar multiple-fold increase in market level of rents. Surprisingly, the third-storey of the same building was let out in 2008 and is fetching rent more than ₹22,000 per month.

Mr. Atul could not (a) derive rent equal to market rates; (b) evict his tenants; (c) conduct essential upkeep and maintenance; and, most damagingly, (d) sell his property. The Act in this case prevents the matching of standard rents of the properties (specially those which were let out decades ago) with the present-day market rents.

Case Study 2

Another case demonstrates how tenants have gathered undue legal strength from the Delhi Rent Control Act, 1958 and how they try to misuse it.

Mr. Rajeev, aged 79, (name withheld) is located in Punjabi Bagh Colony of West Delhi, and owns (freehold) a four-storey residential property in the same area. The building, which is spread over 280 sq yards, houses Rajeev's own family, and only the upper-most storey is occupied by tenants. The third floor was rented out in 1994 with a written agreement specifying the standard rent as ₹1,600 subjected to 10% increase every three years. The property fell under the purview of the DRC Act 1958. The rent was increased to ₹2,000 by the year 1999, when the tenants felt a need of an extra room on their floor and requested Mr. Rajeev to get it constructed in the open area.

After the room was constructed, the standard rent through negotiation and joint consent was set at ₹4,000. The tenants soon became irregular in paying

their monthly rents. The rent was further increased to ₹4,400 in 2003 and ₹4,900 in 2006. By 2008, the arrears went up to ₹136,000. The tenants also stopped paying their water bills, the burden of which was borne by the landlords due to a shared water connection. Several notices were sent requesting the tenants to vacate the property, to no effect.

Ultimately, Mr. Rajeev had to file a legal suit in 2009. Although the Act does not govern property with rent over ₹3,500, the legal agreement was not renewed in 1999 and still contained the standard rent figure as ₹2,000. The tenant has denied in court of law that the standard rent he is paying is over ₹3,500.

In the last eight years, there have been no proceedings in the lawsuit. With the grace of Section 14 (Control of Eviction of Tenants) of the Act, the tenants are still enjoying a market rent free shelter in one of the prime colonies in Delhi. The landlord can neither sell nor renovate the property until the court case settles. Nor has he been receiving any fair rent for his property for over a decade. Market rent in East Punjabi Bagh for third storey 280 sq. yards floor is approximately ₹20,000. Moreover, the cumulative expenditure incurred against the court activities in last 8 years stand at ₹2.5-3 lakhs.

The pro-tenant stance of the Act has excessively empowered tenants and made renting activities an unattractive affair for landlords. Behaviour of the tenant in this example exhibits their awareness of the bias in the Act.

Case Study 3

A nuclear family, with two children, is the tenant of a 2BHK flat in the Rajouri Garden area of West Delhi. They had changed four homes in the last nine years. Mr. Rajender Kathuria, the head of the family, told us: “We can’t afford to buy a house in Delhi, and neither can we move to the outskirts due to the location of my business, my wife’s job and my children’s schooling. Renting a house is the last resort we have. But the landlords in Delhi are highly sceptical while renting out their properties. None in last 10 years have agreed upon a tenancy period of more than 2 years. This throws enough light on the mindset of landlords in Delhi. Due to tenant-friendly laws, they fear encroachment of their properties. And this fear has further troubled genuine tenants.”

He explained various costs involved in shifting the residence every two years. Various other formalities such as change of address in Aadhaar card, Voter ID card, electricity and water connections, phone bills, couriers etc. becomes a tedious process, and demands significant investment in terms of time, energy and money. It is interesting to note that the same family has lived in two different houses for a period of more than ten years in each house, in the same locality before 1999. The scepticism in landlords emerged only in late 90s when the cases regarding encroachment of properties by the tenants under DRCA took a sharp upward trend, demonstrating that “tenant-friendly rental laws” are not the solution but the cause of the current unavailability of rental housing.

Direct implications of the DRC Act

Freezing Housing Stock

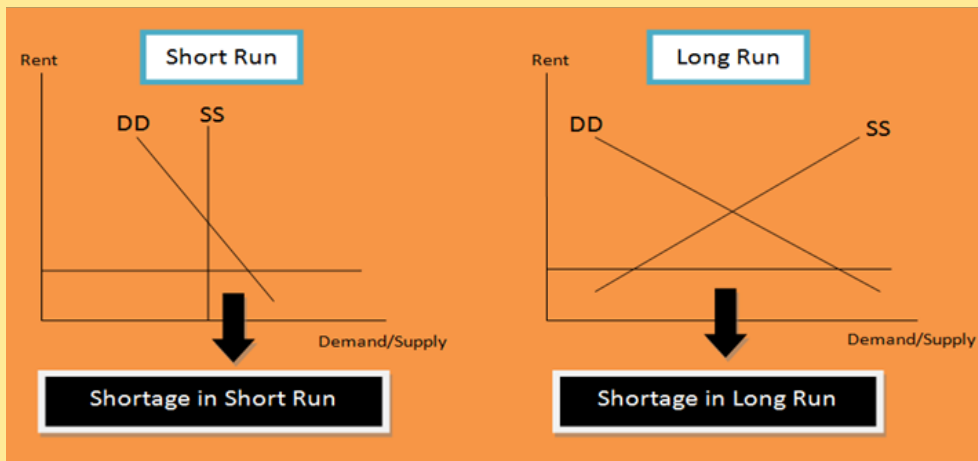
With thousands of houses in the city coming under the purview of this Act, tenancy to landlords has become largely a philanthropic activity. About 50% of properties under rent control fetch a monthly rent less than even the daily minimum wage of an unskilled worker pegged at ₹353 per day (Garg 2016). This inhibits the housing stock to be utilized to its potential. Even though properties whose rent is greater than ₹3,500 fall outside the domain of this Act, the law of conformity in prices, and experience of landlords in the past are disincentives for investments in rental housing. Also, the fear of losing perpetual control of their houses leads homeowners to withdraw their vacant premises from the rental market leading to reduced supply. Growth of low-cost housing has been hit due to freezing of rents under the Act, while contributing to the growth of slums in the capital.

Deterioration of Quality of Properties

The low rate of return from tenancy which comes under the law also leads to rapid deterioration of existing housing stock, as landlords have no incentive to invest any funds in the upkeep of their apartments. This is detrimental to the long-term interests of the landlord, tenant and the housing market. The situation is more severe in case of old

ECONOMICS OF RENT CONTROL

Shortage of housing due to rent control: In the short run, the number of apartments in a city is fixed and cannot be adjusted to changes in market conditions. The demand remains unresponsive to prices in the short run, as it requires time to adjust housing arrangements. As a result, rent control creates shortages in the market. In the long run, both the number of apartments and the demand for housing can be adjusted to market conditions which results in responsive demand and supply. Rent control, in such a scenario, creates significantly higher shortage of housing available for rent.



Deterioration of Housing Quality:

Now, in presence of shortage of housing available for rent (or excess demand) and low rents, the landlords lose all the incentives to maintain their properties. Therefore, the overall quality of housing in a city deteriorates sharply. This is in contrast to free markets where landlords try to keep their apartments clean and safe, as desirable apartments command higher prices. Some economists, therefore, call rent control the best way to destroy a city, after bombing.

tenancies where the rents have been frozen at low levels. It is in case of these old properties that the need for maintenance is higher. The older housing stock in our urban areas thus faces premature decay and degradation.

Reduced Liquidity of Housing Supply

Properties coming under this Act are usually ones which were let out a long time ago. Since the tenants are paying much below the market value of their properties as rent, they have no incentive to vacate the premises. Prospective buyers are unlikely to purchase a property which is occupied in this manner. This reduces the number of houses available for sale in the market, thus decreasing its liquidity. As a result, the property prices rise, and the risk that property bubbles might emerge increases. This is detrimental to the local economy of NCR itself.

Decline in Municipal Revenues

Local revenues such as property and house taxes take a hit due to DRCA, which are calculated on the basic rent of a premise. Apart from that, income tax collection is also affected, since if landowners were receiving higher rents, the taxes accrued will also rise.

Distortion of the Market

As with any other price control, rent controls also distort incentives and price

signals, leading to inefficient allocation of resources (land and building). This is because in presence of rent controls, houses do not always get allocated to those who are willing to pay the highest rent. In light of spatial growth of illegal housing in suburban Delhi, this is one of the major implications of the Act on urbanisation.

Low Selling Price of Properties

Mostly, the properties that fall under dispute between the landlord and the tenant fetch low prices for its land and building. Sale of such properties becomes a tedious process and often involves arbitrage and involvement of criminal activity.

Indirect Implications of the DRC Act

Artificial Shortage of Housing

There is a huge mismatch between demand and supply in the urban housing sector. Around 1.2 crore completed houses are lying vacant across urban India. At present, urban housing shortage is 1.88 crore units (Kaul 2015).

However, 95.6 percent of housing shortage is for the economically weaker sections (EWS) and low income group (LIG) segments (Kaul 2015). Houses presently being built mostly cater to Middle Income Group (MIG) or High Income Group (HIG). Currently, an average price of a house in Delhi is ₹7.4 million (Kaul 2015). A person who belongs to a low-income group or

OVERCOMING RENT CONTROLS IN THE PHILIPPINES

Rent-setting in Philippines has been primarily dictated by market forces. There are no existing controls placed. Landlords consider the existing rental rates in the area for a similar structure and adjust rates based on facilities and affordability of lease. The law initially imposed a freeze on rents for low-cost rental housing. In the 1980s, the law allowed increases in rent but placed a cap on the maximum increase. The maximum increase has been variable over the last two decades from 20% annual increase to 15% and currently to 10%.

There was, however, a growing sentiment in government that the rent control law may not be relevant in the present day and age. Rent control was envisaged as an effective means to control the rise in rent and protect lower income groups from exploitation by “rich” landlords. This rationale, however, is now one of the myths in the rental housing market. To start with, rent level is set by the market and as such this can only be effectively lowered through the supply-side. This meant encouraging more and better supply of low-cost rental dwellings.

When applied to the formal market, rent control may only be relevant in cases when quality of rental dwellings becomes a threat to people’s lives. In this case, the law has to be applied selectively (for example to rental dwellings 20 years old or higher) and based on building structure rather than rent levels (Ballesteros 2004).

economically weaker section cannot afford to “buy” a house in Delhi. As a result, the mismatch between supply of housing units and its demand comes into the picture.

Now, this mismatch can be eliminated by renting activities. If a low-income or economically weaker person cannot “buy” a house, s/he can always choose to enjoy proper and efficient housing by paying “monthly rents”. However, investors are more comfortable keeping the homes empty, and thus, the houses are never placed in the rental market. This was the common response given by 10 out of 12 investors approached, who stated that the risk involved in renting out a property is too high due to tenant-friendly rental laws and restrictions on rent increase and eviction.

The rental yield (i.e. annual rent divided by the market price of the home) stands very low at 2-4% (Kaul 2015). As a result, rental incomes don’t seem attractive to landlords even when their properties come out of the ambit of DRC Act 1958. Artificial shortage of housing poses a further concern. Due to locking up of vacant houses, the supply of the same in the market declines sharply. This leads to ballooning of rents of the remaining available houses in the rental market.

Overburdened Judiciary

The Act has not only affected the landlords who are stuck under it by historical accident, but has also overburdened the judiciary. Every year 10,000 fresh cases are registered under this Act, and 10.5% of all cases pending before districts courts are a result of Delhi Rent Control Act, 1958 (Garg 2016). These cases usually take longer than other cases because the moral judgment that the judiciary wishes to deliver is at odds with the legislation.

Draft Model Tenancy Act, 2015

The Draft Model Tenancy Act is intended to be a consideration for States/UTs in order to make laws that would be locally suitable. It has been initiated to establish a framework for regulation of rent and to balance the rights and responsibilities of landlords and tenants in order to provide faster adjudication for resolving disputes. Through an analysis of the Draft Model Tenancy Act, 2015, a recommendation and a solution is put forth to counter the current shortcomings of the Delhi Rent Control Act, 1958.

Tenancy Agreement

a) The Act makes the process of tenancy transparent by documenting each step of the procedure and validating it with a legal provision. For an individual to reside in a rental accommodation,

an agreement needs to be established between the two parties and the tenancy is to be registered with local Rent Authority. The authority thus, would provide them with a registration number that would be uploaded to their local website within 15 days. This agreement and its provisions act as valid evidence during legal proceedings as they specify the tenure of tenancy, rent and other relevant details.

- b) The tenant may approach the landlord for renewal or extension of the tenancy, within the period agreed to in the agreement or prior to the end of tenancy period and if agreeable to the landlord, may enter into a new tenancy agreement with the landlord.
- c) If a tenancy for a fixed term ends and has not been renewed or the premises have not been vacated by the tenant, it shall be deemed, to be renewed on a month-to-month basis on the same terms and conditions as were in the expired tenancy agreement, for a maximum period of six months. This provides the landlord with the autonomy of renewing and thus deciding the tenure of residency post termination of the agreement (Model Tenancy Act, 2015).

Increase in Rent

a) In order to increase the rent, the landlord is necessitated by the law to provide a notice of increase in rent (under Subsection 2 of Section 9) 3

months prior to the due date of the rent. In response, if the tenant fails to provide a notice for the termination of his tenancy he is deemed to have accepted the increment.

- b) In case of alteration of property or additional construction by the landlord for improving the habitable area (other than those mentioned in Section 15), the increased cost needs to be agreed upon between the landlords and tenant before the construction and it shall be effectively added to the rent from the month after the completion of work.
- c) Common responsibilities to be shared or areas to be utilised by both the parties shall be penned down in the agreement and the degree of maintenance by each, specified. If the tenant refuses to conduct necessary repairs, the landlord can do the same and make additions to the rent. If after construction the place is uninhabitable and not in proper condition, the tenant has the authority to give a 15 day notice and vacate the property (i.e. if the tenant has requested via a written notice to get repairs done).
- d) The Landlord is entitled to double the rent if the tenure of residency has been terminated by order or agreement. This maintains the regulatory and binding nature of the contract between the two parties, ensuring timely payment of rent and evacuation (Model Tenancy Act, 2015).

Grounds for Eviction due to Failure of Paying Rent

- a) Evacuation or repossession of the property by the landlord can only occur if the landlord and the tenant have breached the terms and conditions of the tenancy agreement.
- b) In case the tenant fails to pay rent for two months, the landlord is entitled to issue a notice for evacuation of property. If the tenant pays the rent for two months plus the arrears and other penalties as specified under the rent agreement within one month of the notice, no such eviction shall happen. This relief shall not be granted again, if the tenant fails to pay rent consecutively for two months in any one year subsequent to being provided with such relief once. He shall be subjected to evacuation within a month's notice.

Other Grounds for Eviction

In case the landlord wants the property evacuated for a bona fide purpose, such as a family member not being able to find residence in any other urban area, a due notice has to be issued referring Section 21 Subsection (g), one month prior to the expected date of eviction. Though, if this section is invoked, the landlord is not allowed to re-let the property for a period of 3 years and if he does so, the rent authority/ tribunal shall levy a high penalty. This is to circumvent unscrupulous landlords from randomly

evicting tenants, but simultaneously provides leverage to the landlord to use her property as she wishes.

In case of the category of special landlords, the property can be vacated immediately after the passing of the eviction order. (As specified in Schedule 3 of the MTA'15 which provides relief to persons with disabilities, widows, single women, senior citizen, retired armed force, air force and navy personnel).

Establishment of Rent Tribunals and Their Authority

The Rent Tribunal shall be a multi-member Tribunal headed by a Principal Appellate Member and the senior-most judges shall function as Principal Appellate Member. He shall have the power to transfer appeal cases from

one member of the Appellate Tribunal to another member whenever deemed necessary. Similarly, the Principal Appellate Tribunal may on an application or suo motu transfer a suit from one Rent Court to another Rent Court, and all the members of Rent Tribunal shall be appointed by the Central/State/UT Government in consultation with the High Court.

Establishment of such Tribunals would reduce the burden that lies upon the judiciary to look into issues arising out of rent laws and would lead to the creation of an arbitrary body focused on this agenda. The localised Rental Authorities would play a role in making the process of rental activity transparent, by registering and providing the information on their respective websites (Model Tenancy Act, 2015).

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POWER

Cost-Benefit Analysis of Solar Rooftop Systems for Delhi Households

Archit Jain, Soumya Joshi, Pragya Jat

EXECUTIVE SUMMARY

At the Conference of Parties (COP) 21 summit, India committed to producing 100 Giga Watts (GW) of solar energy by 2022 (Ananthakrishnan 2016), out of which 40 GW are to be generated through grid connected solar rooftop systems (Meza 2016). The Delhi government has pledged to generate 1 GW of solar power and recently passed the Delhi Solar Policy 2016. This paper examines the economic viability of residential solar rooftop systems in Delhi for consumers from varying power consumption levels.

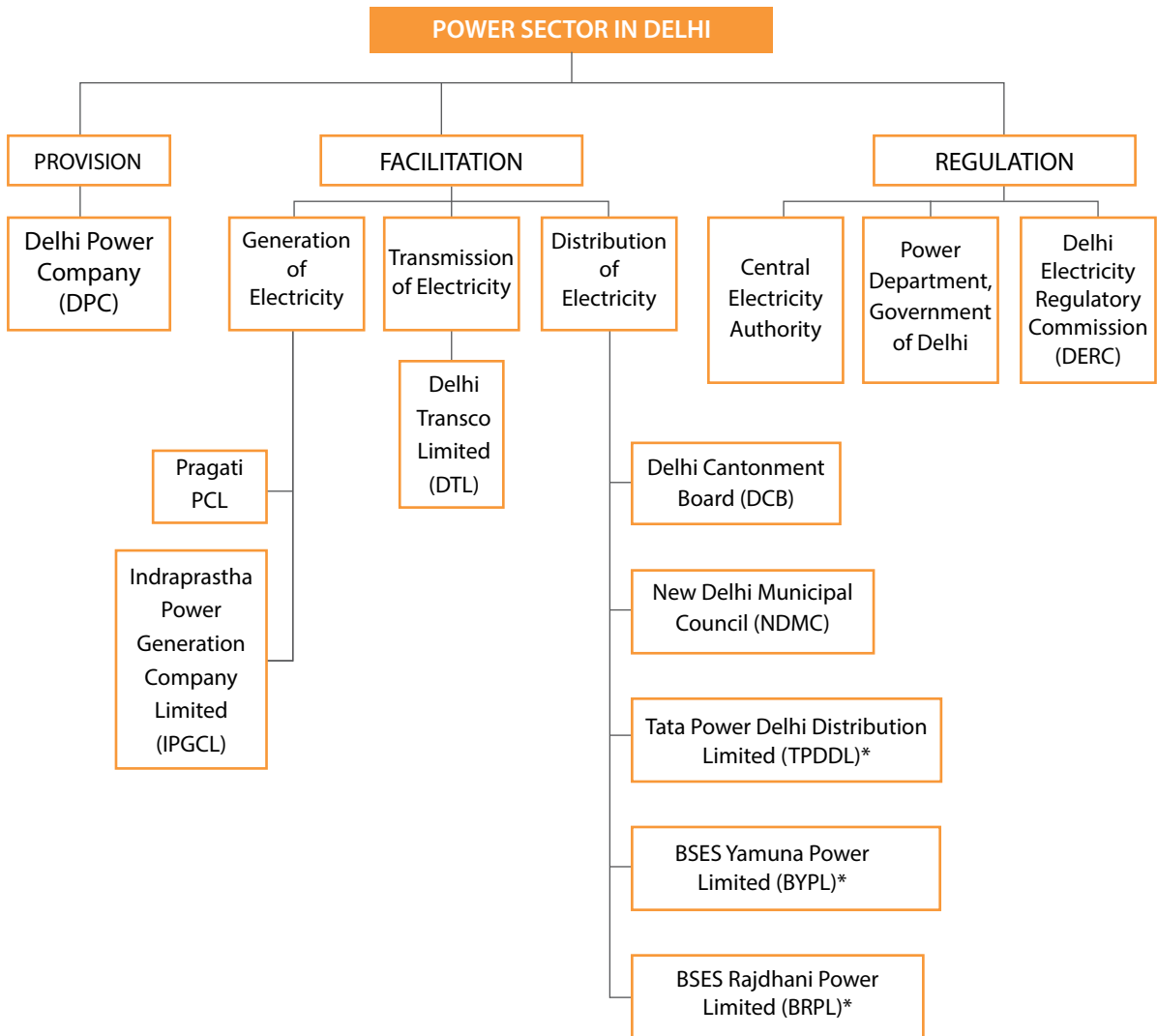
The study finds that adoption of rooftop solar systems will prove cost beneficial for households, while addressing structural problems such as ballooning peak demand and pollution.

KEY FINDINGS

1. A 1 Kilo Watt (kW) solar system generates 4 units of power in a day; therefore, households that consume 400, 600 and 1,200 units a month require solar systems of capacities 3 kW, 5 kW and 10 kW respectively. The total cost of purchasing and installing solar systems, inclusive of net metering charges, is ₹257,740 for a 3 kW system, ₹401,380 for a 5 kW system and ₹791,980 for a 10 kW system.
2. The per unit cost of solar power will amount to ₹2.98, ₹2.79 and ₹2.75 respectively for households consuming 400, 600 and 1,200 units of power per month. These households currently pay an average of ₹4.98, ₹5.75 and ₹6.79 respectively. Households that consume 400, 600 and 1,200 units a month will start generating positive returns on their solar investment after 12, 11 and 9 years respectively.
3. The largest consumers of power (having a monthly consumption of 1,200 units in the study) experience economies of scale and hence derive the maximum benefit from the investment: they break even the earliest and also generate the highest Net Present Value and Internal Rate of Return. The benefits decrease with the consumption level, though the adoption of solar energy is economically viable for all household categories considered.
4. The financing method adopted by a household to purchase the solar equipment (whether it chooses to only use up its own savings or take a loan for 60% of the expenditure) has no impact on the payback period or the levelled cost of electricity and has a minimal impact on the net present value and internal rate of return. This is encouraging news for middle-income households, who can expect to generate sufficient reward even in the absence of adequate personal savings to finance the initial expenditure.

Introduction

The power sector in Delhi comprises of organisations performing 3 distinct functions:



* 49% equity held by Delhi Government

Investment in the energy sector by the Government of Delhi is only for augmentation of transmission, transformation capacity, and power generation. When the Aam Aadmi Party (AAP) assumed office in 2015, it laid out a five-point action plan for reviving the power sector in Delhi. The Delhi Government allotted ₹1,600 crore as electricity subsidy in 2015 to compensate 50% of the electricity bill of consumers using up to 400 units of power, fulfilling its promise of reducing electricity bills by half. It has taken, at best, small steps in the other four areas as appraised below:

- In 2014, the Delhi Government ordered an audit of the three DISCOMs by CAG amidst allegations that they had inflated expenses in their books to force the DERC to raise tariffs. The DISCOMs objected to this move, claiming that being private companies and not PSUs, they were beyond the jurisdiction of the CAG. The Supreme Court called the DISCOMs' argument into question during a January 2016 hearing and adjourned the matter until March 2016.
- Currently, Delhi produces less than 2,000 MW of power while peak demand in the city reaches 6,500 MW during the summer. To make the city self-sufficient in power generation, the AAP-led government plans to establish a coal-based power plant in another state. For this, the government hopes to partner with a private firm through a bidding process, but it will materialise only in four to five years.
- As the power sector of Delhi stands today, there is zero competition amongst the three distribution utilities. Instead of allowing them to compete for customers, distinct zones of operation have been earmarked for them—BSES Rajdhani Power Limited (BRPL) supplies power to Central, South and West Delhi, BSES Yamuna Power Limited (BYPL) to East Delhi and Tata Power Delhi Distribution Limited (TPDDL) to North and Northwest Delhi. This is in sharp contrast with the power distribution model in other metropolitan cities of the country, such as Mumbai, where customers can choose their distribution company—Tata Power or Reliance Infra. This fosters competition between these two firms and drives them to provide value-added services to their customers, such as an online chat service and acquisition camps.
- In June 2016, the AAP came out with an ambitious policy announcing incentives and tax breaks to promote solar power and making it mandatory for government institutions to install rooftop solar panels (Government of Delhi NCT, Delhi Solar Policy 2016). The motive is to generate 1,000 MW power within the city by 2020. Amongst other actions, the government is: (a) taking up with Municipal Corporations of Delhi (MCDs) and New Delhi Municipal Council (NDMC) to exempt the current 5% electricity tax on solar power; (b) willing to exempt official certification of solar systems up to 200 KW; (c) discarding wheeling, banking and transmission charges for solar energy. Moreover, to encourage solar plants on rooftops of buildings that cannot consume all of the energy

generated locally, the DISCOMs will facilitate group net metering whereby surplus energy exported to the grid can be adjusted in any other electricity service connection of the consumer. A crucial determinant of the success of this policy is the willingness of households to install solar panels on their rooftops.

In addition to these four issues identified by the AAP in its manifesto, another question regarding Delhi's power sector is whether the city should join the UDAY (Ujjwal DISCOM Assurance Yojana) scheme enacted by the Central Government in November 2015, a financial restructuring package for loss-making distribution utilities

Key Statistics pertaining to the Power Sector in Delhi

Categories	Figures (2014-15)
State government expenditure on electricity	₹581.26 crores
Consumers of electricity in Delhi	5,405,000
Total electricity supplied	25,111 units
Peak demand level	5925 MW
GENERATION	
Installed power generation capacity	2118.2 MW
Power purchase sourced internally (within Delhi)	13%
Power purchase sourced externally (Central Government)	87%
TRANSMISSION	
Total transmission and distribution losses	13%
No. of 400 kV Substations/ Transformation Capacity (in Mega Volt Amp)	4/5040
No. of 200 kV Substations/ Transformation Capacity (in Mega Volt Amp)	33/10530
DISTRIBUTION	
Energy used for domestic purposes	12,649 Mega Units (MU)
Energy used for commercial purposes	6370 MU
Energy used for industrial purpose	3062 MU
Energy used for PWW and Street Lights	1219 MU
Others	1810 MU
SOLAR ENERGY	
No. of sunny days in a year (approx.)	300
Solar Energy Potential	2.5 GW
Potential Realisation Goal by 2020	1 GW (4.2% of energy consumed)

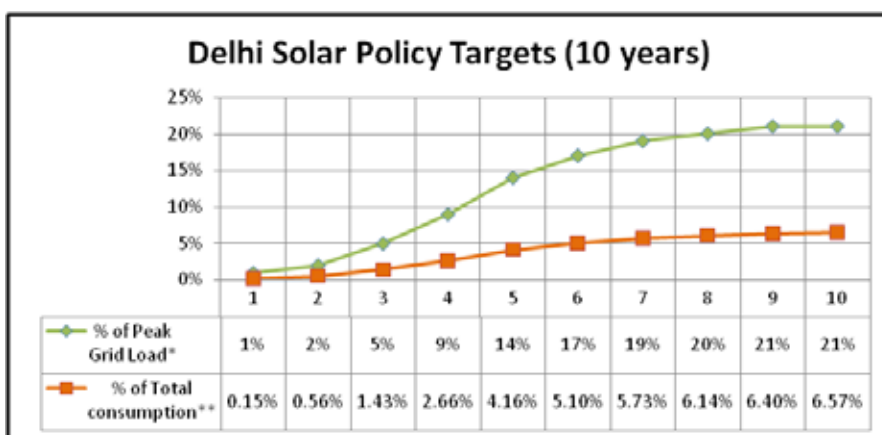
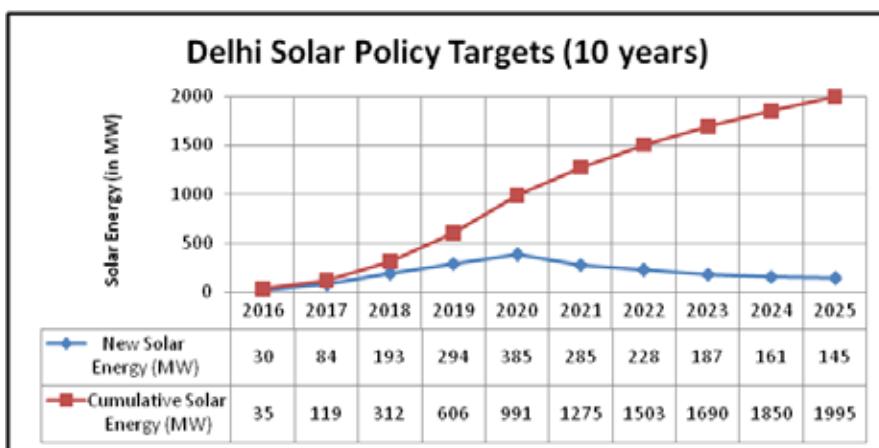
Sources: Economic Survey of Delhi 2014-15; Delhi Solar Policy 2016

across the country. Under UDAY, state governments which own the DISCOMs are required to take over 75% of the DISCOMs' debt (as on 30 September 2015) and pay the lenders by issuing bonds. DISCOMs are expected to issue bonds for the remaining 25% of their debt (ET Bureau 2016).

At the time of writing this paper 15 states have voluntarily joined UDAY, but Delhi

is not one of them despite its DISCOMs' stated desire to benefit from the scheme. The payoff from UDAY can be huge—experts claim that Delhi's DISCOMs can save as much as ₹1,000 crores in interest costs, which is a substantial 5% of the combined debt they owe. Moreover, it is estimated that improving the financial health of DISCOMs in this manner will translate to a relief of approximately 75 paise per unit of power.

Delhi Solar Policy targets for 10 fiscal years



*Based on 6 GW peak load in 2015 and a growth assumption of 5% per annum

**Based on actual energy units consumed in Delhi (27,266 MU) in 2014-15 and a growth assumption of 5% per annum

Review of Delhi Solar Policy 2016

The policy estimates that Delhi receives 300 sunny days a year and has available rooftop space of 31 sq. km. This gives the city a solar energy potential of 2.5 GW, which corresponds to an annual power generation of 3,500 million Kilo Watt Hours (kWh). Of this potential, 26% is in the government sector, 25% in the commercial sector and the largest—49%—in the domestic sector. The Government of Delhi has consequently established a goal of producing 1 GW of energy by 2020, which is 4.2% of the energy consumed by the city.

Net Meter charges

Meter Type	Charges (₹)
1-PH	1500
3-PH	7800
LT CT	9200
HT CT	10400

Source: Delhi Solar Policy 2016

Registration charges

Capacity (KWp)	Charges (₹)
1 - 10	1000
10 - 50	3000
50 - 100	6000
100 - 300	9000
300 - 500	12000
500 +	15000

The State Nodal Agency entrusted with the responsibility of ensuring effective implementation of the policy is Energy Efficiency and Renewable Energy Management Centre (EE & REM), a sub-division of the state Department of Power.

The policy mandates solar installations on all government-owned buildings that have shadow free rooftops of at least 50 sq. m. This will be carried out in a phased manner over the next five years. At the same time, it encourages households to install rooftop solar systems, via limited time Generation-Based Incentives (GBIs).

Benefits of Generation-Based Incentives

- Delhi's peak demand curve broadly matches the generation curve of solar systems—the demand for electricity is highest in the afternoon hours (for air conditioning) and so is the generation potential of solar panels. Thus, adoption of solar panels can help reduce peak demands—which reached 6 GW in 2015. This will in turn lower electricity tariffs because DISCOMs pay most to meet short term surges in demand, thereby increasing their average cost of power.
- Energy produced at rooftop solar systems is mostly consumed at, or near, the point of generation. This reduces distribution and transmission losses. Self-consumption of rooftop solar energy also reduces the challenge of provisioning new distribution infrastructure such as transformers in congested localities.
- Market conditions for rooftop solar energy generation are extremely favourable—while solar energy tariffs have fallen 6-8% every year since 1998 (PTI 2016), solar panel prices have dropped by 75% in the last 6 years (Economic Survey of Delhi, Government of Delhi NCT),

NET METERING

Net Metering and billing system between the consumers and their respective distribution utilities which facilitates self-consumption from a rooftop solar project and allows for the surplus to be fed into the grid network of the distribution utility. Surplus power is passed on to the grid and consumers' electricity bills reduce.

Two distinct ownership arrangements arise in the context of rooftop solar projects:

- **Self-owned arrangement:** Here, the rooftop owner also owns the PV system and is also the consumer. The electricity generated is first used to fulfill the consumer's captive load and then the excess electricity is fed into a net meter, a bi-directional energy meter capable of registering both import and export of electricity. The net generation is then credited to the owner's account and adjusted subsequently in the bill.
- **Third Party Ownership:** A developer owns the PV system and enters into a lease/commercial arrangement with the rooftop owner. The owner provides the rooftop and commissions an installer to design and install the system. The installer can even offer services of leasing, commissioning and maintaining the system. The DERC Net Metering policy professes

conventional energy tariffs have risen 6.9% per year since 2007.

To encourage solar plants on rooftops of buildings that cannot consume all of the energy generated locally, DISCOMs shall facilitate net metering. DISCOMs in other states have shown little interest in

the following benefits for the owners and developers respectively:

- A large upfront investment is avoided by the household and net-metering allows the rooftop owner to save on power consumed from the grid.
- The leasing company/ installer gains revenue from the lease rental paid by the rooftop owner under a contract.

Process of Obtaining a Net-Meter

A distribution license is required to issue net meters in a non-discriminatory fashion on a first-come first-serve basis for both self-owned and third-party owned rooftop PV systems, as long as the capacity of the system does not exceed the sanctioned load of the household. The consumer submits an application to the DISCOM along with a fee of ₹1,000, which is approved in 15 working days.

In order to ensure that the reverse flow electricity does not lead to safety and grid security issues, the DISCOM can provide net metering arrangements to all eligible consumers as long as the cumulative capacity does not exceed 15% of the capacity of a particular distribution transformer.

facilitating net metering till now, because it means lower revenues for them. The Delhi Solar Policy mandates DISCOMs to meet 75% of their Renewable Purchase Obligation (RPO) from within Delhi. Moreover, it provides a framework for DISCOMs to meet their solar RPOs through the power generated under net metering.

A variety of incentives and exemptions are offered to encourage the installation of solar panels. Foremost amongst these are the Generation Based Incentives. ₹2 per kWh of gross solar energy generated will be paid out to the households, for the next three years. The payment will be made on a first-come first-serve basis until the funds earmarked for the GBI run out. The minimum eligibility criterion for availing the GBI is 1,000 kWh per year, and the annual solar energy generation eligible for GBI will be capped at 1,500 kWh per kWp.

Moreover, adoption of solar panels would exempt the households from:

- The 5% electricity tax on solar units generated, whether self-consumed or supplied to the grid. This will be applicable only on the net consumption charges billed by the DISCOM.
- Open access charges and conversion charges.
- VAT and entry tax on all solar panels, inverters, energy meters and other devices purchased for the installation of solar plants.
- Wheeling and Banking Charges on Solar Plants.
- Cross Subsidy Charges and Transmission Charges.
- In addition to these, various subsidies are available at the central level for on-grid residential solar rooftop projects. The Ministry of New and Renewable Energy offers a subsidy of up to 30% of capital expenditure for such projects.

Methodology, Assumptions & Limitations

For the purpose of the study, three categories of households were identified, based on their average monthly consumption of power. These were households consuming 400, 600 and 1,200 units of power a month. The following steps were taken for data collection and analysis:

- Data on the various costs of purchasing and installing rooftop solar equipment was obtained including the prices of solar panels, mounting structures, cables, inverters, combiner boxes, main junction boxes, fuses and disconnects, protection switches, energy monitoring meters, and remote control and monitoring systems. The costs also include charges for transport, installation, project management, design and engineering. The total cost of installing solar panels of varying capacities was obtained from Tata Solar Company (Appendix 2).
- Information on net metering charges was obtained from BSES.

Total costs of establishing a Net Metering connection

Category	Charge (₹)
Application charge	500
Stamp paper cost	100
Registration charge	1,000
Cost of 3-PH meter	7,800
TOTAL	9400

- Capacities of solar panel systems were determined with respect to the three household categories. The conversion unit of a 1 kWp system generating four units of power in a day was used, with a Plant Load Factor of 18% (data obtained from BSES officials). The 30% capital subsidy provided by the MNRE on the purchase and installation of solar equipment was accounted for. This led to the derivation of the total initial cost for each household category.

Net cost of installing solar systems of different capacities

System Capacity	3 kWp	5 kWp	10 kWp
Household monthly consumption	400 units	600 units	1,200 units
Costs for purchase and installation	358,800	564,000	1,122,000
Net metering charges	9,400	9,400	9,400
Total Cost	368,200	573,400	1,131,400
Net Cost to the household after 30% capital subsidy	257,740	401,380	791,980

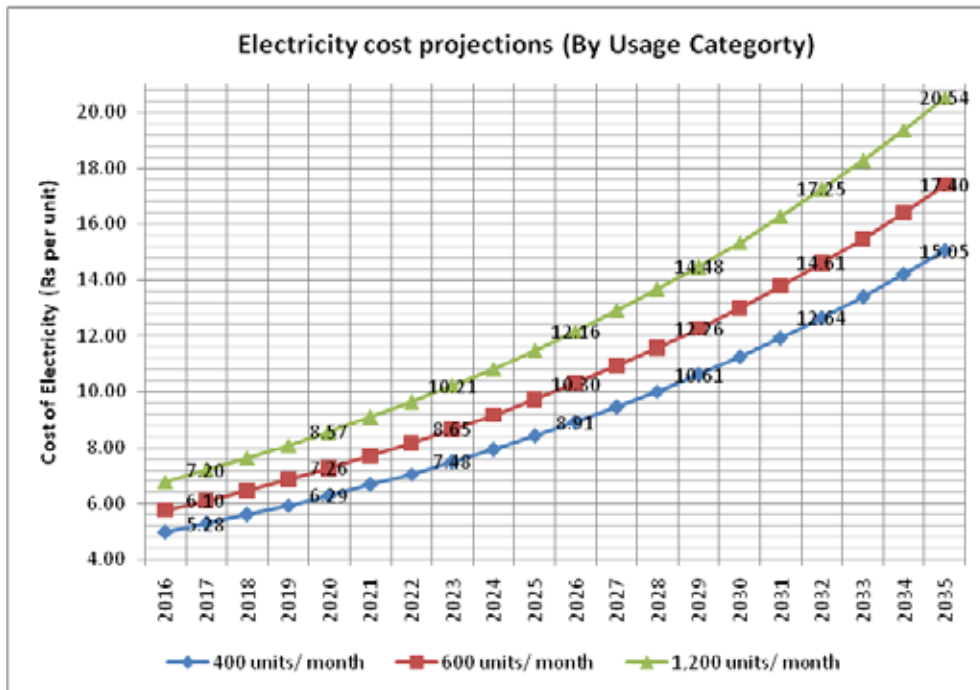
- The electricity tariff that households would avoid in future years by adopting solar energy per unit tariffs for different consumption slabs (DERC).

Monthly Electricity Consumption (Units)	Per Unit Tariff (₹)
0-200	4
201-400	5.95
401-800	7.3
801-1,200	8.1
Above 1,200	8.75

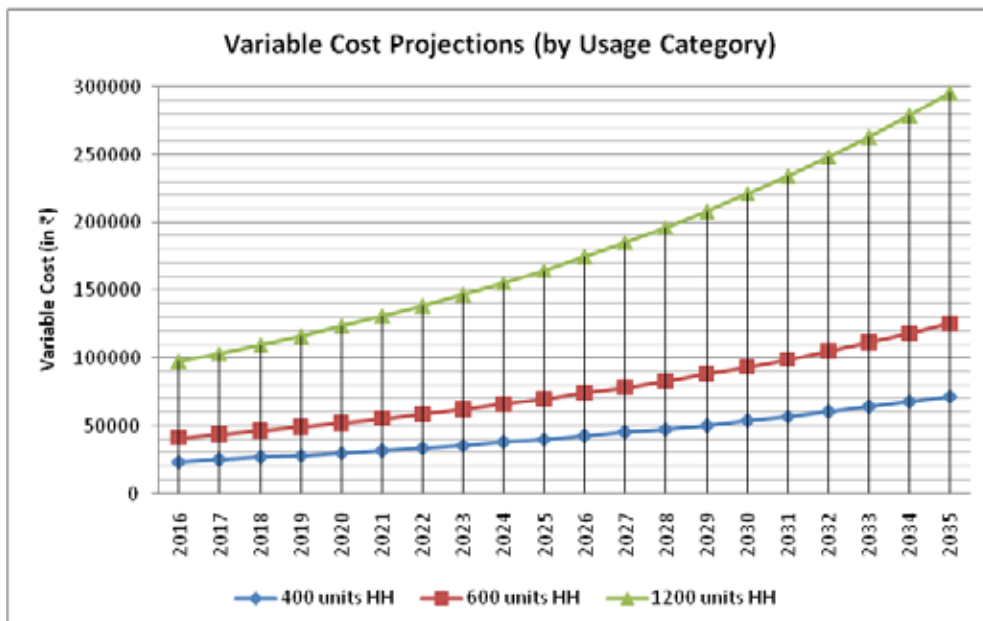
Average per unit price of power for different household categories

Household Monthly Consumption	Average Per Unit Price of Power (2016)
400 units	4.98
600 units	5.75
1200 units	6.79

- Per unit tariffs for the three household categories over the next 20 years (which is the lifespan of an average solar panel). The average annual tariff hike was assumed to be 6% per annum based on the average annual tariff hike in Delhi in the period 2003-2015.



- Tariff bills saved by different households by adopting solar energy (rate multiplied with monthly consumption level x 12)



- The generation based incentives offered by the Government of Delhi under the Delhi Solar Policy were taken into account. Accordingly, each household generating more than 1,000 kWh power per year was provided with a rebate of ₹2 per unit with a cap of 1,500 units generated per kWp. This implies a generation based incentive of ₹3,000 per year for each household category.
- All these cash flows were juxtaposed to derive the households' total annual cash flows. The cash flows were discounted at 6% to facilitate inter temporal comparisons. 6% was deemed the appropriate discount rate as it is the approximate after-tax interest rate on 20 year Fixed Deposits in India, which capture the opportunity cost of investing these amounts in solar panels. The cumulative NPV (Net Present Value) series was also calculated for each household category (Appendix 2). This analysis assumes that the household provides 100% of the funds needed for the investment in solar equipment out of its own savings.
- A second case where the debt to equity ratio was 60:40 was considered, the ratio for the nascent rooftop industry. Data obtained from various banks, such as the State Bank of India, Vijaya Bank and the State Bank of Patiala indicated that home loans for purchasing solar equipment carry an interest rate of about 9.5% and are repayable in 60 Equated Monthly Installments over five years. Using these figures, the loan amounts and the EMIs were calculated for each

household category (Appendix 2).

While the findings of the study cannot be generalised to all households, the framework within which the study operates can be used elsewhere. Different numerical values specific to different households can always be inserted in this framework to derive corresponding conclusions. The findings of the study are subject to the following assumptions and limitations:

- The life of the solar plant is 20 years, as provided by the solar company.
- The residential rooftops being considered have adequate shadow free roof top area required to install solar panels to fulfill the household's consumption needs.
- The demand for power remains constant over the course of the study.
- The houses being considered are connected to the power grid, that is, have net meters installed. They do not have any battery to go with the solar panels.

This is because the electricity generated in the presence of sunlight is consumed simultaneously through the day. Any excess electricity produced is fed back into the grid and energy credit is received by the producer. It is assumed that the energy needs to be met at night are roughly equivalent to the excess energy fed back into the system, cancelling out any electricity costs.

- The average annual tariff hike for Delhi's power sector is 6%.

- The after tax interest rate on 20 years' worth of fixed deposits (discount rate) is 6%.
- The lending rate for five year home loans is 9.5%
- The Operations and Maintenance (O&M) Costs for the solar panels are negligible. This assumption was deemed reasonable because even though about 1.5% of the initial capital expenditure on large scale plants is assumed to be for O&M, only regular cleaning is required for household plants, which can be taken care of by the households themselves.
- The installation costs have been sourced from a leading solar equipment manufacturer. Other companies may charge different prices.
- A limitation is that the power demand for the next 20 years cannot be estimated due to unavailability of data; and unprecedented changes in demand in the past few years, which would be difficult to generalise.
- Availability of sunlight and other weather conditions are subject to change.

Analysis & Recommendations

The data compiled allows several meaningful conclusions to be drawn. The payback period of the investment in solar systems (the number of years it takes for a household to break even), the net present value of the investment, and the internal

rate of return (Appendix 1) vary with the consumption level of the household and the financing method considered (100% own savings or taking a loan). The payback period of investment in solar systems for both equity models is 12 years for 400 unit systems, 11 years for 600 unit systems, and 9 years for 1,200 unit systems.

Net Present Value of investment in solar systems under different scenarios

Net Present Value (in ₹)	400 units	600 units	1,200 units
100% equity	200,753	387,797	1,060,824
40% equity	191,224	372,960	1,031,537

Internal Rate of Return of investment in solar systems under different scenarios

Internal Rate of Return	400 units	600 units	1,200 units
100% equity	12.72%	14.08%	16.60%
40% equity	13.92%	15.64%	19.04%

These results indicate that the installation of solar systems brings the highest returns for the largest consumers. They break even the earliest, generate the highest Net Present Value and also have the highest Internal Rate of Return. This is because they enjoy economies of scale on account of the larger number of units of power they produce and consume.

These costs should be interpreted as the average per unit cost of solar power and are very low compared to the current per

unit tariff that households pay. Further, while the Levelised Cost of Electricity (LCOE) is computed keeping the entire 20 year period in mind, the tariffs set by the DERC will likely increase over time (at around 6% p.a.). Over these 20 years, the median tariff for the households consuming 400, 600 and 1,200 units per month is approximately 2.9, 3.6 and 4.3 times higher than the LCOE.

Levelised Cost of Electricity under different scenarios

Levelised Cost of Electricity (in ₹)	400 units	600 units	1,200 units
100% equity	2.98	2.79	2.75
40% equity	2.98	2.79	2.75
Current Rate	4.98	5.75	6.79

The observations from the study corroborate the hypothesis that adoption of rooftop solar systems will prove cost beneficial for households. While the exact results of the cost-benefit analysis differ according to the household's circumstance, solar energy from rooftop systems appear to provide an economically viable option when compared with conventional energy. While addressing structural problems such as ballooning peak demand and pollution, it would also improve the standard of living of the households that choose to adopt it. It would be beneficial to have a coherent roadmap of all the solar policies and incentives being adopted by the Government of Delhi, as well as those from the Central Government. This would lead to greater clarity and the policy certainty could result in increased adoption of solar rooftops.

RECOMMENDATION 1: Create Awareness

Both high and middle consumption households would gain considerably from solar plants, but in order for adoption to gain traction, information asymmetry needs to be addressed. Awareness programmes, advertising, infographics would go a long way in addressing this issue. An online portal should be created with a step-by-step guide for installation of solar panels by households along with a helpline for clarification of queries. Lists of recognised sellers, costs of obtaining net meters, required solar capacity calculators, financing options, available subsidies and incentives, and the process of obtaining the same should be clearly stated and explained.

RECOMMENDATION 2: Access to Finance

Ease of access to capital and credit remains key to whether a middle income household would transition to solar rooftops. For those households which do not have required capital and/or access to credit, lease agreements/third-party ownership of solar panels could be a viable business model and should be encouraged. Alternatively, Resident Welfare Associations could assist in pooling resources to obtain solar panels for a colony. This marginally reduces the per unit cost incurred by a household and the large amount of initial investment required opens up many avenues of generating finance such as bank loans, bond markets etc.

SMART GRIDS IN PUDUCHERRY

In 2012, the Ministry of Power decided to run 14 pilot projects testing various features of a 'Smart grid' throughout India.

Puducherry is a union territory located in South India. In 2012, The Electricity Department of Puducherry and the Power Grid Corporation of India Limited (PGCIL) signed a Memorandum of Understanding by way of which the latter was allowed to set up smart grid facilities—mainly Advanced Metering Infrastructure with Central Data Control Centres—to monitor power consumption patterns, trace power theft and allow easier billing procedures (especially online payment processes). The government visualised a reduction in Transmission & Distribution losses from 23% to 9%, and an increased tax collection efficiency from 90% to 98% through the duration of the project (Uria 2011).

In Phase I of the pilot project, 1,400 smart meters were installed in the project area. These meters informed consumers about their hourly consumption of electricity, while clearing the way for feeding excess energy produced using renewable resources (solar/ wind) back into grid, peak load management (time of use tariff), power quality management and outage management systems. These systems were put in place because of the overarching Meter Data Management System, which sends data recorded by smart meters to Data Collection Units which forward that to central database server systems. The analysis of consumption data overtime yields certain electricity threshold levels for each household—maximum consumption figures—which, if exceeded, indicate power theft. This system also delivers billing details to consumers as per billing cycles for different sections. Another salient feature is that of energy audits conducted on a monthly basis which calculate the amount of unaccounted energy within the system—which can be reduced through preventive measures (Ramesh 2016).

Due to a fund crunch, the PGCIL backed out of any further commitments. The Government of Puducherry, which wished to continue with the project, adopted the Investor Model and tied up with a Chinese major, Dong Fong, which will install smart meters in 87,000 houses beginning in 2016. The Central Government will fund half the cost of the operation (Prasad 2015). The implementation and success of such projects serve to provide viable alternatives to the prevailing power systems in Indian cities and towns.

RECOMMENDATION 3: Fiscal Incentives targeted to Low Consumption Levels

Generation-Based Incentives or GBIs seem to have a minimal impact given the larger total costs of procuring solar panels, and require review, as they presently create a bureaucratic hassle and mislead any potential generating households. Given that households will take around 9-12

years to recover the costs incurred by them for installing solar panels, an initial monetary push through a bigger incentive is desirable, and should be structured as targeted incentives across different consumption levels. Since the highest consumption households have the best economic case for adopting solar energy, the added incentive of a GBI should be reconsidered for this category, and instead targeted toward the lowest consumption households for maximum impact.

Generation-Based Incentives as a proportion of total cost

Capacity	Cost of Procuring Panels	Cumulative Earnings from GBIs	GBIs as a Percentage of Initial Cost
10 kW	791,980	9,000	1.136
5 kW	401,380	9,000	2.242
3 kW	257,740	9,000	3.419

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APPENDIX 1: Key Calculations

a) Average per unit Price of Power

Given the tariff rates fixed by the DERC, the average per unit price (in rupees) of power for a household consuming 400 units per month is:

$$\frac{(200 \times 4) + (200 \times 5.95)}{400} = 4.98$$

The corresponding figures for households consuming 600 and 1,200 units per month respectively are:

$$\frac{(200 \times 4) + (200 \times 5.95) + (200 \times 7.3)}{600} = 5.75 \quad \text{and} \quad \frac{(200 \times 4) + (200 \times 5.95) + (400 \times 7.3) + (400 \times 8.1)}{1,200} = 6.79$$

b) Equated Monthly Instalments (EMI)

The EMI for a principal amount P invested at a monthly interest rate R% to be repaid in N instalments is given by the formula:

$$EMI = \frac{P \times R \times (1 + R)^N}{1 - (1 + R)^{-N}}$$

Hence, the EMI for a 5-year (60 month) 9.5% loan of ₹4,75,188 taken by a household consuming 1,200 units per month would be:

$$\frac{4,75,188 \times \frac{9.5}{12 \times 100} \times \left(1 + \frac{9.5}{12 \times 100}\right)^{60}}{1 - \left(1 + \frac{9.5}{12 \times 100}\right)^{-60}} = 9,980$$

Multiplying by 12 months a year, we derived an annual cash outflow of ₹119,760. EMIs for the other household categories were calculated in a similar fashion.

c) Levelized Cost of Electricity (LCOE)

The LCOE is the ratio of the initial system cost and the total number of units of power generated in the system's lifetime. For the 10 kW system, the initial cost is ₹791,980 and the total generation is:

1,200 units x 12 months a year x 20 years in the panel's lifespan = 2,88,000 units

The LCOE is, therefore: $\frac{Rs\ 7,91,980}{2,88,000\ units} = Rs\ 2.75/unit$

The LCOE for other household categories was calculated in a similar fashion.

d) Net Present Value (NPV)

The NPV of a series of Free Cash Flows (FCF) over t years, where the discount rate is (100r)% per annum, is given by:

$$NPV = \sum_{i=1}^t \frac{FCF_i}{(1+r)^i}$$

This formula was used to compute the net benefit resulting from the investment in solar systems for each household category.

e) Internal Rate of Return (IRR)

The IRR is the unique rate of interest r that satisfies the equation:

$$\sum_{i=1}^t \frac{FCF_i}{(1+r)^i} = 0$$

In other words, it is the rate, which if used to discount free cash flows, results in a net present value of zero. The Internal Rate of Return mentioned in this study were calculated using the online software on www.financialprojections.com

APPENDIX 2: Annual Cash Flows with both equity types

In these tables, cumulative Net Present Values are written in red for the years they were negative. That is, the year in which the font in the last column changes from red to black is the year in which the household starts earning positive returns on its investment. This is called the year in which the household ‘breaks even’. Moreover, the last cell of the last column gives the Net Present Value of the investment when the entire 20-year shelf life of the solar panel is considered.

Annual Cash Flows for household consuming 1,200 units/month

Year	System Cost	Generation -Based Incentive	Avoided Electricity Cost	Annual Cash Flow	NPV of Annual Cash Flow	Cumulative NPV
2016	-791,980			-791,980	-791,980	-791,980
2017		3,000	97,776	100,776	95,072	-696,908
2018		3,000	103,680	106,680	94,944	-601,964
2019		3,000	109,872	112,872	94,770	-507,194
2020			116,496	116,496	92,276	-414,918
2021			123,408	123,408	92,218	-322,700
2022			130,896	130,896	92,277	-230,423
2023			138,672	138,672	92,225	-138,198
2024			147,024	147,024	92,245	-45,953
2025			155,808	155,808	92,223	46,270
2026			165,168	165,168	92,229	138,499
2027			175,104	175,104	92,243	230,742
2028			185,616	185,616	92,245	322,987
2029			196,704	196,704	92,223	415,210
2030			208,512	208,512	92,225	507,435
2031			221,040	221,040	92,232	599,667
2032			234,288	234,288	92,227	691,894
2033			248,400	248,400	92,247	784,141
2034			263,232	263,232	92,222	876,363
2035			279,072	279,072	92,237	968,600
2036			295,776	295,776	92,224	1,060,824

Annual Cash Flows for household consuming 400 units/month

Year	System Cost	Generation -Based Incentive	Avoided Electricity Cost	Annual Cash Flow	NPV of Annual Cash Flow	Cumulative NPV
2016	-257,740			-257,740	-257,740	-257,740
2017		3,000	23,904	26,904	25,381	-232,359
2018		3,000	25,344	28,344	25,226	-207,133
2019		3,000	26,880	29,880	25,088	-182,045
2020			28,464	28,464	22,546	-159,499
2021			30,192	30,192	22,561	-136,938
2022			31,968	31,968	22,536	-114,402
2023			33,888	33,888	22,537	-91,865
2024			35,904	35,904	22,527	-69,338
2025			38,064	35,904	22,530	-46,808
2026			40,368	40,368	22,541	-24,267
2027			42,768	42,768	22,530	-1,737
2028			45,360	45,360	22,543	20,806
2029			48,048	48,048	22,527	43,333
2030			50,298	50,298	22,247	65,580
2031			54,000	54,000	22,532	88,112
2032			57,216	57,216	22,523	110,635
2033			60,672	60,672	22,531	133,166
2034			64,320	64,320	22,534	155,700
2035			68,160	68,160	22,528	178,228
2036			72,240	72,240	22,525	200,753

Annual Cash Flows for household consuming 600 units/month

Year	System Cost	Generation -Based Incentive	Avoided Electricity Cost	Annual Cash Flow	NPV of Annual Cash Flow	Cumulative NPV
2016	-401,380			-401,380	-401,380	-401,380
2017		3,000	41,400	44,400	41,887	-359,493
2018		3,000	43,920	46,920	41,759	-317,734
2019		3,000	46,512	49,512	41,571	-276,163
2020			49,320	49,320	39,066	-237,097
2021			52,272	52,272	39,061	-198,036
2022			55,368	55,368	39,032	-159,004
2023			58,752	58,752	39,073	-119,931
2024			62,280	62,280	39,075	-80,856
2025			65,952	65,952	39,037	-41,819
2026			69,912	69,912	39,038	-2,781
2027			74,160	74,160	39,067	36,286
2028			78,624	78,624	39,074	75,360
2029			83,304	83,304	39,056	114,416
2030			88,272	88,272	39,043	153,459
2031			93,600	93,600	39,056	192,515
2032			99,216	99,216	39,056	231,571
2033			105,192	105,192	39,065	270,636
2034			111,456	111,456	39,048	309,684
2035			118,152	118,152	39,051	348,735
2036			125,280	125,280	39,062	387,797

Annual Cash Flows for household consuming 1,200 units/month (with loan)

Year	System Cost	Loan Received	Repayment	Generation -Based Incentive	Avoided Electricity Cost	Annual Cash Flow	NPV of Annual Cash Flow	Cumulative NPV
2016	-791,980	475,188				-316,792	-316,792	-316,792
2017			-119,760	3,000	97,776	-18,984	-17,909	-334,701
2018			-119,760	3,000	103,680	-13,080	-11,641	-346,342
2019			-119,760	3,000	109,872	-6,888	-5,783	-352,125
2020			-119,760		116,496	-3,264	-2,585	-354,710
2021			-119,760		123,408	3,648	2,725	-351,985
2022					130,896	130,896	92,277	-259,708
2023					138,672	138,672	92,225	-167,483
2024					147,024	147,024	92,245	-75,238
2025					155,808	155,808	92,223	16,985
2026					165,168	165,168	92,229	109,214
2027					175,104	175,104	92,243	201,457
2028					185,616	185,616	92,245	293,702
2029					196,704	196,704	92,223	385,925
2030					208,512	208,512	92,225	478,150
2031					221,040	221,040	92,232	570,382
2032					234,288	234,288	92,227	662,609
2033					248,400	248,400	92,247	754,856
2034					263,232	263,232	92,222	847,078
2035					279,072	279,072	92,237	939,315
2036					295,776	295,776	92,224	1,031,539

Annual Cash Flows for household consuming 400 units/month (with loan)

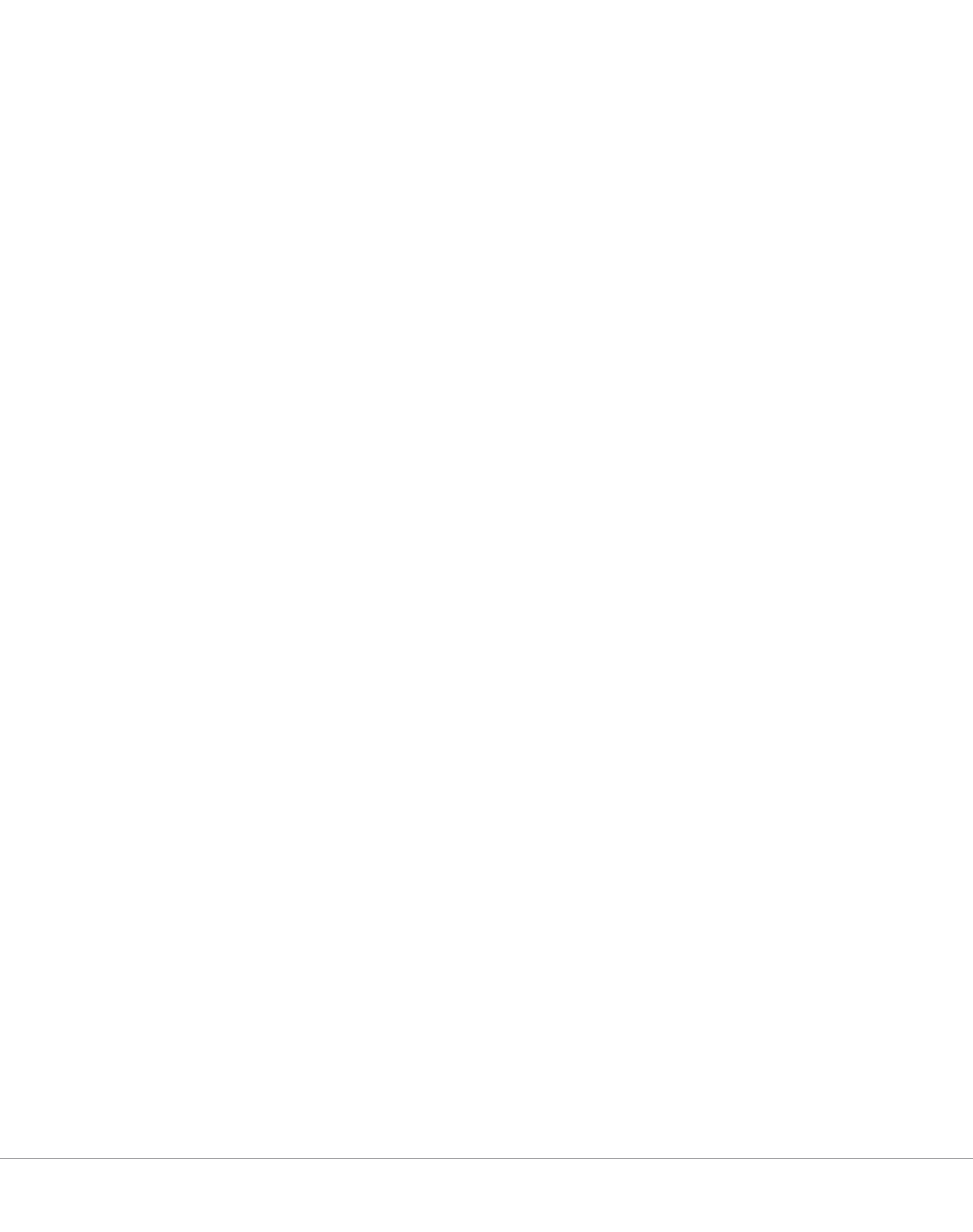
Year	System Cost	Loan received	Repayment	Generation -Based Incentive	Avoided Electricity Cost	Annual Cash Flow	NPV of Annual Cash Flow	Cumulative NPV
2016	-257,740	154,644				-103,096	-103,096	-103,096
2017			-38,974	3,000	23,904	-12,070	-11,387	-114,483
2018			-38,974	3,000	25,344	-10,630	-9,461	-123,944
2019			-38,974	3,000	26,880	-9,094	-7,635	-131,579
2020			-38,974		28,464	-10,510	-8,325	-139,904
2021			-38,974		30,192	-8,782	-6,562	-146,466
2022					31,968	31,968	22,536	-123,930
2023					33,888	33,888	22,537	-101,393
2024					35,904	35,904	22,527	-78,866
2025					38,064	38,064	22,530	-56,336
2026					40,368	40,368	22,541	-33,795
2027					42,768	42,768	22,529	-11,266
2028					45,360	45,360	22,543	11,277
2029					48,048	48,048	22,527	33,804
2030					50,298	50,298	22,247	56,051
2031					54,000	54,000	22,532	78,583
2032					57,216	57,216	22,523	101,106
2033					60,672	60,672	22,531	123,637
2034					64,320	64,320	22,534	146,171
2035					68,160	68,160	22,528	168,699
2036					72,240	72,240	22,525	191,224

Annual Cash Flows for household consuming 600 units/month (with loan)

Year	System Cost	Loan received	Repayment	Generation-Based Incentive	Avoided Electricity Cost	Annual Cash Flow	NPV of Annual Cash Flow	Cumulative NPV
2016	-401,380	240,828				-160,552	-160,552	-160,552
2017			-60,694	3,000	41,400	-16,294	-15,372	-175,924
2018			-60,694	3,000	43,920	-13,774	-12,259	-188,183
2019			-60,694	3,000	46,512	-11,182	-9,389	-197,572
2020			-60,694		49,320	-11,374	-9,009	-206,581
2021			-60,694		52,272	-8,422	-6,293	-212,874
2022					55,368	55,368	39,032	-173,842
2023					58,752	58,752	39,073	-134,769
2024					62,280	62,280	39,075	-95,694
2025					65,952	65,952	39,037	-56,657
2026					69,912	69,912	39,038	-17,619
2027					74,160	74,160	39,067	21,448
2028					78,624	78,624	39,074	60,522
2029					83,304	83,304	39,056	99,578
2030					88,272	88,272	39,043	138,621
2031					93,600	93,600	39,056	177,677
2032					99,216	99,216	39,056	216,733
2033					105,192	105,192	39,065	255,798
2034					111,456	111,456	39,048	294,846
2035					118,152	118,152	39,051	333,897
2036					125,280	125,280	39,063	372,960

APPENDIX 3: Interview questions for solar developers

1. What are the capacities of different solar systems available? What is their price?
2. What are the numerical magnitudes for the various costs involved in purchase and installation of solar equipment in 3 different cases: capacities of 3, 5 and 10 kWp?
3. Do the costs above include the 30% subsidy offered by the Ministry of New and Renewable Energy?
4. Given a fixed household electricity consumption level per month (say 400 units/600 units/1200 units), what should be the capacity of the solar panel bought in all three cases?
5. Since the distance between point of consumption and point of use of the solar energy is negligible in this case, do we assume there is no wastage? i. e. Do we assume that 6 kW energy generated is wholly available for the household? In other words, in case of wastage due to transmission losses, what is the percentage of total power produced that is assumed to be available for use?





HEALTH

Mohalla Clinics: Will they address the health needs of the *Aam Aadmi* in Delhi?

Naomi Hazarika, Nithya Srinivasan, Tanya Sharma

EXECUTIVE SUMMARY

The Delhi Government has come up with the concept of ‘Mohalla Clinics’, with the aim of bringing primary healthcare delivery systems right to the doorsteps of its citizens. The paper reviews the Mohalla Clinics system and seeks to identify the health needs of Delhi citizens with regard to the two branches of healthcare, i.e. public health and healthcare delivery systems.

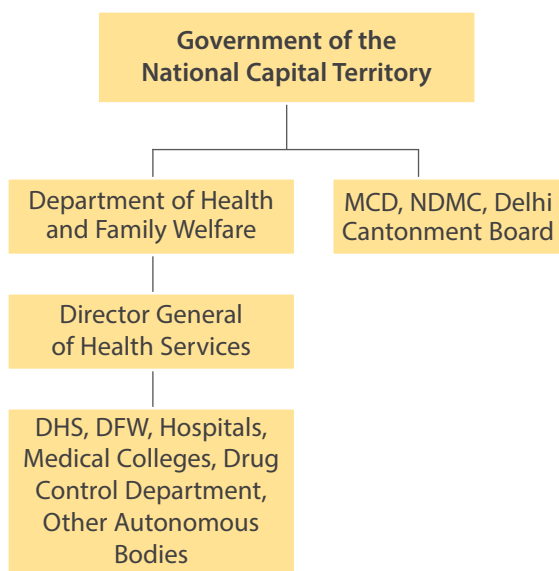
The study finds that Delhi needs a robust and decentralised primary healthcare sub-centres such as Mohalla Clinics and that these are cost-effective. The paper recommends modifications to the Mohalla Clinics scheme in order to incorporate the parallel aspect of preventive public health and emerge as ‘Wellness Clinics’.

KEY FINDINGS

1. India has historically under-spent on healthcare, while public health has over-emphasised vertical programmes that focus on a single condition or small group of health conditions.
2. The two most important issues related to healthcare in Delhi were the lack of access to primary healthcare and the lack of sufficient preventive health measures under public health.
3. The newly launched Mohalla Clinic Scheme of the Delhi Government seeks to provide decentralised access to primary healthcare in the city, easing the burden of bigger hospitals like AIIMS and Safdarjung hospital.
4. Overall, 80-100 percent of citizens were satisfied with the services, location, infrastructure, and doctors of the Mohalla Clinics, where they existed.
5. Those seeking healthcare facilities from public systems varied with locations. Almost all the citizens in Peeragarhi used public healthcare facilities as opposed to Hauz Khas or Safdarjung Enclave where only a third availed public health facilities. More than half of Munirka’s citizens availed public healthcare facilities.
6. Public Health needs also varied with geography. Some areas needed better sanitation to improve public health in their neighbourhood, while others needed greater awareness about nutrition, and yet others needed information about substance abuse. Health needs differ based on income levels, education and awareness levels, demographic composition and availability of healthcare facilities.
7. Mohalla Clinics have the potential to move beyond being sub-centres with primarily curative functions and become Mohalla-specific wellness centres targeting the specific health needs of different neighbourhoods and taking into account preventive public health measures at a local level.

Background

Health has two facets: public health, and the healthcare delivery system. The former refers to the health of the community, and the latter to the improvement of one's well-being through diagnosis and treatment. The difference between public health and the healthcare delivery system is that public health works prior to the occurrence of diseases, as opposed to the healthcare delivery system of trained doctors and nurses who focus on treating patients once they have acquired an illness, or have been injured.



For public health, Delhi primarily has vertical health programs (health programs that specifically target

a particular disease) in place. For example, to tackle tuberculosis, there is a Revised National Tuberculosis Control Program (RNTCP) launched in 1997 and implemented in Delhi by the Delhi Tapedic Unmulan Samiti (DTUS). However, Delhi's poor air quality and poor sanitation continue to threaten the health of Delhi's citizens.

The Indian healthcare delivery system involves the public and private sector. The government spends 1.16% of GDP (Gross Domestic Product) on health (Ministry of Health and Family Welfare 2015), of which 80% (Mukherjee 2014) is sub-national—raised and spent by the states themselves. Of the ₹5,259 crores allotted to health in Delhi's 2016-2017 budget, planned public health expenditure is ₹3,200 crores, which is 16% of the total plan outlay (Delhi Budget 2016-2017). The public providers at the State level include Government of NCT of Delhi, MCD, and the NDMC. Healthcare is also provided by sub-centres, mobile vans and so on. Delhi, in particular, has also seen a tremendous growth in private healthcare providers over the past decade.

The Delhi Government has proposed the Delhi Health Bill, 2015 to regulate services provided by hospitals and clinics in the national capital, seeking to bring all Clinical Establishments, including big private hospitals, under a state-level framework of regulation (Deshmane 2015). This bill is the Delhi adaptation of The Clinical Establishment Act, 2010.

Key Problems Identified in the Health Sector

Lesser Focus on Primary Healthcare

The three aspects of healthcare—primary, secondary, and tertiary healthcare—can be arranged in a pyramid. In the ideal scenario, the pyramid should have a developed primary healthcare section which “streamlines upward” to more specialised care (Institute for Work & Health 2016). However, in Delhi’s present scenario, the pyramid is inverted. Delhi has mature tertiary healthcare with high technical ability attracting medical tourism from around the world, in stark contrast with its coverage-lacking primary healthcare (Roychowdhury 2014).

So far, the government has looked at public health problems with a mission-led lens, but largely missed the preventive aspect. For example, in Delhi, various public health related schemes have been instituted to tackle issues like tuberculosis, HIV/AIDS and provide maternal and child healthcare. But these schemes only target a specific section of the population and miss the preventive component (they deal directly with diseases). Current public health schemes do not cover preventive public health issues such as sanitation, drinking water, the importance of hygiene, awareness about nutrition, and environmental concerns such as poor air quality—reported to reduce lifespan in Delhi by six years (Rohatgil 2016). While vertical health programs may be helpful in reducing a specific disease burden in the short term, they often cause disruption in routine primary healthcare provision (Devadasan, Boelaert, et al. 2007).

Table 1: Area-wise prevalence (per 1,000) of chronic diseases

Area	Arthritis		Diabetes		Chronic Bronchitis		Hypertension	
	No.	%	No.	%	No.	%	No.	%
Village	102	9.7	42	4.0	74	7.0	65	6.2
Jhuggi Jhopri colonies	55	5.4	2	0.2	99	9.7	21	2.1
Resettlement colonies	172	9.7	52	2.9	162	9.2	98	5.5
Old Urban colonies	627	14.0	454	10.2	396	8.9	546	12.2
New Urban colonies	163	22.3	186	25.5	50	6.8	176	24.1
DDA Flats/ Govt. Qtrs.	154	14.0	134	12.2	98	8.9	184	16.7
All	1273	12.6	870	8.6	879	8.7	1090	10.8

Variation in Healthcare Requirements

There is a remarkable heterogeneity in health needs across vertices of location, income, etc. Primary and secondary data indicate these differential health needs. A few case studies further illustrate this heterogeneity in health needs across Delhi.

CASE STUDY 1: Occurrence Of Lifestyle Diseases Across Neighbourhoods

Chronic diseases such as diabetes, arthritis and hypertension were found to be more prevalent in the higher economic strata and chronic bronchitis was more prevalent among people from a comparatively lower economic strata (Gupta and Pandey 2006).

It is evident from the first table, that the prevalence of arthritis, diabetes, and hypertension was the highest among people of New Urban Colonies. The economic status of the people of these colonies was higher as compared to those of other colonies. Chronic

bronchitis was more prevalent among people of *Jhuggi Jhopri* and resettlement colonies, where the people were of lower economic status. The occurrences of all the four diseases among people seemed to increase with age. The significant prevalence has been observed among people of age 15 years and above (Table 2).

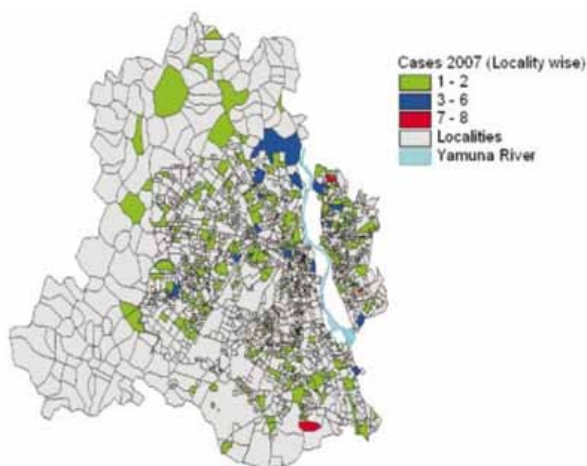
CASE STUDY 2: Concentration of Malaria across Delhi's Neighbourhoods

A study by the National Malaria Research Institute supplements the idea of differential disease prevalence in different localities. Delhi has reported the highest number of deaths due to malaria as compared to the other states in India. Out of the total cases, 31% were reported from Delhi and adjoining areas. A Geographical Information System (GIS) based Dengue Surveillance System was developed for monitoring and control of dengue in Delhi by the National Malaria Research Institute. It recorded 139 million populations over three

Table 2: Age-wise prevalence (per 1,000) of chronic diseases

Age groups in Years	Arthritis		Diabetes		Chronic Bronchitis		High Blood Pressure	
	No.	%	No.	%	No.	%	No.	%
<5	1	0	0	0	11	1.1	0	0
5-15	6	0.3	3	0.1	43	1.9	0	0
15-30	35	1.1	11	0.4	85	2.8	41	1.3
30-45	315	14.8	141	6.6	202	9.5	213	10.0
45-60	439	39.6	378	34.1	265	23.9	465	41.9
60 and above	478	81.4	337	57.4	273	46.5	371	63.2

localities: Municipal Corporation of Delhi (MCD), New Delhi Municipal Committee (NDMC) and Cantonment area. Digital maps of streets were used to create the GIS database. Streetwise dengue cases were mapped to identify clusters that required intense attention for control of the disease. The data was used to identify breeding sources contributing to the proliferation of the disease and undertake situation-specific control measures. Based on this GIS mapping, a focused control strategy has been put into place (map).



Quality of Doctors

Information asymmetries in the quality assessment of doctors is a universal problem in the healthcare sector. Firstly, the skewed distribution of medical colleges as well as the existence of makeshift medical colleges lacking basic infrastructure result in inadequately trained medical professionals. Secondly,

medical councils at the national level (Medical Council of India) and state level (Delhi Medical Council) have a conflict of interest in appropriately addressing grievances against doctors, as these boards are composed of doctors themselves (Phadke 2016). Further, Kumar (2006) points to the quackery issue, estimating around 30,000 non-qualified practitioners in Delhi.

Regulation of private clinics and hospitals also impacts the quality of doctors. This point is pertinent now more than ever as big private hospitals have burgeoned and are important players in healthcare (Sengupta 2005). Their regulation framework is not adequate.

Frequent Change in Healthcare Policy

A major problem of the healthcare system is the constant change that it is subjected to with the onset of a new political party's tenure. Sustenance of any particular idea or scheme is essential for its long-term success and must be independent of any political will. For the system to run efficiently, a certain degree of autonomy must exist.

Transparency in Healthcare

A transparent mechanism is required to allow healthcare to effectively reach out to the economically weaker groups.

An example of an area where transparency is missing is the procurement and delivery

of medical equipment. The Audit Report of 2015 tabled in the Delhi Assembly on 13 June 2016 concluded that a comprehensive plan for the procurement of medical equipment has not been prepared at the Department or at the hospital level, as shown by the quote from a CAG report (2016).

Due to lack of coherent planning and implementation, the result has been a delay in the delivery of medical equipment to the extent that as much as an alleged ₹3.16 crores excess in the budgetary planning of procuring medical consumables. This delay in procurement could have been avoided with transparent policies.

There was delay ranging up to two years in procurement and delivery of medical equipment, eventhough though this activity was outsourced to an agency with the specific objective of eliminating such delays. An amount of ₹60.65 lakh was paid to the agency as consultancy fee. Hospitals failed to impose penalty of ₹95.84 lakh on defaulting suppliers for delayed supply of essential medical equipment. Advances of ₹73.62 crore given to suppliers remained unadjusted from the year 2005 till date in hospitals test-checked.

High Out-of-Pocket Expenditure

India ranks among the top 20 of the world's countries in its private spending on healthcare, at 4.2% of GDP (World Bank 2001), and ranks among the lowest in public spending on healthcare at 1.16% (Ministry of Health & Family Welfare 2016). Out-of-pocket expenditure refers to private expenditure incurred by patients to pay for healthcare. India's out-of-pocket expenditure ratio is a staggering 61%, much higher than most other low and middle-income countries (McKinsey 2012). This means that most Indian patients pay for their hospital visits and doctors' appointments with straight-up cash after care with no alternate payment arrangements.

The Mohalla Clinics Scheme, 2015

It has been recognised since the late 1970s that a functioning primary healthcare system, which is accessible within a reasonable geographical distance, is likely to take care of the majority of the health needs of the people. This was acknowledged at the global level by the Alma Ata declaration in 1978 and accepted in India's National Health Policy, 1983 and 2002 (Lahariya 2016).

The recent Mohalla Clinics Scheme 2015 is a step towards universal access to primary healthcare services in Delhi. Mohalla Clinics are community clinics (also called *Aam Aadmi* Clinics or "Clinics at your doorstep"), that aim at expanding peripheral health facilities or the primary healthcare system.

These clinics are proposed to be set up in the innermost circles of “Mohallas” especially in poor and marginalised neighbourhoods. The scheme is an attempt to further decentralise healthcare in Delhi and strengthen the first tier of primary healthcare in the three-tier healthcare system.

These clinics are designed to address common healthcare needs of citizens, undertake a large complement of diagnostic tests and provide all essential medicines. These single doctor OPDs seek to address most of the common healthcare scenarios where specialists are not needed (Delhi Budget 2016-2017). Apart from rapid diagnostic tests such as digital blood pressure monitors and glucometers (for random blood sugar tests), lab technicians in these clinics collect samples for more than 212 tests that are conducted free of cost (Scroll.in 2016).

Patients are examined using an internet connected electronic tablet based protocol and medicines are prescribed and dispensed by the doctor. The biometric listing of patients will be maintained along with a list of medicines dispensed (Department of Health and Family Welfare 2015). All this data is then stored in a digital cloud and made available to the government. Use of this technology promotes both permanence of records and provides data for further analysis at a higher level.

According to the scheme, the clinics shall have two or three rooms with electricity, water, and sewer connection, which shall be rented by the government. The cost of setting up a clinic is ₹20 lakh. The

basic pharmacy shall be stocked by Chief District Medical Officer (CDMO) of the district. The fully ready chamber will be made available to doctors who are empanelled to manage them in four hour shifts as an OPD clinic. Private, qualified doctors are being requested to apply to the government to be empanelled as the AAMC Chamber doctor. IEC (Information Education Communication) material will be displayed and maintained by the CDMO (Department of Health and Family Welfare 2015).

Each clinic will be staffed by a doctor, a nurse, a pharmacist and a laboratory technician. These units will provide a package of services which include outpatient consultations, free medicines and diagnostics, immunisation, family planning, referral and counselling services. At a later stage, there are plans to have specialists such as gynaecologists and ophthalmologists on a weekly basis (Lakhariya 2016).

The doctors are proposed to be paid at the rate of ₹30 per patient as consultation charges. If a helper is positioned, an additional ₹10 per patient is paid to the doctor. It is expected that on an average each doctor is able to examine around 50 patients in a four hour shift (Department of Health and Family Welfare 2015).

The government has promised to set up 500 to 1,000 clinics, or 14 clinics per assembly constituency (Lahariya 2016). A pilot project for running 100 Mohalla Clinics through empanelled doctors positioned in rented locations is underway (Delhi Budget 2016-2017).

Three of them—in Peeragarhi, Nathupura, and Mandavalli—are permanent clinics that run between 7 am and 7 pm and are manned by doctors from the State Health Department. The rest are set up in Porta Cabins by the Publics Works Department out of rented premises, where the Delhi government has hired private doctors, who see patients between 8 am and 1 pm (Scroll. in 2016).

About the Study

In order to gain an understanding of the health needs of Delhi's citizens and assess the implementation of Mohalla Clinics, a survey was conducted in four localities: Peeragarhi, Munirka, Hauz Khas and Safdarjung Enclave. The Peeragarhi Mohalla Clinic is one of the oldest, operating since July 2015 while the Munirka Mohalla Clinic is fairly recent. We studied two clinics to get a better understanding of the scheme as it operates on the ground. Survey results from residents of Hauz Khas and Safdarjung Enclave were limited to qualitative data in order to understand needs and behaviours toward health among Delhi's citizens. The data gathered has been substantiated with secondary research including an extensive literature review and media scan.

The limitations of the study stem from the sample size as we interviewed 15-17 people from each locality. The survey was conducted during the afternoon, which may also impact the findings, as people engaged in work or at offices escaped the purview of our study.

Health Needs are Diverse

In Peeragarhi, sanitation and sewage were open and identified as a serious health hazard, indicating a need to employ preventive public health measures. In Munirka, pollution and congestion were identified as a health hazard and residents complained about the lack of open spaces to play and exercise.

Residents of Haus Khas and Safdarjung Enclave complained about the incompetence of public doctors. Most citizens availed private healthcare services and relied on family doctors and references. Their concerns were associated with the needs of senior citizens.

Quality of Access to Health Services also Differ

Citizens in Hauz Khas and Safdarjung were most likely to wait for less than an hour when they went to a healthcare facility, whereas citizens in Munirka and Peeragarhi were most likely to wait between four and eight hours.

Residents from Peeragarhi used public healthcare facilities as opposed to Hauz Khas or Safdarjung Enclave where only a third of the respondents availed public healthcare facilities. Munirka was in the middle with 59% of respondents availing public healthcare facilities.

Less than half (47%) of the respondents from Safdarjung Enclave and Hauz Khas availed some sort of health insurance. The figure in Munirka was less than a quarter (24%). However, the figure was significantly

lower in Peeragarhi, where less than 6% of the respondents availed health insurance.

Mohalla Clinics: The Insiders' View

Among the few Mohalla Clinics in operation, a study was conducted among those in Peeragarhi and Munirka. These are different in terms of duration of establishment, infrastructure and nature of engagement of doctors, and represent the two dominant models of the Scheme.

	Peeragarhi	Munirka
Inaugurated	July 2015	March 2016
Construction	Porta Cabin	Rented space
Doctor	Public	Private

Patients' Responses

Patients were largely satisfied with the overall services, location, infrastructure, and doctor. However, the respondents also made recommendations for improving the Mohalla Clinics, which included:

- Increased transparency, such as explaining the health conditions of the patients and informing them of treatment options.
- Improving infrastructure, i.e. developing bigger clinics and building fences for safety of women and children.
- Improved availability of medicines.
- Faster generation of test reports, which currently takes about three to four days.

Doctors' Responses

Doctors were interviewed to understand their concerns and recommendations regarding the clinic, and what incentivised them to take up the job. The overall findings indicated that the doctors were satisfied with their medicine stocks and felt that patients were satisfied. The doctor in Peeragarhi did not use electronic tablets to enter her patients' data on the cloud system. The doctor in the Munirka clinic, however, did use the tablet.

Their main concerns and recommendations were as follows:

- Sustainability of the project, given its dependence on political agendas.
- Location of the Clinics, which should ideally be in the innermost circles of the JJ Colonies.
- Lack of awareness programmes, regarding public health and preventive healthcare.
- Training of technology use, and backup systems for recording data and systematic checks.
- Accountability of doctors, in terms of proper records and systems of checks and balances.
- Improved infrastructure, in terms of bigger premises, uninterrupted power and water supplies, and access to an ambulance for emergency cases.

Incentive Structure of Interviewed Doctors

	Doctor A (Public)	Doctor B (Private)
Where did you work before?	Public Urban Health Center (Nihal Vihar), Employed under the NRHM (National Urban Health Mission) – RCH (Reproductive Child Health).	NA
P.G. Student currently pursuing his Diploma in medicine.	Hours of Work	Minimum Wages Act, 1948
What do you like about working here?	Serving people who need primary healthcare the most.	The timings are from 9 am -1 pm. The four-hour duration of the shift helps manage medical practice with studies.
Why did you choose to work here?	Service: Believes primary healthcare is more required in areas where people are most in need.	Similar provisions in the Factories Act, 1948, but covers only workers in factories, not those in shops and establishments.
Transfer: Transferred from Nihal Vihar dispensary.	Experience: Get to see 100+ patients a day. Would not be possible in a private practice.	None
What incentives might other doctors' have to work at a Mohalla Clinic?	Unsure about the incentives of private doctors. Raised questions about their accountability.	Retired doctors who are looking for short working hours and some pay.

Mohalla Clinics: the Outsiders' View

Access to primary healthcare services has increased for the urban poor. Many of the Mohalla Clinics have been set up in the innermost circles of *Jhuggi Jhopris* increasing outreach in those areas.

Waiting time, which is an opportunity cost (especially for daily wage earners), has come down to a large extent. At Peeragarhi and Munirka, the waiting time has decreased from a few hours to around 15-20 minutes on an average. Similar results have been noted across almost all Mohalla Clinics in the city (Scroll.in 2016).

The cost of healthcare services has reduced for the poor. Along with the significant reduction in travel and opportunity costs, Mohalla Clinics provide free medicines and diagnostic tests. Though public dispensaries also provide free services, patient overload and uncertain availability of medicines are major deterrents. In addition to costs, quality of private healthcare services is often suspect.

Mohalla Clinics are succeeding in giving quacks a run for their money. For example, Peeragarhi has plenty of quacks and practitioners of a controversial system of medicine called 'Electrotherapy'. In Peeragarhi's Punjabi Clinic, these so-called

doctors admitted that the Mohalla Clinic was taking away their patients (Scroll.in 2016). Similar responses about unqualified doctors were reported in Munirka.

Mohalla Clinics have the potential to alter health-seeking behaviour (Lakhariya 2016). A majority of migrants, being new to the city, are hesitant about visiting bigger healthcare facilities until the illness turns serious. They typically end up going to unqualified providers.

Sustainability of Mohalla Clinics

Mohalla Clinics are highly cost-effective. The one-time cost of these 1,000 clinics is approximately ₹200 crores, less than what is needed for setting up a secondary hospital (the budget allocation for setting up a new AIIMS is ₹820 crores, and eight such institutions are sanctioned in two phases).

Mohalla Clinics have strong political support. The State Government has already allocated nearly ₹125 crore for Mohalla Clinics while increasing the health budget by 50%, in keeping with electoral promises made by the ruling party. This could also be a challenge since the identification is strong. For example, there are several visual symbols of the political party in addition to a photograph of the Chief Minister, Mr. Arvind Kejriwal, in the Peeragarhi Mohalla Clinic. The Clinic has earned the popular sobriquet of “AAP Clinic”.

As a Government initiative, Mohalla Clinics also run the risk of bureaucratisation and centralisation.

Some of the early hiccups include:

- **Timing:** many citizens complained that the morning shifts were inconvenient as they would either be at school or work, and would prefer an evening shift.
- **Doctors:** Delhi has the advantage of fresh graduates as well as retired senior physicians who would be ideal for the project. However, proper incentives must be developed for hiring and retaining private doctors for at least three years at any location.
- **Staff:** Doctors should be empowered to hire their own staff using model contracts that provide for incentives and fixed tenures.
- **Accountability:** Outcome-based budgets need to be provided to each Mohalla Clinic to optimise operations. This could be based on basic information such as a number of patients treated and patient feedback, monitored electronically using simple metrics. While the Peeragarhi Mohalla Clinic used paper-based manual registers, the Munirka Mohalla Clinic used technology and stored the data of all the patients on the Cloud.

Mohalla Clinics to Mohalla Health Centres

Primary healthcare is intricately linked with public health and a holistic approach needs to be taken at the grassroots. It is proposed that Mohalla Clinics, equipped with their infrastructure and strategic locations, can aim higher and tackle

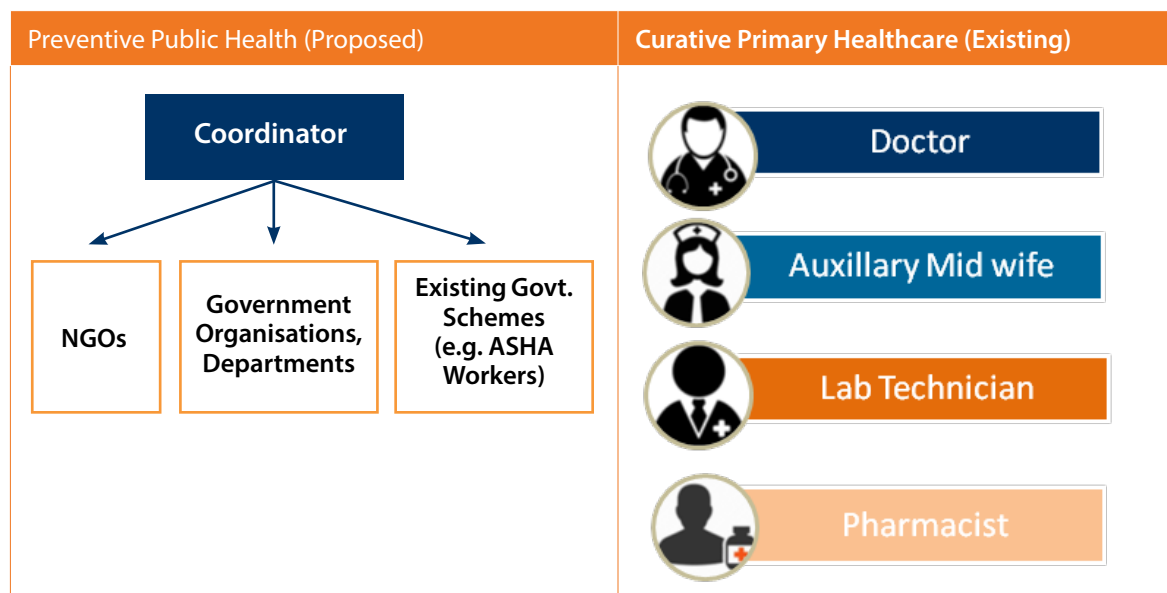
not only the issue of lacking primary healthcare but also the issue of lacking preventive public health. Mohalla Clinics can move beyond being sub-centres with primarily curative functions and become neighbourhood-specific (Mohalla-specific) wellness centres targeting the varying health needs of respective neighbourhoods.

For a wellness centre to address the health needs of the neighbourhood it must have a mechanism to monitor the current status of health and public health related problems in the neighbourhood and respond to these as they change.

To incorporate the parallel aspect of preventive public health in Mohalla Clinics, we propose that a Coordinator (person or organisation) be employed. Just as the core team of medical professionals provides curative primary healthcare, the Coordinator will be in charge of providing preventive public healthcare to the neighbourhood.

Ideally, the Coordinator will be a public health professional who is hired on contractual basis (as the private doctors) to monitor and analyse data (with the help of technology) and prepare periodic reports for each Mohalla.

Incentive Structure of Interviewed Doctors



Examples of preventive public healthcare activities to be led by the coordinator:

- Immunisations and Vaccinations
- Sanitation and Hygienic Living Conditions
- Nutritional Awareness
- Safe Drinking Water
- Pest control
- Fumigation
- Other environmental concerns related to health

The National Urban Health Mission (NUHM, 2013) specifies various efforts for NGO integration in preventive and promotional capacities with existing polyclinics like Primary Health Centre (PHC). With the addition of Mohalla Clinics as a tier below even, it is proposed that this link between NGOs and PHCs also be further decentralised to make it easier to conduct educational activities and public health camps.

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EDUCATION

An Assessment of School Management Committees

Devika Chopra, Rishabh Rekhade, Shreshta Sharma

EXECUTIVE SUMMARY

The Right to Education Act, 2009 mandates the creation of School Management Committees (SMCs) in order to increase the role of parents in the management of schools. SMCs are aimed at increasing the accountability of government schools, where owing to a variety of factors including but not limited to teacher apathy, the quality of education imparted to the students has been poorer than their private counterparts. This paper assesses the functioning of School Management Committees (or SMCs) in Delhi's Directorate of Education (DoE) Schools.

Telephonic interviews were conducted with stakeholders including parents, social workers and teachers from 30 DoE schools representing 5 districts of Delhi. Secondary data was collected from NGOs working with SMCs in Delhi such as Saajha, JOSH, and Matri Sudha, among others. The study identifies four key issues with the functioning of Delhi SMCs and makes recommendations for addressing these: lack of clarity in the wording of the Delhi SMC rules; lack of awareness amongst parent members of SMCs; irregularity of meetings; and lack of recognition preventing parents from conducting random visits to schools.

KEY FINDINGS

1. The quorum required for an SMC meeting is 5 out of 16 voting members. 4 of the 16 SMC members include the principal, teacher, elected representative and social worker. Thus, any resolution can be easily passed without majority of parents which goes against the spirit of a School Management Committee.
2. 46% of the parents interviewed were uninformed about their roles and responsibilities as SMC members. While 54% of the parents were informed, they did not conclude the question to be specifically about the roles and responsibilities as prescribed by the act, but understood broadly as they answered "We have to take care of the school".
3. 68% of the social workers and the teachers interviewed reported that the government had provided them training to fulfil their roles as members of the SMCs.
4. A major component of an SMC, as prescribed by the RTE, 2009, is the creation of a School Development Plan (Preparation of School Development Plan 2013). 77% of the parents surveyed were not aware of a document by that name. Nearly 30% of the unaware parents asked the surveyors to explain the School Development Plan. The social workers and teachers reported that a lack of awareness amongst parents often hinder the effective functioning of the committee.
5. 9 out of 22 social workers and teachers also reported a lack of monetary

transparency. Interviews indicated that expenditure breakup was not in the hands of the SMCs. Some social workers claimed that even after becoming SMC members, they remained uninformed about the plan.

- An important function of SMCs is monitoring implementation of the Mid-Day Meal, yet only 35% (41 out of 115) of parents mentioned inspection of the meals as a part of their responsibility.

Introduction

The major Acts and Policies that govern the Structure of Education in Delhi are:

- The National Policy on Education:**
 Formulated in 1986 and modified in 1992, it aims at providing quality education to all students irrespective of their backgrounds. It lays stress on the need for radical transformation of the education system to improve quality at all stages. The NEP proposed the provision of free and compulsory education up to 14 years of age.
- The Delhi School Education Act, 1973 and the Delhi School Education Rules, 1973:**
 Formulates the guidelines for the functioning of the Directorate of Education such as the regulation of education, establishment, management, recognition and upgradation of schools, terms and conditions of the service of the employees, admission to schools and fees, taking over the management of the school, opening of new schools or classes and closure of existing ones, code of conduct for teachers and other employees, school fund, duties and responsibilities of Schools Management Committees, inspection of schools etc. (RTE Forum n.d.)
- The Right of Children to Free & Compulsory Education (RTE) Act:**
 Came into force on 1 April 2010 and seeks to provide and ensure admission, attendance, and completion of elementary education, for all children in the 6-14 age group. With this, India has moved forward to a rights-based framework that casts a legal obligation on the Central and state governments to implement this fundamental child right as enshrined in Article 21A of the Constitution (Department of School Education and Literacy, Ministry of Human Resource Development 2016).

S. No	Key Data (2014-2015)	Total Number
1	Total Schools	5739
2	Delhi Government Schools	1,145
3	MCD Schools	1,794
4	NDMC Schools	82
5	Other (Kendriya Vidyalaya +Delhi Cantonment Board)	50
6	Private Schools	2897
7	Total Enrolment	2,991,067
8	Enrolment in Government Schools	1,704,446
9	Enrolment in Private Schools	1,286,621
10	Total Teachers	139,480

Source: District Report Cards 2014-15 Volume 1, National University of Educational Planning and Administration

Budget

The Delhi Government, under the Aam Aadmi Party, has prioritised the education sector. In 2016, this sector received a majority of the funds, with a total expenditure of ₹10,690 crores. This is 23% of the total budget and an increase of 8.7% from last year. Of this, ₹4,645 crores are allocated under the plan fund (The Indian Express 2016).

Quality of learning is the main focus this year. In order to achieve this goal, the government has given a boost to skill development and teacher training. ₹102 crores has been earmarked for training of teachers in foreign universities and the budget for skill development in schools has been raised to ₹152 crores. An additional sum of ₹8 crores has been allotted for “extracurricular activities such as theatre, music, creative writing and photography” (Sharma 2016). In order to ensure security, ₹100 crores has also been allocated to install CCTV cameras in all government schools. An additional budget of ₹50 crores is being set aside to train 50,000 students in vocational skills (The Financial Express 2016).

The Delhi Government has also released ₹745.98 crores of the combined budget estimate of the three municipal corporations for the financial year of 2016-17: ₹404.02 crores to NDMC, ₹171.13 crores to SDMC and ₹170.83 crore to EDMC (Business Standard 2016).

According to the stakeholders, the financial crisis of the three civic bodies is rooted in the trifurcation of the

erstwhile Municipal Corporation of Delhi. The trifurcation tripled the number of officers within the corporation; one commissioner was replaced by three, 11 additional commissioners were put in place and 30 committees tripled to 90. In order to endure these financial issues, the trifurcated MCD required resorting to loans to finance their operations. According to media reports, “These loans reached approximately ₹2,051 crore at the time of trifurcation. Therefore, South civic body was created with a deficit of ₹850 crore, North with ₹750 crore and East with a loan liability of ₹451 crore” (Iqbal 2016).

A small part of the city, comprising of Lutyens' Delhi and surrounding areas, falls under the jurisdiction of the New Delhi Municipal Council. The council is one of the richest civic agencies in the country. The NDMC Chairperson Naresh Kumar said the council generates 95% of its revenue on its own through license fees, user charges, tax revenue and interest earned on its investments (The Indian Express 2016).

School Management Committees

The RTE, 2009 mandates the creation of School Management Committees (SMCs) in order to increase the role of parents in the management of schools. The logic behind this decision is that carving a greater role for parents will ensure, specifically, greater learning outcomes; and generally, higher standard of education in schools. The SMCs are aimed at increasing the accountability of

government schools, where owing to a variety of factors, including but not limited to teacher apathy, the quality of education imparted to the students has been poorer than their private counterparts.

According to the Delhi School Education Act and Rules 2011, SMCs are to comprise of mostly parents, with three quarters of the committee reserved for them, while the rest will comprise other stakeholder groups such as teachers, management, social workers and local representatives.

For the purpose of this paper, the focus is primarily on assessing SMCs as they currently exist in Delhi government schools, also known as Directorate of Education (DoE) schools. There are two reasons as to why this approach has been utilised: first, the Directorate of Education has made available all of their SMC lists online for public access. Second, The South Delhi Municipal Corporation's office corroborated the lack of centralised SMC lists for schools under the Municipal Corporation of Delhi (MCD), which impaired the possibility of extending this study.

Methodology, Assumptions and Limitations

In order to accomplish the stated objective, a holistic approach was needed. Five out of thirteen of the Directorate of Education districts were selected for the study.

Districts Surveyed:

Centre, South, East, North, West

Number of Schools Surveyed: 25-31

Number of Parents Surveyed:
115 (From 31 schools)

Number of Teachers Surveyed:
26 (From 26 schools)

Number of Social Workers Surveyed:
25 (From 25 schools)

In order to attain that holistic approach, telephonic interviews were conducted of the three main stakeholders—parents, teachers, and social workers—to ascertain whether they were aware of the existence and functions of the SMC and to gauge their understanding of the same. Interviews and meetings were held with members of various organisations working in the field of education.

There exist some caveats with the method of data collection used, namely telephonic interviews:

- 1 There was a difficulty of accessibility as relying primarily on telephonic contact information, many respondents failed to answer calls.
- 2 Even when people did answer, most were reluctant to engage over the phone.
- 3 The interviewer could not see the interviewee, thereby excluding body language and inter-personal conduct as indications.
- 4 Language and dialect differences between the interviewer and the interviewee were an additional constraint.

- 5 In many instances the people being interviewed were not the owners of the phone numbers they had provided for the SMC lists.

There were additional constraints as this paper was completed over a period of six weeks which coincided with summer holidays, resulting in schools being unavailable for information. While the paper attempts to be as representative as possible by including the relevant stakeholder groups; school principals were not contacted.

Delhi School Management Committee

Functions of the School Management Committee, as outlined by the circular issued by the Delhi Government in 2013, are the following:

- 1 Monitor the working of the school.
- 2 Prepare and recommend a School Development Plan.
- 3 Monitor utilisation of grants received from the appropriate government or local authority or any other source.
- 4 Communicate in simple and creative ways to the population and the neighborhood of the school, the right of the child as enunciated in the Act, as also the duties of the Government, local authority, school, parents and guardians.
- 5 Ensure that teachers maintain regularity and punctuality in attending school.

- 6 Hold regular meetings with parents and guardians and apprise them about the regularity in attendance, ability to learn progress made in learning and any other relevant information about the child.
- 7 Monitor that teachers are not burdened with non-academic duties other than those specified in Section 27 of RTE Act.
- 8 Ensure the enrollment and continued attendance of all the children from the neighborhood in the school.
- 9 Monitor the maintenance of the norms and standards specified in the Schedule.
- 10 Bring to the notice of the Government or local authority, as the case may be, any deviation from the rights of the child, in particular mental and physical harassment of children, denial of admission and timely provision of free entitlements as per Section 3(2) of RTE Act, 2009.
- 11 Identify the needs and monitor the implementation of the provisions of Section 4 of the Act which states “where a child above six years of age has been admitted in any school or though admitted could not complete his or her elementary education, then, he or she shall be admitted in a class appropriate of his or her age”.
- 12 Monitor the identification and enrollment of and facilities for admission of children with disabilities and ensure their participation in, and completion of elementary education.

13 Monitor the implementation of the Mid-Day Meal in school.

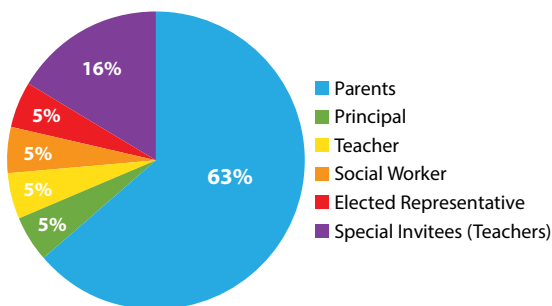
Some of the additional functions of the SMC as proposed under the RTE Bill draft 2005 (Right to Education Bill 2005) were:

- 1 Ensuring the diligent performance of duties by school teachers.
2. Disbursing salary to teachers from the grants received for the purpose from the appropriate government/authority.
- 3 And, deducting payment of salary for the period of unauthorized absence, if any, in a manner as decided by the SMC.

These functions would have allowed the SMC to monitor the functioning of the teachers far more effectively than the present Act. However, they were eventually omitted from the RTE Act, 2009 and therefore from the Delhi School Education Act and Rules, 2011 as well.

Composition of the School Management Committee:

Break up of the School Management Committee



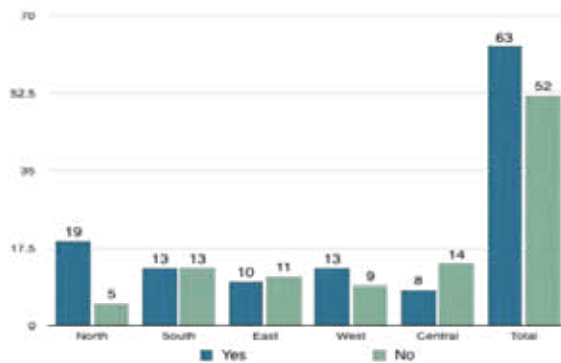
Note:

- 1 One Social Science Teacher, One Math Teacher and One Science Teacher shall be special invitees. According to Abhishek Chaudhary, Chairman of Saaja, the official NGO partner of the DoE for SMCs, these members are not allowed to vote and are present solely for their perspective on issues.
- 2 Fifty percent of the members of this committee shall be women.
- 3 There shall be a proportionate representation of parents/guardians of children belonging to disadvantaged groups and weaker sections.
- 4 Vice Chairperson shall be from amongst the parent members.

FINDINGS AND ANALYSIS

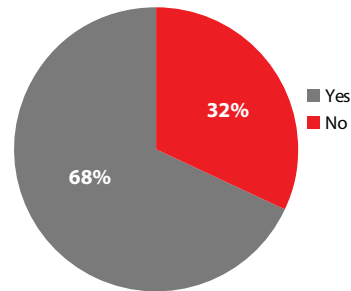
The Delhi Government took a bold initiative in 2015 to revive the SMCs in DoE schools. A circular regarding the election of parent members of the SMC was issued in September 2015 to all Delhi Government schools and aided schools, stating the guidelines for holding elections. At the same time, the government also provided a structure with strict timelines for filing nominations, and criteria for the nomination to be considered valid, as well as the date of election and declaration of results.

Number of parents informed about their role



Parents were asked if they were informed about their roles and responsibilities as SMC Members, to determine whether the parents were provided any sort of training after becoming members. 54% of the parents answered in the affirmative. The parents who did answer “yes” did not conclude the question to be specifically about the roles and responsibilities as prescribed by the Act, but understood broadly as they answered “We have to take

Provision of Training by the Government



care of the school”. The remaining 46% were uninformed.

Concurrently, teachers and social workers were asked whether they were provided any training by the government to fulfil their roles as members of the SMCs. 68% of the social workers and the teachers interviewed reported that the government had provided them training. It was noted that two of the social workers were not aware of any training.

A major component of an SMC, as prescribed by the RTE, 2009, is the creation of a School Development Plan (Preparation of School Development Plan 2013).

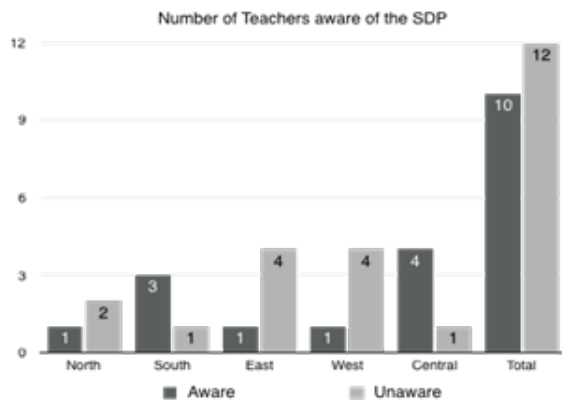
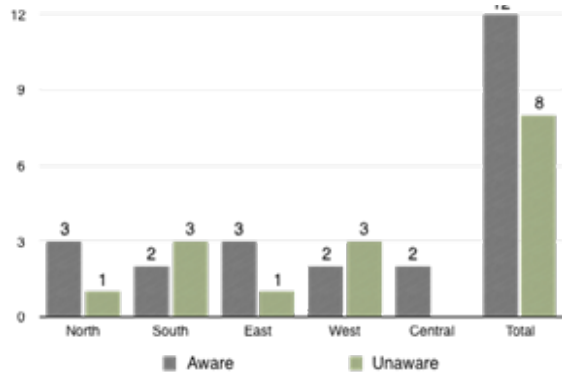
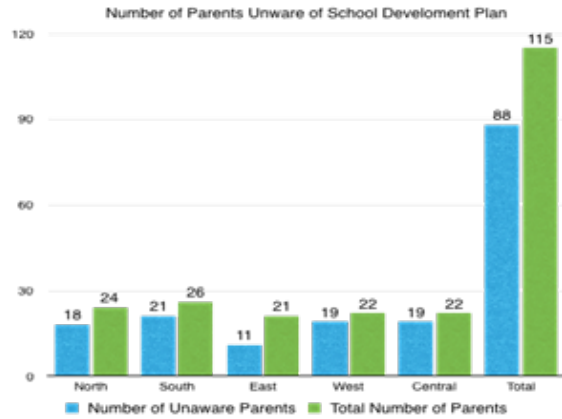
- 1 The School Management Committee shall prepare a School Development Plan at least three months before the end of the financial year in which it is first constituted under the Act.
- 2 The School Development Plan shall be a three-year plan comprising of three annual sub-plans.

3 The School Development Plan shall contain the following details, namely:

- a. Estimates of class wise enrolment for each year.
- b. Requirement of the number of additional teachers, including subject teachers and part-time teachers etc., separately for classes I to V and classes VI to VIII, calculated with reference to the norms specified in the Schedule.
- c. Physical requirement of additional infrastructure and equipment, calculated with reference to the norms and standards specified in the Schedule.
- d. Financial requirement in respect of (b) and (c) above, including additional requirement for providing special training facility specified in Section 4 of the Act, entitlements of children such as free text books and uniforms, and any other additional financial requirement for fulfilling the responsibilities of the school under the Act.

4 The School Development Plan shall be signed by the Chairperson and Vice Chairperson of the School Management Committee and submitted to the Appropriate Authority before the end of the financial year in which it is prepared.

It must be noted that the question did not refer to whether the committee has created a SDP but focussed on illustrating the cognizance of the stakeholder. 77% of the parents surveyed were not aware of a document by that name. Nearly 30% of



the unaware parents asked the surveyors to explain the School Development Plan.

There was a difference between social workers and teachers in terms of their awareness about the School Development Plan. A higher number of social workers reported that their schools had made the SDP in comparison to the teachers. The social workers and teachers reported that a lack of awareness amongst parents often hinder the effective functioning of the committee.

The motivation of setting up and preparing a School Development Plan is to ensure accountability and effective utilisation of the funds received by government schools. Interviews with social workers and teachers indicate that expenditure breakup was not in the hands of the SMCs. Some social workers claimed that even after becoming SMC members, they remained uninformed about the plan.

Some parents mentioned that they are only told about the funds received and are used as “rubber stamps” by the school for their

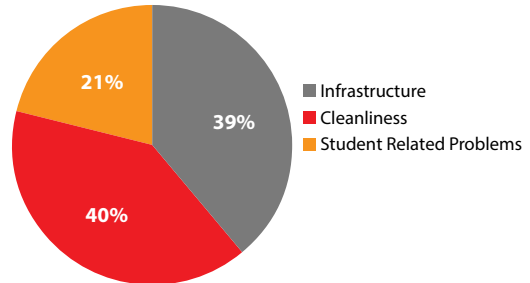
signatures, and that they were not always allowed to inspect whether the funds received are being used for the exact purpose for which they have been sanctioned.

9 out of 22 social workers and teachers also reported a lack of monetary transparency.

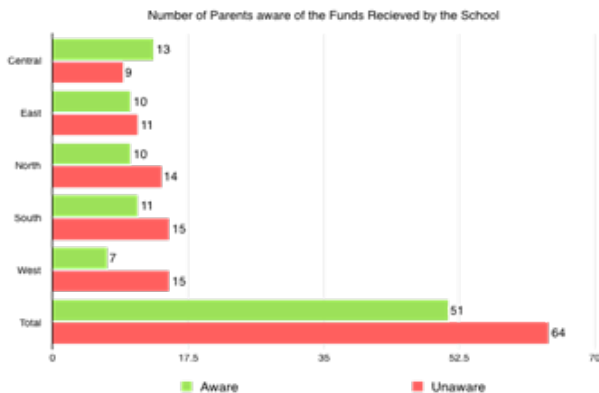
Areas of Focus of the SMCs

“Student related problems” refer to student and teacher absenteeism. Student absenteeism is dealt with by speaking to the parents of other students to understand the reason behind the child’s inability to attend

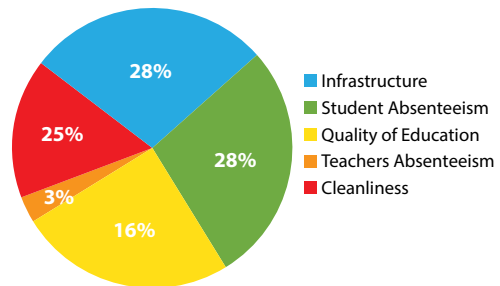
Area of focus of the SMC as per Parents (Total)



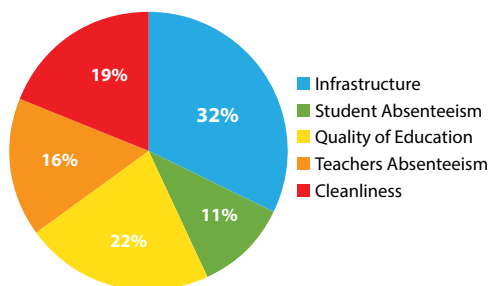
Number of Parents aware of the funds received by the school



Area of focus of the SMC as per Teachers



Area of focus of the SMC as per Social Workers



school. Parents from East Delhi schools reported that they are allowed to take rounds of the school to ensure that teachers are present in the class. Parents from West Delhi and South Delhi schools reported a shortage of teachers. An important function of SMCs is monitoring implementation of the Mid-Day Meal Scheme, yet only 35% (41 out of 115) of parents mentioned inspection of the meals as a part of their responsibility.

As per the Delhi SMC rules, the social worker must be from the field of education. In the survey conducted, only four of the social workers interviewed were from the field of education, while five were social workers from other fields. One of the social workers interviewed was a college student with no prior experience as a social worker.

Recommendations

ISSUE: Lack of Clarity

The circular issued by the Delhi Government in March 2013 regarding the guidelines for the composition and functions of the SMC states that the

quorum of the SMC must be a third of the total strength and every resolution must be passed by a proper quorum without any proxy, that is 5 out of 16 voting members. 4 of the 16 SMC members include the principal, teacher, elected representative and social worker. Thus, any resolution can be easily passed without majority of parents, which goes against the spirit of a School Management Committee.

Recommendation:

- There is no clarity whether 'total strength' refers to the strength of the entire committee or the strength of the members present for a particular meeting. Greater clarity must be provided in this regard.
- At the same time, the quorum requirement can be increased from 1/3rd to any number that ensures a majority of parents, which would be in line with the spirit of the SMC.

ISSUE: Lack of Awareness

The general lack of awareness amongst parents is due to lack of formal training provided to SMC members. They are unable to ask the right questions as they are not aware of their rights as a member.

Recommendation:

- Non-Governmental Organizations such as JOSH and Saajha conduct training workshops for parents. These organisations have also created

handbooks, in both Hindi and English, designed specifically to train parents about their role and responsibilities as SMC members as well as the overall functioning of the committee.

- Due to lack of manpower, NGO's may not be able to reach out to all Delhi Government schools. However, collective training workshops can be conducted at the zonal level where parents can be educated and provided with the handbooks.

ISSUE: Irregularity of Meetings

According to the survey findings, working parents are not able to attend meetings during the week. A large number of parents also reported that the day and timing of the meeting is not fixed and this uncertainty adds to their inability to take time off from work to attend.

Recommendation:

- Meetings must be held on fixed days to ensure smoother functioning and greater clarity amongst the Committee members. Certain schools have the SMC meeting on the last weekend of the month. Alternatively, the day and time of the next meeting can be fixed at the beginning of each session. Such a method can be followed across all schools to ensure the regularity of members.
- A three strike attendance mechanism can be followed to check the attendance of all SMC members. If a member skips

to two meetings consecutively a warning can be sent to the member. Skipping three consecutive meetings could lead to the termination of the membership. This rule must be applied uniformly to all SMC members.

ISSUE: Lack of Recognition

Parents reported that they do not have any form of identification stating that they were members of the committee, due to which they have not been allowed to conduct random visits to schools.

Recommendation:

- Certain schools have issued identity cards for SMC members. This practice, if made mandatory for all schools which have constituted a School Management Committee, would resolve the above stated issue. Schools should also create a physical board with the names and photographs of their current SMC members to make it easier for the staff to identify the members.

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About the Researching Reality 2016 Interns



Akshay Thakre is a Business Graduate from Symbiosis International University with specialization in Marketing. He was a Gandhi Fellow with KEF at Surat. He has written for Youth Ki Awaaz, an award-winning online mouthpiece for the youth. He's currently pursuing his LL.B from Nagpur University and hopes to be a successful litigator in the future.



Anshu Kumari is pursuing Honours in Economics at Miranda House, University of Delhi. She is passionate about socio-economic issues, and regularly parses through academic literature on the same.



Archit Jain is pursuing Honours in Economics at St. Stephen's College, University of Delhi. His research interests include the myriad of failed public health insurance programs in India, which he wishes to study to determine the optimal role of the government in the country's health sector. He plans to pursue a graduate degree in financial economics.



Devika Chopra is pursuing Honours in Political Science at Jesus and Mary College, University of Delhi. She is a member of Global Youth India as well as her college debating and MUN societies, all of which has allowed her a glimpse into the world of diplomacy and international relations. She wishes to pursue human rights advocacy.



Devishi Dar is pursuing Honours in Economics at Indraprastha College for Women, University of Delhi. She is a prolific writer and is interested in the field of social entrepreneurship, having served in the Enactus chapter in her college.



Keval Patel is pursuing a bachelors degree in Liberal Studies at the School of Liberal Studies, Pandit Deendayal Petroleum University based in Gandhinagar. He strongly believes in ideas such as 'liberalism', 'growing your own food' and 'conservation of diversity in the environment'. He aims at being an expert in the field of International Relations in his future.



Naomi Hazarika is pursuing a post-graduate degree in Political Science at Jawaharlal Nehru University, Delhi. She aspires to do research in the field of political philosophy, aims to earn a doctorate. Her areas of interest include political philosophy, normative political theory, identity politics, public policy and governance, issues of social justice and tribal rights.



Nithya Srinivasan is pursuing a bachelor's degree in Economics at Miranda House, University of Delhi. She is interested in pursuing a career in Economics and aspires to work with an International Development Organisation. Her interests range from social entrepreneurship to women empowerment and vocational skill training.



Parnika Barara is pursuing a bachelor's degree in Political Science at Kirori Mal College, University of Delhi. She is also trained as an Indian Classical Odissi dancer and likes to debate.



Pragya Jat is pursuing a bachelor's degree in Economics at St. Stephen's College, University of Delhi. She feels attracted to Economics as a discipline as it combines the rationality and practical approach of the sciences as well as the humanism of the liberal arts. She intends on pursuing a career in public policy and/or economic research.



Prarthna Tandon is currently pursuing an undergraduate degree in Economics at Jesus and Mary College, University of Delhi. She has debated on national and international economic affairs, attempting to formulate economic policies in Model United Nations and researching and analysing the economic implications of policy options with PRS Legislative Research.



Prateek Pillai currently an under-graduate student at Ashoka University where he is pursuing a major in economics with a minor in mathematics. He aims to go into research and is working towards a future in public policy.



Priyasha Chawla is graduate in Commerce from Shri Ram College of Commerce, University of Delhi. Her She has attended the Space School Program by NASA where she was a part of the winning team. She has served on the Editorial team of her college magazine for two years.



Ragini Khurana is pursuing undergraduate studies at Sciences Po Paris, Campus du Havre, which focuses on European Asian studies. Her academic interests include legal pluralism, self governance mechanisms and conflict resolution. She aspires to work in the Middle East and Africa on regime democratisation and stabilisation.



Rahul Singh Chauhan is pursuing undergraduate studies in Economics at Presidency University, Kolkata. He is deeply interested in Economics and has represented India at the South Asian Economics Students Meet, Colombo. He serves as the convenor of his college's Economics festival and is the founder of the Entrepreneurship Society.



Razi Iqbal is a graduate in Economics from Shri Ram College of Commerce, University of Delhi. His interests lie in Economic policy and research, and his work has been published by Elsevier. He has received a full scholarship grant from the Swiss Centre of Excellence and will head to the Graduate Institute, Geneva for his Masters in International Economics in September.



Rishabh Rekhade is a graduate in Political Science from the University of British Columbia, Vancouver. He has represented his high school in the Chennai Model UN, the Harvard Model Congress Asia Singapore and in the International Student Forum, held in Kyoto, Japan. He has participated in the Global Youth Leadership Institute's cultural exchange in New York.



Sanchi Gupta is pursuing an undergraduate degree in Political Science at Miranda House, University of Delhi. She has worked with New Delhi Television (NDTV) and the Centre for Legislative Research and Advocacy (CLRA). She is involved in two research studies—an attempt to decipher India's foreign policy and the other aims to analyze the causes and consequences of sexual harassment on a college campus.



Saumya Joshi is pursuing undergraduate studies in Economics at Sri Ram College of Commerce. A member of her college's Debating, Commerce, and Finance and Investment Societies, she enjoys reading witty political commentaries, writing for college magazines, debating at competitive tournaments and solving case studies.



Shaurya Arora is pursuing economics as his major at University of Delhi and aspires to study the subject further. He is strongly concerned about climate change.



Shreshtha Sharma, is pursuing Honours in English Literature at Lady Shri Ram College for Women, University of Delhi. She has been actively involved in National Service Scheme of her college as the core team member. She has also volunteered for teaching and organizing events at slums.



Tanay Raj Bhatt is pursuing Honours in Economics at Dyal Singh College, University of Delhi. He has qualified as a state level volleyball player is a regular debater. He wishes to pursue masters in Economics after graduation and thereafter engage in an academic career.



Tanya Sharma is currently enrolled in a specialised cohort program, International Economics, at the University of British Columbia on a prestigious scholarship, the International Leader of Tomorrow. She has previously published a report on what makes a sustainable social initiative for aspiring social entrepreneurs, titled My NGO Handbook, and later published with HuffPost India on public-health issues.



Tanya Sethi is pursuing Honours in Economics at Shri Ram College of Commerce, Delhi. Tanya is interested in policy oriented interdisciplinary research—especially on development related issues. Her college adventures have included stints in fields as diverse as social entrepreneurship, management consultancy, start up incubation, and leading research projects.

About Researching Reality Internship

An effort to identify and address lacunas in everyday governance, Researching Reality is an annual six-week internship program which offers intensive training in research and public policy to undergraduate and graduate students across various disciplines. Over the course of the internship, interns are expected to draft research papers that rely on primary and secondary data. Interns conduct an analysis of the feasibility, impact and outcomes of various policies. This is achieved through engagement with modular legislations and relevant literature, interaction with key stakeholders, and extensive field surveys. This includes the study of various agencies, boards, corporations, departments, schemes and programs of the state governments and Municipal Corporations; evaluating existing systems to recommend sustainable and long-term policy improvements in the functioning of government structures. Each year, interns identify core areas of governance and assess the efficacy of prevailing institutions and propose policy recommendations.

One of the country's premier research internship programs, 2016 marks the nineteenth edition of Researching Reality.

The handbook is a simple and efficient Democratic tool that advocates minimum government, optimal regulation and maximum efficiency in a market economy. The internship offers students a first hand experience with how real transactions happen and what enables the economy to function smoothly. I am sure this edition too will go a long way in strengthening democracy in Delhi state.

Amir Ullah Khan, *Development and Trade Economist*

Based on careful fieldwork, interviews and analysis this handbook offers penetrating insights into problems plaguing the governance of the nation's capital and practical steps to address them. It is essential reading for anyone interested in a better Delhi be it politicians, policymakers, planners or the aam aadmi.

Shreekant Gupta, *Professor, Delhi School of Economics*

The Delhi Citizens' handbook 2016 marks the 19th year of Researching Reality, one of the premier research-intensive internship programs of CCS. The Handbook illustrates how to make policies that affect countless citizens, successful and effective. A must-read for anyone who aspires to hold informed views on where policies on urban public utilities stand, and how they can be improved.

Shantanu Gupta, *Founder, YUVA Foundation*

My experience with the Researching Reality Internship Programme has been hugely rewarding. It is very encouraging to see and help bright young minds engage in rigorous research and have CCS nurture and give direction to their spirit of academic inquiry.

Kanika Chawla, *Senior Programme Lead at Council on Energy, Environment & Water*



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