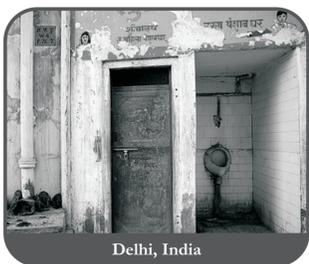




Delhi, India



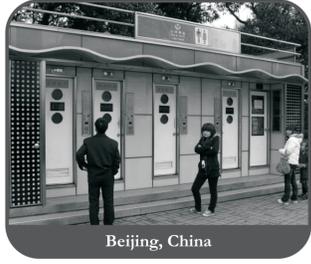
Delhi, India



Shanghai, China



Shanghai, China



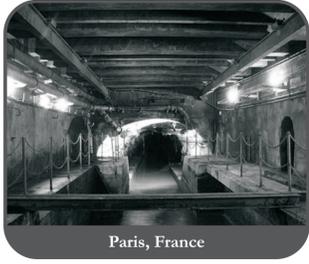
Beijing, China



Beijing, China



Paris, France



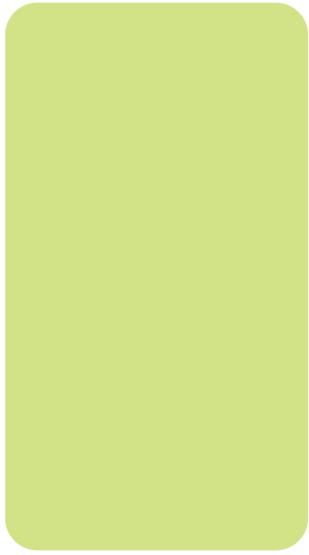
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Belfast, Northern Ireland



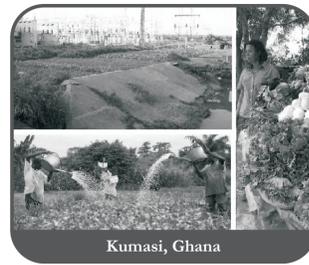
Belfast, Northern Ireland



Oslo, Norway



Kumasi, Ghana



Kumasi, Ghana



Johannesburg, South Africa

Sanitation, a case study across eight metropolises: Towards Framing a Sustainability Oriented Urban Manifesto

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Introduction to the Research Concern

"What is happening to the urban poor is a story not just of income poverty, but many other forms of deprivation."
- Mumbai Reader: 2008

The quotes stated above highlight one of the basic but very serious concerns of urban living in cities of the developing world like Mumbai. Usually sanitation, even in megacities of the developing world like Mumbai, is a problem that people are often shy to discuss. Architects and their architectural practices, on their part, tend to be no different in their engagement with sanitation in the city. Sanitation is regarded as the mundane, the everyday, a matter-of-fact component of architectural practice as against the creative design process that focuses on larger concerns of form and space. This reluctance to engage with sanitation is part of the reason why two and half billion people across the world are still without access to sanitation facilities – including 1.2 billion who have no facilities at all and are forced to engage in the hazardous and demeaning practise of open defecation (World Bank: 2008). My undergraduate thesis research shows that, on the one hand, the sanitation crisis is a major contributor to widespread sicknesses and poor health of the deprived populations in cities of developing countries like Mumbai, and on the other, the examples of "slum" sanitation show a rich and contested landscape of community life for access to infrastructure. In fact, sanitation is one of the infrastructural means through which communities of the urban poor are being forged in cities of the developing world. Engaging with sanitation in the cities of the developing world, therefore, can be framed as a serious concern that architectural practices need to engage with. However, it becomes important to examine such practices in a variety of city contexts that are a part of the developing as well as the developed world. I am interested in engaging with such a concern with Comparative Urban Studies in order to situate my own urban and architectural investigations into sanitation for the urban poor in Mumbai.

I have articulated my research concern to pursue comparative studies of sanitation practices of the urban poor in the following three parts. The next section articulates my **Aim**. It is followed by identifying the **Case Studies** I intend to pursue. The final section concludes with a **Methodology and Plan of Work** for pursuing my research.

Aim

I intend to examine practices of sanitation for the urban poor in 8 metropolises across three continents to develop a comparative understanding of sanitation. I will do so by analysing:

- the policy framework;
- design of the city's overall sanitation system;
- mapping the socio-economic context and the urban fabric of an urban poor neighbourhood;
- design and technological considerations of building public toilets;
- local entrepreneurship; and
- finance, maintenance and capacity building.

Examining the diversity of sanitation practices in selected cities of three continents will help me not only comprehend the nuances of the sanitation practices but will also help me to comparatively frame a larger sustainability oriented urban manifesto for sanitation that is of much need in cities like Mumbai. I aim to use this manifesto as a tool to frame my own practice.

Case studies

The cities I have chosen will help me to understand the concern of sanitation across a wide spectrum of contexts. These contexts relate to both: cities in the so called developing world as well as the developed world. The cities I have chosen are: Delhi in India, Shanghai and Beijing in China, Johannesburg in South Africa, Kumasi in Ghana, Paris in France, Oslo in Norway and Belfast in Northern Ireland. In these cities I will focus on practices of sanitation in the habitats of the urban poor. Some of these cases provide a context for direct comparison with Mumbai while others form the basis for thinking of best practices.

- Delhi, India:** 54% of its urban population have access to sanitation facilities. Delhi, the second-largest Indian metropolis by population, has more than 12 million inhabitants

in the territory and a population density of 11463/sq.km. The sewerage network has lacked maintenance over the years and overflow of raw sewage in open drains is common, due to blockage, settlements and inadequate pumping capacities. The capacity of the 17 existing wastewater treatment plants in Delhi is adequate to cater a daily production of waste water of less than 50% of the drinking water produced. Many policies suggesting public-private partnerships are being chalked out to improve on this crisis. A progressive example being the efforts taken by the Sulabh International-a non-profit NGO started by Dr. Bindeshwar Pathak to tackle this issue by providing low cost sanitation techniques.

- Shanghai, People's Republic of China:** 58% of the urban population have access to sanitation facilities.

Shanghai, with a population density of 2657/sq. km., is the most populous city in China having a population of little less than 17 million. The city has re-emerged as one of the world's leading cities with its rapid growth in the last two decades, exerting influence over finance, commerce, health and sanitation. However, only 58% of the urban population have access to sanitation facilities. In 1993, the civic authorities organized and embarked upon an experiment using urban construction information with sanitary information as a subsystem. The Shanghai Sanitary Bureau is responsible for collecting, disposing and transporting solid waste and sewage. The system aims towards sustainability with its straightforward operative steps and user-friendly interface - a large step towards modernization of sanitary work. With adequate refinement in time, it will be able to master the quantity and direction of the clearing and the transportation of urban living rubbish.

- Beijing, People's Republic of China:** 58% of the urban population have access to sanitation facilities.

Beijing has a population of 22 million and the density of 1300/sq. km. Sanitation is undergoing a massive transition while facing challenges such as rapid urbanization, a widening income gap between in rural and urban societies etc. Much has been achieved during the past decades in terms of increased access to services, increased municipal wastewater treatment, the creation of water and wastewater utilities that are legally and financially separated from local governments and increasing cost recovery as part of the transformation of the Chinese economy to a more market-oriented system. Almost 93 percent of wastewater is collected and treated in 9 treatment plants. By the end of 2011, the city expects a 100 per cent collection and also a 100 per cent reuse to supplement its non-potable water use requirement.

- Oslo, Norway:** 100% of the urban population have access to sanitation facilities.

Oslo is ranked "Beta World City" in studies conducted by the Globalization and World Cities Study Group and Network in 2008. The population being 1.5 million, density across the city has been 1321/sq.km. as per the recent surveys. Over the last decade ecological sanitation has made a leap forward in the city. The main focus here has been on the use of extreme water saving (e.g. vacuum) and composting toilets. Substantial efforts are also devoted to the development of simple grey water treatment systems as wetlands, bio filters or soil infiltration systems or a combination of such. The practice of this eco-sanitation model across the city of Oslo shows that separate treatment of blackwater and greywater nearly achieves "zero emission" and almost complete recycling.

- Paris, France:** 100% of the urban population have access to sanitation facilities.

Paris has a population of 11 million and a population density of 20000/sq.km. I intend to study the working of public amenities like the Sanisettes and the context of the existing sewer technology. Studying the initiative undertaken by the government to protect the Seine from storm overflow pollution, reinforcement of the existing sewers and enabling the network to function better would provide a broader perspective to the acting government policies. The case study will help comprehend the sanitation fabric in a metropolis having population density closer to that of Mumbai which is about 22000/sq.km. but where the economic and social condition fall in total contrast.

- Belfast, Northern Ireland:** 100% of the urban population have access to sanitation facilities.

Belfast has a population of 2.6 lakhs and a density of 2415/sq. km. Sanitation services in Ireland, in contrast to most countries in the world, are provided free of charge to domestic users since 1997. Only non-domestic users are billed for these services. The bulk of the costs of service provision are met from tax revenues transferred by the national government to local authorities, which are in charge of service provision. Concerning wastewater treatment, significant progress has been made and 82% of wastewater collected in sewers now receives at least secondary treatment. Also the access to highly develop public toilets, the waste management and the government's policies will be a very intense case study.

- Kumasi, Ghana:** 18% of the urban population have access to sanitation facilities.

Kumasi has a population of about 1.5 million and 500,000 floating population has a population density of 5419/sq.km. Extreme urbanization has complicated the implementation of sustainable solutions. The soils in sub-Saharan Africa are generally poor and the use of fertilizers is much lower than all other continents. So to tackle these problems, practicing agriculture across the outskirts of the city known as periurban agriculture has been a great focus. The government has formulated policies undertaking the sanitation issues right from the toilet amenities provided up to waste management. The study of this city will help me to broaden my perspective of low cost ecosanitation.

- Johannesburg, South Africa:** 84% of the urban population have access to sanitation facilities.

In Johannesburg the sanitation is characterised by both achievements and challenges the government thus made a strong commitment to high service standards and to high levels of investment subsidies to achieve those standards. The density of population being 2364/km. sq, and the population is little less than 3 millions. In response to the fact that access to sanitation lags significantly behind access to water, the government called for universal access to basic sanitation by March 2010, with priority accorded to communities with the greatest needs. The policy outlines the roles of the various stakeholders - households, municipalities, provincial governments, various branches of national government - and establishes coordination and monitoring mechanisms. To understand the technology and the government involvement in these scenarios will be a case study and will help to formulate the substitute for minimizing the sanitation crisis across.

Methodology and Plan of Work

In the section on **Aims** I identified a set of seven tasks I will undertake. I will pursue these tasks in the following manner:

No.	Task	City							
		1	2	3	4	5	6	7	8
1	Policy framework	<ul style="list-style-type: none"> Collecting Policies and Plans from relevant civic authorities Interviews with civic authorities 							
2	Design of city's overall sanitation system	<ul style="list-style-type: none"> Collecting Maps from relevant civic authorities Interviews with civic authorities 							
3	Mapping the socio-economic context and the urban fabric of an urban poor neighbourhood	<ul style="list-style-type: none"> Identification of a neighbourhood of the urban poor with interviews from civic authorities Statistical information of the neighbourhood Photographic documentation Interviews with local residents. 							
4	Design and technological considerations of building public toilets	<ul style="list-style-type: none"> Sketches Photographic Documentation 							
5	Local entrepreneurship	<ul style="list-style-type: none"> Interviews with local residents and civic authorities 							
6	Finance, maintenance and capacity building	<ul style="list-style-type: none"> Interviews with local residents and civic authorities 							
7	Sustainability	<ul style="list-style-type: none"> Interviews with local residents and civic authorities 							

I intend to travel for a total period of 80 days commencing from July 2011. If selected for this scholarship, I will use the months of May and June to collect background information of each city, detail out my methodology and establish contacts with their civic authorities. In each city, I will spend 10 days to conduct the tasks that I have identified. The travel will proceed in the following order: Delhi, Beijing, Shanghai, Oslo, Paris, Belfast, Kumasi and Johannesburg. On my return to Mumbai, I will compile my field study analysis in relation to the context of Mumbai and frame my own thoughts about developing a sustainability oriented urban manifesto for sanitation in Mumbai.

References

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