ISSC 'Transformations to Sustainability' Programme Concept Note

Water, Waste and Sustainable Cities in India

Urban areas in India suffer significant challenges associated with water and waste, with direct implications for agriculture, health and food safety. Local innovations, often in informal settings, have resulted in the emergence of multiple alternative urban waste and water management practices. These have potential for enhanced social justice, environmental integrity and synergies across the urban-rural interface. *This initiative will build on a series of previous studies, and an expanding network of partners across disciplinary divides and sectors. It will seek to* develop opportunities to build upon these alternative practices as an integral part of transformative change for sustainable city region planning.

This concept note is the outcome of ongoing deliberations amongst stakeholders involved in the emerging South Asia sustainability hub led by Jawarhalal Nehru University in New Delhi in close collaboration with the STEPS centre UK. The ideas behind this proposal were developed at an ISSC planning working in New Delhi in November 2014, involving stakeholders with experience of working on diverse aspects of sustainability in various urban settings in south Asia.

1. Background of the Problem

1.1. Water:

Modern urban settlements are increasingly reliant upon the supply of water from sources that are located outside the city at a considerable distance. State-of-art technologies are deployed by the governing agencies in attempts to ensure 'adequate' water supply from these sources, amidst projections of ever increasing demand in urban areas, whilst distribution between social groups remains highly uneven.

Alternatives to this popular imagination of central planned technologies and water extraction from elsewhere are struggling to find a place in the planning and water governance discourse of contemporary Indian cities. Previous memories of the use and reuse of local sources of water are becoming rapidly eroded. While the actors and agencies involved in urban water governance in India are constantly devising new projects to ensure water

supply, 'techno-managerial' innovations are being devised in line with wider support for an increase in public-private partnerships (PPPs). PPPs under development for the renewal and regeneration of water systems for urban areas treat water as a commodity, and social mobilization and peoples' participation is extremely limited in mainstream solutions for the planning of regeneration and renewal of water management systems.

Distribution of water across the city is also a challenging task. Usually, governing agencies recognize only certain areas in the city as part of the formal water distribution system. These areas are often identified as industrial areas, planned residential areas and commercial areas. A vast majority of unplanned areas where a large percentage of urban population lives remain unrecognized by the public water distribution system. In some cases, a limited supply of water through tankers and local bore-wells is regulated to exhibit the larger extent of the coverage of public water distribution system on the city map. Similarly, spaces of peri-urban agriculture where a considerable amount of water is utilized remain unrecognized by the public water distribution system.

Most of these unrecognized urban spaces rely upon informal sources of water supply that are often inadequate. These informal sources of water supply include underground water and nearby streams/rivers. Given an increasing level of pollutants in these sources, an unhealthy system of water use perpetuates in areas of informal water supply. Water supply in planned urban areas too is unequal. Certain planned areas of the city enjoy 24x7 access to water, while others have limited water supply. Recycle and reuse of the water in urban areas is still a distant dream due to lack of an adequate water treatment infrastructure. Consequently, untreated water is discharged into the streams that ultimately reach the nearby rivers and pollute them. A vicious cycle of water consumption and its contamination is set in motion due to lack of adequate mechanisms of recycle, reuse and rejuvenation of existing sources of water.

1.2. Waste:

In India, the management of Municipal Solid Waste (MSW) by the governing agencies has evolved in the past two decades from collecting and dumping the waste out of the city towards mechanisms of its door-to-door collection (primary collection), transportation (secondary collection) and final disposal. The government has taken up a number of initiatives, especially since 1990s onwards, for improving MSW management systems in Indian cities. Despite these efforts, the national and state level actors and agencies are unable to compete with the problem of ever-increasing MSW. In most cases, the problem of MSW management is often understood in terms of the generation of the quantity of waste with respect to the rising population of the cities. Mainstreaming such a scenario results into the emergence of 'techno-managerial' solutions where efficiency of waste management system is measured in terms of the quick removal and disposal of waste from the urban landscape. More specifically, the predominant trajectory (pathway) of governmental management of MSW in Indian cities heavily relies upon the landfill and incineration technologies. Although, composting is often discussed as part of the mainstream MSW management practices, but it remains less significant for the

municipal agencies as it does not support quick processing of the large volume MSW. These challenges are facilitating the idea of deploying incineration and landfill based technologies of MSW management that can quickly dispose the large volume of MSW. 'Waste-to-energy' plants have become the dominant narrative of the MSW management system in Indian cities. In other words, the thinking of MSW management in Indian cities starts with the idea of 'waste-to-energy' plants followed by the deployment of door-to-door collection and transportation technological infrastructure systems that feed into the 'waste-to-energy' structures. Ironically, in the era of decentralization and PPP, more centralized systems of MSW management are being enacted through various institutional innovations in the governing mechanisms. Consequently, the 'techno-managerial' systems of MSW management are on the rise across many urban landscapes.

There is general consensus across the globe that a sound and sustainable system of MSW management requires a different focus. It has to be a system that relies heavily on the prevention, reuse and recycling of maximum amount of waste. Waste-to-energy and landfills are the last alternatives to be explored, and these last two alternatives must be aligned to the quality of environmental health. Interestingly, in most cases neither the landfill sites are scientifically designed to minimize the ecological footprints, nor the incineration technologies that are deployed, can be said to be ecologically sound. Ensuring the incineration and disposal of only non-recyclable and environmental friendly waste into 'waste-to-energy' processing systems remains a distant dream. Collection and transportation infrastructures are also limited in their reach. Earlier researches have proven that a large amount of MSW is collected and segregated by the informal waste workers. These informal waste workers further supply the segregated waste to a large recycling chain. Thus, parallel to the formal system of MSW processing, there exists an informal system of waste collection, transportation and recycling. This informal system contributed hugely in the management of MSW, but remains unrecognized by the formal system in terms of the interests of the waste pickers and the sustainable practices of waste management. Consequently, against a sustainable and environmentally sound system of waste management, a more vulnerable and less resilient system driven by the dominant approach of 'waste-to-energy' plants is set in motion. These systems are further vulnerable to the shocks emerging from the increased quantity, changing composition, technological obsolescence and enhanced costs of disposal. Their reliability in terms of the reach of the waste management service to the entire city's population as well as their efficient functioning based on good environmental health and urban sustainability is highly questionable.

Parallel to this process, environmental activists, NGOs and civil society groups are continuing to advocate for the adoption of the approach of social mobilization to devise community based systems for the safe collection, transportation and disposal of MSW in order to ensure better health and wellbeing of the urban residents as well as the workforce involved in the handling of MSW. In addition to addressing the challenges of health, well-being, environmental and social justice, the other major concern is the integration of informal recycling industry chain and unrecognized waste workers into the formal MSW management system. Sustainable MSW

management systems require integration of informal sector into the mainstream waste management practices. In sum the consideration of urban waste management through a sustainability lens requires a different focus where technological and institutional innovations are aligned to deal with the challenges of social, economic and environmental justice.

2. Conceptualization

The focus of research will be on assessing parameters of urban sustainability (such as reliability of access to basic services, vulnerability to ill health, deplorable living, crime and fear, environmental quality, resilience of systems providing life support and regeneration of livability) as they relate to mainstream and alternative water and waste management strategies. We will study the challenges faced in respect of urban sustainability in relation to the origins, drivers and dynamics of the dominant trajectories (pathways) of urbanization in the selected geographical areas; bearing in mind that the trajectories of change have impacted very differently in each of the selected geographies. In particular we will focus on four main approaches under deployment at the present time in India namely,

a) Institutional Change - A shift from government towards new models of governance (Decentralization, PPP etc.)
b) Ideas of green development
c) Social mobilization
d) (Dis)engagement of the state

Exploration of the contestations encountered in the context of water and waste management systems by the mainstream trajectories of change will also be highlighted and deliberated upon among the stakeholders. We understand that the challenges to mainstream pathways have come opposition from both, marginalized people and the middle classes in the selected geographies, and we will prioritise both the inclusion of and deliberation amongst these diverse perspectives.

Adjustments being tried out by the policymakers and social movements will be mapped through the study, and their implications for the sustainability parameters considered by multistakeholder groups engaged in the project. We will identify the windows of opportunity for urban regeneration and renewal being opened up on account of the growing concerns about various aspects of urban decay. Ultimately we will seek to support the strategies that governments and social movements can pursue to work toward regimes of urbanization that support sustainable water and waste management in the selected geographies.

3 Scope of the study

The proposed research project aims to build upon previous work in Delhi NCR and in the district of Alleppy in Kerala in India. The implications of mainstream trajectories and the possibilities of constructing alternative pathways will be explored in close collaboration with the planners, policymakers and social movements.

Whilst all under the umbrella of a national drive for neo-liberal policy implementation, the patterns of urbanization emerged under the influence of differing regimes in each of the selected geographies. The 'regimes of urban transformation' are also now undergoing a process of adjustment and incremental change. The essential features of three different geographical territories proposed to be studied under this research proposal can be described as follows:

	Selected Geographies	**Initial Regimes of Urban Transformation, Changing Approaches and Selected Models of Adjustment**
1.	Trans-Yamuna & Trans-Hindon area Delhi	Urbanisation under the influence of Nehruvian Industrialization (Dirigisme and its adjustments). This areas has been the focus of previous STEPS centre initiatives which examined the emergence of mainstream interventions in waste, water and food and their implications in terms of social justice and the environment.
2.	Gurgaon-Manesar urban Complex	Urbanisation under the influence of economic reforms, development of services and real estate (liberalization, privatization, globalization and deregulation).
3.	Kerala	Social Welfare Model and its adjustments under the influence of Nehruvian, Left and Neo-liberal Globalisation regimes). Providing some excellent examples of alternative models for waste, water and agricultural systems for deliberation and mutual learning across the geographies.

The pathways for urban water and waste management under implementation are known to be progressing under the influence of very diverse approaches to institutional reforms for urban governance, green planning, social mobilization and marketization.

4. Deliverables

During this three year study, we will be delivering on the following: one, the current status of mainstream pathways with respect to their contribution to urban sustainability, two, identification of windows of opportunity under emergence for urban sustainability and third, the assessment of real world experiments under perusal and of the alternate pathways under formation for the transformation of the systems of water and waste in the selected geographies. Importantly we will, in the process have strengthened the network of diverse actors with an interest and willingness to engage in sustainable urban transformation research and policy engagement, whilst learning about key features to facilitate such transformations. We will also have prompted further dialogue and engaged with topical national, regional and global debates.

5. Methods & Impact strategy

Building on a track record of critical and policy engaged research, our project team will be involved in active engagement with citizens groups, policy makers, planners and other decision makers to mobilize for an in-depth understanding and wide debate on the issues and challenges. Supporting literature reviews, secondary data analysis etc. will also take place. Personal interviews will take place with experts, policy makers, planners, citizens, individuals working in NGOs, independent researchers and activists. Their initial feedback will help in better problem formulation and devising the strategies of multi-stakeholder encounters to be organized at the later stages of the project. The lessons learnt from the past experiences and their contemporary relevance, and selected sustainability parameters will be identified through using interactive methods of co-labs and walkshops. In the end, multi-stakeholder dialogue encounters will be organized with the aim of facilitating informed decision making based on exchange of interdisciplinary knowledge (both formal and informal). An inventory of interdisciplinary maps will be created through various stages of the research to paint and integrated and interdisciplinary picture of the issues, challenges and opportunities for building sustainable pathways of urban water and waste systems.

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Annex: Team Members

Pranav Desai	Centre for Studies in Science Policy, Jawaharlal Nehru University (JNU)	Project Director
Dinesh Abrol	Centre for Studies in Science Policy, JNU	Project Coordinator
Fiona Marshall	STEPS Centre, University of Sussex, United Kingdom	Project Co-Coordinator
Ritu Priya Mehrotra	Centre of Social Medicine and Community Health, JNU	Theme Coordinator for Health
Ramila Bisht	Centre of Social Medicine and Community Health, JNU	Team member and role to be decided
Vikas Bajpai	Centre of Social Medicine and Community Health, JNU	Team Member and role to be decided
Atul Sood	Centre for the Study of Regional Development, JNU	Theme coordinator for urban governance
Sucharita Sen	Centre for the Study of Regional Development, JNU	Team Member and role to be decided
Milap Punia	Centre for the Study of Regional Development, JNU	Team Member and task coordinator for interdisciplinary mapping
Pradeep Shinde	Centre for Informal Sector & Labour Studies, JNU	Theme coordinator for labour and livelihoods
Pritpal Randhawa	Centre for Studies in Science Policy, JNU	Co-coordinator in Trans-yamuna and Trans Hindon Geography

Pravin Kushwaha	Centre for Studies in Science Policy, JNU	Co-coordinator for Grgaon-Manesar Geography
Prathibha Ganesan	PhD from Centre for Studies in Science Policy	Co-coordinator for Aleppy Kerala Geography