

**Building Sustainable Cities through International Knowledge Sharing and Multilevel Governance
for Environmentally Sustainable Development**
A Blue Print for Mumbai

Master of Arts in Law and Diplomacy Capstone Project

Submitted by Niyash Mistry

28 May, 2015

© 2015 Niyash Mistry

<http://fletcher.tufts.edu>



THE FLETCHER SCHOOL

TUFTS UNIVERSITY

I. INTRODUCTION.....	2
A. PAPER OUTLINE.....	2
B. DRIVERS OF SUSTAINABILITY.....	3
II. CASE STUDIES IN SUSTAINABLE CITIES.....	4
A. SINGAPORE.....	4
B. CURITIBA.....	7
C. THE EUROPEAN UNION AND THE AALBORG CHARTER INSTITUTIONS.....	8
i. <i>Background on the Aalborg Charter and Subsequent Initiatives.....</i>	<i>8</i>
ii. <i>Literature Review of the Sustainability Process – From Aalborg to Aalborg</i>	<i>11</i>
D. APPLICABILITY OF CASE STUDIES TO MUMBAI.....	19
III. THE CASE FOR MUMBAI.....	21
A. EXISTING FRAMEWORKS FOR SUSTAINABILITY IN MUMBAI AND PUBLIC CONCEPTIONS	21
i. <i>Existing Infrastructure and Development Attempts</i>	<i>21</i>
ii. <i>Current State of Environmental Policy</i>	<i>23</i>
iii. <i>Attitudes, Disorganisation and their Consequences</i>	<i>25</i>
B. PRESENT EFFORTS AND FUTURE DIRECTION OF INTERNATIONAL KNOWLEDGE SHARING AND IN MUMBAI	27
i. <i>Current International Engagement and Bombay First.....</i>	<i>27</i>
ii. <i>The Results and Impact on Development.....</i>	<i>29</i>
IV. CONCLUSION	30
A. THE CURRENT SITUATION IN MUMBAI	30
B. APPLICABILITY OF THE EU SYSTEM	31
C. FUTURE GOALS AND RECOMMENDATIONS	31
WORKS CITED.....	34

I. Introduction

a. Paper Outline

There is increasing recognition that cities are the future of the world. The world's urban population is expected to grow to up to 5 billion people by 2030, and the number of cities with populations greater than 10 million is expected to increase by 60%.¹ Moreover, the developing world will be at the forefront of this growth. Coupling this with the awareness that international level governance is becoming less viable and less efficient in many areas leads to a simple conclusion: how emerging market cities manage their growth in the next decades will have profound consequences for the world. Foremost among the concerns is how cities manage to grow, to meet the increasing requirements of their citizens, while minimising their impact on a fragile environment and finite resource pool. Achieving successful sustainable development is, therefore, vital. This paper will lay out a possible framework by which Mumbai (Bombay)² can achieve this goal. The paper argues that the best way in which to create policies for sustainable development is by an integrated, holistic approach to governance that extends from the international to the municipal and sub-municipal levels, along with a robust system of city-level international cooperation and knowledge sharing enabling.

To make this case, the paper does three things. Firstly, it analyses successes in other cities and recommends what type of policies or strategies might be adopted by Mumbai to increase the sustainability of its development and growth plans. Secondly, using the European Union as a case study, it analyses subnational level international knowledge sharing as a premise, and evaluates its usefulness as a strategy for Mumbai and developing cities, in general. Finally the paper outlines the current legal and practical status of environmental conversation laws in Mumbai and the applicability of other systems studied to Mumbai.

To start, the paper will evaluate Singapore and Curitiba as case studies in successful implementation of sustainability strategies and good governance systems. In the next

¹ "Urbanisation in emerging markets: boon and bane for insurers, (p. 1)." *Sigma Re.* (Zurich: 2013). Web.

² The city's former name, Bombay, is still widely used and some organisations and sources quoted in this essay will use it and the official name, Mumbai, interchangeably.

section, the paper will analyse the necessity for international knowledge sharing by evaluating the potentiality to include pre-existing multi-partite governance structures to developing cities through knowledge sharing and city-level cooperative bodies. To do so the paper will review literature on the European Union's (EU) sustainable cities initiatives, which are grounded in the 1994 Aalborg Charter and resulting Process for Local Sustainability. The paper will evaluate the literature on this system and then judge its applicability to the wider non-EU context; specifically to Bombay and generally to other developing cities. The paper finally turns its focus on Mumbai, and will outline the current need for development and growth, evaluate the comprehensiveness of the environment regulations currently in place, and demonstrate how successfully they have been implemented. After demonstrating the need for integrating environmentally sustainable practices into the development process, the paper will consider the role of city-level international cooperation in Mumbai. In this section, the paper outlines the current situation, evaluates its impact, and finally presents a recommendation of the role it should play in the future. The paper concludes two things. Firstly, based on an evaluation of other cities' governance structures, India needs to make structural changes to how Mumbai is governed. Secondly, the city will achieve sustainability in its growth by realising that sustainability needs to be considered holistically in the process of growth, rather than as an afterthought. To understand how, the city need only look to other cities and the EU's unique system of integrated institutions for sustainability, and integrate their knowledge and lessons into its own plans using the already existing knowledge-sharing infrastructure.

b. Drivers of Sustainability

Given the focus on empowerment of local governments for sustainable urban development, the question arises – what drives a city to want to develop sustainably? Frank Samol, an urban planning consultant who works extensively within the municipal-level international knowledge-sharing network, considers four factors that need to exist for sustainable practices to take form in the city development process.³ The first is good governance, which refers to institutions of effective policy making, and implementation,

³ Samol, Frank. Telephone Interview. 3 Dec 2013.

strong leadership and resource management at the level of the power-holders. Secondly, he feels an economic base of considerable size is needed to finance the proposed changes. This extends both to public funds, or the tax base, and to private capital, without which not only will the tax base be reduced, but people will not have the means to assume significant up-front costs and make lifestyle changes. Thirdly, political will is needed to implement the policies and create effective movement on issues. Importantly, this means that politicians have to be removed from conflicts of interests such as lobbies or big business that might resist forces of change, especially those relating to sustainable practices. Finally, public awareness enables mass mobilisation towards, and a demand for sustainability. This also translates to public support for higher-cost sustainability projects, such as cleaning water-bodies, enforcing anti-pollution laws, or paying for sustainably planned infrastructural projects, and requires a truly invested public. Of these four, the last two, political will and public awareness, are the keys with which the other factors fall in place. The paper will use these principles as a framework for evaluating the likelihood of sustainability taking hold as a culture in Mumbai. It will also use the following case studies to evaluate how significant each of the four factors is, in the hope of establishing a robust framework applicable to the city.

II. Case Studies in Sustainable Cities

a. Singapore

Singapore faces a unique set of challenges that are partly the reason for its success in developing sustainably. Forty years ago, as Singapore's Sustainability Blueprint notes, the city was poorly planned, overcrowded and polluted.⁴ An island city of just over 700km², Singapore has little by way of natural resources and even imports 30% of its water.⁵ The city of 5 million people, with a population density of 7,422 people/km²,⁶ Singapore "had no choice but to go green if it wanted to survive economically."⁷ With

⁴ "Singapore Sustainable Blueprint." (p. 23). Ministry of the Environment and Water Resources. (Singapore: 2009). Web.

⁵ Duerr, Roxana Isabel. "Water Scarcity in Singapore Pushes Toilet to Tap Concept." Deutsche Welle. 25 Jun 2013. Web.

⁶ Singapore Department of Statistics, (p. 1).

⁷ Webb, Flemich. "Sustainable cities: innovative urban planning in Singapore." The Guardian. 11 Oct 2011. Web.

this in mind, the city embarked on a “multi-pronged effort to guide development, [importantly,] with the broad support of people and businesses.”⁸ What follows is an outline of Singapore’s strategy, supplemented by key examples, and an analysis of the factors that lead to the city’s success in integrating sustainability into its growth strategy.

Given the pressing resource shortage that Singapore faces, holistic planning for highest efficiency is key. This is why the city has created a land-use plan which, as a foundational Concept Plan, guides the development of the city in the long term.⁹ Secondly, it has a strong bureaucracy with institutions empowered to execute specific components of the plan in the medium term of ten to fifteen years. The Urban Redevelopment Authority, for example, is tasked with reviewing the Master Plan every five years to ensure its goals are adapting to the changing needs of the city and that the plan does not lag behind the real requirements of the people.¹⁰ The plan is all-encompassing, and includes pollution control, water management, waste management, energy policy and city greening, among other things. All are handled by specifically empowered organs, in a highly organised top-down system. The result is a great deal of efficiency, flexibility and success.

To understand the extent to which Singapore has succeeded in its planning, it is worth citing noteworthy examples of sustainable development beyond the much touted potable waste-water! One of the most remarkable initiatives is the waste-to-energy plan which, though independently managed, is integrated into the Master Plan in a holistic way so that the energy and waste policies are coordinated. Singapore generated 8,016 tonnes of solid waste per day in 2012.¹¹ This number is already greatly reduced due to policies that encourage minimalist packaging, targeting the source of one third of the city’s solid waste.¹² Additionally, by 2012 the country achieved a recycling rate of 60%, in the

⁸ Singapore Sustainability Blueprint, (p. 23)

⁹ *ibid.*

¹⁰ Singapore Sustainability Blueprint, (p. 24)

¹¹ “Waste Management.” [National Environment Agency, Government of Singapore](#). Web.

¹² “Singapore Packaging Agreement.” [National Environment Agency, Government of Singapore](#). Web.

absence of which its waste generation per day would have been close to 20,000 tonnes.¹³ After sorting, the waste is transferred to one of four incineration plants which are constantly burning facilities that power steam turbines, turning waste to electricity and meeting a total of 4% of Singapore's electricity demand.¹⁴ The ash, reduced to 10% of the original volume of the waste, is sorted for ferrous metals, which are extracted and recycled, and transferred to an off-site landfill. Once filled, no more land-fill projects will be undertaken due to environmental concerns, but plans exist for the ash to be recycled into tar and cement for Singapore's infrastructure projects, creating a zero solid waste city.¹⁵ What is key to the success of this endeavour is that it engages multiple stakeholders, incentivising and educating the public to sort their waste and contracting out each step of the process to private companies. In this manner, the city has contracted part of its energy generation and all of its waste management to leading companies in their fields, generated new jobs for Singaporeans, contributed to alleviating a high demand for energy, handled a pressing waste issue, and had little if any impact on the environment.

Despite its evident successes, Singapore's Concept Plan has met with some criticism. Many residents feel the plan does not incorporate their views, and the highly state-controlled plan ignores the feedback of its largest stakeholders. In response, the minister in charge of Singapore's Sustainability Blueprint, Vivian Balakrishnan, is currently conducting a half-year long public engagement exercise to draw out public opinion, get feedback on plans and "create ownership among individuals where environmental issues are concerned."¹⁶ The government of Singapore has been able to integrate environmental issues with growth and development in order to conserve the resources the city has, reduce its impact on the environment as the population expands, create economic opportunities out of high-cost initiatives, and increase the social well-being of its

¹³ "Waste Statistics and Overall Recycling." National Environment Agency, Government of Singapore. Web.

¹⁴ Tuas Incineration Plant. Site Visit by Author. August 2012.

¹⁵ *ibid.*

¹⁶ Kotwani, Monica. Govt to seek public's views on review of Sustainable Singapore Blueprint. Channel NewsAsia. 27 Oct 2013. Web.

residents. It has done this with a strong political will and a top-down approach, but also with public engagement and awareness creation.

b. Curitiba

One of the earliest successes in sustainable, integrated urban planning, Curitiba owes its fame to its iconic and renowned mayor, Jamie Lerner, who was first elected to office in 1971. He undertook sweeping changes that would not only shift the culture of the city, but also make it a role model for many sustainable cities to come. Today the city has over 52m² of public green space per resident, up from less than 1m² in the 1970s.¹⁷ These changes were not undertaken with the explicit goal of reducing Curitiba's environmental footprint, but to enhance the quality of life for its citizens, given that cities are, in Jamie Lerner's view, "the last refuge of solidarity [for the people]."¹⁸ In this model, sustainability is achieved, like in Singapore, in a top-down way, but with much higher levels of engagement from the citizens, and with their social and physical health being the highest priority. This has translated into environmentally sound policies which make Curitiba one of the "greenest" cities in the world, quite literally too.

A number of the city's social benefit plans have vast impacts on environmental conservation and sustainability. Curitiba has over 30 parks and forests connected by over 1000 green spaces, creating a network of greenery which puts it third on a list of green cities of the world.¹⁹ These parks, which use sheep to cut the grass instead of lawnmowers, not only provide recreational spaces, enhance biodiversity, and help reduce net carbon emissions, but are also controls against natural floods.²⁰ The government has strict regulations on biodiversity and vegetation preservation and engages the public to plant more trees on highways and road networks. This enables the public to take ownership of its well-being, enhances the social and recreational facilities of the city, and goes an enormously long way to conserving nature. Additionally, the celebrated bus system is used by 2,300,000 passengers daily, and is essentially a much cheaper subway

¹⁷ "Curitiba, The Green Capital." *DAC&Cities*. Danish Architecture Centre. Web.

¹⁸ "Lerner, Jamie - Interview." *The Strand*. BBC World Service. (London: 19 Nov 2009).

¹⁹ Curitiba, The Green Capital.

²⁰ "Curitiba, Brazil." *Cities for People*. Web.

system.²¹ As a result, Curitiba uses an average of 23% less fuel per capita than the rest of Brazil,²² and has been able to decrease car traffic by 30% over twenty years, while witnessing a trebling in population.²³ In order to address pollution, Mr. Lerner introduced a system known as Green Exchange to enhance slum residents' standard of living by which rubbish in difficult-to-reach slums is collected by the citizens and brought to disposal points in exchange for bus tickets, school supplies, food, or concert tickets.²⁴ In essence, the programme pays people to collect their own garbage and, coupled with an educational programme for school children, ensures that Curitiba has the highest recycling rate in the world at 70 per cent.²⁵

The city is a case study of what to do right. Yet, dire problems which require addressing persist. The "rivers, once crystalline, reek of untreated sewage," the bus system is at capacity, and the city has more private cars per capita than anywhere else in Brazil.²⁶ The disadvantage of having a visionary leader implement the changes is that a flexible system, like Singapore's, is not left behind once he retires, and the city risks stagnation. Curitiba's "metropolitan area must have a new vision."²⁷ Additionally, this system works well when one person is in charge, but would be extremely difficult to implement in a city like Mumbai where no one administrative body, political or bureaucratic, has the power to implement a master plan for the city.

c. The European Union and the Aalborg Charter Institutions

i. Background on the Aalborg Charter and Subsequent Initiatives

In the context of the 1992 Rio Summit's famous Agenda 21 on sustainable development, Europe began organising a Union-wide programme that would form the basis of the EU's

²¹ Lerner, Jamie - Interview.

²² Rizvi, Haider. "Cities are not the problem, but the solution in the battle for biodiversity." *CityMayors Environment*. [CityMayors](#). Web.

²³ Curitiba, Brazil.

²⁴ Curitiba, The Green Capital.

²⁵ Lerner, Jamie - Interview.

²⁶ Lubow, Arthur. "The Road to Curitiba." *New York Times*. 20 May 2007. Web.

²⁷ Lubow, Arthur.

Environmental Action Programme – “Toward Sustainability”.²⁸ The result was the first European Conference on Sustainable Cities and Towns, hosted in Aalborg, Denmark in 1994. The conference produced the Aalborg Charter, a document “based on the consensus of individuals, municipalities, NGOs, national and international organisations, and scientific bodies,” which outlines European cities’ commitment to Local Agenda 21 (LA21), and the establishment of an EU Sustainable Cities & Towns Campaign.²⁹ The charter has been signed by over 3000 localities and municipalities, in over 40 countries and is the largest pan-European movement of its type.³⁰ There are three remarkable features of the charter. Firstly, it is entirely voluntary and there is no national or supra-national, EU-wide directive that compels or rewards adherence to the Charter. Secondly, the signatories span all levels of government from the local to the supra-national, increasing the buy-in and commitment from all political levels. Finally, the original Charter was followed by seven conferences of the Sustainable Cities & Towns Campaign as well as numerous additional initiatives and conferences with their own set of agreements, the most notable of which is the Aalborg +10 Commitments signed in 2004.³¹

The Aalborg Charter sets out an overarching architecture for the implementation of sustainable practices into urban living, growth, and planning. The premise of this significant step towards sustainability is the understanding that “in the course of history...towns have existed within and outlasted empires, nation states, and regimes and have survived as centres of social life, carriers of economies, and guardians of culture, heritage and tradition.”³² The Charter outlines the principles under which action towards sustainability is to be taken, but does so without any significant reference to specific actions. Rather, it recognises that “as each city is different, [it has] to find [its] individual way towards sustainability.”³³ Indeed, the Charter, despite its being a supra-national endeavour enshrines the responsibility and authority of municipalities, and recognises

²⁸ “The Aalborg Charter.” [Sustainablecities.eu](http://www.sustainablecities.eu). Web. <http://www.sustainablecities.eu/aalborg-process/charter>

²⁹ *ibid.*

³⁰ *ibid.*

³¹ “Aalborg Charter and Aalborg+10 Commitments.” [Urban Environment](http://www.urbanenvironment.eu). European Commission. Web.

³² “Charter of European Cities & Towns Towards Sustainability (Aalborg Charter).” 27 May 1994. (Art. I.1.) Aalborg, Denmark. Web.

³³ Aalborg Charter, Art. I.3.

their right to develop their own individual plans. It goes so far as to declare self-governance at the local level a precondition to the success of the treaty, and views financial support from higher levels of government an obligation by them to the commitment of sustainable development.³⁴ The Charter also incorporates principles of urban mobility, appropriate land use, quality of life, health, and the role of the citizenry. This comprehensive agreement created a pathway for numerous more specific agreements and conferences.

It is worth noting, in brief, the subsequent actions that have built upon the Aalborg Charter in order to fully understand how entrenched the concept of autonomous sustainable cities is in European governance and development discourse. The 1996 Lisbon Action Plan identified specific mechanisms that provided means to achieve the goals of the Charter. Subsequently, in 2004 a “ten years on” conference was held in Aalborg during which cities made a series of ten commitments (known as the Aalborg Commitments) towards achieving sustainability. This landmark is noteworthy for three reasons. Firstly, the areas covered in the commitments were wide-ranging and included a commitment to grow from “local to global,” ensuring the internationalisation of city-level cooperation. Secondly, signatories to the Commitments included cities and towns beyond the EU, namely in Niger, Tunisia, Morocco, Egypt and Senegal.³⁵ Finally, the architecture developed around urban sustainability in the ten years between the two Aalborg conferences is remarkable, and demonstrates the level of inter-dependency and institutional cooperation that developed, not just within the EU, but into other regions too. As Ian Bailey would claim, this is truly the neo-liberalism of sustainability in work.³⁶ In neo-liberal institutions, however, enforcement mechanisms are often less predominant and compliance is encouraged rather than coerced. The applicability of such institutions, therefore, to areas of naturally or historically weak governance and political initiative may not be feasible. Before establishing whether this is the case, the paper will

³⁴ Aalborg Charter, Art. I.12.

³⁵ “The Aalborg Commitments.” [Sustainablecities.eu](http://www.sustainablecities.eu/aalborg-process/commitments). Web. <http://www.sustainablecities.eu/aalborg-process/commitments>

³⁶ Bailey, Ian, (p.431). “Neoliberalism, Climate Governance and the Scalar Politics of EU Emissions Trading.” *Area* vol.39, no.4. 2005. pp. 431-442. JSTOR. Web.

deconstruct how the EU has been able to move from the Aalborg Charter to a robust institutionalised framework for autonomous urban sustainability.

ii. Literature Review of the Sustainability Process – From Aalborg to Aalborg

1. Sustainable Development as an Institutionalised Trend

In her paper on the institutionalisation of environmental sustainability Annamaria Orban traces the historic roots of the concept to the Brundtland Report in which the “one-sided approach only concentrating on environment protection,” was discarded and the concept was widened to “encourage nations to return to comprehensiveness, and to find the ways of harmonious development,” that avoided the “naive political overtone” of dealing with the ‘environment’ as a solitary problem.³⁷ So, from the outset, the EU approached sustainability holistically, integrating it into all aspects of policy development (though how this is done varies by country and even city). Orban goes into great detail discussing the way in which sustainability was institutionalised in the EU, but the essential conclusion to be drawn from her research is that a Commission and Union level initiative was taken to engage multiple stakeholders and provide a framework and resources for municipal authorities to implement sustainable practices in their urban development programmes.³⁸

One particularly enlightening example is that of Hungary’s sustainable development framework, which began with the Rio Summit and was spurred by the many Europe-wide initiatives.³⁹ Thence, on its own initiative, the country instituted a number of reforms and regulations to govern environmental degradation, including the creation of an institutional ombudsman known as “Future Generation.”⁴⁰ Working within this national framework, the twenty years of active sustainability consciousness and, “governmental and non-governmental steps, provisions, organisations and events expressed, both implicitly and explicitly, that the ideology of sustainable development is present in

³⁷ Orban, Annamaria, (p. 273). “Institutionalisation of Sustainable Development: Theory and Practice – A Critical Approach.” *Society and Economy* vol.7, no.2. 2005. pp.263-286. JSTOR. Web.

³⁸ Orban, (p. 276).

³⁹ Orban, (p. 279).

⁴⁰ Orban, (p. 280).

today's Hungarian social and political life.”⁴¹ One outcome of this is the “real social participation...of local communities, the implementation of the principle of partnership and subsidiarity in the discussion of economic, political or,... military issues and plans related to smaller and bigger communities.”⁴² This, as will be discussed below, is vital to the success of any multi-level, holistic framework. Though Orban notes that Hungary’s success is tainted by “an element of political marketing at the national level,” the widespread participation in the process is real and the use of political marketing is in itself a form of contribution to the discourse; one that, as will be discussed, is significantly lacking at the government level in Mumbai’s case.⁴³ To read a conclusion from Orban’s work, institutionalisation occurs when all stakeholders buy into the process and create a symbiosis through which the outcomes for each stakeholder are net positive. Without this, institutionalisation of sustainability is impossible.

2. The Political Science of Sustainability

Meadowcroft’s paper draws out trends in the development of the sustainability discourse and finds that broadly speaking a process has emerged in the developed world that is strikingly similar to the one this paper recommends for developing nations. Namely, a broad national-level (or in the EU’s case, supra-national) architecture for sustainability is drawn up and power to interpret and implement that plan is devolved to the local level, which draws upon the resources of the centre and co-governance with other municipal bodies.⁴⁴ Governments are encouraged both by domestic political discourse and by international contacts to develop long-term sustainability frameworks, which are numerous in the countries discussed in his paper – Australia, the Netherlands, the United Kingdom etc.⁴⁵ The trend of sustainability, then, begins at the international level with initiatives such as Agenda 21 and various OECD obligations, while concurrently domestic level political exigencies push national governments to develop strategic

⁴¹ Orban, (p. 281).

⁴² *ibid.*

⁴³ *ibid.*

⁴⁴ Meadowcroft, James, (p. 220). “The Politics of Sustainable Development: Emergent Arenas and Challenges for Political Science.” *International Political Science Review* vol.20, no.2. Apr., 1999. pp.219-237. JSTOR. Web.

⁴⁵ Meadowcroft, (p. 223).

frameworks and provisions on which sustainable development is founded. Though the national government remains a centripetal force, and with the exception of the Netherlands, the tactical policies are decided at lower levels of government.⁴⁶ Indeed, the author intimates that national level plans may not even be necessary. Using Norway as a case in point, the author demonstrates that responsibility for sustainable practices can be placed on individual ministries, rather than dictated by a central, all-encompassing plan.⁴⁷ It is clear, then, within the EU even at the national level there is no uniformity of practice.

By descending from the national to the local government level, it becomes evident that the lack of uniformity is even greater, but that cross-partite interactions and governance frameworks are the norm. In particular “the development of multi-actor governance networks seems particularly well-suited to the structural characteristics of environmental problems...which crosscut traditional jurisdictional divides. This seems all the more clear with respect to decision-making for sustainable development, where environment and economy are to be linked, and the wealth, equity and ecological dimensions of policy choices [must] be reconciled.”⁴⁸ Not only is governance cross-municipal in nature, with alliances of European cities such as CIUDAD becoming popular, but also cross-sectoral, necessitating cooperation between economists, environmentalists, urban planners, and utilities authorities, but also between NGOs and businesses. In such multi-way interactions, “government agencies...must be willing to accept that their own perceptions of problems and possibilities may be supplemented, enhanced, and altered by the perspectives of other partners.”⁴⁹ It is precisely in this context that cities seek to gain more control over their own implementation of sustainable practices.

LA21 has given particular impetus to the movement towards urban and localised sustainability, which is now a well-integrated part of the global sustainability initiative. This is especially so in the EU, where cities play an active role in the international setting on developing sustainability practices and governance structures. “The idea of

⁴⁶ Meadowcroft, (p. 224).

⁴⁷ Meadowcroft, (p. 226).

⁴⁸ Meadowcroft, (p. 227).

⁴⁹ Meadowcroft, (p. 229).

local/global linkages...has received considerable impetus from cross-national interaction among municipal officials, local planners, and activists. For example, the World Health Organization's (WHO) 'Healthy Cities Project,' the Council for European Municipalities and Regions, and the European Commission have jointly supported the networking associated with the European Sustainable Cities and Towns Campaign."⁵⁰ The Aalborg Charter, as was noted above, provides that autonomy to cities, and the significance of this is manifold. Not only does it satisfy local governments' desires for power to be devolved to them, but it also recognises that this is the best strategy to implement sustainability. By taking decision-making power out of national and state government's hands and allowing cities to deal with the minutiae allows for both more appropriate and effective practices to be implemented, and frees central government resources from micro-managing, enabling them to take a supervisory role at most. This broad political architecture, which integrates international, EU-level, national, sub-national government and non-government actors, characterises the entire EU's approach to sustainability and is a model worth considering in the developing world context.

3. The Necessity for Multi-Level Governance

In her paper on multi-level governance for urban sustainable development, Harriet Bulkeley argues that such governance is a prerequisite for an integrated and holistic approach to urban sustainability that moves beyond "institutional restructuring, traffic management, architectural design and the development of green technologies."⁵¹ Importantly, she finds that this is a particularly effective method of combatting climate change. Scholarship on the issue suggests that reducing greenhouse gasses in the urban area is feasible not only because of the prevalence of emissions from urban centres, but also because urban authorities have demonstrated a willingness to tackle such issues, have the means to bring stakeholders together, and have the know-how to effectively reduce greenhouse emissions.⁵² Moreover, the actions of local authorities directly impact

⁵⁰ Meadowcroft, (p. 233).

⁵¹ Bulkeley, Harriett & Michele Betsill, (p. 43). "Rethinking Sustainable Cities: Multilevel Governance and the 'Urban' Politics of Climate Change." *Environmental Politics* vol. 14, no. 1. Feb., 2005. pp. 42-63. JSTOR. Web.

⁵² Bulkeley, (p. 45).

national governments' abilities to meet their internationally agreed-upon commitments. Therefore, rather than artificially creating a system by which municipal bodies are given authority (like the Aalborg Charter and LA21), these findings suggest that on the climate change front, cities already naturally play an integral part in the sustainability process, and their roles are already semi-institutionalised. Much like Meadowcroft suggests is taking place in the EU, Bulkeley considers that urban environmental efforts also have positive economic effects and, "in this reading of urban sustainability, environmental, economic and social goals can all be achieved simultaneously."⁵³

Despite the appropriateness of devolving power to urban centres, a significant resource and knowledge gap exists, which needs to be filled if local and municipal authorities can effectively use the power they seek to implement sustainable practices. It is in this context the case for multi-level governance can best be made. Multi-level and cross-jurisdictional cooperation, however, should not be achieved through "strategies to implement urban sustainability [that] rest on the development of exemplar projects or 'best practices', from which lessons can be learned, and applied, within the urban arena or transferred between cities,"⁵⁴ as is usually the case in the EU and as is being attempted in Mumbai, as will be discussed below. Rather, a multi-governance approach is suggested by Bulkeley, which can take the form of either a hierarchy from international down to the local or a polycentric model with overlapping and interconnected spheres of authority.⁵⁵ The latter is preferable so that rather than the national government being a conduit between the supra-national and the local, the local can rise to deal directly and equally with the national and supra-national. In a case study on Newcastle-upon-Tyne, Bulkeley describes the way in which urban planning can help achieve national environment goals. "Land use planning[, which is entirely in the sphere of urban authorities,] has the potential to contribute to reductions in energy use[, a national goal,] through determining...how compact or sprawled a city is and the design of new buildings."⁵⁶ This demonstrates the way urban governments can work in concert with (instead of under the

⁵³ Bulkeley, (p. 47).

⁵⁴ *ibid.*

⁵⁵ Bulkeley, (p. 48).

⁵⁶ Bulkeley, (p. 50).

direction of) national governments to achieve mutual gains, and the principle can be extrapolated outward to the EU and international levels also.

Indeed, from the perspective of local authorities, multi-level governance can be better achieved through a polycentric construction of responsibility and authority. In this manner, “local authorities can gain additional influence through direct links with European institutions and actors.”⁵⁷ Additionally, this form of polycentric governance enables the discourse to move beyond government authorities to the cross-jurisdictional “spheres” of authority described by Meadowcroft, “which include coalitions of state and non-state actors through which the struggle to interpret and implement particular versions of urban sustainability take place.”⁵⁸ Bulkeley provides a theoretical framework around the descriptive work of Meadowcroft and, with the exception of some key points, essentially advocates exactly the same multilevel governance structures that Meadowcroft claims are part of EU frameworks (he does not comment on the effectiveness of these frameworks). Bulkeley augments her theory with the emphasis that institutionalised destruction of the hierarchy between levels of government will help democratise the coalition of governance that the EU has, at least theoretically, already established. In this manner holistic sustainability of the urban development process can be achieved.

4. Conclusions from Literary Review

- *The union relies on institutions rather than people* – In the European Union, where forms of national sovereignty are relinquished to the supra-national level, a union wide governing body assumes the policy-setting role that a state might in other cases. It is worth looking here for examples of coordinated agenda setting and law-making across all EU cities. Unlike in Curitiba, no one person led the charge for sustainability, so a more robust framework has developed.

⁵⁷ Bulkeley, (p. 56).

⁵⁸ Bulkeley, (p. 57).

- *The EU uses a top-down approach, but leaves enough room for cities to reach their targets in a customised manner* – Now on its seventh version of an Environmental Action Programme, the EU periodically updates environmental and climate policy which, in turn, translates into laws for cities to follow. In this manner, guiding laws set at the supranational level, empower national, local and Community-wide bodies to implement environmentally-friendly policy. The top-down approach removes any conflict of interest cities might have in imposing environmental regulations by taking the decision out of their hands, but leaving them with the means and the tools to reach set targets. Similar to the Singaporean Concept Plan, the EU's seven year plan, guides policy till 2020 and integrates various lower-level initiatives such as the Resource Efficiency Roadmap, the 2020 Biodiversity Strategy, the Low Carbon Economy Roadmap, and various waste directives into a large, holistic set of guiding laws.
- *The European Union takes a more scientific approach to sustainability* – Unlike Curitiba, the EU grounds its policies in environmentally sound outcomes, which positively impact people's lives, rather than making its goal the enhancement of living standards, with environmental benefits being the positive effect of that. So, the plan's aims are to “enhance natural capital,” create a “competitive low-carbon economy,” “improve the evidence base for environment policy,” and improve sustainability of cities among a number of other things.⁵⁹ Recognising that quality of life for EU citizens will depend on the quality of the urban environments, the plan seeks to systematically involve “regional and local authorities in the planning, formulation and development of policies impacting on the quality of the urban environment.”⁶⁰
- *The EU strictly adheres to, and models, the current international order* – The EU takes guidance from principles agreed to at the international level, then legislates at a supra-national level and creates responsibility for implementation at the national level.⁶¹ In setting this goal, the plan recognises the EU's obligation at “the Rio+20

⁵⁹ “Proposal for a General Union Environmental Action Plan to 2020 (p. 4).” [European Commission](#). (Brussels: 29 Nov 2012). Web.

⁶⁰ Proposal Union Environmental Action Plan, (p. 33)

⁶¹ “Implementation of Community Environmental Legislation.” *Environment*. [European Commission](#). Web.

Summit to promote an integrated approach to planning, building and managing sustainable cities and urban settlements.”⁶² As empowered by Member States, the European Commission is Guardian of the Treaty, meaning that it is empowered to take action when national level governments fail to meet agreed to targets.

- *The EU has created a number of Community-wide bodies to set and implement environment law* – The Committee of the Regions’ Environment, Climate Change and Energy Commission (CoR ENVE) brings together regional and local representatives to share best practices and formulate the policies they will be implementing.⁶³ This is facilitated by the Technical Platform for Cooperation on the Environment, which is a sub-group of CoR, ensuring that technical knowledge sharing enhances joint policy-making efforts.⁶⁴ These groups, and others like them, are supplemented by organisations such as the Cooperation in Urban Development and Dialogue Programme (CIUDAD) and the Covenant of Mayors. CIUDAD is a knowledge-sharing network that enhances local “capacity to plan for sustainable, integrated and long-term urban development... [through] capacity building and by promoting...exchange of experience...between local actors in the EU and in the Partner Countries.”⁶⁵ The Covenant of Mayors is a voluntary organisation of EU mayors who commit themselves to meeting and exceeding targets set by the EU, such as the reduction of CO₂ by 20% by 2020, in a similar cooperative environment, and has developed its own Sustainable Energy Action Plan.⁶⁶ Interestingly, these bodies are organised at the Community level, but comprise sub-national representatives who implement the EU policies to enhance the likelihood of success. Voluntary knowledge-sharing committees and guidance programmes provide local governments with the assistance and expertise needed to meet their targets and comply with the law. These factors are vital in the EU’s success at implementing policy.

⁶² *ibid.*

⁶³ “Environment, Climate Change and Energy.” *The EU’s Assembly of Regional and Local Representatives. Committee of the Regions.* Web.

⁶⁴ “Technical Platform for Cooperation on the Environment.” *Environment. European Commission.* Web.

⁶⁵ “About CIUDAD.” *CIUDAD.* Web.

⁶⁶ Samol, Frank.

The biggest takeaway is that the EU integrates international guidelines into its policies. The enforcement of the guidelines are, in turn, mandated to national governments while implementation is organised by various bodies of local representatives, as a whole Community at the supranational level. The model is an intriguing one as it empowers national governments only to enforce the laws that local representatives agree upon together as a union. The EU is partly able to do this because its urban spaces are roughly at similar levels of technological and financial development. To implement such a policy in India, where disparities between cities mean that Mumbai alone accounts for roughly 6% of the country's economy, and 30% of its income tax base, would be virtually impossible. The relevance of the example, however, is to demonstrate that an integrated policy framework, coordinated at a high level, using commitments to international agreements, and empowering local actors to act (in concert with one another, where possible) is an effective strategy for creating a well-articulated and managed plan for holistic sustainable urban development.

d. Applicability of Case Studies to Mumbai

Darshini Mahadevia's paper is a reminder that urban development and sustainable development need to be adapted to the developing world context, and include focus on the poor – sustainable housing is not good enough. A central theme of her argument is that the urbanisation of developing world has degraded rural life and destroyed, beyond sustainable levels, the culture (including the economy and the environment) that has existed there for millennia.⁶⁷ While this is true, her rejection of sustainable development in the context of the present global system is a flawed one, and is biased by a number of judgemental assumptions about the motivations of those within the system. Nevertheless, her analysis of the difficulties of importing a European model of sustainable urban development into India is insightful. She posits that by 1994 Europe had reached a level of human development that allowed it to focus on reduction of resources etc., whereas India still has not, even in the most developed of its cities – Mumbai. Consequently, resource-scarce municipal governments direct their limited means towards infrastructural

⁶⁷ Mahadevia, Darshini, (p.243). "Sustainable Urban Development in India: An Inclusive Perspective." *Development in Practice*, vol.11, no.2/3. May, 2001. pp. 242-259, JSTOR, Web.

and economic projects that exclude the very poor, when what is needed is spending on inclusionary development first.⁶⁸

To provide a little analysis to this argument, given the flexibility and broad scope of the Aalborg Charter and the supra-national frameworks for urban development that the EU has developed, it is still possible to apply them to the Indian context but must be done holistically, rather than exclusively. By way of illustration, to resolve Mahadevia's issue of the poor being excluded from development, education among the poorest would need to be improved so that they have knowledge and a stake in the infrastructural advances taking place, as they do in Curitiba. The Aalborg Charter explicitly calls for all human needs to be met, but because of systemic power imbalances, this issue is side-lined in the political discourse on urban sustainability in Mumbai. It is these imbalances which result in crony-capitalism and outright corruption that need to be addressed so that a system with greater stakeholder participation can be developed.

Further, to Bulkeley's argument, without a robust multi-level governance framework Mumbai will forever be attempting to move people out of slums, preserve ecosystems, provide safe water, improve traffic, public infrastructure and green spaces, etc. without really progressing. This is a seemingly insurmountable issue because before multi-level governance systems can be properly developed so that urban development can continue holistically, basic needs such as education and sanitation need to be raised so that there are stakeholders to partake in the multi-level governance system. It is a vicious cycle in which one is needed before the other can take place.

A second, less foundational issue, is the nature of the political power balance in India. Bombay already has a number of initiatives that push public-private partnership and knowledge sharing between cities across the world. To this end, organisations like Bombay First, an NGO working with the local government on city issues, are of demonstrable importance to the success of sustainably improving Bombay's quality of life and consumption of resources. Nevertheless, their scope of operation is limited if the

⁶⁸ Mahadevia, (p.244).

city cannot wrest power from the state or from the centre in the way European cities have done. One way of doing so is to institutionalise city-level governance programmes by bypassing the state and centre, but this takes great initiative. By comparison, it would be like Hungary, in Orban's paper, leaving all the institutionalisation of sustainability to its cities and private stakeholders. Where in India the state's role is less constructive, it might turn to alternate frameworks for institutional authority, such as the supra- or international charters, as various North African cities did with the Aalborg Commitments. Mumbai and other Indian cities, however, do not have the knowledge or the resources to develop an institutionalised approach to sustainability independent of the centre's resources. As Bulkeley noted, international cooperation and knowledge sharing can only go so far. Consequently, it seems that an EU-like framework, though in principle effective in any context, cannot simply be transplanted in Bombay or the rest of India without significantly enhancing the social and governance provisions of a document like the Aalborg Charter. Only once this is completed can cities, in coalition, begin to exert pressure on the central government for greater access to developmental resources and expertise.

III. The Case for Mumbai

a. Existing Frameworks for Sustainability in Mumbai and Public Conceptions

i. Existing Infrastructure and Development Attempts

Like many cities in emerging market countries, Mumbai is developing rapidly, and the government is struggling to upgrade infrastructure in line with the growth. The metropolitan area has a population of roughly 18 million, while the urban metropolis has roughly 13 million people living in it. Moreover, half a million people immigrate to the city every year and, without proper low-income housing infrastructure, 60% live in slums.⁶⁹ Narinder Nayar, chairman of Bombay First, notes that Mumbai is “carrying 21st century traffic on infrastructure built in the 19th century,” and that the railways, which were built by the British in the early twentieth century, carry 6 million passengers a day,

⁶⁹ Nayar, Narinder. Phone Interview. 7 Dec 2013.

but only in the last few years have they started increasing capacity.⁷⁰ Most importantly, the city has no mass transport system, and “no city [of this size] can afford not to have one.”⁷¹ Nevertheless, as will be demonstrated, many plans for development exist. Most have yet to be implemented, but the planning infrastructure is robust. What is not is the implementation and coordination, which means that the city risks developing in an uncoordinated manner. This can have dire consequences for both the success of the plans, and, more importantly, the sustainability and future resilience of the city.

There is no dearth of development plans in Mumbai, and government agencies are focused on upgrading public services to meet the growing demand. A mass transit system has been planned, in the form of a metro train system, with 9 corridors running through the city.⁷² Phase 1 is underway, but facing a number of delays due to regulatory clearances. On the energy front, the state of Maharashtra (of which Mumbai is the capital city,) and indeed the country as a whole, is adopting sweeping regulatory changes. Bodies such as the Bureau of Energy Efficiency (BEE), an agency under the Ministry of Power, is mandated to regulate the implementation of green energy standards in buildings across India.⁷³ The State of Maharashtra, however, has also undertaken such efforts, and is the first state in the country to formulate its own guidelines for green buildings. Valsa Singh, a high level bureaucrat in the state government, explains that this has been done in association with the Indian Green Building Council (IGBC), an organ of the Confederation of Indian Industry.⁷⁴ It is unclear, however, if there has been any coordination is between the BEE and the IGBC. Indeed, this uncoordinated approach, in which one agency responsible to a particular authority (be it state or national) carries out projects without coordinating with its counterpart agencies, is endemic in the governance architecture of the state, and the city in particular. If this seems particularly confusing and disorderly, that is because it is. Mumbai is not lacking the appropriate institutions or tools. It even has a redevelopment agency, like Singapore, and a Concept Plan (see next section). The issue, Mr. Nayar explains, stems from a lack of authority vested in one

⁷⁰ *ibid.*

⁷¹ *ibid.*

⁷² *ibid.*

⁷³ Nair Singh, Valsa. Email Correspondance. 3 Dec 2013.

⁷⁴ *ibid.*

person or agency for the whole city. “There are seventeen agencies in Bombay which are responsible for the management of the city. Some are responsible to the state government, some to the central government, but no one in particular to the city. The result is akin to an orchestra of extremely competent players, but with no director to direct them.”⁷⁵ This is an important notion with regards to the management of sustainable development, which cannot happen unless a coordinated plan, aligning and guiding the goals of all agencies in the city, is implemented.

ii. Current State of Environmental Policy

An analysis of India’s current environment policy framework reveals a comprehensive set of acts, laws, authorities, departments and ministries, at the national and local levels, that are theoretically empowered to handle issues pertaining to Mumbai’s environmental preservation and sustainable development. The overarching Environmental Impact Assessment (EIA) Notification (2006) is the set of regulations by which any project beyond a certain size has to be appraised.⁷⁶ The standards, comparable to “the best in the world” were set after careful planning and analysis of other countries’ environmental regulations.⁷⁷ This demonstrates a willingness on the certain agencies’ behalf to use the knowledge developed by other countries.

Apart from the EIA Notification system, “the legislation governing the standards of environmental compliances is the Environment Protection Act of 1986.”⁷⁸ It has set detailed provisions, standards, and methods for penalising offenders, and also draws from other countries’ legislation. The act is also far reaching, and comprises several specific notifications. For example, the Coastal Regulation Zone Notification (CRZ), municipal solid waste management rules, hazardous waste rules, and air and water pollution controls are all covered by the act. Each of these areas has specific enforcement agencies at the state level. The issues are regulated at both state and federal levels and major projects are appraised at the state level and recommended to the federal government,

⁷⁵ Nayar, Narinder.

⁷⁶ Nair Singh, Valsa.

⁷⁷ *ibid.*

⁷⁸ Nair Singh, Valsa.

where the final decision making authority lies. Furthermore, the enforcement agencies have their own sub-bodies, such as the Maharashtra Coastal Zone Management Authority, which is a committee to ensure compliance with CRZ rules. State Expert Appraisal Committees also exist, and ‘appraise projects as per the EIA notification.’⁷⁹ This briefly demonstrates that the laws and acts passed at both national and local levels in India are comprehensive. The legislation exists in great detail and specificity.

What is lacking, however, is the motivation for implementation. A perfect example is a report prepared for the federal Environment Ministry and the state Pollution Control Board. It is exhaustive in detail, and in 273 pages covers everything from socio-economic conditions, to solid waste, to forests and to disaster management.⁸⁰ The report notes that municipal solid waste in Mumbai is 7000 tonnes a day.⁸¹ It goes on to claim that the high levels of biodegradable waste “provide ample opportunities for more efficient and resourceful waste management.”⁸² What those opportunities are, however, is not described. One of the solutions already implemented is an NGO initiative involving lower-caste women, creating employment and enhancing the city’s sustainability.⁸³ This project is uncoordinated at the city level, and not impactful enough for a city of over 17 million people. Importantly, no recommendations for implementing citywide solutions are made. One of the reasons is that no particular body is empowered with creating solutions. The report is so comprehensive that one gets lost in it and is unable to glean clear policy recommendations for specific issues. This leads to two conclusions. Firstly, the knowledge, data, and capability exist in Mumbai. Secondly, the responsibilities are not organised in an effective manner and the result is that two state and national level ministries (Pollution and Environment) are receiving information on everything ranging from socio-economic profiles to disaster management for a city. One has to recognise the difference between the legislation and research which comes from competent scientists,

⁷⁹ *ibid.*

⁸⁰ “State of Environment Report: Maharashtra.” Indira Gandhi Institute of Development Research. (Mumbai). Web.

⁸¹ State of Environment Report, (p. 151)

⁸² State of Environment Report, (p. 156)

⁸³ 169 <http://envfor.nic.in/sites/default/files/SoE%20report%20of%20Maharashtra.pdf>

lawyers and bureaucrats, and implementation, which is a consequence of political will. The latter is where the problem lies.

iii. Attitudes, Disorganisation and their Consequences

Despite extensive environmental regulations, and the government's planning efforts, there is a fundamental disconnect between the thinking within environmental agencies and other segments of society. Especially with regard to development, much of which is done in partnership with private infrastructure companies, "the environmental lobby is considered anti-developmental, or a negative lobby."⁸⁴ Environmental clearance is a tedious and much detested process, but the stringency of the appraisals ensures environmental concerns should be addressed well. It seems that a great deal of work needs to be done in order to harmonise environmental security with the development and future utility of the people. An attitude of infrastructure first, and environment later, which Mrs. Nair Singh bemoans, means that projects are formulated without environmental concerns being addressed. Consequently, once a plan has been drawn up, "there is resistance to accept any changes as desired by the environment clearance committees."⁸⁵ This is dangerous as it weakens the government's authority, and demonstrates not just a lack of coordination, but a dire threat to the future integrity of the city's surrounding environment. How that is the case is best demonstrated by example.

A new international airport is being planned in a suburban area known as New Bombay, 35 kilometres from the current, more central airport. The plan is an integral part of the city's development, as is its absorption of the suburbs into city limits to meet the increased demand on transportation and infrastructure over the next half century. Despite its evident importance and the years of planning that went into it, the "project was envisaged [by a government owned company, CIDCO] with least concern for environment."⁸⁶ Among the most serious environmental issues were plans to cut a hill, train two rivers, remove an entire island, and reclaim acres of mangroves. When the plan was finally submitted for environmental approval, as required by law, what the planners assumed would be a formality turned into somewhat of a nightmare. The Ministry of

⁸⁴ Nair Singh, Valsa.

⁸⁵ *ibid.*

⁸⁶ *ibid.*

Environment and Forests' appraisal of the airport indicates how comprehensive the environmental requirements are, but how excluded the ministry is from the city's growth plan. For example, clearance needs to be sought from the Pollution Control Board and submitted to the ministry, clearance from the Bombay High Court must also be sought for cutting mangroves and submitted to the Ministry.⁸⁷ Additionally, the official environmental clearance document orders CIDCO company to relocate 3000 families currently living in the area to new premises "more beneficial to the affected persons."⁸⁸ Most importantly, for the future sustainability of coastal ecosystem, mangroves must be replanted elsewhere and "tidally influenced water body outlets" must be left unchanged.⁸⁹ In order to do this effectively, CIDCO must also demonstrate, using the past 100 years' data, possibilities of flooding and damage to infrastructure in the area, and set up a monitoring facility to ensure that the water course continues to flow naturally for the extent of the airport's life. In the face of such stringent additional requirements, delays and costs, it is only natural that CIDCO would view the ministry as "anti-development." Indeed, the costs rose so significantly because of these requirements that the project has been suspended and alternate sites, including a reclaimed island off the coast, are being studied for feasibility.⁹⁰

The new airport is just one of many novel infrastructural plans that have faced delays as a result of neglected environmental concerns or lack of coordination within the government. Unrelated to the environment, a plan to build a monorail by the city's urban development agency (MMRDA) has been delayed because the land earmarked for the project is owned by the Bombay Municipal Corporation (BMC) which, it should be noted, is not the same as the Municipal Corporation of Greater Mumbai (MCGM).⁹¹ It seems that different agencies are currently engaging in three different rail transport upgrade plans: a metro system, a monorail, and upgrades to the current railway lines. Ultimately, it seems, either a project is abandoned or the Environment Ministry is

⁸⁷ "Environment and CRZ Clearance for Navi Mumbai International Airport, (Article 7. I. i-ii)." Ministry of Environment & Forests, Government of India. (New Delhi: 22 Nov 2010).

⁸⁸ Environment and CRZ Clearance, (Article 7. I. iii).

⁸⁹ Environment and CRZ Clearance, (Article 7. I.v).

⁹⁰ Nayar, Narinder.

⁹¹ "Etcetera." Business Today. 30 Sep 2012. Web.

ignored. Given the importance of infrastructural development, it is increasingly the latter, which translates to the ministry's losing power and credibility within the government system. Not before, however, the development firms take on huge costs and delays. A better approach is needed and, indeed, possible. Current efforts to address this issues using international cooperation at a municipal level have already had some effect, and the paper will now evaluate them.

b. Present Efforts and Future Direction of International Knowledge Sharing and in Mumbai

i. Current International Engagement and Bombay First
Mumbai is engaged, rather extensively, with the international community on urban and sustainable development issues. The city is a member of organisations such as ICLEI and C40 cities, the goal of which is to promote knowledge sharing on sustainable development. One of the successes is a Cities Alliance project, which, in conjunction with the World Bank and USAID, has created funds for the Mumbai Transformation Support Unit (MTSU). The MTSU is meant to “serve as an interface between the government and all other stakeholders involved in the [Mumbai Transformation Programme (MTP),]” a collaborative effort by business leaders and the state government to create a vision for Mumbai.⁹² This is a noteworthy initiative not only because of the cooperation between different segments of Mumbai's society, but because the government is directly engaging in cooperative work with international organisations like the World Bank and Cities Alliance from whom the city gets both funding and knowledge support.

Most recently, there has been an increase in the number of public-private partnerships the government has engaged in, both with domestic and foreign firms. One such example is with a Dutch firm, NACO, which has been hired to carry out appraisals for the new airport discussed above. The consultancy firm is tasked with establishing a plan for the new airport in concert with the environmental requirements, and with the projected needs of the city. The single greatest advantage of this set up is that companies with extensive

⁹² <http://citiesalliance.org/node/4395>

experience in other parts of the world are able to apply those experiences to Mumbai. For example, Joeri Aulman, NACO's managing director in Bombay notes that experiences with the environmental lobby in The Netherlands has "assures that there was a re-think about disregarding nature in favour of quick and easy engineering solutions to the infrastructure deficit."⁹³ One risk of this approach, however, is that when foreign firms are employed, the engagement between the public and the government is broken. Indeed, neither the public nor the government have input, so there is a risk that plans will not be in concert with the mindset or will of the people. This brings the social sustainability of the development into serious question. Indeed, Mrs. Nair Singh summed up her concerns on this point by noting that "consultants can give a general road map..., however, our problems, as a third world country, are quite different and we need to find our own solutions."⁹⁴ While her concerns are valid, they can be over come with careful planning and a more globally integrated approach to sustainable development planning. One such organisation that has done so is Bombay First.

Spearheading many development initiatives is Bombay First, an NGO founded in 1994 as "a think tank of the city...fostering partnerships between various major stakeholders."⁹⁵ The organisation has been particularly active on three fronts. The first is fostering partnerships between government agencies in an effort to coordinate city planning under one authority. Bombay First representatives sit on an "Empowered Committee" chaired by the Chief Secretary of the state, and an "Action Group" chaired by the Chief Minister.⁹⁶ The second front is citizen outreach, for which the organisation hosts a number of talks and conferences open to the public, and relevant organisations, in order to establish communication between the various stakeholders involved in the city's social, economic and infrastructural development. Finally, Bombay First has pioneered in the city the idea of international knowledge sharing. In this field, its efforts are extensive.

⁹³ Aulman, Joeri. Email Correspondence. 26 Nov 2013.

⁹⁴ Nair Singh, Valsa.

⁹⁵ "History." *Mumbai First*. [Bombay First](#). Web.

⁹⁶ *ibid*.

One example is that, in coordination with the government, Bombay First commissioned a Singaporean consultancy firm to establish a concept plan for Mumbai, outlining short, medium and long-term goals the city can adopt to prepare itself for future growth in a sustainable way. This comprehensive plan proposes critical projects to be undertaken, as well as updating the regulatory framework, such as zoning laws, to enable further development.⁹⁷ It also cites examples of development from other cities, such as efficient resource planning and reuse of old infrastructure in Paris, to inform its recommendations for Mumbai.⁹⁸ This plan, while not directly relating to environmental preservation by any means, incorporates such recommendations as integrating all agencies in the planning process for a project so that considerations like rail transport to a newly developed area are not ignored.⁹⁹ This holistic approach to development is the only way sustainability can be ensured, costs can be kept low, and services like rail transport and waste collection can be utilised to their full potential for greatest efficiency. It is these principles, rather than just direct conservation of the city's natural habitats, which will ensure sustainability.

ii. The Results and Impact on Development

Despite some initiatives taken by the government, such as the MTP, and despite active participation by government members in conferences, meetings, and studies with local and international experts, little of the extensive work done by non-government stakeholders translates into actionable goals taken up by the government. Bombay First has set up "Mission Groups" to study and make recommendations to the government on issues ranging from governance and security to housing, and from health and education to the environment.¹⁰⁰ Yet, the recommendations are submitted, noted, and largely not acted upon. It is ironic that institutions and international actors are making an effort to engage the government and provide it with the necessary tools to implement the changes the city needs, when it is the government, too uncoordinated and unaccountable to the city, that should be doing the planning and seeking out organisations to help them. Despite this bleak outlook to date, progress, however slow, is being made. One area is coastal issues

⁹⁷ Concept Plan for Mumbai Metropolitan Region, (ToC). *Surbana*. 8 Jul 2011. Provided by Bombay First.

⁹⁸ Concept Plan for Mumbai Metropolitan Region, (A1.7)

⁹⁹ *ibid.*

¹⁰⁰ "Mission Groups." *Mumbai First*. *Bombay First*. Web.

for which a high-powered monitoring committee ensures that redevelopment of fisher colonies are done in the most effective manner. Furthermore, “mangrove protection is of high priority and police can be mobilised rapidly in incidents of illegal mangrove destruction.”¹⁰¹ There is a move to draft a new Mangrove Protection Legislation which will lay down the responsibilities and ensure stricter penalties for offenders. It is interesting to note that this issue is successful partly because it is vital to the cultural heritage and traditional employment means of the state. Development is occurring in Mumbai, but much of it is without consideration for sustainability. At the same time, a cohort of organisations and government agencies are working to raise awareness about sustainability, and push for holistic development solutions for the city that incorporate sustainable principles. For the most part, the two parallel tracks have yet to converge.

IV. Conclusion

a. The Current Situation in Mumbai

Mumbai, like Mrs. Nair Singh noted, is unlike other cities, and cannot rely on their experiences to achieve sustainability in its development process. Unlike Curitiba or Singapore, Mumbai has no single, dedicated leader. Its fractured system of governance leads to a lack of political will and to many conflicts of interests. Yet, Mumbai has a number of assets the other case cities lacked. It is rich in human and financial capital, it has an extensive and competent bureaucracy and a skilled community of environmentally conscious scientists and engineers dedicated to working on city issues. Most importantly, it has a community of citizens who run organisations like Bombay First, dedicated to raising the standard of living and making the city a viable, sustainable place to live for coming generations. These groups recognise the importance of reducing the city’s impact on its environment, not just for the environment’s sake, but also for the people, and for the economy. For when the city’s infrastructure can support growth without collapsing, investment will rise too. The city lacks, however, the political will to organise its assets into an impactful, institutionalised system. Herein lies its biggest problem, but the solution is evident and attainable.

¹⁰¹ Nair Singh, Valsa.

b. Applicability of the EU System

Given the differences in political culture and governance structure between India and the EU, it seems that, even if it has been successful, the EU's methodology for implementing an urban sustainability framework will need to be significantly adapted to fit India's model. It is not possible, in a country where accountability and authority is disparate, and cities have traditionally had little autonomy, for cities to now begin to carve out that autonomy while continuing to use the resources of the centre. Rather, with national-level funding and resources for development comes a decrease in authority. One way around this issue may be to adopt the Norwegian model discussed by Meadowcroft. In such a case, responsibility for sustainable development would be devolved to individual ministries, along with the mandate to cooperate and set cross-ministerial, cross-jurisdictional targets for more holistic results. In this manner, the environment ministry might be better equipped to ensure sustainable fishing practices on the Mumbai coastal area, while the national rail ministry will ensure further public transportation improvements in Mumbai are sustainable from an economic, environmental, social and special point of view. Thus, rather than no one body being empowered to ensure implementation of sustainable practices (as is currently the case in Mumbai), and rather than cities being responsible for ensuring sustainability in all aspects of their own development (as is the case in most of the EU), power and obligation to develop sustainably would instead rest with the individual ministries for their own jurisdictions.

Naturally, a great deal of further analysis would have to be conducted to understand what the results of this approach would be. If this approach is taken, the government would still need to build in place for private citizens, NGOs, corporations and other urban centres to weigh in on the development of Mumbai and, likewise, for other cities across India.

c. Future Goals and Recommendations

Of the four criteria discussed in the introduction, it seems that political will and public awareness are indeed the most important ones. Good governance is created when the political will is there, as the EU and Singapore demonstrate, and Curitiba has shown that

financial capital is not the most important, as cities on low budgets can be even more creative and efficient. Regardless, Mumbai has the financial capital to develop the city in the best possible way, using the best and most sustainable practices. Public awareness is being addressed by organisations like Bombay First, and the citizenry is becoming increasingly environmentally conscious. If Bombay could redevelop part of its slum lands, create parks and taller buildings, improve the infrastructure like Singapore has, and reclaim land like its consultants suggest, the city will be in good shape. It needs, however, the political will to do so in a manner that is least impactful on the environment and the city purse, but most sustainable.

To gain this political will, the city needs to do four things. The first three are gleaned from the case studies of Singapore, Curitiba and the EU, and the last from Bombay's already vibrant knowledge-sharing culture. Firstly, a governance system change, as recommended by the Surbana Report, and numerous civil bodies in the city, is required. One elected authority needs to be put in charge of all city affairs, and made accountable to the people. This will ensure integration between all seventeen administrative agencies in the city, so that ministries like the Environment Ministry are not side-lined in a shroud of unaccountability. One cannot realistically recommend a radical change in the political system such as creating a mayoral post, but expanding the mandate of the state's Chief Minister, under whom a Mumbai Department can direct city operations, is not beyond the realm of possibility. Secondly, as Mr. Nayar suggests, Mumbai should make the already prepared Surbana concept plan its "Bible for the next 40 years" so that it has a clear set of goals for where it needs to be.¹⁰² This is vital and, regardless of differences in governance systems, Singapore, Curitiba and the EU all have concept plans that outline a vision and guide their actions toward achieving that vision sustainably. Therefore, by meeting these two recommendations, Mumbai, like the three case studies, will be positioned to plan and implement holistic, integrated development that, given the current knowledge base and environmental legislation, will be sustainable. Thirdly, a culture must be consciously developed through extensive education campaigns, to increase the awareness of the people beyond a small, involved minority. Not only will this help the government adopt

¹⁰² Nayar, Narinder

lifestyle-changing sustainability measures, like moving people from cars to public transport and redeveloping slums, but it will also create a culture in which the people demand sustainable measures from their government. This is seen in the EU and, increasingly in Singapore. It will also allow the city to adopt more efficient, but initially costly, policies with public support, using every resource in multiple, innovative ways (like Singapore does with its incinerated waste, and Curitiba with its multi-use parks). Finally, the paper recommends an integrated system, like the EU's in which knowledge-sharing is institutionalised and a system is created for incorporating it into government decision-making. Once again, one cannot suggest massive changes to the political structure, but, upon consideration, this is not what the EU has done. By building institutions that are integrated into and supported by all levels of government, a flexible system can be created whereby principles are set at the national level and implemented in a top-down manner (as already happens), but details are worked out at local levels which gain independence from a physically distant national government. This integrated approach transcends any one group or decision-making level, encompassing all, and empowering all levels of authority in the most appropriate way.

In India, there is a culture of sustainable use that has existed for centuries. Indeed, traditional ways of living, still visible today, make use of resources in the least impactful manner, harmonising with what nature provides. When people are removed from these traditional settings, however, and relocated to cities, these principles seem to be left behind. As the city catches up with its growing population, and with the standards of liveability set by other cities, Mumbai has developed in a roughshod approach, without concern for the direction it is going in or the impact it is having on the environment on which it is dependent. By applying the structural lessons and sustainability principles outlined above, this paper proposes that a solution lies in mobilising the existing resources in the city to continue its development in a less impactful manner. Only in this way, will it be able to withstand the coming growth without rapidly reducing the quality of life or degrading its resources.

Works Cited

“About CIUDAD.” CIUDAD. Web.

“Aalborg Charter an Aalborg+10 Commitments.” Urban Environment. European Commission. Web. <http://ec.europa.eu/environment/urban/aalborg.htm>

Aulman, Joeri. Email Correspondence. 26 Nov 2013.

Bailey, Ian. “Neoliberalism, Climate Governance and the Scalar Politics of EU Emissions Trading.” Area vol.39, no.4, 2005. pp. 431-442. JSTOR. Web.

Bulkeley, Harriett & Michele Betsill. “Rethinking Sustainable Cities: Multilevel Governance and the ‘Urban’ Politics of Climate Change.” Environmental Politics vol. 14, no. 1. Feb 2005. pp. 42-63. JSTOR. Web. 12 Dec 2014.

“Charter of European Cities & Towns Towards Sustainability (Aalborg Charter).” 27 May 1994. (Art. I.1.) Aalborg, Denmark. Web.

Concept Plan for Mumbai Metropolitan Region, (ToC). Surbana. 8 Jul 2011. Provided by Bombay First.

“Curitiba, Brazil.” Cities for People. Web.
<<http://www.citiesforpeople.net/cities/curitiba.html>>

“Curitiba, The Green Capital.” DAC&Cities. Danish Architecture Centre. Web.
<http://www.dac.dk/en/dac-cities/sustainable-cities/all-cases/green-city/curitiba-the-green-capital/?bbredirect=true>

Department of Statistics. “Singapore in Figures; 2013.” Web.
<http://www.singstat.gov.sg/publications/publications_and_papers/reference/sif2013.pdf>

Duerr, Roxana Isabel. “Water Scarcity in Singapore Pushes Toilet to Tap Concept.” Deutsche Welle. 25 Jun 2013. Web.

“Environment and CRZ Clearance for Navi Mumbai International Airport, (Article 7. I. i-ii.)” Ministry of Environment & Forests, Government of India. (New Delhi: 22 Nov 2010).

“Environment, Climate Change and Energy.” *The EU’s Assembly of Regional and Local Representatives*. Committee of the Regions. Web.

“Etcetera.” Business Today. 30 Sep 2012. Web.
<<http://businesstoday.intoday.in/story/maharashtra-govt-eco-friendly-building-norms/1/188007.html>>

“Implementation of Community Environmental Legislation.” *Environment. European Commission*. Web.

Kotwani, Monica. Govt to seek public's views on review of Sustainable Singapore Blueprint.” *Channel NewsAsia*. 27 Oct 2013. Web.

“Lerner, Jamie - Interview.” *The Strand*. BBC World Service. (London: 19 Nov 2009). Web. < <http://www.bbc.co.uk/programmes/p0053dhs>>

Lubow, Arthur. “The Road to Curitiba.” *New York Times*. 20 May 2007. Web.

Mahadevia, Darshini. “Sustainable Urban Development in India: An Inclusive Perspective.” *Development in Practice*, vol.11, no.2/3. May, 2001. pp. 242-259, JSTOR, Web.

Meadowcroft, James. “The Politics of Sustainable Development: Emergent Arenas and Challenges for Political Science.” *International Political Science Review* vol.20, no.2. Apr., 1999. pp.219-237. JSTOR. Web. 12 Dec 2014.

Mumbai First. *Bombay First*. Web. <<http://www.mumbaifirst.org/>>

Nair Singh, Valsa. Email Correspondance. 3 Dec 2013.

Nayar, Narinder. Phone Interview. 7 Dec 2013.

Orban, Annamaria. “Institutionalisation of Sustainable Development: Theory and Practice – A Critical Approach.” *Society and Economy* vol.7, no.2. 2005. pp.263-286. JSTOR. Web. 12 Dec 2014.

“Proposal for a General Union Environmental Action Plan to 2020.” *European Commission*. (Brussels: 29 Nov 2012). Web.

Rizvi, Haider. “Cities are not the problem, but the solution in the battle for biodiversity.” *CityMayors Enviornment*. *CityMayors*. Web.

Samol, Frank. Telephone Interview. 3 Dec 2013.

“Singapore Sustainable Blueprint.” *Ministry of the Environment and Water Resources*. (Singapore: 2009). Web. <http://app.mewr.gov.sg/data/imgcont/1292/sustainableblueprint_forweb.pdf>

“State of Environment Report: Maharashtra.” *Indira Gandhi Institute of Development Research*. (Mumbai). Web. <<http://envfor.nic.in/sites/default/files/SoE%20report%20of%20Maharashtra.pdf>>

“The Aalborg Charter.” Sustainablecities.eu. Web.
<http://www.sustainablecities.eu/aalborg-process/charter>

“The Aalborg Commitments.” Sustainablecities.eu. Web.
<http://www.sustainablecities.eu/aalborg-process/commitments>

Tuas Incineration Plant. Personal Site Visit. August 2012.

“Urbanisation in emerging markets: boon and bane for insurers.” Sigma Re. (Zurich: 2013). Web.

“Waste Management.” National Environment Agency, Government of Singapore. Web. <
<http://app2.nea.gov.sg/energy-waste/waste-management/overview>>

Webb, Flemich. “Sustainable cities: innovative urban planning in Singapore.” The Guardian. 11 Oct 2011. Web.