

Complexities of Building Sustainable Cities in Developing Countries: The Case of Dhaka City, Bangladesh

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Abstract: Building sustainable cities is a complex process with multiple dimensions to focus on including environmental depletion, income and social inequality, inharmonious communities and inefficient governance. This paper presents an overview of sustainable cities, the prerequisites for the cities to become sustainable and the complexities associated with building and governing them. Majority of the developing countries at present are experiencing rapid industrialization and urbanization with fast growing economy that comes with the expense of environmental degradation, making cities the downright havens for pollution. Taking the case of Dhaka city, this paper is going to explore the challenges the growing and happening cities in developing countries face and their possible way forward to overcoming them.

Keywords: Sustainable City, Urban Governance, Sustainable Development Goals, Developing Countries

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I. INTRODUCTION

Moving away from the conventional ways of achieving development, the Sustainable Development Goals (SDGs), with the aim to transform the world by 2030 are explicitly focused on broader aspects like community, demography, climate, production and institutions. Ensuring sustainability in the cities has been enlisted as one of the goals in the SDGs and is a significant prerequisite for achieving sustainable development in a country because cities are the areas where majority of the development activities takes place that often comes with the expense of depletion and destruction of environment. Rapidly growing urban population with increasing productivity and consumption, traffic congestion, land and waste mismanagement, risky infrastructures etc. have negative influence on ecological sustainability of the cities in developing countries. Being the capital city of Bangladesh, a fast-growing developing country, Dhaka is already struggling with numerous socio-economic and environmental problems. This study aims to explore the existing challenges that may obstruct the way of building sustainable Dhaka city and intends to find out potential solutions to these challenges.

II. DEFINING SUSTAINABLE CITIES

The issue “sustainable development”, particularly addressing cities and urban areas was primarily mentioned in the Habitat Conferences of 1976 and 1996, the World Conservation Strategy 1980, and later in the Brundtland Report where the focus was on the sustainability debates of the cities of the northern high-income countries and on the urban crisis of the developing countries (Rees, 1997). While majority of the importance has been given towards operationalizing sustainable development, little attention has been given to suggest the ways of applying it within the urban areas. The goal number 11 of the sustainable development goals exclusively focuses on building inclusive, safe, resilient and sustainable cities, however, criteria of a city to become sustainable is yet to be clearly defined in the international policy frameworks.

While the cities’ physical dimensions such as population size and settlement, land use, transportation system, infrastructural design features and distribution of open spaces (eds. Jenks & Jones, 2010) are mainly considered as indicators of sustainability; however, sustainable cities are much more than just the physical attributes. The three dimensions of sustainable development (society, economy and environment) are “interdependent and mutually reinforcing components” (Satterthwaite, 1997: 1687) which play important roles to determine a city’s sustainability. Haughton & Hunter state that, ‘A sustainable city is one in which its people and businesses continuously endeavor for improving their natural, built and cultural environments at the neighborhood and at regional level, whilst working in ways which always support the goal of global sustainable development’ (2003). Therefore, the following diverse social, economic, environmental, political, instrumental, spatial and institutional aspects have been aggregated to ascertain ideas about sustainable cities:

1. Ensuring better quality of health of the people through controlling infectious and parasitic diseases

2. Reducing chemical, environmental and physical hazards including pollution and degradation, disaster losses and traffic accidents
3. Achieving higher quality environment for the inhabitants through better management of water, sanitation and waste, infrastructure and traffic, sufficient open spaces, and well-preserved cultural heritages
4. Minimizing the transfer of environmental costs to the surrounding areas through air, water, noise etc.
5. Ensuring sustainable consumption including increased usage of renewable and recyclable resources and efficient usage of environmental resources including land (eds. Jenks and Jones, 2010; Satterthwaite, 1991).

III. COMPLEXITIES OF BUILDING SUSTAINABLE CITIES IN DEVELOPING COUNTRIES: A BRIEF LITERATURE REVIEW

Building sustainable cities in developing countries is a matter of complex attributes, goals and trade-offs. The significant ones are as follows:

Complex definition and characteristics

The definition and characteristics of cities around the world can be diverse based on their size and structure, geographical and spatial condition, economy and population, physical and natural capitals. The defining notions and preconditions to being sustainable cities may not and cannot be similar for all of them. Therefore, considering these aspects, benchmarking cities to become role models for others may not be appropriate all the time.

The myth about rural-urban poverty in developing countries

Researchers acknowledge that the facets of urban poverty are often underestimated, especially by the local governments in the development countries due to the commonly accepted myth that- rural areas are more prone and vulnerable to poverty (Tacoli, 2007). As a result, development activities of the governmental, non-governmental and donor organizations often tend to focus on the rural areas resulting in less focus towards the cities.

Multidimensional goals

The goal of making cities sustainable, safe, inclusive and resilient has multidimensional aspects in terms of operationalization. The goal itself is a complex broad concept as it incorporates diverse sectors such as environment and climate change; transportation; housing; health, livelihoods and wellbeing; financing, planning and management etc. making the goal very ambitious especially for the developing countries which are still struggling in most of these sectors. Therefore, the goal will face challenges from both political and operational sphere due to the conflict of interest from multiple actors including the public sector, private sector and the communities. Problems also arise due to lack of clarity, identifiable data, standardized metrics and indicators for such complex domain (ICSU & ISSC, 2015). For instance, it is difficult to obtain age and gender disaggregated data in terms of addressing housing and shelter deficits in the developing countries making it difficult for policies and programs formation.

Growing urban population

It is suggested that, higher density in the cities leads to a better quality of social life through increased social interaction and cultural vitality which eventually have positive effect on the economy and environment (eds. Jenks & Jones 2010;). However, there are evidences that, highly dense population diminishes the quality of environment in a city of a developing country (Williams et al. 2000). Moreover, increasing population in a city also means increase in socio-economic inequality amongst people (Haughton & Hunter, 2003), especially in the developing countries where it is difficult to provide equal access to affordable housing facilities, education, jobs and better transportation system to everyone. Therefore, increasing population in the cities in developing countries mean “increasing urbanization of poverty” (Rana, 2011). With the change in income and economic growth- the lifestyles, production and consumption patterns also change which can have both positive and negative impact on the environment. While it is difficult to acquire data regarding the impacts of changes in people’ choices and living condition on the environment, considering them to form evidence-based policies and programs also becomes difficult.

Low capacity, ambitious targets

Sustainability challenges faced by the cities and approaches undertaken by the cities to meet these challenges can vary from city to city, country to country, region to region (eds. Williams et al., 2000). For example, while priorities of most of the cities in the developed countries should be reducing waste, excessive resource usage and carbon dioxide emission; cities in the developing countries should prioritize on efficient use and proper

management of resources and cost effective and efficient technologies (Satterthwaite, 1997). These sort of products and technologies are extremely expensive and are not affordable for the developing countries.

There are arguments about the goal that, it neglects the differentiated financial and institutional capacity, differentiated level of technological advancement and differentiated forms of socio-economic inequality amongst the countries, making it crucial to have city, region and country specific targets and indicators to adopt the goal (ICSU & ISSC, 2015). For the lack of capacity in terms of capital, expertise, institutions and governance-formation of country and region-specific policies-programs and monitoring and evaluating the outcomes will also become difficult. Application of the sustainability concept may also create conflicts of interest over resource and property ownership, development outcomes amongst the actors (Campbell, 1996).

Economic growth VS environmental degradation

Economic development is seen as the first and foremost issue to be taken care of in order to reduce poverty, unemployment and to increase people's living standard (Satterthwaite, 1997). According to the economic perspective of development- technological advancement, inventions, privatization of nature and internalizing the externalities derived from usage of environmental resources will be able to prevent resource depletion (Williams et al., 2000). However, there are studies which show that, with the increase of economic growth and people's income- local carrying capacity and gross material consumption also increase leaving severe impact on the environment (Haughton, 1999; Rees, 1997).

Trade-offs associated with cross cutting issues

In the developing countries, problems are acute with various cross cutting problems. As a result, it becomes politically difficult for the developing countries to prioritize social and environmental problems over economic and infrastructural problems like poverty, unemployment, poor housing etc. Due to lack of finances and proper expertise, there is not much to be done to lessen the economic impact on environment and environmental costs in the developing countries (Satterthwaite, 1997).

Increasing dependency on the cities

One of the main characteristics of a sustainable city is to be self- reliant. Self-reliance of a city can prevent or reduce negative impacts from the external factors, reduce overall resource consumption through using cost effective local resources and adopting renewable resource-based consumption habits (Haughton, 1999; Williams et al., 2000). However, it is argued that, with rapidly shrinking basic supplies of food, water, energy and materials, increasing change in the ecology and competition, typically eroding social systems and growing interaction amongst cities and countries; cities can never be self- reliant, and therefore sustainable (Haughton & Hunter, 2003; Reef, 1997). The inter dependency amongst cities in developing countries can be either voluntary or involuntary.

IV. THE INTRICATE FACETS OF CITIES IN DEVELOPING COUNTRIES: THE CASE OF DHAKA, BANGLADESH

The current population of Dhaka is over 17 million, with the government estimation of at least 1417 people adding to it every day making it the densest city on earth (The Financial Express, 2019). Despite various socio-economic, financial, political and infrastructural constraints, the achievement of Bangladesh in attaining the Millennium Development Goals is very significant especially in the sector of maternal health and infant mortality, safe drinking water and education (Government of the People's Republic of Bangladesh 2015). With regard to the sustainability, however, the outcomes are not tremendously significant (Khatun 2015). According to the Economist Intelligence Unit annual global survey, in 2018 Dhaka has been listed as the second least livable city in the world with an overall of 38 points out of possible 100, based on the indicators such as stability (violence, crime and terror), infrastructural, cultural, environmental, health care and educational condition (The Daily Star, 2018).

Even though, the notion of poverty is often made adjacent to the rural peripheries, research suggest that urban poverty is even more acute with diversified challenges. According to recent studies, of a total of 4.94 crore poor people of the country, 1.59 crore or 32.3 percent live in Dhaka (The Daily Star, 2015). Studies also show that, less than 20% of the household own more than 80% of the land in Dhaka and about 57% of the people living in urban areas are poor who spend a big proportion of their earning on housing and food (Hossain 2005: 45), hence, spend very less on clothing, medicine, education and other necessary components of lives. Based on the MDGs Progress Report 2015, 2.2 million residents live in slums and squatter settlements in Dhaka City with very poor quality of living condition and sanitation system (Government of The People's Republic of Bangladesh, 2015). The National Housing Policies of Bangladesh have recognized the need of housing as one of the basic needs for its citizens, however, most of these policies continue to facilitate housing for the middle and upper-income groups of the society while leaving the responsibility of housing of the lower income groups to the

informal sector (Islam, 1996). Poverty and income and social inequality amongst the people is a major problem for the people living in Dhaka city.

Due to the increasing population, increasing number of vehicles and industrial production including fertilizer industries, brick kilns, tanneries, pharmaceutical and chemical productions, the quality of air in Dhaka is diminishing day by day affecting the nearby areas as well. According to the Ambient Air Pollution Monitoring report 2014 by the World Health Organization, Dhaka ranked 23rd amongst 16,000 cities around the world in terms of worst urban air quality (Khatun, 2015). The standard of waste management in Dhaka is very poor. '45.4% of the slums do not have any fixed waste management arrangement and of the total, only 42% of the garbage is collected by the city corporation and the rest is left on the open places and streets of Dhaka city' (Rana, 2011: 244). Industries are causing 60% of the river pollutions (Ministry of Environment and Forest, 2012: 43) as most of the toxic and hazardous waste disposed by the industries is dumped in nearby lakes and rivers increasing the risks of water borne diseases amongst people.

Dhaka city has the most inefficient, faulty and problematic transportation system of the whole country. Problems include unauthorized vehicles and drivers, blockage of footpaths, pedestrian areas and open places by hawkers, street vendors, faulty and unusable foot over bridges, ill maintained roads, open manholes, traffic congestion, etc. (Rana, 2011), which are the main reasons behind the increasing rate of deaths from accidents. A bigger percentage of the people living in Dhaka do not have their own transportation and use public transport on a daily basis which is highly insufficient, inefficient and time consuming.

The economic development of Bangladesh is increasingly becoming dependent on the cities. According to a World Bank Report, internal migration is the most dominant reason of the rapidly increasing population of Dhaka city; every year 300,000 to 400,000 people migrate to Dhaka (Rana, 2011: 241). Rural to urban migration usually is resulted from rural push factors such as poverty and family influence, and urban pull factors such as better economic opportunities, job availability and presence of migrant relatives' (The Financial Express, 2019). At the same time, due to uncontrollable population growth, lack of income earning opportunities and failure of law enforcing agencies- economic sustainability and social connectedness in Dhaka is gradually disappearing' (Rana, 2011) resulting in increased rate of murder, hijack, pick-pocket, stealing and robbing.

Risks for both natural and human-made disasters are high in Bangladesh. Floods and heavy rainfalls and earthquakes are often responsible for asset loss and poor living condition of the people living in Dhaka. Studies also show that, in 2004, almost 2.5 million people in Dhaka city were affected due to flooding, of which 60% were slum dwellers (Abdullah et al., 2014: 58). Due to lack of better drainage and sewerage system, waterlogging even after a short duration of rainfall is very normal in Dhaka city. On the other hand, fire hazard in Dhaka has become very frequent in the recent days increasing both death toll and asset loss. 'Only 129 of 3,786 establishments in Dhaka city surveyed by the Fire Service and Civil Defense headquarters in 2017 were not classified as risky or extremely risky (Islam, 2019).

V. THE UNDERLYING CHALLENGES IN GOVERNANCE

The limitations in the governance of the cities in Bangladesh is the root cause of majority of the existing problems. Comparative to the rate of urbanization in Bangladesh, the provision of basic services including electricity, water, gas, housing, transportation and drinking water is way too slow and inadequate. Arrangement of better and sustainable governance for the basic services for the large population of Dhaka city has become extremely difficult due to inequitable service provision, ineffective public policy and political and administrative instability. The local governance at the urban level lack effective and fully defined responsibility framework. Multiple layers of governance at the local level results into confusing, time consuming and repetitive actions in the development projects and unaccountability and corruption at different stages.

Local communities are hardly able to take part in the decision-making processes. Conflict of interests arises with the changes in the governing bodies and political parties making the integration, planning, implementation and monitoring of development projects and programs extremely difficult. It is difficult to accommodate the increasing population in Dhaka due to inadequate land, financial resources and government initiative; therefore, the target to provide universal access to safe and sustainable open green public spaces and preservation of natural heritages by 2030 is overly ambitious for Dhaka city.

Climate change consequences are some of the biggest concerns of the country's government at present, however, disaster risk reduction and climate change action plans are yet to be widely applied in the policies and programs in Bangladesh (Alam & Rabbani, 2007; Rabbani et al., 2010). Studies show that materials used in buildings and infrastructures are either semi-permanent or not permanent and due to lack of law enforcement, most of the infrastructures do not follow the proper building codes increasing the risks of the infrastructures in hazards like earthquake, flood and fire. While some of the NGOs, informal sectors and communities on their own initiative working on the creation of renewable natural resources and recycling, however it is yet to be widely recognized in the government policies due to lack of financing and investment.

VI. THE WAY FORWARD

As mentioned earlier, countries' differentiated capacity levels to deal with political, institutional and fiscal problems need to be taken into consideration while formulating and implementing policies with regard to building sustainable cities. Given the current socio-economic, institutional and political capacity of Bangladesh, the SDG goal number 11 is to a great extent, ambitious. In order to make the cities of Bangladesh sustainable, the issues that need to be emphasized are:

1. Better, efficient, transparent and accountable governance system
2. Proper planning and integration of policies
3. Raising awareness amongst various actors

It is, therefore, firstly important to determine own targets for the cities based on the socio-economic, institutional, financial and political capacity of the cities. New metrics and indicators should be identified to measure the efficiency and effectiveness of the policies and programs with regard to building sustainable cities.

Next, transparency and accountability should be ensured in the governing of the cities. Efficient political and administrative leadership can ensure better functioning of the institutions that are responsible for planning, forming and implementing policies and programs. Therefore, administrative and institutional reform with a focus on sustainability should be attempted. Subsidiary authorities for urban governance can be formed. Furthermore, people's equitable access to decision making processes should be ensured so that poor people can raise their voices regarding needs and problems. International donor agencies should not direct their aids towards rural development only, but also towards urban development.

Thirdly the significant linkages between rural and urban development should be understood. Integration of rural urban policies, therefore, is necessary. Increasing local productivity and rehabilitating local natural capitals is necessary in order to enhance self-reliance of not only the cities but also the rural areas in Bangladesh so that the number of rural urban migration can be decreased.

Fourthly, more investment, alternative and innovative financing is crucial for sustainable resource usage and recycling and innovation of renewable resources. Privatization or public-private partnership can enhance the efficiency of water and waste management.

Fifthly, the cross-cutting issues should be focused with equal importance by the governing authorities. For example, climate change action plans should be mainstreamed in all socio-economic policies with special attention to the cities. Promotion of sustainable development requires sustainable local communities. The way how people treat each other and treat the environment needs to be changed. Raising people's awareness about sustainability is crucial for making a city sustainable. People should engage themselves in such form of activities which promote sustainability in cooperative forms. Meeting SDGs need technological and social advancement and an intricate global interplay of research on development and public investments. Therefore, Bangladesh government should encourage and invest for further research regarding building sustainable cities.

Finally, the ultimate focus should not be on the cities themselves, rather on the inhabitants, authorities and the ways they cooperate with each other. Instead of emphasizing on the spatial attributes, building sustainable cities should be all about development that comes from holistic approaches.

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