Green City Development in Bangladesh: Way Forward

Nusrat Arefin

Assistant professor, Dept. of public administration, Jahangirnagar university, Savar Dhaka Bangladesh

ABSTRACT: The study on Green City Development in Bangladesh: Way Forward provides details about formulating sustainable policy on green city development in Bangladesh. Developing a sustainable approach depends on identifying city development actors, their collective actions and finding gaps from reviewing and analyzing existing policies and strategies. The key objective of this research is to get away to make justifiable policies to ensure green city development. Theoretically, to develop the research framework of this study, the Policy Network Approaches of public policy have been used. The study outcomes demonstrate that the variables of the framework could formulate policy in the field of green development to give validity to the hypothesis. For this research, a structured questionnaire method has been used to gather data from 210 study participants of two major cities (Dhaka and Khulna) in Bangladesh. To analyze data, Excel and SPSS were used as statistical tools. The result of this study showed by identifying city development actors. Through better relationships, better coordination, and information sharing, the actors can collectively overcome existing practices to formulate policy to ensure green city development in Bangladesh. Therefore, this research will help prepare a better approach to ensure green city development in Bangladesh.

KEYWORDS: Green City, Development, Actors, Action, Correlation, Coordination, Sustainable, Policies.

INTRODUCTION

The present extent of the worldwide populace in urban regions is expanding the debate on sustainable development, which demands consideration from the scholarly community and policymaking and anticipating developing smart and sustainable urban communities (Macke et al., 2019). Shifting from pre-industrialization to industrialization has a significant impact on the elements of urban life and the environment (Bagheri, 2015). Moreover, urbanization and climate change demand new solutions to maintain and increase the standard of city life. The green city idea is an idea typically connected with the safety of the earth and puts the environment as a fundamental perspective in accomplishing sustainable advancement (Shen & Fitriaty, 2018). Objective 11 of Sustainable Development Goals (SDGs) of United Nations 2030 states to make urban networks and human settlements extensive, ensured, robust and achievable to ensure green Development (Greenwalt & Alverson, 2018). Like other emerging nations, urbanization in Bangladesh is a growing phenomenon that influences urban resources in the wake of deficiency in smart administration. As a part of many digital initiatives, Bangladesh started transforming Dhaka South City Corporation and other major cities into smart cities. It implies that the idea of a green city will guarantee urban amenities to its inhabitants.

Thus, the green city will introduce some advanced technologies and policies, and strategies into all aspects of the city without compromising the environment. The Government of Bangladesh has identified the use of information communication technology (ICT) as the critical driver to attain progress in every sphere of human life, including social, political, and economic, following "Digital Bangladesh." The delivery system is becoming more open to citizens' needs, using digital media and modern communication facilities (Zaman, 2015). However, the increasing population and flawed transportation system in cities make it challenging to develop a green city. These create difficulties in providing broadband connections available and affordable to diminish congestion, air contamination, and asset exhaustion. Thus, it needs to be more pragmatic and remain concentrated on overcoming these challenges. A combination of policy frameworks can critically shape and change the urban and provincial development plan. Along these lines, ensuring a smart city requires bringing down the scale from the technique to the project level. Partner participation in both the activities and the municipal management strategy is vital to building up an administrative system that permits a collective and far-reaching understanding to confront urban difficulties (Fernandez-Anez et al., 2018). The findings will facilitate the policymakers to take sustainable initiatives to guarantee green city development in Bangladesh.

OBJECTIVES OF THE RESEARCH

The concept of a green city has the principle that the city will be developed by providing all the essential amenities to its residents, ensuring enough open spaces, conserving the environment, and using modern technologies without compromising future development. But, unfortunately, enormous urban communities in developing nations are troubled with plenty of arrangements and

development plans frequently inadequately organized and have clashing or overlapping visions and subsequently impartial or adverse effects. This study, without a doubt, reinforces the idea of the advancement of a green city. Therefore, it will act as a facilitator and suggest the best way to implement the green city idea. The aims and objectives of this study:

     i.   To identify the major actors involved in the green city development of Bangladesh;

    ii.   To find out the reasons why the existing policies and strategies could not ensure green city development in Bangladesh; and

    iii.   To explain how the network actors and existing policy analysis can help make sustainable policy/policies to ensure green city development.

LITERATURE REVIEW

The idea of green city improvement in developing nations frequently arranges inside the difficulties of rapid urbanization. Consequently, green cities have developed as an object of logical inquiry in various academic writings, including urban studies, public administration, ecological investigations, and computer science. To define the term green cities, scholarly works in this field have been instrumental by taking into account current journals and taking stock of the components of a smart city. A brief overview of the study conducted and related to this research includes:

Green Development

The provisions for sustainable development are a long and mid-term advancement technique at the national level that gives chances to assemble innovative city areas (Sikora-Fernandez, 2018). The ideas "green" and "smart" for sustainable development may accomplish by setting the way and driving choices towards a sustainable future (Gazzola et al., 2019). As urban communities turn to nature-based options to solve a large group of urban difficulties, enthusiasm for the complexities, tradeoffs, politics, and green framework is developing (Meerow, 2020). Individual members can be the drivers of change by transferring green growth and sustainable development (Gu et al., 2018).

Green Development in Cities

As urban communities extend in size, green spaces become progressively significant for maintainability and livability. Urban green space strategy makers called for more research to help the policymaking process and the combination of research findings into the policy proof base (Bush, 2020). Therefore, without considering urban green can cause extreme social and physical issues on its inhabitant. Eco-urbanization involves a much more inclusive incorporation of religion, popular culture, values, group relations, heritage, and nature (Hossain, 2018). Multi-dimensional biological, monetary, social, and multi-scale local, city, neighborhood markers can catch the social, financial, and natural elements of urban advancement while surveying the degree and degree of spread and conservative green urban areas in a universal context (Artmann et al., 2019).

Conversely, equitable human wellbeing and the environment face multiple challenges to address when evaluating eco-friendly cities. The ultimate solution, in this case, could be to use the multiple criteria decision analysis (MCDA) approach (Brito et al., 2019). "Multi-criteria evaluation of environmental concerns" system not just consolidates geostatistical techniques and the ecological possibility but a multi-criteria appraisal of green and open spaces (Richter & Behnisch, 2019). For example, an urban framework generates fewer ozone-harming substance releases than the overarching one with a solid core-periphery asymmetry (Borck & Pflüger, 2019). In addition, a clear connection between emotional wellbeing and green-lively youngster cordial interventions provides a new perspective for future green-lively youngster-friendly space policy guidance (del Pulgar et al., 2020).

Green City Development in Different Countries

Implementation of smart cities involves reducing the scale from the plan to the project level (Fernandez-Anez et al., 2018). The research on the policy inferences of smart city growth in developing countries makes three contributions: provide new evidence for the promotion of smart city growth; offer new insights into relevant policy problems and challenges, and suggest a model direct, smart city initiatives in developing countries (Vu & Hartley, 2018). Unfortunately, because of essential changes in the social structure of Russia and various states, the direct direction of the advancement of the idea of a "green city" in Russian science and practice couldn't have developed (Yanitsky & Usacheva, 2017). Consequently, urban green development transformation (UGDT) has emerged as a new route for Chinese city improvement in the twenty-first century (Feng et al., 2020). The Foundation of assessment instrument can help advance the further advancement of smart cities (Shen et al., 2018). Turkey faces tremendous difficulties in improving living standards, and green zones assume a significant job right now (Kulińska & Gruszka, 2019). The board information of China's 30 provinces from 2004 to 2014 shows that improving corporate administrative consistency, using different open interest methods (Fu & Geng, 2019). Rapid urbanization has been a status quo in economic development and natural supportability in Bangladesh (Akash et al., 2018). Therefore, the government ought to organize the challenges and control these difficulties (Siddiqy, 2017). To solve the urbanization problems in cities like Dhaka and Lahore, a new mechanism necessary will direct policymakers to devise policies and bridge the knowledge gap to achieve Sustainable Development Goal 11 declared by the United Nations (Anwar et al., 2017). The "R" urbanization can be a way to deal with the urbanization problems (Hossain, 2018). Accordingly, it is crucial to open up new paths for researchers to study further in this area (Uddin, 2018).

Green City Development in Bangladesh: Way Forward

ACTORS OF DEVELOPING GREEN CITIES IN BANGLADESH

The government agencies in Bangladesh are controlled by the state and act to independently enforce the government's policies. In addition, apart from government agencies, different non-profit organizations and other bodies are directly and indirectly connected with the city development process. Major actors to formulate policy on green city development include:

National Institute for Local Government (NILG) and City Corporation

NILG & City Corporation is researching local government, rural development, and unified territories related to sanitation, solid waste management, road building and maintenance, parks, and greenery, up-gradation of informal settlements. NILG seeks to be a center of excellence for strengthening local government in Bangladesh. City corporations provide civic amenities to citizens, build up infrastructural facilities and generate utilities and other services.

RAJUK and Urban Development Directorate (UDD)

Significant activities of RAJUK and UDD include improving nature through planned development activities to optimize resources, especially land, to guarantee geological balance urbanization. In addition, RAJUK carries out drives against building code violations in Dhaka City.

Centre for Urban Studies

Centre for Urban Studies initiates, encourages, provides funds, and coordinates scientific work on the various aspects of urbanization and growth problems and issues.

Bangladesh Climate Change & Development Forum

To fulfill the objective of "Effective Partnership for Sustainable Development," Bangladesh Climate Change & Development Forum encourages quality education, innovation, and skills for employment, improving urban service delivery, and managing rural migration.

Bangladesh Urban Forum

Making cities & towns work for all encourages experience and knowledge sharing among stakeholders in the urban sector to contribute to the preparation and application of policies on and enhancement of urban sector management practices, primarily aimed at reducing urban poverty.

Bangladesh Poribesh Andolon (BAPA)

To stop the further deterioration of the ecosystem in Bangladesh, BAPA generates a regional, unified, civic movement to achieve the aims of halting and reversing Bangladesh's environmental degradation.

International Center for Climate Change and Development (ICCCAD)

To comprehend the urban vulnerability and global climate change and explore neighborhood capacity–led urban growth, ICCCAD carries out collaborative activities with urban planning planners, scholars, and other stakeholders.

Centre for Climate Change and Environmental Research (C3ER)

C3ER carries out a series of cross-sectoral climate change and disaster response work in close collaboration with BRAC to develop Bio-physical models for environmental impact assessment. This model prevents the destruction and protection of environmentally sensitive areas and helps form legislation for mainstreaming adaptation to climate change in sectoral strategy and options.

PROBLEMS OF EXISTING POLICIES AND STRATEGIES TO FORMULATE SUSTAINABLE GREEN CITY POLICIES IN BANGLADESH

The key to achieving sustainable economic growth and reaching a consensus towards green transformation is grounded in the nation's socio-politico-economic reality. A green and sustainable city is likewise a necessary piece of the Bangladesh government's Vision-2021 which guarantees a prosperous and equitable middle-income Bangladesh, sets up Digital Bangladesh, and transforms overall urban areas into shrewd urban regions. To formulate sustainable policies government needs to reviewing existing policies and strategies to find out gaps for further development. Then, the government should devise green development policies and procedures and institutional changes to actualize them. Following are some of the shortcomings of existing policies and strategies that need to address:

- At present, the cities in Bangladesh are facing the challenges of unplanned rapid urbanization. For example, Dhaka will be home to more than 15 million inhabitants in 306 sq. by 2025 (Rahman et al., 2018). Like the capital city Dhaka, all other cities in Bangladesh cannot meet the needs of the growing population.
- The National Environmental Policy (NEP) in 1992 provides high-level environmental management guidelines for crucial sectors. However, only a number of the visions laid out in the document enshrine in law to date.
- Following the Environmental Conservation Act, the NEP was enacted in 1995 and issued the Environmental Conservation Rules (ECR) in 1997. Unfortunately, both acts and rules provide insufficient concrete obligations relating to environmental

management and stop short of setting specific standards, parameters, and permissible emission levels for issuing industrial units Environmental Clearance Certificate (ECC).

- Most of the cities in Bangladesh face an acute crisis in the housing sector. The government only provides 7% of the homes, whereas private sectors rest (BBS, 2014). At present housing market work for the upper and upper-middle-income people, which undoubtedly shows the deprivation of the poor.

- The conservancy department of Dhaka faces operational challenges like the misuse of resources, corruption, political interference, political relationships, lack of interdepartmental management, and lack of individuals awareness (Siddiqy, 2017).

- Though the government has several programs and projects to alleviate poverty, the city has spatially excluded the poor. There are clear divisions of poor and non-poor in the cities regarding living standards and having urban facilities. Besides, some old parts of cities where most residents are non-poor but get few urban facilities.

- In the face of green growth, multiple authorities work to provide urban services and developing city areas, and most of the cases align with each other. But the present system faces serious mismanagement because of management inadequacies, deficiencies, lack of motivation, corruption, etc. It leads to confusion among the authorities and creates coordination problems.

- Noncompliant industries and inadequate waste management of harmful and nonharmful materials infect the cities' air, surface, and groundwater. In short, the previous model of "grow currently, shut down later" not works for countries, together with Asian nations (The Daily Star, 2018).

- Building up a green city isn't just about the advancement in framework, transportation, water supply, and so on, yet additionally about changing individuals' attitudes. Unfortunately, some people are delaying acknowledging changes.

CONCEPTUAL FRAMEWORK

The analysis is carried out based on Policy Network Approach. The use of the concept of the network in policy sciences dates back to the early 1970s. At that point, the network concept adapted to determining relationship patterns between organizations and verifying the impact on policy processes within the bottom-up technique of policy analysis. But, in the work of Allison (1971), March and Olsen (1972), and Lindblom (1965, 1979), who are prominent in interactive policy approach, clearly asserts that policy can appear as a result of the interaction between multiple actors who have conflicting interests. Enorth (2011) describes the policy network concept has come to designate mutual resource dependence among network actors, strategic goals and actions of the actors, the influence of governmental actors to set the rules of the game to make policy. In the green city development process, government officials and bodies, private bodies, city dwellers, and non-profit organizations are the main policy actors to formulate any policy on this issue. However, each one has different opinions and interests. Therefore, to develop an approach to the green city mostly depends on the actors' collective action, which further depends on the mutual relationship, coordination, and exchange of information among the actors. Besides these, gathering knowledge and experiences from analyzing existing policies and strategies helps determine the policy most applicable to the green city initiative. Finally, the procedure depends on the collective action of the network actors and the selection of the best policy options. This theoretical framework proposed eight interrelated concepts of policymaking to formulate sustainable policy:
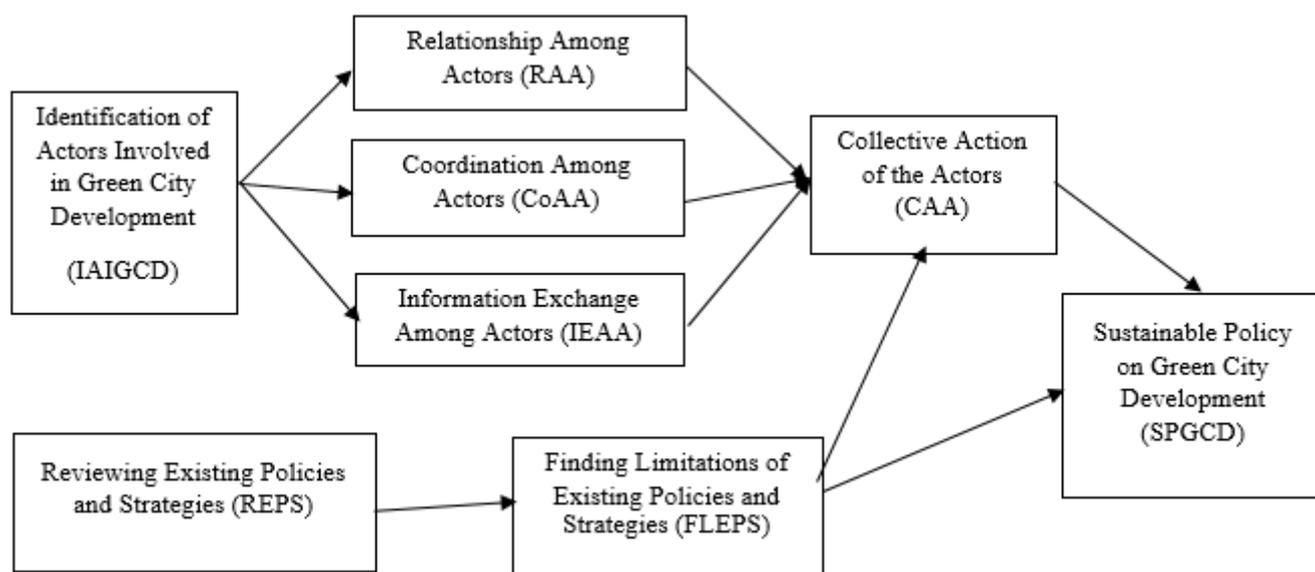

Figure: Conceptual framework of the research

Green City Development in Bangladesh: Way Forward

In this study, the sustainable policy as an outcome depends on all the other variables; thus, it is dependent on the relationship, coordination, and information exchange among the actors considered moderate. So, the hypothesis regarding policy formulation on green city development are:

Table: Research hypothesis

H1: IAIGCD CoAA	H3: RAA moderates H1	H6: FLEPS CAA
H2: REPS FLEPS	H4: CAA moderates H1	H7: CoAA SPGCD
	H5: IEAA moderates H1	H8: FLEPS SPGCD

RESEARCH METHODOLOGY

The study used a mixture of qualitative and quantitative methodology. The study has been conducted in two divisional cities of Bangladesh, specifically Dhaka and Khulna. There are eight divisions in Bangladesh. Due to time constraints, it was challenging to collect data from all the divisional and district-level cities. Purposively, data was collected to fulfill the objectives of the study. The data was collected from both primary and secondary sources to analyze for this study. Secondary data was obtained from current literature such as books, newspaper accounts, past research works, conference articles, studies, etc. whereas, sample interviews questionnaire surveys gathered primary data. In addition, the information has been collected from actors or development partners of green city development under the interview method and a standardized questionnaire method to illustrate prior info. Total 210 (Two hundred and ten) respondents provided data from five strata: urban planner, city development authority/ government officials, academician, city dwellers, etc.

DATA ANALYSIS AND FINDINGS

At first, the research results concentrate on the response rate and the sample characteristics. Secondly, the comprehensive descriptive and inferential statistics review the hypothesis. Finally, it presents the consequences of the research findings, interprets data, and draws inference by using qualitative and quantitative methods and their implications. The analysis was conducted from February 2020 until the end of March 2020 to collect data. Descriptive statistics are statistical research tools for simplifying the interpretation of the data (Kremelberg, 2011Therefore, this research provides an essential reference to the theoretical and practical research on green city development. The results indicate that the variables identified for the examination could formulate sustainable policy in green growth. Therefore, the study has decent flexibility to examine the research framework, and the entirety is comprehensive.

Table: Correlation of examined variables

Variables	RAA	CAA	IEAA	CoAA	REPS	FLEPS	SPGCD
RAA	1.000						
CAA	0.343**	1.000					
IEAA	0.351**	0.555**	1.000				
CoAA	0.284**	0.507**	0.623**	1.000			
REPS	0.235**	0.160*	0.168*	0.236**	1.000		
FLEPS	0.164*	0.454**	0.482**	0.567**	0.290**	1.000	
SPGCD	0.283**	0.418**	0.459**	0.470**	0.200**	0.530**	1.000

Note:
**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

The table shows a link between each variable of the research and which is positive. So, when the actors work collectively and examine existing policies and strategies, a good policy outcome is obvious. The possible reason is that through the better

relationship, better coordination, and sharing of information, the actors can do collective work, and finding gaps from existing policies and strategies can bring sustainable approach as an outcome. Understanding the process's function and features identifies actors of green city development and choose the better policy. So, in this research, collective actions and making policy by critically reviewing existing policies and initiatives. Therefore, to ensure green city development in Bangladesh, it is necessary to formulate a better policy. This study has identified that process to develop a sustainable approach.

RECOMMENDATIONS AND CONCLUSION

Urban communities are the principal point of financial development, advancement, and strengthening. They are vital to fulfilling the SDGs agenda 2030 and upgrading the country as a middle-income country. It is the constitutional commitment of the government and the development community in Bangladesh to help the administration make our urban areas sustainable and truly smart. Gaining from best practices from around the world would be a consistent beginning. As a general rule, the accomplishment of a green city requires good city governance and the formulation of a consensus-oriented policy. Because to ensure green development of the towns mainly depends on the government's policies and strategies. To formulate policies government needs to identify the city development actors, reviewing existing policies and procedures to find out the best alternatives by the collective actions of the actors. Then, the government should devise green development policies and strategies and institutional changes to actualize them.

- To ensure cooperation among the actors, the principal needs for the Government of Bangladesh would address its governance weakness and connect all the actors, both government and non-government, for its green development plan by considering all of their interests. Furthermore, to support the government in making our cities sustainable and truly smart, the development actors should take responsibility.
- The Government of Bangladesh will have to formulate a high-level National Inclusive Green Growth Strategy. Therefore, RAJUK Act/Laws ought to be changed, and DAP ought to execute with the network. In addition, overhaul the Environment Conservation Act 1995 and Environmental Conservation Rules 1997 to implement sufficient money-related punishment to infringe natural guidelines.
- To control rapid urbanization, critical stakeholders in urban areas must provide campaigns and counseling to reduce the high rates of population growth. It is also necessary to decentralize government services and development initiatives.
- To ensure housing for all, the government should oblige land developers to embrace low-cost housing for poor people and encourage the housing finance program to build a million housing units for the urban poor. At the same time, simultaneously, all metro offices are reached out to them.
- To build better roads and transport networks to meet the needs of millions of city dwellers.
- Waste management should overhaul and modernized to keep the cities clean. In this regard, the government ought to develop sustainable power sources and recycle the waste materials for future use.

REFERENCES

1) Akash, M., Akter, J., Tamanna, T., & Kabir, M. R. (2018, February). *The Urbanization and Environmental Challenges in Dhaka City.* In 7th International RAIS Conference on Social Sciences.
2) Anwar, B., Xiao, Z., Akter, S., & Rehman, R. U. (2017). *Sustainable urbanization and development goals strategy through public–private partnerships in a South-Asian metropolis.* Sustainability, 9(11), 1940.
3) Artmann, M., Kohler, M., Meinel, G., Gan, J. & Ioja, Ioan-Cristian (2019). *How smart growth and green infrastructure can mutually support each other — A conceptual framework for compact and green cities.* Ecological Indicators, 96, 10–22.
4) Bagheri, N. (2015). *The Built Environment in the Critical Zone: From Pre- to Postindustrial Cities. Developments in Earth Surface Processes.* Elsevier Inc.
5) BBS (2014). The Statistical Year Book of Bangladesh-2014.
6) Borck, R. & Pflüger, M. (2019). *Green cities? Urbanization, trade, and the Environment.* Journal of Regional Science, 1-24.
7) Brito, V., T., F., Ferreira, F., A., F., Perez-Gladish, B., Govindan, K. & Meidute-Kavaliauskiene, I. (2019). *Developing a green city assessment system using cognitive maps and the Choquet Integral.* Journal of Cleaner Production, 218, 486-497.
8) Bush, J. (2020). *The role of local government greening policies in the transition towards nature-based cities.* Environmental Innovation and Societal Transitions, 35, 35-44.
9) del Pulgar, C. P., Anguelovski, I., & Connolly, J. (2020). *Toward a green and playful city: Understanding the social and political production of children's relational wellbeing in Barcelona.* Cities, 96, 102438.
10) Feng, Y., Dong, X., Zhao, X. and Zhu, A. (2020). *Evaluation of urban green development transformation process for Chinese cities during 2005–2016.* Journal of Cleaner Production, 121707.
11) Fernandez-Anez, V., Fernández-Güell, J. M. & Giffinger, R. (2018). *Smart City implementation and discourses: An integrated conceptual model. The case of Vienna.* Cities, 78, 4–16.

Green City Development in Bangladesh: Way Forward

12) Fu, J. & Geng, Y. (2019). *Public participation, regulatory compliance and green development in China based on provincial panel data.* Journal of Cleaner Production, 230, 1344-1353.

13) Gazzola, P., Del Campo, A. G., & Onyango, V. (2019). *Going green vs going smart for sustainable development: Quo vadis?.* Journal of cleaner production, 214, 881-892.

14) Greenwalt, J. & Alverson, K. (2018). *Building Urban Resilience to Address Urbanization and Climate Change. In Resilience: The Science of Adaption to Climate Change.* Elsevier Inc, 151-164.

15) Gu, J., Renwick, N., & Xue, L. (2018). *The BRICS and Africa's search for green growth, clean energy and sustainable development.* Energy Policy, 120, 675-683.

16) Hossain, Md. A. (2018). *On Achieving Sustainable Development Goals (SDGs) in Bangladesh (Part 11).* News from Bangladesh.Net

17) Kremelberg, D. (2010). *Practical statistics: A quick and easy guide to IBM® SPSS® Statistics, STATA, and other statistical software.* SAGE publications.

18) Macke, J., Sarate, J. R. & Moschen, S. d. A. (2019). *Smart sustainable cities evaluation and sense of community.* Journal of Cleaner Production, 239, 118103.

19) Meerow, S. (2020). *The politics of multifunctional green infrastructure planning in New York City.* Cities, 100, 102621.

20) Richter, B. & Behnisch, M. (2019). *Integrated evaluation framework for environmental planning in the context of compact green cities.* Ecological Indicators, 96, 38–53.

21) Shen, Z., & Fitriaty, P. (2018). *Overview: Green city planning and practices in Asian cities.* Green city planning and practices in Asian cities, 1-16.

22) Siddiqy, M. R. (2017). *Urban environment and major challenges in sustainable development: experience from Dhaka City in Bangladesh.* South East Asia Journal of Public Health, 7(1), 12-16.

23) Sikora-Fernandez, D. (2018). *Smarter cities in post-socialist country: Example of Poland.* Cities, 78, 52-59.

24) The Daily Star (2018). *Clean and Green Bangladesh: A goal that can be achieved.* https://blogs.worldbank.org/ 2021/7/05

25) Uddin, N. (2018). *Assessing urban sustainability of slum settlements in Bangladesh: Evidence from Chittagong city.* Journal of urban management, 7(1), 32-42.

26) Vu, K. & Hartley, K. (2018). *Promoting smart cities in developing countries: Policy insights from Vietnam.* Telecommunications Policy, 42, 845–859.

27) Yanitsky, O., & Usacheva, O. (2017). *History of the "Green City" in Russia.* Journal of History Culture and Art Research, 6(6), 125-131.

28) Zaman, H. Rokonuzzaman.(2015). *Achieving digital Bangladesh by 2021 and beyond.* Background paper for the 7th Five Year Plan (7FYP).