

## **An Evaluation of Citizens' Knowledge on Implementation Status of Laws Addressing Urbanization and Urban Environment: A Case Study in Chittagong City, Bangladesh**

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**Abstract:** *A major problem in Bangladesh is to implement the laws because of inadequate local level legal mechanism as well as the traditionally colonial legacy of public administration. Therefore, this paper aimed at evaluating the people's perception of the implementation status of laws addressing urbanization and urban environment in Chittagong city, Bangladesh. The study has been conducted based on primary and some extent on secondary data. Primary data were collected through questionnaire survey on the household head level, key informant interview, focus group discussions and direct observation methods. The observations clearly indicated that most of the citizens do not know about the existing environmental laws addressing urbanization and urban environment and most of them are not satisfied with the assigned autonomous bodies and their initiatives. The environmental courts are not functioning properly due to improper political influence and corruptions. Moreover, the local watchdog bodies are responsible enough and are indifferent on internal coordination. Therefore, proper coordination and active participation of the watchdog organizations can ensure community-based engagement at every development initiative. The exchange of their views, thoughts, experiences, and ideas with local people and as well as with city authority is badly needed to manage the city in a proper way under the leadership of the City Mayor.*

**Keywords:** *Chittagong City, Environmental Laws, Urban Watchdog Bodies; and Sustainable Urban Development*

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### **I. Introduction**

With the pace of urbanization, it is becoming quite difficult to ensure fare city environment for quality city life. In present days, most of the cities suffer from high air pollution, inadequate pure water and energy supplies, and lack of waste treatment and management facilities. Moreover, rapid population growth and migration from rural to urban areas and as well as lack of city planning and design, implementation of environmental laws etc. are further worsening the city environment. For example, roads are becoming congested, and a number of public transports are inadequate from city's population sizes viewpoint to have long been contributing to social inequality [14]. Therefore, the government enacts laws and acts aiming sustainable development for better implementation of existing environmental policies and legislation at the local level through the exchange of experience and good practice between local authorities, in order to achieve a better quality of life through an integrated approach concentrating on urban and rural areas both [23]. There are large numbers of autonomous bodies, local government offices/officials, non-governmental organizations (NGOs) and as well as private to look after the urban environmental facilities. However, 'responsibilities' are not properly distributed among the concerned authorities and there is lack of coordination among the bodies to synchronize urban growth and development. Therefore, this situation creates dissatisfaction at urban dwellers level [16]. Hence, awareness about the urban rules, their implementation and regulation are indeed needed enabling good city environment for fostering positive urban development [24].

Bangladesh has been passing through a period of dramatic population growth and fundamental changes in spatial mobility, especially from rural to urban migration. It has a population size of 15.36 crore in a finite environment of 56000 sq. miles [18 & 25]. The annual population growth rate in Bangladesh is 1.37% [2]. The country's gross population size increased from 55 to ~150 million from 1961 to 2011 while urban population increased from 2.6 to ~43 million during the period and the urban sector contributes to more than 60 % of the GDP [3]. Although at present only 28.37 % of the total population of Bangladesh lives in urban areas [1], the

country has a massive size of the urban population and the size is bigger than the national population of many countries of the world [17].

The impact of rapid urbanization on the urban environment in Bangladesh is going to be terrified. The UN-Habitat (2017) repeatedly declared Dhaka city is one of the worst cities in the world with degrading the quality of urban environment. The declining quality of urban life is due to growing mass poverty, gross social inequality, higher unemployment, over-crowded housing [4] and in addition to the scarcity of clean water, unhygienic sanitation, high incidence of infections, high crime rates, adverse social anxiousness and so on [15 & 9]. Furthermore, unplanned urban land usages, i.e. cutting greeneries from the hills and use of hills for settlements affect the flow of drainage systems, canals, and rivers. Water shielding and water slogging have long been inviting the Flash Floods, even in early monsoon period, further worsening the Environmental and Health problem [8]. Altogether, the rapid urban population growth is rapidly degrading the urban environment and such environmental degradation which may be manifested in the deterioration of the physical as well as the human environment of the urban areas and destruction and degradation of different ecosystems those are linked with the urban area [11]. Consequently, urban experts and environmental activists expressed their opinion that widespread poverty and growing global environmental degradation are the urgent challenges for the sustainable urban development. In this regard, the law can make a variety of key contributions in achieving sustainability. Therefore, we need to find out the ways to accelerate the use and analysis of laws that can foster sustainability [5].

The environmental law is a collective term describing international treaties (conventions), statutes, regulations, and common law or national legislation. These laws are to regulate the interaction of humanity and the natural environment toward the purpose of reducing the impacts of human activity on the environment [6]. The first environmental activities in Bangladesh were taken soon after the Stockholm Conference on Human Environment in 1972 and then the government of Bangladesh enacted Environment Conservation Act 1995, Water Supply and Sewerage Authority Act 1996, Environment Rules 1997, the Noise Pollution (Regulation and Control) Rules, 2000, Ozone depleting substances (control) rules, 2004, National Building Construction Act 2006, Environment Court Act 2010, Bangladesh Water Act 2013, Urban and Regional Planning Act, 2015, and any other laws to improve the environmental sustainability and conservation consecutively [19 & 7].

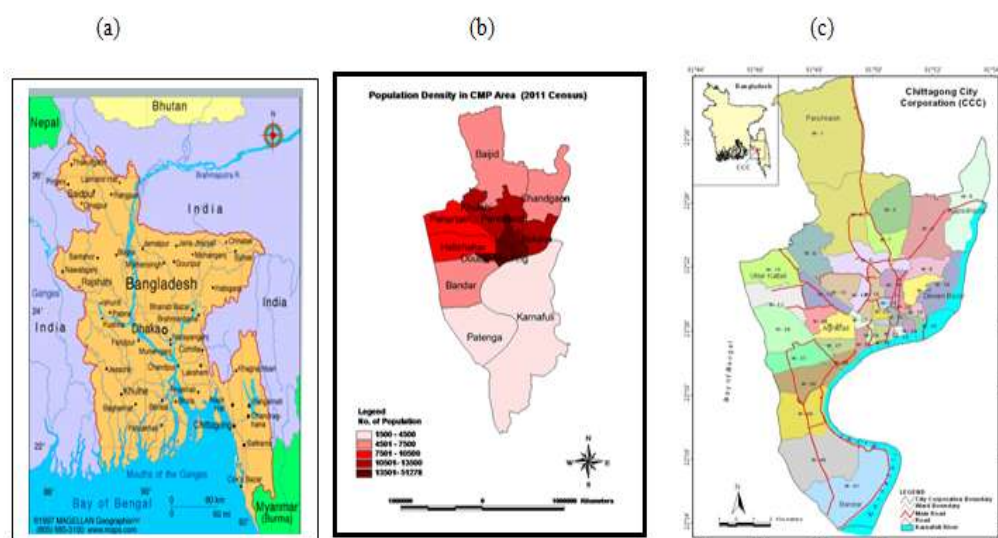
Chittagong is located in the southeast of Bangladesh and facing the Bay of Bengal, it is well-known as the commercial capital and the busiest seaport and the second largest city in the country. Being a major contributor toward national exports and imports, Chittagong has become a thriving city with strong linkages to the domestic economy. With production accounting for over 40% of national industrial output in 2012, the Chittagong Export Processing Zone (CEPZ), which employed over 150,000 employees, contributed more than 50% of Bangladesh's tax revenue earnings and in total Chittagong contributed 11% of Gross Domestic Product [10 & 13]. This port city is very much crucial for the regional development of South Asian landlocked countries like Nepal, Bhutan, and parts of Southern China, Northeast India, and Myanmar. Despite its immense potential, Chittagong faces great challenges because of high population growth, scattered industrial locations, poor infrastructure, extreme social inequality [6], crimes and lack of civic amenities, etc. [13].

Here we report the Chittagong Metropolitan Area extensively in terms of urban society, spheres of activities, architectural style, and building conditions and the impact of Chittagong City's urban fabric on the degree of deprivation qualitatively. The geopolitical location and rapid growth of this city have been attracting a growing number of national and international investors in manufacturing sector making it the 'regional manufacturing hub' in the future. The CEPZ was ranked 4<sup>th</sup> and 3<sup>rd</sup>, respectively in the categories of best economic potential, and best cost competitiveness in 2010/2011, while metropolitan Chittagong region was ranked as the tenth fastest growing city in the world in 2010 [13]. Considering the problem stated above, we investigated the people's perception of environmental laws, rules, and regulations and its present status in the city to create an environment-friendly urbanization and lively urban environment for Chittagong city dwellers.

## **II. Materials And Methods**

### **2.1 Study Area**

The research was conducted in Chittagong City Metropolitan Police (CMP) areas among its sixteen (16) Police Stations (Local Name Thana) and its area is 150 sq. miles, including Chittagong City Corporation areas (CCC) (22°13'N and 22°27'30"N and between 91°40'E and 91°53'E) areas. CCC consists of 41 wards. The CCC area is approximately 60 Sq. miles. The estimated population in CMP was 5.4 million in 2015 (Fig. 1) [3]. The urban environment of Chittagong City is mainly regulated by the authority of CCC, the Chittagong Development Authority (CDA), and Department of Environment (DoE).



**Figure 1:** Location of the study area (Bangladesh and neighboring countries (a), Population density in CMP Area (b), Chittagong in Bangladesh and Chittagong City ward map (c) [21].

## 2.2 Data Collection and Analysis

The study is conducted on the basis of primary data sources and to some extent, secondary data. Primary data has been collected through face to face interview by using a semi-structured questionnaire, key informant interview, focus group discussion and field observation methods. A semi-structured questionnaire is operated on 400 household head. The household head was selected through random sampling techniques during the survey period around Chittagong City's including sixteen (16) metropolitan police station areas. Besides, fifteen (15) key informant interviews were interviewed from different types of stakeholders, especially environmental journalists, environmental lawyers, environmental activists, local public representatives, City Corporation's employees, CDA planners, university professor and urban researchers as well. Furthermore, five (5) focus group discussions were conducted to explore the opinion about the knowledge level of laws, rules, and regulations of grassroots level of citizens. These data help to triangulate the opinion of household head, key informant interview data along with field observation levels. Secondary data have been collected from local autonomous bodies those who were/are directly involved in the planning process initiatives, namely, the CCC, CDA, DoE, and Chittagong Water Supply and Sewerage Authority (CWASA). IBM SPSS Statistics v20 - 64bit software was used for descriptive statistics and Microsoft Excel 2010 was also used to prepare figures. Along with these, Arc View 3.2 GIS software was used to prepare a population density map of Chittagong City based on 2011 census data.

## III. Results And Discussion

### 3.1 Socioeconomic Characteristics of the Respondents

Socioeconomic status of the respondents have been displaying overall socio-economic condition of the city dwellers; more than 80% respondents were of 50+ years, engaged in various service sectors and all of them are literate. Besides, house ownership data prevails that 93% city dwellers live in rental houses and their average monthly income in between 15000-20000 Tk (Table 1).

**Table 1:** Socioeconomic Characteristics of the Household Respondents of this Study Area (N = 400)

Parameters	Range of variables		
	Lowest	Average	Highest
Sex composition	Female =11%	Sex ratio = 353: 47	Male = 89 %
Age structure composition	21-30 age structure = 5 %	41-50 age structure = 45%	51-60 age structure = 50%
Educational status	Lower secondary = 90%	Literate 100%	Graduate and above = 5 %
Occupation	Developer = 6.67%	Service holder dominancy	Service = 59 %
House pattern	Semi-pucca = 3%	Pucca housing dominancy	Pucca = 97 %
House ownership	Self-housing = 7%	Rental dominancy	Rental housing = 93 %
Marital Status	Unmarried = 39 %	Married dominancy	Married = 61 %
Monthly income	15000-20000 = 4.17%	15000-20000 = 37 %	25,000+ = 18.33%

Note: Monthly income in local currency BD Tk. (\$1 equivalent to 80 BD Tk. Approximately)

### 3.2 Knowledge of Current Urban Environmental Development Laws

The process towards sustainable development of cities starts with profound analyses of the past and present culture of the city. It is built on an inclusive and holistic vision, and it requires integrated planning, transparent governance, and continuous monitoring of the city's rules and resolutions. Therefore, the existing level of knowledge on environmental laws, rules, and regulations of the city dwellers might be reflected in the creation of planned urbanization, good governance, and sustainable city environment. In Chittagong city, most of the people do not have enough knowledge about the specific environmental laws, rules, and regulations. However, they have the general perception to the urban environment development and protection laws; 75 % citizens mentioned the existence of the laws related to the environment (Table 2).

In contrary, most of the citizens are not fully aware of their rights preserved in the environmental laws and if even partially aware of that they do not know well the procedure of claiming the rights and filing a complaint, if there is any, against different actors those who degrading the city environment (polluting the environment, engaging with illegal hill cutting, encroaches the bank of the river or wetland, degraded the urban environmental quality and so on). These scenarios explore the- ignorance of the responsibilities of urban watchdog bodies and their initiatives regarding environmental protection and sustainability. As a consequence of lack of monitoring and awareness degradation of urban environmental quality happening rapidly. The polluters are doing their illegal activities in a freestyle manner due to lack of any accountability and they are not having exemplary punishment for violating environmental laws, rules or regulation.

**Table 2:** Level of Knowledge on Existing Environmental Laws, Rules, and Regulations of this Study Area (N=400)

Sl. No.	Types of Knowledge	Yes (%)	No (%)
1	Have laws related to environmental protection	75	25
2	Bangladesh Environment Conservation Act 1995	32	68
3	Water Supply and Sewerage Authority Act 1996	15	85
4	Environmental Rules, 1997	31	69
5	Noise Pollution (Regulation and Control) Rules, 2000	7	93
6	Ozone depleting substances (control) rules, 2004	5	95
7	National Building Construction Act 2006	15	85
8	Environment Court Act, 2010	8	92
9	Bangladesh Water Act, 2013	11	89
10	Urban and Regional Planning Act, 2015	3	97

### 3.3 Suitability of Current Laws, Rules, and Regulations

Institutions with widely varying forms and levels of legal authority can make valuable contributions to sustain laws and policies. Data obtained from our present study indicated that 68% of the respondents said that current city laws are not suitable in the present context (Table 3). In Bangladesh, there are some national and local level institutions that made several laws, rules, and regulations related to environmental protection and conservation. In course of time, some of these laws, rules, and regulations became obsolete for the time being. Although time to time, the government amends many laws, rules, and regulations in order to make them suitable to face new environmental problems. In Chittagong city, more than two-thirds city dwellers agreed that existing laws, rules, and regulations are not suitable for creating environment-friendly urban growth (Table 3). The reasons behind this situation are a weakness of lawmaking institutions, poor reviewing of the laws in developed and developing countries, very weak monitoring systems and shortages of manpower etc. These drawbacks let corruption, malpractice of political power along with political partisan among the print and electronic media and non-governmental organizations. Furthermore, lack/ignorance of responsibility of the local government authorities, lack of awareness of local citizens, the absence of participatory approach in development programs also makes the limited implementation of the current laws, rules, and regulations in Chittagong city.

However, nearly one-third (32 %) city dwellers believed that current laws, rules, and regulations are suitable to ensure sustainable urban environmental development if all types of stakeholders are made bound to ensure implementation and if any violation environmental law any anyone is addressed legally and strictly. Accordingly, the urban scholars emphasize that if the urban watchdog bodies, local authority and development planners ensure the implementation of existing laws, then most of the environmental pollution and degradation can easily be reduced.

**Table 3:** Suitability of Current Laws of this Study Area (N = 400)

Variable	Response Pattern			(in %)
	Yes			
Suitability of the present laws, rules, and regulation in creating sustainable urban environment in Bangladesh	Yes	32%	Need implementation	72
			Obligations to follow environmental laws	17
			No comments	11
	No	68%	Need amendment	69
			Not suitable for future generation	10
			Lawbreaking punishment is not visible	4
			Not suitable to cope with new problems	12
			Weak laws	4

### 3.4 Effectiveness of Environmental Court

The government of Bangladesh amended Environment Court Act, 2010 to provide for the establishment of the environmental courts for the trial of offenses relating to environmental pollution and matters. The law enacted Environment Court Act 2000 with the specialized environmental court system introducing the legal system. In pursuance of the Environment Court Act, 2000, vide a gazette notification dated 6 March 2002, two special courts with Joint District Judges were set up in Dhaka and Chittagong division, to deal with environmental offenses only. Later in 2010, a fresh Environment Court Act (Bangladesh Environment Court Act, 2010) has been passed and the Act of 2000 has been repealed [21].

In considering the objectives of the ‘Environment Court’, Department of Environment could take significant awareness programs for mass people how environmental pollution victims and activists will go to the court regarding the offenses of environmental pollution and matters and how to deal with the culprits for urban environmental quality degradation. In Chittagong city, a low level of effectiveness of environmental court is not assuring the improvement of the urban environmental quality. Nearly, one-fourth dwellers (24%) mentioned that environmental court is operating perfectly; three-fourths (76%) city dwellers claimed that the current environmental court is not working effectively due to several reasons such as political influence and corruption and also the environmental court is not available in all districts in Bangladesh (Table 4).

**Table 4:** Functionality of Environmental Court of this Study Area (N = 400)

Variable	Response pattern (in percentage)		%	Comments	
Functionality of Environmental Court	Yes	24%	Case handles regarding environmental pollution	19	The environmental court isn't functioning effectively
			Complaint accepted by the court	65	
			Giving punishment according to the laws	7	
			No comments	9	
	No	76%	Political influence	61	
			Corruption	45	
			Not available court in all districts	73	
			No comments	8	

Note: Multiple answers considered

Both of the arguments regarding the functionality of environmental court are true. Till date, there are three environment courts all over the country; Dhaka, Chittagong, and Sylhet and the only Environment Appellate Court of the country situated in Dhaka started its journey from 2005. In the Environment Courts of Bangladesh average, 100 cases are filed in every year, while in the Environmental Control Board of New York city almost 7 lac cases are filed in every year. On the other hand, since from the starts to till (June 2015) only 467, 350 and 350 cases have been filed with the Environmental Courts in Dhaka, Sylhet, and Chittagong, respectively. Moreover, among the cased filed only a minute fraction has long been settled while most the cases still remaining pending [20]. In fact, such delay in getting judgment even after filing the complaints through complicated official formalities discourages the victims. Therefore, the process of filing complaints should be as smooth as possible and timely decision on the complaints may help to reduce urban crime (from individual and group crime to violation of environmental laws) improving quality urban life.

### 3.5 Comparative Analysis on Local Watchdog Bodies (DoE, CDA, and CCC)

At the threshold of the 21<sup>st</sup> century, cities and towns form the front line in the development campaign and this urban transition and offer wider opportunities for countries improving the quality of life for all their citizens. In this regard, urban local government, local city planning authority, urban environmental quality monitoring authority and other GO -NGOs need to play a vital role ensuring sustainable urban development. Therefore a comparative study was done on the performance of the Department of Environment (DoE- local

authority for environmental quality monitoring), the Chittagong Development Authority (CDA-local urban planning authority) and the Chittagong City Corporation (CCC- Local Urban Government) activities according to their legal framework. In this context, four types of scale were selected to measure the satisfaction level of the citizens and unfortunately, it has been found that these three organizations had been performing very poorly (unsatisfactorily) (Table 5).

Every city government needs to have inclusive, pro-poor strategies and guidelines that will enable innovative local solutions. If the city is good for its weakest citizen – a child, an aged person, a new immigrant, a handicapped person, it is going to be good for everyone else, too. Integration and inclusion have to be on top of the urban sustainability agenda. A well-practiced democratic, participatory and inclusive strategy of urban local government could contribute much more to sustainable urban development. In this connection, Chittagong City Corporation (CCC) bears the central responsibility to ensure implementation of laws, rules, and regulations addressing urbanization and urban environment. The study found that CCC authority is not doing their duty satisfactorily (Table 5) with moderate-average sincerity although they are very close to local people and have connections with every household considering holding tax collection, participation in local arbitration and go to people for getting a mandate in voting time to be a public representative, etc. Therefore, local government representatives are the very much vital person who could help implementing government laws and improving quality of urban environment. But this study found moderately sincere in maintaining garbage disposal management, street lighting, social arbitration, roads, and streets maintenance, protecting unauthorized infrastructure, city beautification, healthcare and educational program, etc. This scenario might be related to many issues such local public representatives 'sometimes are not well educated and not aware about his/her duties and responsibilities, ignorance of urban environmental court and urban development laws, politically biased, corruption, low level of monitoring and lack of skilled manpower in the urban local government authority, etc.

In an ideal world, urban planning starts at the regional and metropolitan scale and proceeds from larger scale down to neighborhood scale. No development, no construction, in particular, no infrastructure investment should be permitted without adherence to approved larger scale plans. For the approval of planning documents, there has to be a transparent process, where the roles of different institutions, stakeholders, experts and decision makers are clearly defined [22]. Based on the principles of urban planning and development phenomena, some visible activities of Chittagong Development Authority (CDA) such as monitoring the urban environmental laws and regulations, implementing house building code, making new roads and streets, traffic management and planning, town planning and management, disaster management and planning and afforestation program are placed to respondents to evaluate CDA performance in making Chittagong as a planned city. Citizens' claimed that CDA is moderately sincere to perform aforesaid activities that clearly indicate that Chittagong City is not growing following the urban planning principles and building code standard (Table 5).

Besides, the mission of Department of Environment's (DoE) is to help to secure a clean and healthy environment for the benefit of present and future generations. The mandate of the Department is, broadly, to ensure conservation of the environment, improvement of the environmental standards and control as well as mitigation of environmental pollution as has been provided for in the Bangladesh Environment Conservation Act, 1995 (Act no. 1 of 1995). Based on the legal instruction, some activities of DoE placed to the respondent to measure the DoE performance in assuring sustainable urbanization and urban environmental development. The study found that the DoE was moderate sincere while a significant number of respondents opined the DoE as 'low sincere' in implementing environmental laws, rules, and regulations for the sustainable urban development. This scenario of DoE's low-performance activities might be related to several issues, such as lack of commitment of the DoE personnel, lack of sufficient trained manpower and logistic support, political pressure, corruption and lack of accountability to the mass people for their irresponsible activities, etc.

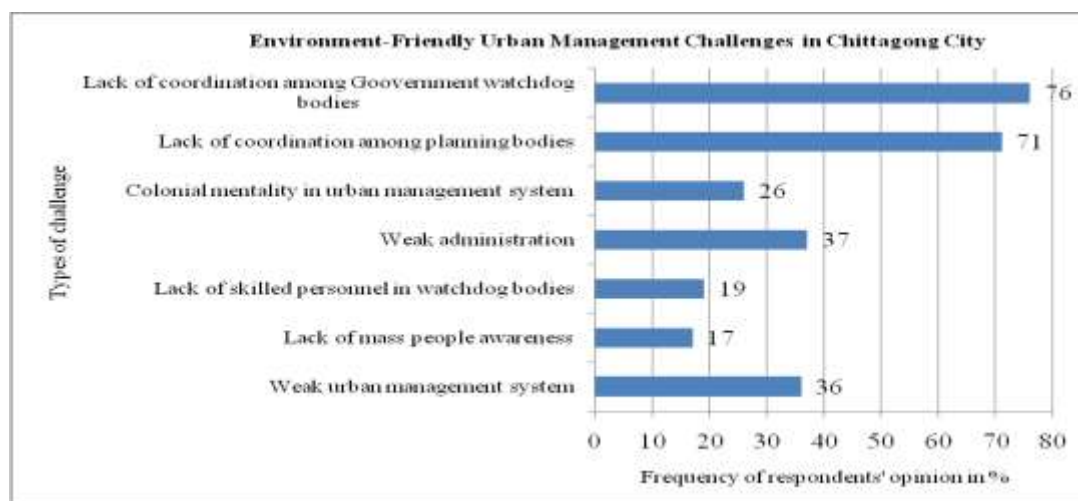
A comprehensive CCC, CDA and DoE's performance analysis indicates that all three watchdog bodies are not sincere enough to their duties and responsibilities in making the Chittagong City environment-friendly based on the current urban development environmental laws, rules and regulations. Such low sincerity could also be contributed from lack of institutional skilled leadership, coordination among the institutions, and commitment of the concerned personnel, in addition to priority of top-down approach in development planning process, insufficient awareness programs, political partisan in professional groups, ignorance of environmental damage cost for the current and future generations, and above all corruption at every level.

**Table 5:** Citizens' Views on Local Watchdog Bodies' Activities of this Study Area (N = 400)

Watchdog Body	Activities	Citizens' Satisfaction Level (in %)			
		Very sincere	Sincere	Moderate sincere	Low sincere
Department of Environment	Water pollution control measures	2	5	71	22
	Air pollution control measures	1	3	76	20
	Soil pollution control measures	0	2	79	19
	Sound pollution control measures	0	2	48	50
	Afforestation program	2	25	68	5
Chittagong Development Authority	Environmental awareness program	3	24	65	8
	Monitoring the urban environmental laws and regulations	0	1	80	19
	Implementing house building code	0	6	30	64
	Making new roads and streets	0	4	92	4
	Traffic management and planning	0	1	75	24
	Town planning and management	0	5	81	14
	Disaster management and planning	1	8	75	16
Chittagong City Corporation	Afforestation program	0	9	80	11
	Garbage disposal management	9	7	67	17
	Street lighting	2	2	56	40
	Social arbitration	4	1	8	9
	Roads and street maintenance	5	2	88	5
	Protecting unauthorized infrastructure	5	1	24	70
	City beautification	4	49	44	3
	Health care and educational facilities	8	49	43	0

### 3.6 Environment-Friendly Urban Management Challenges

This study found that environment friendly urban management is facing several challenges in Chittagong City and this situation has been created by different factors, particularly lack of mass people awareness, lack of skilled personnel in watchdog bodies, weak administration, the colonial mentality in the urban management system, lack of coordination among planning bodies, lack of coordination among government watchdog bodies and so on (Fig. 2). Along with these, the city is suffering from several types of environmental quality degradation problems such as, hill cutting and soil erosion, deforestation, landslide, earthquake, water logging, flash flood, tidal surge flood, cyclone, salinity intrusion, fire hazards, tsunami, unplanned and haphazard urban growth of slum areas etc. [8 & 9]. In addition, unplanned housing, settlements and above all, the weak urban management system furthermore is worsening environmental pollution and degradation [12].



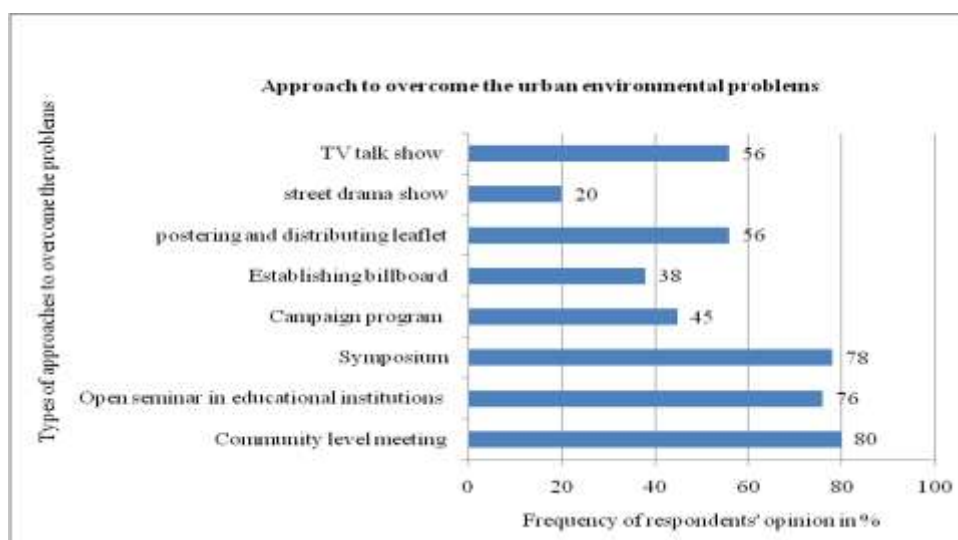
Note: Multiple answers considered

**Figure 2:** Environment-friendly urban management challenges in Chittagong City



### 3.7 Approach to overcoming the urban environmental problems

Several autonomous bodies and public institutions are responsible to provide urban amenities and take the appropriate measures of unusual types of natural and man-induced problems majority of which can be solved and/or minimized through effective actions of general and assigned watchdog bodies. In Chittagong city, dwellers opined that urban environmental pollution prevention and awareness building among the city dwellers can be done in various conventions and proactive ways (Figure 3). These popularly used techniques will help to enhance in disseminating environmental protection laws, rules, environmental court and punishment against violation through the regular community-level meeting, a seminar with open participation. Moreover, organized and planned campaign programs in through print and electronic media focusing of vital environmental conservation slogans can significantly improve awareness among the city dwellers to minimize the urban environmental problems.



Note: Multiple answers considered

Figure 3: Approach to overcome the urban environmental problems

### 3.8 Approaches for Making Environment-Friendly Urban Development

Several organizations, specifically the city corporation authority, law enforcing agency, local government, and engineering department (LGED), department of public health engineering (DPHE), civil society, professional groups, academics, and NGOs are involved in a city to manage the activities of its dwellers smoothly and harmoniously. However, these stakeholders usually face difficulties dealing the matters properly, because each type of stakeholder has an individual role and opinion in creating an environment-friendly urbanization and urban development in Chittagong City.

#### 3.8.1 Central Government Initiatives

It is obvious that the central government is the main body to bring all stakeholders under one umbrella to make it successful. Accordingly, the respondents also pointed out that watchdog bodies personnel's sincerity, strengthening of the law and enforcement authority and their monitoring activities, awareness building, NGOs or social organizations involvement, technical and financial support are needed for accelerating friendly- urban development in Chittagong city through the guidance of central government.

#### 3.8.2 Print and Electronic Media Initiatives

Currently, print and electronic media are playing important role in building positive attitudes of the public towards the environment and environmental laws. In particular, print and electronic media can contribute informing people the environmental laws and action procedures, consequences of their violation (on daily life, environmental disaster, and future generations), building people's movement against environmental polluters etc. for up-lifting quality urban life.



### **3.8.3 Initiatives of Chittagong Development Authority (CDA)**

Chittagong Development Authority (CDA), the government representative at the city level, is the local autonomous body responsible city development plan, its execution, monitoring, and assessment. It also has the legal authorities to take action against the lawbreakers, especially who violate the rules of building codes and master plan of the city. This study suggests that CDA should make its city development master plan, implement the decisions (activities) and ensure regular monitoring of its activities. For better implementation, the city plan is worth segregating into (i) land use zoning: emphasizing sectoral and dual-use, avoiding mixed-use if high density of population; (ii) transport planning: special attention on transport nodes and pavement design and public space of commercial areas, etc.; (iii) neighbourhood planning: particular importance on gated housing, wider street and lighting; (iv) environmental design: addressing urban form and design in respecting natural environment, preserving open space systems; (v) landscape planning: participatory and bottom-up approach; community representation in areas of policy-making and planning; and (vi) application of GIS: mapping, GPS, 3d model and so on

### **3.8.4. Initiatives of Department of Environment (DoE)**

Peoples' opinion indicated that the performance activities of DoE are not enough to solve the environment related problems and urban environmental quality improvement programs at Chittagong city. This is because, the DoE lacks skilled manpower, inadequate logistic support, insufficient fund, ignorance of environmental quality management indicators, appropriate measurement tools for assessing activities, etc. Therefore, central government needs to focus on solving the problems mentioned and amend some existing laws, rules, and regulations to make DoE active and functional.

### **3.8.5. Initiatives of Chittagong City Corporation (CCC)**

The urban local government in any larger cities is, in a sense, related to the stresses and strains generated by growing city populations. The CCC is the principal organization is responsible for the management of the city and the welfare of its citizens. Unfortunately, top-level drivers of this organization hardly understand the complexities of the city system. In addition, it also suffers from weak administrative, managerial, financial aspects and in almost all areas of its functions. Therefore, the CCC should consider the citizens' expectations and requirements and implement their commitment mentioned in the election manifesto.

### **3.8.6. Integrated initiatives**

The urban development is an intrinsically and extrinsically integrated process and many authorities and stakeholders are associated with it. Therefore, there should have a proper coordination and cooperation among the stakeholders to manage and govern the city growth smoothly, which presently lacking in most of the cases. To this end, we propose that an integrated initiative with a coordination cell should be considered for future city planning and development. The coordination cell will work as a central meeting ground for sharing thoughts and ideas by different components (CCC, CDA, DoE, stakeholders etc). The proper coordination of will help to ensure active participation of the agencies, watchdogs, and stakeholders in a way under the leadership of the City Mayor.

## **IV. Conclusion**

Urbanization is growing rapidly in Bangladesh as well as in Chittagong City. It is unfortunate that the process of becoming an urban in most cases is quite unplanned and lacking of holistic vision and mission, making the urban environment vulnerable and deteriorating quality urban life. Although there are many laws, rules, and regulations to make the city organized and sustainable their implementation is still a very big concern. There is also lack of accountability and responsibility from implementing authorities, watchdog agencies and urban habitats viewpoints. Moreover, to some extent, the current laws, rules, and regulations are not suitable for creating environment-friendly urban growth as well. As a result, polluters escape themselves from the observation of administration and the judiciary as well as weaknesses of implementation mechanism and the low level of people's participation. Therefore, social norms, public communications, and other aspects of community-based social marketing can shift individual behavior in a more sustainable direction are worth considering for a better sustainable urban development. A participatory transparent governance and integrated coordination among different agencies, including the government, watchdog agencies, NGOs, civil society and professional groups and participation of mass people can pave a way developing and sustaining urban development. In addition, in-depth investigation is required to find out other aspects of urban environmental issues and environmental law's implementation success from developed and developing countries as well.

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