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Local environmental governance in Bangladesh: How far are municipalities involved in achieving environmental sustainability?

A K M Mahmudul Haque[1]*, Syed Mohammad Aminur Rahman[2], A.K.M. Fazlul Hoque[3] and Md. Asfaq Salehin[4]

[1] Department of Political Science, University of Rajshahi, Rajshahi 6205, Bangladesh
[2]University of Adelaide, Adelaide SA 5005, Australia
[3]Central Queensland University, 120 Spencer Street, Melbourne, Australia
[4]Department of Political Science, Varendra University, Rajshahi 6204, Bangladesh.

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ABSTRACT

Understanding the issues of local environmental governance is crucial for both the environment and for policy. This paper examines the performance of local government institutions such as municipalities in terms of their environmental responses in their responsibilities. Authorities of two municipalities and stakeholders are the primary sources of data in this study. Based on their responses, the findings are that these municipalities barely qualify as urban governing bodies in ensuring environmentally friendly governance. They are found to be highly inactive in ensuring environmental sustainability in their regular and development programs. Stakeholders are found to be greatly deprived of the services they should receive from their local authorities. The expectations of stakeholders and the actual services delivered by the authorities in regard to the environment are significantly out of step with each.

Key words : *Local environmental governance, Environmental sustainability, Environmental issue consideration, Waste management, Green governance, Municipality.*

Introduction

There are many success stories about Bangladesh's economic growth in the public domain. This country has appeared as a model for others that are struggling with overall development issues. Successes in the Millennium Development Goals (MDGs), Gross Domestic Product (GDP) and even in the ongoing Sustainable Development Goals (SDGs) are certainly the envy of the rest of the world. However, there remain concerns. The country's environmental governance remains deficient. Climate change, for example, continues to present many challenges (Salehin, 2017; Bulkeley and Betsill, 2005). Accordingly, environmental governance is evolving as one of the most anticipated means of ensuring the country's environmental sustainability. Local government bodies, or municipalities, appear to drive the environmental sustainability agenda to an increasing extent (Girardet, 1999). In fact, globally most cities are shifting their views of governance towards a sustainable and environmentally friend Biermann, 2009; Biermann *et al*., 2009; Shruti, 2021). They have been charged with implementing central

([2,3] PhD Researchers)

environmental policies and taking initiatives to provide municipal environmental services and to solve local environmental challenges. But experience and reality indicate that these local governing bodies do not take environmental issues seriously (Girardet, 1999; Williams, 2009). Their apathy towards environmental issues is considerable and poses a threat. The level of consideration of environmental issues in development activities is as low as it can be (Joss, 2011; Wild River, 2006). In view of all these factors, evaluation of environmental issue consideration in the overall actions of municipalities is necessary in order to assess local environmental governance in Bangladesh.

The key aspects of this study are (1) to examine the extent to which local environmental governance initiatives are actually implemented, and (2) to reveal whether and how these initiatives contribute to disseminating new technologies and whether they bring about changes in governance and governing. They influence, for example, the interplay between the different actors in the urban development process, and the pressure of local initiatives on national regulations. Knowledge in these areas is important for developing better governance at the local level, as well as better overarching governance frameworks for fostering national environmental sustainability (Singh, *et al.*, 2020; Segnestam, 2002).

Conceptual Framework

Local environmental governance is an important aspect of governance and politics across the world that plays a significant role in achieving local environmental sustainability (Wild River, 2006; JICA, 2016). Strengthened local environmental governance responds quickly and effectively to emerging environmental challenges at the local level and promotes sustainable development. Environmental governance indicates that the delivery of regular services, and planning and implementation of development and economic activities, will be undertaken in such a manner that environmental consideration is duly accounted for. However, the state of environmental governance in many parts of the world, including in the least developed countries like Bangladesh, is often in question (JICA, 2016; Rahman, 2007). This is revealed as largely due to not only the lack of appropriate policies and programs but also the lack of action and the adverse consequences in the environment, the economy and society (Dong and Hauschild, 2017).

Environmental governance is environmental maintenance. As an important instrument of the governance system, it strongly influences environmental outcomes. The term 'environmental governance' is used to describe how decisions about the environment are made and who makes such decisions, including the procedures used. It includes formal and informal institutional arrangements for resource and environmental decision making and management. It includes and extends beyond the State to involvement of the private sector and civil society organizations (CBUD, 2015; Crowley, 2001). Thus, it involves a range of institutions, social groups, processes, interactions and traditions, all of which influence how power is exercised, how public decisions are made, how citizens become engaged or disaffected, and who gains legitimacy and influence and achieves accountability (Asian Development Bank, 2001; Fels, 2008).

Environmental governance is not limited to the environmental or natural resource sectors or ministries, agencies and laws concerning the environment. It also encompasses a broader range of governance actors. It attests to the role of many actors (e.g., the State, the private sector and civil society) in environmental decision-making processes and the management of environmental problems (Rahman, 1998; ANAO, 2014). In other words, governance in the context of the environment encompasses the relationships and interplay among State and non-State entities, processes and normative frameworks, where powers and functions directly or indirectly influence the use, management and control of the environment (Graham *et al.*, 2003; DASETT, 1992).

Environmental governance thus concerns legal and policy decisions to manage environmental issues, compliance with those policies in development management, and the participation of those people who are directly affected by the outcome of such decisions (Olowu, 2003). Environmental governance is a democratic system, with the participation of many actors, in which the State has the role of sharing responsibility at the global level and of delegating power at the local level in order to successfully manage and preserve the environment (Mugabe, and Tumushabe , 2000; MoUD, 2015). The juxtaposition of governance and the environment has several features (MoUD, 2015):

- Firstly, the State and civil society are in charge of implementing environmental management in their respective spheres;

- Secondly, the connection between governance and environment suggests that environmental management involves political issues and processes;
- Thirdly, the linkage means that environmental preservation is a mutual task shared between government and the civil society; and
- Finally, environmental governance highlights the different yet related roles of State, the private sector and civil society

An effective policy framework is important in developing an integrated environmental governance system (Sustainable Cities International, 2012). The frameworks will allow and encourage the participation of all stakeholders: government, industry and public. To do this, they must ensure adequate and transparent dissemination of information and constantly build the capacity for interactions of all sectors (Mugabe, and Tumushabe, 2000; Ostrom, 1990). Therefore, considering environmental issues during both the formation and implementation of policies can be addressed as environmental governance.

In this study, the term 'local environmental governance' is mentioned, but this is not a local fact at all. The environmental issue is national as well as a global concern. To ensure this governance successfully, decentralization and local empowerment are needed to a high extent. Local authorities can undoubtedly play the part of the primary actor in this circumstance (Lima, 2002). The reason for holding the local bodies as the most responsible agency for ensuring environmental governance is that every policy from micro to macro or national to local somehow has an impact on the environment one way or another. Sometimes, the impact is mild, sometimes fetal (Brendan, 2002). To identify the intimacy of the environment and the policy, the role of local institutions can be more efficient. If decentralization and empowerment are ensured (Thurdin, 1997; Kreutzwiser, 2010).

Environmental governance is the set of actions (Figure 1) taken by the government or human more precisely to govern. Policy framing, policy implementation, distributing responsibility, setting the authority and everything is included in this context. The environmental issue on the other hand includes sustainability and conservation (Lemos and Agrawal, 2008). Therefore, this paper attempted to build a concept focusing on the action of human (local authorities e.g. Municipality) to preserve the environment. The primary focus was to assess the environmental issue consideration of Municipality to achieve environmental sustainability.

Environmental governance can regulate (Figure 1) environmental sustainability which ultimately

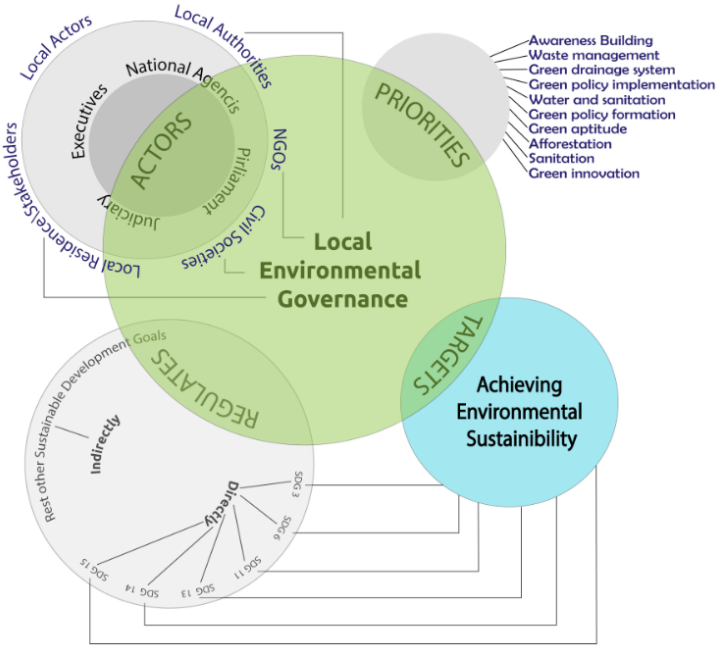

Fig. 1. Local Environmental Governance and Environmental Sustainability
[*Source*: The Researchers, 2019]

results in achieving Sustainable Development Goals (SDGs) as well. In SDGs, Goal 3: Good Health and Well-being; Goal 6: Clean Water and Sanitation; Goal 11: Sustainable Cities and Communities; Goal 13: Climate Action; Goal 14: Life below Water; Goal 15: Life on Land is highly intimate with the environment. Therefore, acting in such a manner (prioritizing the local issues such as green policy formation, green innovation, sanitation, green aptitude, awareness building, forestation, water and sanitation, green drainage system, waste management, green policy implementation) environmental sustainability will be achieved. Moreover, the above model identifies the key actors as well.

Environmental sustainability is the rate of renewable resource harvest, pollution creation, and non-renewable resource depletion that can be continued indefinitely. If they cannot be continued indefinitely then they are not sustainable (Daly, 1990). Perhaps, Nobel Peace Prize winner professor Dr. Mohammad Yunus defined it more practically. According to his suggestion, fruits should be cultivated in such a manner that the tree remains lust (Daly, 1990; Yunus, 2017). From this aspect, ensuring environmental governance is inevitable for achieving a sustainable environment in all sense.

Materials and Methods

Rajshahi is basically an under-privileged city in comparison with the other ones of Bangladesh. The local governance issues like solid waste management, environmental issue considerations during development work are fragile. Moreover, speaking of the satellite towns, this governance becomes more fragile. Therefore, this study was conducted at two satellite municipalities from Rajshahi district, Katakhai and Noahata, where the environmental activities are almost identical. A mixed method technique is followed in this study, although qualitative data analysis dominates. Data were collected from both primary and secondary sources. Primary sources of data include field study, respondents, regular environmental and development activities of the selected municipalities, etc. The secondary sources include research reports and articles, official statistics, relevant books, theses and dissertations, daily newspapers, government rules and policies, etc. Primary data have been collected through 200 face-to-face interviews of the stakeholders using questionnaires, two focus group discussions, observation and two key informant interviews. Field data was collected within May 2019 to October 2019. Document analysis is used for secondary data collection. The sample size of the (primary source) respondents was 240. The respondents were divided into four categories: stakeholders (200), municipality officials and public representatives (10), local elites (20) and key informants (10). The sample size for stakeholders was calculated by using the formula n = N*X / (X + N – 1), where X = Zá/22 -*p*(1-p) / MOE2, and Zá/2 is the critical value of the normal distribution at á/2 (e.g., for a confidence level of 95%, á is 0.05 and the critical value is 1.96), MOE is the margin of error, p is the sample proportion, and N is the population size. Note that a Finite Population Correction has been applied to the sample size formula.

Results and Discussion

Environmental Compliance in Development

Environmental Issue Consideration

Several questions were asked of respondents to learn if their municipality pays attention to environmental issues during its planning and implementation of development projects (Table S1).

Table 1 and 2 clearly indicate neglect of environmental issues by the municipalities when such issues need to be considered. No area under study provided any satisfactory response. If we assess the overall prioritization of both municipalities, this is revealed as less than the minimum acceptable. However, Katakhali is a little ahead but by a narrow margin.

To understand the situation from different viewpoints, the responses of stakeholders should also be considered. Their responses to several questions depict the true scenario. The question of whether or not the municipality provides environmental support was asked of 100 respondents from each municipality. The responses were that 90% of respondents from Katakhali Municipality responded negatively, 5% replied positively and 5% remained silent. Therefore, it can be said that the environmental services of the Katakhali Municipality are extremely poor. The situation of Naohata is even clearer. All of the respondents (100%) thought that the Municipality did not provide any sort of environmental support. Hence it can be said that there was no support from the Municipalities currently in relation to envi-

Table S1. Environmental Issue Considerations in Development

Municipalities' Environmental Issue Consideration	Katakhali	Naohata
Considering environmental issues before framing or implementing policies/ decisions	To some extent	Incapable
The level of environmental issue consideration in the development	Poor	Absent
The process of considering the environmental issue	Absent	Absent
Drawbacks in considering the environmental issue in the development programs	Political	Political (extensive)
Consulting local people over environmental issues before framing or implementing any policy/decision	Never Seldom	
Discussing over the environment in the meetings of Municipality	To a very small extant	Never
Incorporating local people in the meetings of Municipality	Always	No
The environmental adversity in implementing policies	Not aware	Not aware
Initiatives in mitigating the environmental adversities	Not aware	Not aware
Considering environmental issues before permitting local construction application	Incapable	Incapable
Step against those local residents who threaten environment in their own development works or any action	Incapable	Once in last 10 years
Environmental impact assessment	Not aware	Not aware
Monitoring the impacts of existing establishment on environment	Not aware	Not aware
Monitoring the impact of waste over environment	Not aware	Not aware
Monitoring regular environmental standard	Not aware	Not aware

Table 1. Municipalities' Steps in Environmental Services

Variables		Frequency (%)	
		Katakhali	Naohata
Is the Municipalities' inspection or supervision on the environmental service enough?	Yes	0 (00%)	0 (00%)
	No	98 (98%)	100 (100%)
	No comment	2 (2%)	0 (00%)
Does the Municipality take legal steps against the violation of environmental laws?	Yes	0 (00%)	0 (00%)
	No	36 (36%)	24 (24%)
	No comment	64 (64%)	76 (76%)

[Source: Field Survey, 2019]

Table 2. Knowledge about Environmental Development Committee

Variables		Frequency (%)	
		Katakhali	Naohata
Do you know any members4 of the environmental development committees of your Municipality?	Yes	4 (4%)	0 (00%)
	No	96 (96%)	100 (100%)
	No comment	0 (00%)	0 (00%)
Do they work responsibly?	Yes	22 (22%)	33 (33%)
	No	75 (75%)	20 (20%)
	No comment	3 (3%)	47 (47%)

[Source: Field Survey, 2019]

ronmental issues.

Environmental Support and Supervision

When stakeholders were asked whether there was a lack of support in environmental development, 51% of respondents from the Katakhali Municipality and 16% from the Naohata Municipality preferred to remain silent; 39% from Katakhali admitted to this but the number was higher in Naohata, where 84% of stakeholders thought themselves responsible for this crisis.

In reply to another question on whether munici-

pality inspection or supervision of environmental services was regular or not, 98% of respondents from Katakhali and all from Naohata replied negatively, which presents a stark view (Table 3). Municipal-level negligence is abundantly clear here.

According to respondents of Katakhali, no one could be cited who had witnessed the Municipality taking action against those violating the environmental code. The situation was identical in Naohata. However, 64% and 76% of respondents respectively from Katakhali and Naohata did not answer this question.

During focus group discussions, most respondents thought that the municipality was mainly run by the Mayor and (his) Councilors, who are politicians. All of these were elected by municipality voters. Hence, they are always afraid of losing support among these voters if the municipality is perceived as harassing those inhabitants responsible for environmental pollution. However, 84% of residents of Katakhali surveyed believed that the Municipality did not consult with local people during any development work. In accordance with the legal framework, a municipality is required to establish 13 Standing Committees to carry out its duties. There are different Standing Committees in each municipality charged with the responsibility to consider environment-related issues while discharging their duty. To explore the Committees' role in environmental governance, data have been collected in the field survey. Table 2 summarizes the responses.

Data findings reveal that, in response to the question whether or not they were aware of any member who was involved in environmental development committees of their municipality, 96% from Katakhali and 100% from Naohata replied in the negative, which showed their 'distance' from the local authority. This indicates, too, that the initiatives the municipality takes and the policies they frame are in no way inclusive.

Do committee members work responsibly or not? In reply to this question, 20% from Katakhali and 33% from Naohata responded positively, but a large number (47%) preferred remaining silent, which is evidence of political influence. Therefore, it is again shown that political influence plays a dominant role in the environmental governance of Naohata Municipality.

According to the policy framework, each Ward Councilor must hold a Ward meeting with residents of the Ward at least twice a year to discuss environmental issues, problem identification and prioritization of problems, scheme identification, scheme prioritization and short-listing of projects as a separate issue. After the Ward Meeting, further participatory planning processes are to be carried out at the Municipality.

In this regard, data have been collected from a field survey. On arranging meetings on environmental issues, 26% refused to admit to this in Katakhali Municipality and 13% in Naohata. Here 72% and 60% of the respondents respectively from Katakhali and Naohata kept silent. On attending the meeting, no respondent from Katakhali or Naohata replied in the affirmative.

Budget

In Katakhali Municipality, 10% of the stakeholders believed that the budget was sufficient, 12% considered it low and 78% made no reply. In Naohata Municipality, 63% said that the budget allocation for environmental services was adequate.

Environmental Awareness Rising

Respondents were asked whether or not the initiatives of the Municipality were sufficient to increase the level of awareness of the populace at large about conservation of the environment. The findings re-

Table 3. Arranging Ward Meeting on Environmental Issues

Variables		Frequency (%)	
	Katakhali	Naohata	
Does the Ward Councilor occasionally arrange Ward meetings to discuss development issues of your Ward?	Yes	2 (2%)	27 (27%)
	No	26 (26%)	13 (13%)
	No comment	72 (72%)	60 (60%)
Have you ever participated in such a Ward meeting?	Yes	0 (00%)	0 (00%)
	No	100 (100%)	100 (100%)
	No comment	0 (00%)	0 (00%)

[Source: Field Survey, 2019]

veal that Municipality had no initiatives in this regard and this statement was supported by 92% of respondents from Katakhali and 100% from Naohata.

Waste Management

Initiatives of the Municipality in Managing Wastes

On considering environmental issues during solid waste management, chief officials of both Municipalities were asked several questions (Tables 4-8).

According to the data, Katakhali Municipality has no receiving station to accept waste. In this case, they throw their collected waste into the river Padma, which is only 4km away from the town. Dumping in the river, however, achieves nothing but a threat to the environment. When this local body was asked whether it had any particular plans for the future, it responded positively: it had been selected by a project funded by the World Bank 'Water and Sanitation Program'.

The situation of Naohata in this area is no better. The Municipality has no specific place except a land site to dispose of waste inside the city. The Chief Official of that Municipality reported that they sometimes threw solid waste into ponds or low-lying areas of local inhabitants with their consent. However, no specific area was being used as a garbage pit, and in focus group discussion it was also mentioned that there was no pit. The situation was so poor that it was pointless to expect any treatment plant or composting system. They rated environmental issues so low that they did not even care to assess options for waste disposal.

Table 4 also depicts the solid waste management capacity of Katakhali and Naohata. In the case of Katakhali, it has two dump trucks and three paddle vans. But the situation is totally different when it

Table 4. Core Issues of Solid Waste Management

Core Issues of Waste Management	Katakhali	Naohata
Dumping Station	Dumps the entire waste on the River Padma	Dumps in a land (Pit)
A distance of dumping station from the city	4km	Inside the town
Local residence around	No	Yes
Area	N/A	0.27 Hector
Treatment plan	No	No
Composting system	No	No
Environmental and Social Impact Assessment	Not at all	Not at all

(*Source:* Field Survey, 2019)

Table 5. Waste Management Capacity

Waste Management Capacity	Katakhali	Naohata
Waste Transporting Vehicles	3 Vans and 2 Dump Trucks	3 Vans and 2 Dump Trucks
Cleaning personnel	26	6
Cleaning personnel type	No work no pay	No work no pay
Authority to inspect	No	Yes
The waste management plan for the future	Yes	No
Amount of daily waste	N/A	N/A
Workers use safety equipment	No	No
Sufficiency of labor and equipment to collect waste	Not sufficient at all	Not sufficient at all
Infrastructural sufficiency (Dustbins)	Not sufficient at all	Not sufficient at all
Sufficiency of manpower	Sufficient	Not sufficient at all
Mosquito killing equipment e.g. Fogger machine	Functional 1, Malfunctioning 1	Functional 3
Regular inspection	No	No
Contact to the scavengers	No	No
Cleaning the road regularly	No	Occasionally
Sufficiency of vehicles for collecting waste	No	No

(Source: Field Survey, 2019)

comes to the number of personnel. Katakhali claimed it had 26 field staff working in the city on a no-work-no-pay basis for managing the waste. However, there was no specific qualified person to monitor or supervise the waste management procedure. Focus group discussion and observation revealed a different story. As documented during an FGD at Naohata one member claimed that,

There is literally no cleaning work conducted except in the market and its nearby roads. All the other roads and the localities remained uncleaned and mostly cleared by the residence. Due to this crisis, the entire municipality remains dirty and unhygienic. The problem becomes more critical during the wet season. Rainwater, mud and wastes turn this town into a garbage pit (FGD, 2019).

On instruments, they lagged far behind, nor did they think they had enough personnel. However, 26 people for Municipalities like Katakhali sounds a fair and manageable number. Katakhali also does not keep any records of the amount of daily waste generated. On infrastructure sufficiency, Katakhali claimed it had about 50 dustbins across the Municipality but the report of focus group discussions and physical observation totally denied this.

As scavengers play an important role in collecting waste and keeping the city neat and clean, a local authority may maintain contact with them. However, Katakhali does not keep track of scavengers. When the local authority was asked about the frequency of cleaning the roads of the area, it responded negatively. Focus group discussion furnished the same view in this case: according to this, the Municipality only swept the main road and a few places in the market. Even the marketplace was cleaned by the market's own efforts. The role of the local authority was hardly noticeable in terms of waste management. In Naohata, the situation was no different.

As a part of environmental governance, municipalities must develop awareness programs on environmental issues and do publicity campaigns on cleanliness and garbage management (Hunter Region, 2018); SV, 2017). But both Katakhali and Naohata were to ignore this issue. The authorities said that they had done a few from time to time. But the field report and focus group discussion refuted these claims. There was a lack of budget and plans for this issue and everyone agreed with this statement.

Table 6. Managing the Waste

Managing the waste	Katakhali	Naohata
Managing the waste from the market	No specific measure	No specific measure
Managing the waste of butchers shop	Well managed by butchers themselves	No specific measure
Managing the waste of hospitals and clinics	Taken care by the owner	No specific measure
Managing the waste of hotels and restaurants	No specific measure	No specific measure
Cleaning the drain	Frequently	Frequently
Mud from the drain	Left on the road to dry	Left on the road to dry
Managing the waste from industrial	Thrown in the river	No specific measure
Publicity campaigning	Frequently	Occasionally
Training for the workers	One workshop	One workshop on handling fogger machine
Budget allowance on SWM	Yes	Yes

(Source: Field Survey, 2019)

Table 7. Problems of solid waste management in Katakhali Municipality

Problems of solid waste management	Respondents	Percentage (%)
Throwing waste in the drain	46	46%
Not removing the waste in time	91	91%
No support from the local people	76	76%
Lack of responsibility of the responsible	71	71%
Lack of personnel and budget	43	43%
Lack of dustbins	89	89%

(Source: Field Survey, 2019)

Impact of Solid Waste on the Environment

Mismanagement of solid waste has a significantly adverse impact that pollutes the environment to a great extent and creates a health hazard (WMRR, 2019; NWRIC, 2020). Data have been collected from the respondents on this issue. When interviewed, 94% of respondents of Katakhali and 100% of Naohata took the view that the existing solid waste management system of these areas was very much responsible for environmental degradation. Only 6% of respondents of Katakhali refrained from answering in this respect. Therefore, this data set indicates the faulty waste management system of these areas.

In response to the question regarding the problems of solid waste management in Katakhali Municipality, 89% of respondents reported that there are no dustbins for them in their area; 43% identified lack of budget and personnel as one of the problems; 71% of respondents thought that everything was satisfactory, but the problem was that the personnel involved in waste management were irresponsible and of no value. However, 76% admitted that local people did not support or cooperate sufficiently in waste management activities; 91% thought that Municipality did not dispose of solid waste in time and 46% believed that people discarded their solid waste in open areas and into drains (Table 7).

The picture in Naohata on the same issue was slightly different. According to Table 8, 78% claimed that there was a lack of dustbins and the focus group discussion also showed this to be true. The confusion arises when 56% of respondents think that they have an insufficient budget and workers but focus group discussion differs.

Focus group members looked at it another way. They believed that the Municipality was quite affluent, and the problem was just a political issue. Local people themselves were neither letting the Municipality build dustbins on their land nor nearby. Sixty-nine percent of respondents believed that the Municipality authority did have the support of local people. The field survey indicates that problems in Naohata Municipality are nothing but political in most cases. However, 95% of respondents said that the Municipality did not remove solid waste in time and only 34% thought that people discarded their waste into drains.

Table 8. Problems of Solid Waste Management in Naohata Municipality

Problems of solid waste management	Percentage (%)
Throwing waste in the drain	34%
Not removing the waste in time	95%
No support from the local people	69%
Lack of responsibility for the responsible	71%
Lack of personnel and budget	56%
Lack of dustbins	78%

(Source: Field Survey, 2019)

Water Supply

Figure 2 depicts the water supply of Katakhali and Naohata. This is as poor as it can be. Only one Ward from Naohata is receiving water supply and not a single one from Katakhali does so, according to 98% of respondents of Katakhali Municipality. But, during focus group discussion, it was stated that there was only one village there that was receiving water supply, and this was not managed by the Municipality but by an NGO.

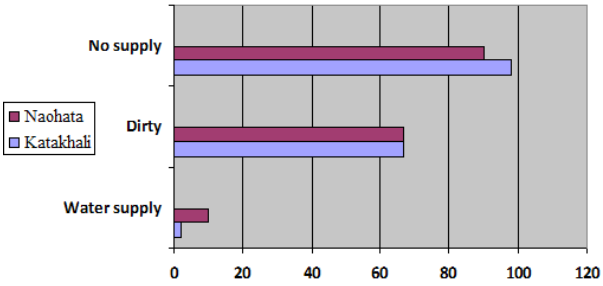

Fig. 2. Water supply of Katakhali and Naohata Municipalities

However, the picture for Naohata was slightly different because people of Ward No. 1 do receive water from the Municipality and it is clean and drinkable (potable), at least according to the focus group. However, 98% of all people do not receive their water from the Municipality, which is nothing short of a disgrace since Naohata is a Grade-A Municipality. Significantly, 67% from both regions believed that the water was iron-contaminated, and this was a burning issue.

Drainage System

Katakhali and Naohata have both raw-surface and concrete drains. But almost 100% of the drains are open. These open drains are risky for pedestrians and important sources of environmental pollution, as they are the sources of insects, they create bad smells, and they discharge into the river. Most re-

spondents of both Katakhali (86%) and Naohata (66%) said that these open drains created adverse environmental impacts and health hazards, although 14% and 13% respondents respectively from Katakhali and Naohata did not agree with this statement (Figure 3).

As a reason behind this, 94% from Katakhali Municipality considered open and raw drain areas a threat to the environment and only 9% witnessed the Municipality piling waste from the drain beside the drain. The number of responses in this regard is small, because the Municipality has never cared about cleaning drains, according to focus group discussion. Only 35% of people thought the Municipality was irresponsible, which was unexpected because the official from Katakhali Municipality said that it had only 26 workers in this area. Further, 62% of respondents thought that local residents were also not very cooperative. Therefore, lack of awareness was visible. However, 98% of respondents did claim that drains were not cleaned on time, whereas only 57% identified an insufficient budget and lack of working hand in hand to resolve an issue.

In respect of Naohata Municipality, data have been collected from respondents to identify problems in drainage management (Figure 4): 95% of respondents identified that their Municipality never cleaned the drains on time, followed by raw drains as a problem (87%), piling liquid dirt beside the drains (12%), lack of responsibility of those responsible (76%), lack of popular support (66%) and insufficient manpower and logistic support (34%). The study findings thus revealed that the drainage system of Naohata was faulty.

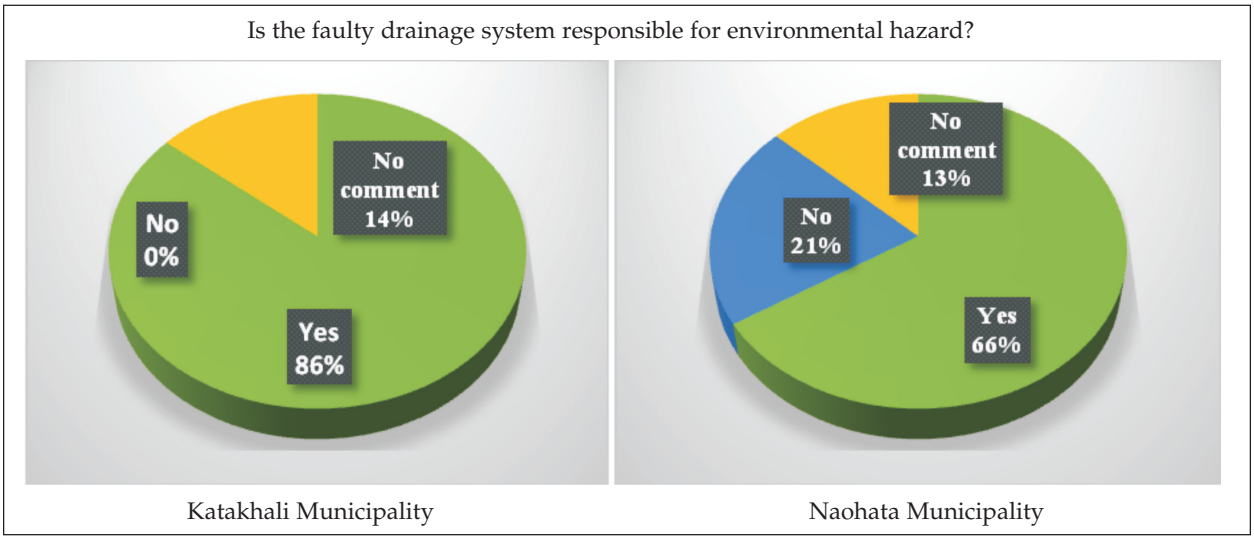

Fig. 3. Environmental hazard due to drainage system

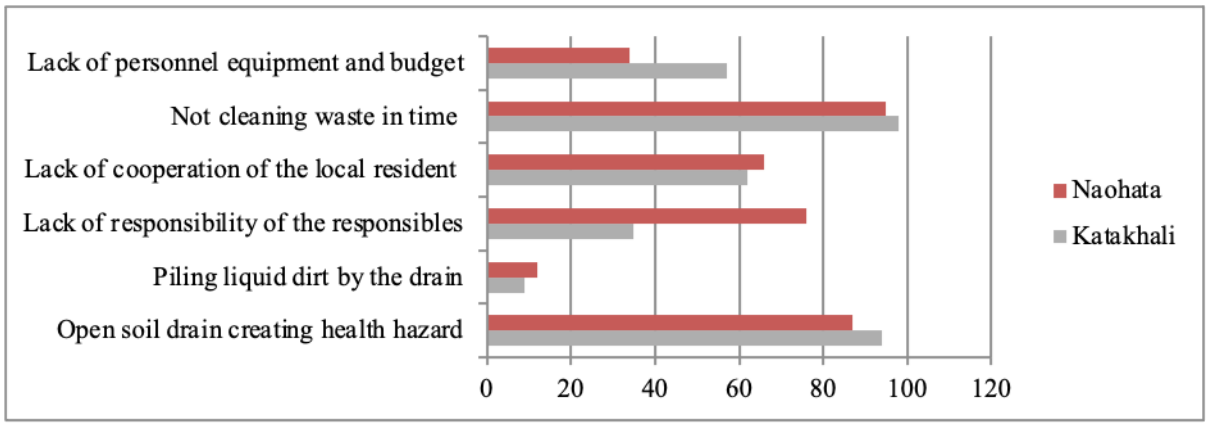

Fig. 4. Problems of drainage management in Katakhali and Naohata Municipalities

Awareness building around environmental conservation and pollution is one of the prime responsibilities of the municipality. The picture of awareness building is poor in both Municipalities here. In Katakhali, a 'yard' meeting (45%) was held regularly for awareness building but 55% of respondents thought that there were no initiatives taken by the Municipality in that case. In Naohata, 92% of respondents had the view that their Municipality did not take any steps to create public consciousness about environmental preservation, but only 8% of respondents replied positively in this regard.

Impacts of Development Activities

Development activities are undertaken by the Municipality, such as construction of public or private buildings and roads that raise environmental issues (Terwiesch and Loch, 1999). However, the field survey shows that, when construction of roads or buildings takes place, the municipality or the contractors or owners of the building leave behind building materials like bricks, sand, metal rods, etc. in roads for long periods, obstructing the free movement of vehicles and pedestrians. Physical observation reveals that the wastes of development works are, in some cases, kept at, or dumped into, roadsides, open spaces and drains, creating environmental hazards. Focus groups and face-to-face interviews with stakeholders stated this was so. A huge amount of solid waste is generated during building construction and road excavation for development and regular works in the study areas. Physical observation also reveals that, when the Municipalities undertake any road excavation work, solid wastes of such works are not removed quickly in many cases.

The Municipalities of Rajshahi are following the practice of leaving waste at the side of the road or dumping it into drains, rivers, open places and low land. Private home and office builders also do the same thing. Yet Municipalities also take no action against the owners of buildings or others who do not keep or dispose of such materials properly. If any complaint is received, the relevant authority could hear complaints and impose penalties under the Building Materials Act 1952.

Green Governance

After the empirical discussion in the previous section on the overall environmental governance in the study area, a conclusion can be drawn about environmental compliance for environmental sustainability at the local government level in Bangladesh, together with a proposal of some recommendations. Overall findings are based on the data collected from the stakeholders, focus groups and, most importantly, information from the Key Informant Interviews (KIIs). If all the findings are combined, it emerges that environmental governance in the study area is poor and almost unpracticed, since all the scales to measure environmental governance fall short of significant numbers (Figure 5).

According to Table 9, scales have been incorporated to identify the local government as green governance. The overall findings of the survey depicted all the indicators on the diagram and have led us to a conclusion that environmental issue consideration is, in that region, very poor, and it is hardly effective for achieving environmental sustainability. Therefore, we can say that green governance both in Katakhali and Naohata Municipalities has barely been achieved.

Table 9 provides the data which indicates the poor performance of the Municipalities to ensure local environmental governance or green governance. In both places, awareness-build is absent for various reasons. In Katakhali, the issue is negligence but in Naohata the impediment is very much political. In terms of waste management, green drainage systems, water and sanitation, each Municipality

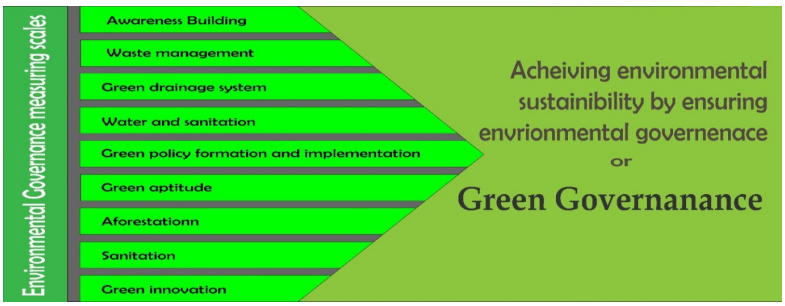

Fig. 5. Green Governance for achieving sustainability by ensuring environmental governance

lags far behind acceptable performance. One is struggling because of its incapability. Lack of strategy and apathy are the issues for this crisis. On green policy implementation, each Municipality stayed distant and green innovation seemed too problematic considering their capability. But in Katakhali, positive intentions were observed among residents, the Mayor and Municipality officials, whereas in Naohata, this remains out of the question. However, afforestation was present. In fact, the concept of green governance should be supported. These municipalities must transform their way of thinking towards a more adaptive and environmentally friendly governance (Yunus, 2017; Lemos and Agrawal, 2008; Stephen, 2020). Each of the local authorities tries to plant trees in their area from time to time. Therefore, comparing Illustration 2 and Table 10 it becomes clear that these Municipalities are struggling in terms of ensuring local environmental governance in their jurisdictions.

Conclusion and Recommendations

The march towards a more sophisticated society is inevitable. But environmental issues must be considered. Otherwise, civilization will be at a stake. Therefore, before and after taking any initiative, environmental issues must be considered (Lemos and Agrawal, 2008). The practice which is now continuing across the world is very unsustainable and dangerous. The findings of this study clearly indicate an environmental hazard. As emerging town governing bodies of Naohata and Katakhali municipalities have a handful of opportunities to initiate environmental governance known as green governance before transforming into a big city. However, these towns and those alike in Bangladesh are still regardless and practicing traditional waste management systems and inadequate sanitation systems. Integrated drains are not being constructed and no substantial planning was noticed so far. Apart from the sufferings of the residents, the environmental threat is becoming more and more probable. Threatening the environment will be fatal for everyone. In such circumstances, there is no option but to prioritize environmental issues. Local agencies must join this venture because they are key actors in development. If local institutions act sensibly, then green governance will not lie so far ahead. However, from all the discussion above, the following key recommendations can be suggested to ensure good environmental governance in the study area. The following figure illustrates the initiatives which should be taken by the local authority. In this context, other propositions can also be pursued:

- Political issues must be separated from environmental work, since this seems to be the biggest impediment for those local authorities who have capacity but fail to perform;
- Development project proformas must be revised and should be made compatible with the environment;
- Either the Rajshahi Development Authority (RDA) should be empowered or decentralization is called for. Municipalities should be entrusted with specific environmental goals;
- Inspection of government environmental agencies, e.g., the DoE, which must be done via a

Table 9. Measuring Green Governance

Indicators of Green Governance	Katakhali Municipality	Factors	Naohata Municipality	Factors
Awareness Building	Absent	Negligence	Absent	Political
Waste Management	Regardless	Budget	Poor	Political
Green Drainage System	Not available	Budget	Unplanned and harmful	Negligence and Political
Water Supply	To a micro extent	Incapable	Minimum	Negligence
Sanitation System	Okay		Okay	
Green Policy Formation	Regardless	Negligence	Regardless	Unaware
Green Policy Implementation	Never	Negligence	Never	Political
Green Innovation	No	Unaware	No	Political
Green Aptitude	Yes	Incapable	No	Unaware
Planting trees	Yes	Aware	Yes	Aware

(Source: Field Survey, 2019)

mobile court to take lawful actions against those who violate environmental codes;
- The environmental budget should be allocated after training personnel about environmental issues;
- The government must enforce strict laws over the local authority so that it assesses local environmental standards more and more often.

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