Analysis of urban environmental quality using satisfaction index: An empirical assessment of Jashore Pourashava (Municipality), Bangladesh

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Abstract

Urbanization in Bangladesh presents numerous challenges, including regional inequality, centralized development, poverty, social stratification, traffic congestion, housing shortages, slum proliferation, and environmental degradation. This study offers a comprehensive analysis of urban environmental quality in Jashore Pourashava (Municipality), Bangladesh, utilizing a satisfaction index to evaluate key socio-economic and environmental dimensions. The findings highlight significant transportation challenges, health issues, and infrastructural inadequacies that collectively diminish residents' quality of life. Health concerns, particularly respiratory illnesses, are exacerbated by environmental factors such as mosquito-borne diseases and water pollution. While most households benefit from government-supplied water and permanent sanitation facilities, critical gaps in education, waste management, and sanitation services lead to widespread dissatisfaction. Additionally, environmental degradation, driven by water contamination and rapid urbanization, contributes to the declining ecological balance. The study underscores the urgent need for coordinated efforts by the government, non-governmental organizations, and local communities to address these socio-economic and environmental deficiencies, with the goal of fostering sustainable urban development and improving living conditions for residents.

Keywords: Urbanization; Environmental quality; Satisfaction index; Jashore Pourashava; Socio-economic condition.

1. Introduction

Over half of the world's population currently resides in urban metropolitan areas [1]. By 2045, it is projected that six billion people will be living in cities globally. Cities contribute more than 80% of the world's GDP, and when urbanization is managed inclusively, it has the potential to enhance global productivity and foster the emergence of new ideas and innovation [1-3]. However, urban areas also have significant challenges and environmental impacts and; are highly dependent on external resources. The sustainability and growth of cities hinge on their ability to import resources like energy and raw materials, utilize natural resources such as air, water, and land, produce goods and services, and manage waste discharge [4]. Common urban environmental challenges include inadequate water supply, solid waste management, wastewater treatment, energy provision, loss of green spaces, urban sprawl, and pollution of air, soil, and water [5]. These environmental issues significantly impact human health, leading to increased respiratory diseases, waterborne infections, and mental health disorders associated with poor urban living conditions [6, 7]. The quality of vital infrastructure and its proper management critically affect the urban environment. Therefore, essential utility services like drinking water supply, garbage disposal, sewage and drainage systems, electricity, gas, and cooking fuel infrastructure are crucial for maintaining urban environmental quality [8].

Urban environmental quality can be categorized into major types, including the physical environment comprising water bodies, vegetation cover, salinity, saline water incursion (in coastal areas), noise levels, and tidal flooding [9, 10]. Additionally, these

aspects significantly influence the residents' overall quality of life and their satisfaction with urban living conditions [11]. Addressing these factors is crucial for creating a sustainable and livable urban environment that promotes the well-being of its inhabitants. [12-15]. The 'Satisfaction Index' is a widely used method for determining urban environmental quality [16]. There is a strong correlation between urbanization rates and a nation's economic growth and development. Historically, no country has achieved middle-income status without a significant population shift into cities [17]. However, many towns and cities in Bangladesh suffer from inadequate clean water supply, unsanitary conditions, high disease rates, violence, crime, and social tensions [18, 19]. Public transportation system in major Bangladeshi cities, particularly Dhaka and Chittagong, face significant challenges, exacerbated by rapid urbanization [20]. Overcrowding, poor infrastructure, and inefficient service delivery create daily hardships for commuters, leading to social exclusion and health concerns [21, 22]. Globally, the state and system of public transportation in cities of developing countries significantly differ from those in developed nations due to various socio-economic and infrastructural challenges [15, 23]. While developed countries often benefit from integrated and efficient public transport systems developing nations face unique hurdles that impact their urban mobility [24].

Bangladesh, a densely populated South Asian country bordered by Myanmar, India, Bhutan, Nepal, and the Bay of Bengal, is the eighth most densely populated country globally with a population density of 1,342 individuals per square kilometer [25]. It has a population of 173,897,207, with approximately 40.50% residing in urban areas [26, 27]. Despite being a populous country, Bangladesh's urbanization level is relatively low at 39.71%, with significant vari-

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ation across cities and regions based on criteria such as population rate, urban environment, and utility availability. For instance, Dhaka, the capital of the country, has an urbanization level of 88.31%, showcasing its rapid growth and concentration of population. In contrast, Jashore district has an urbanization level of only 18.58%, reflecting the significant disparity in urban development within the country [3, 28]. On the other hand, Chittagong, the second-largest city, and Sylhet have higher urbanization levels, driven by industrial and commercial activities [29]. These variations create distinct challenges in planning and resource allocation for sustainable urban development [30]. While urbanization supports economic growth, it also presents challenges in sustainable space utilization [31]. Rapid urbanization can lead to environmental degradation, manifesting as a decline in both physical and human environments of urban and surrounding rural areas. It may also result in ecosystem destruction and degradation linked to urban areas [32].

This study represents an initial attempt to describe the broad features of comprehensive urban databases for integrated urban environmental challenges. It aims to analyze the urban environmental quality both physical and neighborhood in Jashore Pourashava (Municipality) using the satisfaction index.

2. Methods and materials

2.1. Selection of the research area

Jashore Pourashava (Municipality) (Fig. 1) was selected as the research area due to its significant urban growth and the resulting environmental and socio-economic challenges. Located on the Bhairab River, Jashore Pourashava (Municipality) spans 14.72 square kilometers and serves a population of 201,796 across 9 wards, with a high population density of 13,709 people per square kilometer [33, 34]. Rapid population growth in the town has placed immense pressure on its civic amenities, such as water supply, healthcare, and educational institutions. Despite its literacy rate of 77.80%, the town faces challenges related to the expansion of slum areas and the overburdening of healthcare and educational facilities, with insufficient infrastructure to support the growing demands [35]. The strain on essential services such as water supply, which has relied on a pipeline system established in 1918, is further exacerbated by dependence on tube wells, contributing to water scarcity and quality issues [36]. Additionally, inadequate road infrastructure and congestion highlight the need for improved transportation networks [37,38]. These environmental and socio-economic pressures underscore the importance of studying Jashore as a case for evaluating urban environmental quality and the need for sustainable urban planning [39, 40].

2.2. Data collection methods

This study utilized both primary and secondary data sources. Primary data were gathered through a field survey using a structured questionnaire administered to 150 randomly selected households. Secondary data were collected from various literature, including local government records, online publications, national and international databases, review papers, journals, books, magazines, newspapers, and other recent publications. The collected data, including primary and secondary information, relevant literature, and final tabulated supervision, were analyzed using software such as the Statistical Package for Social Science (SPSS, version 25), and Microsoft Excel.

2.3. Estimation of index of satisfaction

The satisfaction index (Eqn. 1) was calculated to determine the respondents' levels of satisfaction and dissatisfaction with various

Table 1: Major urban environmental variables.

Environmental types	Major environmental variables
Physical environment	Water quality, air quality, water bodies, soil factors, noise factors, and vegetation coverage [48,49].
Neighborhood / Social environment	Water, gas, and electricity supply, sanitation facilities, telephone service, waste disposal system, drainage state, parks and playgrounds, local security, law and order, transportation infrastructure, housing, road networks, maintenance, recreational facilities, slums and squatters, postal service, community action programs, educational institutions, medical facilities, employment opportunities, and the musclemen problem [50].

urban environmental variables [41]. The formula used is:

$$I_s = \left(\frac{f_s - f_d}{N}\right) \qquad (1)$$

Here,

I_s: Satisfaction Index

f_s: Number of satisfied respondents

f_d: Number of dissatisfied respondents

N: Total number of respondents

For this satisfaction index, I_s= +1 indicates the highest level of satisfaction, and I_s= -1 indicates the highest level of dissatisfaction. A negative satisfaction index was taken to identify environmental issues. This satisfaction index has been used by various researchers to determine the satisfaction levels of respondents from different income groups and to assess urban environmental quality [42-47]. For this satisfaction index, I_s= +1 indicates the highest level of satisfaction, and I_s= -1 indicates the highest level of dissatisfaction. A negative satisfaction index indicated an issue with the surroundings.

2.4. Major urban environmental variables

The primary concerns identified by citizens were further analyzed to evaluate overall environmental quality. A questionnaire consisting of 42 questions addressing 30 environmental variables (see Table 1) was developed, using a 3-point satisfaction scale. Among the 30 variables, 6 focused on the physical environment, while the remaining 26 addressed the neighborhood and social environment. A total of 150 questionnaires were distributed in this study. The questionnaire survey was distributed using a random sampling technique.

3. Result and discussion

3.1. Demographic profile

Table 2 provides a detailed demographic profile of the study area. Notably, a significant proportion of respondents (34.55%) are aged 31-40. In terms of education, while a larger share has primary education (33.43%), a substantial proportion also has secondary education (28.45%). Additionally, the data reveals the presence of both illiterate individuals (11.57%) and degree holders (26.55%), indicating a traditional perception of low education levels among some
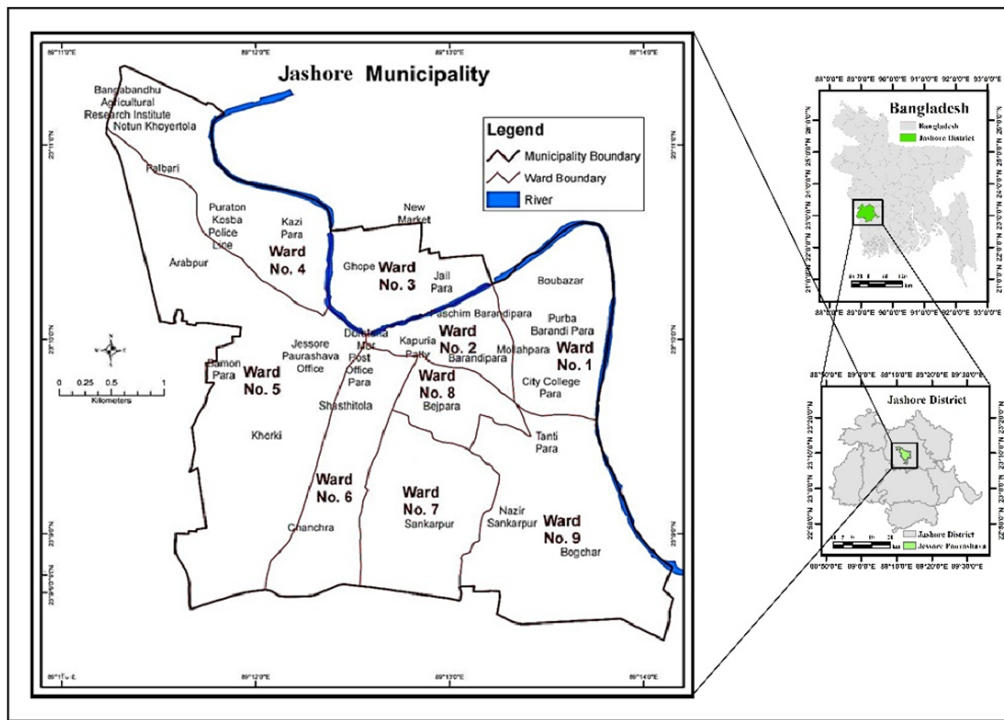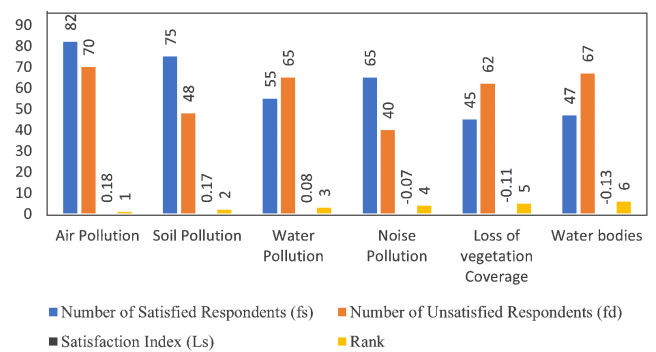
Figure 1: Jashore Pourashava (Municipality). Source: Compiled by Author, 2024.

respondents. The findings also highlight that a significant portion of the population is engaged in business (35.80%), with others working in services (28.04%) or various other sectors to contribute to family income, including agriculture (15.63%) and fish cultivation (4.78%). Monthly family income is relatively low for many respondents (24.75%), with only a small percentage (11.66%) earning above 25,000 BDT ($210 USD).

3.2. Socio-economic conditions

Socio-economic status is a crucial factor in social research, reflecting the actual state and environmental status of any given place. Environmental conditions often correlate with the socio-economic position of the population, as changes in these conditions are influenced by the needs of local livelihoods. Table 3 Transportation difficulties are prevalent, primarily due to poor road conditions (29.75%) and issues related to hiring or renting transportation services (25.65%). The most common diseases among the respondents are cold, fever, and coughing (44.50%), followed by typhoid (17%). Mosquitoes are identified as the primary cause of diseases (45.32%), followed by polluted water (20.50%) and polluted air (15.55%), which substantially contribute to disease occurrence in the study area. The primary source of drinking water is *supply water* (government-supplied water) (73.14%), followed by tube well water (24.85%). Sanitation facilities show an encouraging trend with most households having *pucca* (permanent) latrines (72%). However, *semi-pucca* (semi-permanent) latrines (26%), *hanging* (makeshift) latrines (1.32%), and *open* (defecation) space (0.68%) are less common.

Cylinder gas is the primary source of fuel for households (70.42%), indicating the availability and popularity of this modern and cleaner fuel option. The use of clay stoves (17.13%) and wood (11.42%) reflects potential environmental impacts. Most respondents rely on PDB (Power Development Board) for electricity (90%), with other sources being less common (2.67%). The presence of solar-based energy systems as an alternative energy source indicates some advancement in adopting renewable energy technologies. Regarding waste management, a significant number of house-

Note: Rank indicates severity of the problems

Figure 2: Physical environmental problems in Jashore Municipal city. Source: Field survey, 2018-19

holds have waste collected by the Pourashava (84.66%), indicating an organized waste disposal system. However, a small percentage of households use less organized methods, such as throwing waste in open spaces (4%) or putting it in holes (6.67%), which may pose environmental and health risks.

4. Environmental conditions

4.1. Status of physical environmental problems in Jashore Pourashava (Municipality)

Fig. 2 shows the status of selected environmental conditions of the Jashore Pourashava (Municipality). Air pollution, soil pollution, and water pollution ranked as the top three environmental variables with positive satisfaction indices. The Jashore district is located in the western coastal region of Bangladesh. This area is not prone to flooding. Noise pollution does not pose a significant threat to the residents. In urban areas, there are generally two types of noise pollution: indoor (such as loudspeakers and TV/radio sounds) and outdoor (such as publicity miking, advertisement peddler shouting, and vehicle horns).

Table 2: Demographic profile of respondents. Source: Field survey, 2018-19

Demographic variable	Category	Statistics		
		Frequency (f)	Percentage (%)	Cf
Age and Sex composition	20-30	29	19.30	19.30
	31-40	52	34.55	53.85
	41-50	31	20.70	74.55
	51-60	22	14.70	89.25
	60+	16	10.75	100
	Total	150	100	
Educational status	Illiterate	17	11.57	11.57
	Primary	50	33.43	45.00
	Secondary	43	28.45	73.45
	Degree and above	40	26.55	100
	Total	150	100	
Occupational status	Business	54	35.80	35.8
	Service holders	42	28.04	63.84
	Fish cultivation	7	4.78	68.62
	Agricultural	23	15.63	84.25
	Other sector	24	15.75	100
	Total	150	100	
Monthly income (BDT)	5000-10,000	37	24.75	24.75
	10, 001-15,000	36	23.71	48.46
	15,001-20,000	31	20.55	69.01
	20,001-25,000	29	19.33	88.34
	above 25,000	17	11.66	100
	Total	150	100	

*Cf = Cumulative frequency

Noise issues are a frequent occurrence in residential areas within cities. Three out of six physical environmental variables had a positive satisfaction index. On the other hand, the outside sound problem has been seen in the shopping, market areas, and central city for publicity and advertisement purposes [5, 51]. Occasionally, external disturbances, such as the use of loudspeakers during social events like wedding ceremonies, disrupt residential neighborhoods. Additionally, urbanization and development activities are leading to the rapid reduction of water bodies [52]. Furthermore, the combined impact of rapid urbanization and the use of wood as fuel is causing a significant and accelerating decline in vegetation cover.

4.2. Level of satisfaction of urban services and quality by the residents of Pourashava (Municipality)

Present the results of the survey showing level of satisfaction of urban services and quality of the study area. Satisfaction level of urban services are presented in Table 4.

Based on rank, religious institution, Sociality, Settlement Condition, Market capability, Health Care Facilities, Environmental quality (water, air, soil, and sound), Social Security, Water Supply, Transport Communication, Drainage System, these all are the highest positive value of satisfaction index in the study area (Table 4). The quantification of urban environmental quality is challenging due to its dependence on natural factors that exhibit wide spatial variability, as well as the influence of local factors related to urban infrastructure [53]. For example, when observing variations in land surface temperature derived from thermal satellite images, a spatial scale of 120 meters reveals microclimatic patterns in surface and air temperatures that fluctuate at the level of individual city blocks, building facets, or tree canopies [54].

In the study area, multiple factors contribute to negative satisfaction indices. Urban conveniences show a moderate negative value, while Occupation, Sanitation Condition, Electricity Supply, Management of Solid Waste, Water Quality, Educational Facility, Level of Income, and Source of Fuel all have negative values (Table 4). The Source of Fuel category has the highest negative satisfaction index (-0.387). This could be due to the lack of a pipeline gas supply, leading residents to rely on cylinder gas and wood. Pipeline gas supply is not uniformly available across all regions of Bangladesh. In many rural and less urbanized areas, alternative energy sources such as Liquefied Petroleum Gas (LPG) cylinders, firewood, or biogas are more prevalent [55]. Therefore, the absence of a pipeline gas supply in certain regions cannot necessarily be viewed as a negative indicator, as it may reflect the availability of alternative solutions suited to regional conditions and infrastructure development levels [56]. Higher-income households primarily use cylinder gas, but during shortages, they resort to rice cookers or oil stoves. In contrast, lower and middle-income residents use clay stoves and wood. The Level of Income has the second highest negative value (-0.260), with most citizens earning less than 10,000 BDT ($84 USD) monthly. Several factors contribute to this lower income level, including the dominance of local businesses, agriculture, and services, which are often characterized by low productivity and limited growth potential. Additionally, the prevalence of informal economic activities, which typically offer low wages and lack social security or formal employment benefits, further contributes to lower income levels [57]. The limited access to higher education and skills development opportunities also restricts many residents from entering higher-paying industries [58].

Table 3: Socioeconomic variables of respondents. Source: Field survey, 2018-19

Socioeconomic variable	Category	Frequency (f)	Percentage (%)	Cf
Problems of transport system	Bad road	45	29.75	29.75
	Narrow road	35	23.25	53.00
	Vehicle problem	23	15.25	68.25
	Hire / Rent problem	38	25.65	93.90
	Other	9	6.10	100
	Total	150	100	
Affected disease	Cold, fever, and cough	67	44.50	44.5
	Typhoid	25	17.00	61.5
	Diarrhea	16	10.70	72.2
	Dysentery	14	9.00	81.2
	Other	28	18.80	100
	Total	150	100	
Causes of disease	Mosquito	68	45.32	45.32
	Polluted water	31	20.50	65.82
	Polluted air	23	15.55	81.37
	Malodor	15	10.25	91.62
	Incognizance	8	5.45	97.07
	Other	5	2.93	100
	Total	150	100	
Sources of drinking water	Supply water	110	73.14	73.14
	Tube well water	37	24.85	97.99
	River/pond	3	2.01	100
	Total	150	100	
Sanitation status	Pucca latrines	108	72.00	72.00
	Semi pucca latrines	39	26.00	98.00
	Hanging latrine	2	1.32	99.32
	Open space	1	0.68	100
	Total	150	100	
Source of fuel	Cylinder gas	106	70.42	72.00
	Clay stoves	26	17.13	26.00
	Wood	17	11.42	1.32
	Other materials	1	1.03	0.68
	Total	150	100	100
Source of electricity	PDB	135	90.00	90
	PDB & Solar system	11	7.33	97.33
	Other	4	2.67	100
	Total	150	100	
Households waste management	Collected by municipality	127	84.66	84.66
	Put in dustbin	10	6.67	91.33
	Put in hole	06	4.00	95.33
	Though in open space	04	2.67	98
	Other	03	2.00	100
	Total	150	100	

*Cf = Cumulative frequency

Table 4: Satisfaction level of urban services and quality. Source: Field survey, 2018-19.

S.N	Urban conveniences / Services	Number of satisfied respondents (fs)	Number of dissatisfied respondents (fd)	Satisfaction Index $I_s = \frac{f_s - f_d}{N}$	*Level or †Rank	
1	Religious institution	104	11	0.620	S	1
2	Sociality	95	25	0.467	S	2
3	Settlement condition	83	27	0.373	S	3
4	Market capability	79	28	0.340	S	4
5	Health care facilities	98	52	0.306	S	5
6	Environmental quality (air, soil and noise)	80	38	0.300	S	6
7	Social security	72	31	0.273	S	7
8	Water supply	59	42	0.113	S	8
9	Transport communication	70	54	0.107	S	9
10	Drainage system	57	46	0.073	S	10
11	Occupation	58	63	-0.033	D	11
12	Sanitation condition	60	68	-0.053	D	12
13	Electricity supply	53	62	-0.060	D	13
14	Management of solid waste	48	61	-0.087	D	14
15	Water quality	53	71	-0.120	D	15
16	Educational facility	53	73	-0.133	D	16
17	Level of income	29	68	-0.260	D	17
18	Source of fuel	26	84	-0.387	D	18

*Level; S = Satisfied and D = Dissatisfied.

†Rank; rank indicates level of satisfaction of urban conveniences articulate.

Educational facilities are the third highest negative index (-0.133). Despite moderate literacy, issues such as difficult services, a shortage of trained teachers, and inadequate learning spaces were specifically cited as contributing to the negative index regarding educational facilities. These challenges are further compounded by economic pressures that lead to child labor, with children often working as day laborers, shopkeepers, vehicle laborers, and rickshaw pullers, which limits their access to education [59]. Water quality ranks fourth (-0.120), with surface water pollution primarily caused by untreated municipal discharge lines and improper solid waste disposal, which lead to the contamination of rivers and water bodies. These pollutants significantly contribute to waterborne diseases such as diarrhea, dysentery, and typhoid [6,60]. Additionally, the lack of adequate sewage treatment facilities and indiscriminate dumping of industrial waste further exacerbates water pollution, posing severe health risks to the local population [6,61].

Solid waste management, with a negative index of -0.087, is problematic due to improper disposal practices [33]. Electricity supply is another concern, with frequent outages, particularly in the summer, leading to a negative index of -0.060. These power shortages are often linked to an overburdened and outdated grid system, as well as increasing demand during peak seasons, which affect both residential and industrial areas [11]. Sanitation conditions are poor (-0.053), with many residents lacking access to sanitary latrines and relying on makeshift facilities, such as hanging (makeshift) latrines and open defecation areas. This contributes directly to the contamination of water sources, exacerbating poor water quality and leading to waterborne diseases [6,60]. The inadequate sanitation infrastructure, combined with the improper disposal of human waste, significantly affects the health and hygiene of the population, further impacting water quality and public health [38]. Occupation opportunities are limited (-0.033), with many residents forced into informal sectors due to a lack of formal employment options. This not only leads to job insecurity but also affects overall urban satisfaction levels, as informal jobs often offer low wages and lack social protection [50, 57]. The scarcity of stable employment opportunities further exacerbates income inequality and limits upward social mobility in urban areas.

Positive satisfaction indices were recorded in categories such as water supply, transportation, environmental quality, settlement structure, market access, social bonds, security, and religious institutions. Although water supply and transportation face challenges, and there are occasional instances of municipal waste mismanagement, the quality of air, soil, and noise levels remains generally good [6,48,49]. Settlement structures are adequate, with markets sufficiently meeting daily needs, while strong social bonds contribute to community cohesion [1,50,62]. Security is relatively stable, and religious institutions adequately serve the population. However, the healthcare sector struggles due to insufficient facilities and personnel, often prompting wealthier individuals to seek treatment outside the area [35, 50]. Despite occasional political unrest, the area remains generally peaceful.

5. Research value

Jashore Pourashava (Municipality) is one of the oldest, medium town, or third categories of municipalities in Bangladesh. It was established in 1864. The study area is 14.72 sq. km and its population are around 201,796 [11,33,34,35]. As a local government organization, represents the organizational arrangement of devolution and is the sole agency for urban development activities. In this area provides the services defined by the Local Government (Paurashava) Act, 2009 [39]. The present urban scenario is different and town folks face various types of physical and neighborhood environmental problems. For instance, water supply and sanita-

tion services in this study area are grossly inadequate to meet the requirement of its total population. There were nearly 180 km of transmission distribution pipelines and 13,482 piped water connections in this area [36]. Additionally, while many residents of the study area were aware of the importance of sanitation, a significant portion remained unaware of safe hygiene practices [35].

Furthermore, many people have also questioned the rationale of 20 brick kilns in the upazila, pointing fingers at authorities for letting businessmen set up shops without adhering to rules [64]. Consequently, a significant portion of the population suffers from various air, water, and excreta-borne diseases, which exacerbate their poverty. However, urban sole agents or watchdog bodies try to enhance their capacity and strengthen their administrative structure gradually. However, they could not yet. In line with the rigorous literature review, nobody could work in this area yet. Hence, the study would be considered as the first clue for researchers, planners, and relevant stakeholders to develop a healthy and dwellers-friendly city like other healthy cities in Bangladesh.

6. Policy guidelines

Urbanization has a significant impact on the environmental, economic, social, and political structures of society. However, the relationship between urbanization and these factors is highly complex [62, 65, 66]. Based on the findings of this research, several policy guidelines and recommendations are proposed to help Jashore Pourashava (Municipality) become an environmentally friendly and ecologically sustainable city. Firstly, although the study did not specifically observe a lack of coordination, it emphasizes the importance of ensuring better collaboration among urban management bodies under the Mayor's leadership to enhance urban governance. This coordination should involve all relevant public agencies and private sector stakeholders to address the multifaceted challenges of urban development effectively. Secondly, urban planning documents such as the Master Plan (MP), Detail Area Plan (DAP), and Drainage Network Plan (DNP) should be developed with a clear understanding of the current context, challenges, and opportunities of this area. These plans must include comprehensive guidelines on structural development, territorial expansion, land use, zoning regulations, installation of municipal drainage and sewerage lines, and the provision of essential urban services. Thirdly, it is crucial to involve professionally qualified planners, engineers, and architects in the planning, decision-making, and implementation processes for urban infrastructure and monuments.

Additionally, the Jashore Pourashava (Municipality) Authority and Police Super Office should enhance their efforts to monitor environmental conditions and maintain law and order within this area. Citizen involvement in the planning process is also a key factor in ensuring sustainable and inclusive urban development. By adopting a 'Bottom-Up' approach, local authorities can ensure that community needs are addressed, and long-term development goals are achieved. Moreover, the management and regulation of rechargeable vehicles, particularly horse-drawn carriages (tom-tom) and cycle rickshaws, should be strengthened. The issuance of licenses for these vehicles should be regulated to ensure they are fit for use, and appropriate traffic control measures should be implemented by the Pourashava (Municipality) and Police Super Office. Finally, the proper management of municipal waste and sewerage is critical. This can be achieved through the establishment of a Central Sewerage Treatment Plant (CSTP) and environmentally sustainable dumping stations, which are essential for long-term urban health and sustainability.

7. Conclusion

The social, environmental, and urban conveniences in Jashore Pourashava (Municipality) are moderate, with only ten out of thirty parameters receiving positive feedback from residents. Despite a relatively low urbanization rate, significant gaps exist in socio-economic conditions and environmental quality. These challenges hinder the overall quality of life, although efforts by NGOs and financial organizations have been made to improve local conditions. Moving forward, the success of this area as an economically viable and business-friendly urban center will depend on coordinated efforts between government initiatives, political commitment, and community involvement to ensure sustainable development.

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