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Research Article

Evaluating the Level of Noise Pollution in the Town of Sirajganj, Bangladesh

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Abstract

The present research aims to evaluate the level of noise pollution in different regions in Sirajganj District Town. 7 distinct zones and 40 places were identified in Sirajganj District Town according to land use criteria. A sound level meter (REED SD-4023) was utilized to assess noise levels in Sirajganj District Town from January 1, 2021, to April 30, 2021. Multiple samples were taken at each sampling location. The noise levels were assessed regularly three times at each sampling site. The mean noise pollution level and Leq of Sirajganj District Town were found to be 73.42 dBA and 98.27 dBA, respectively. The recorded mean and Leq values were 73.61 dBA and 84.13 dBA for silent areas, 71.67 dBA and 105.35 dBA for residential areas, 73.51 dBA and 100.89 dBA for mixed areas, 71.52 dBA and 80.63 dBA for commercial areas, 74.91 dBA and 100.51 dBA for industrial areas, 73.93 dBA and 86.81 dBA for road intersections, and 74.81 dBA and 86.46 dBA for village areas, respectively. The hierarchy of various land uses according to mean noise levels is as follows: Industrial Area > Village Area > Road Intersection > Silent Area > Mixed Areas > Residential Area > Commercial Area. The three places with the greatest noise pollution levels were Jubil Building (109.32 dBA), Mowla Box Daal Mill (109 dBA), and Vasani Road (97.32 dBA). Conversely, the three areas with the lowest noise pollution levels were Sirajganj Bus Terminal (69.69 dBA), Masum Para (69.82 dBA), and DC Office (70.51 dBA), as determined by Leq. The study revealed that the noise levels at all sampling locations were above the national standard.

Keywords

Noise Pollution, Land Use, Cluster, Dispersion, Noise Standard, Sirajganj District Town, Bangladesh

1. Introduction

Noise signifies any extraneous disturbance inside a favorable frequency spectrum. Noise pollution denotes detrimental or disruptive auditory disturbances in the environment that adversely impact human health, wildlife, and the general quality of life. In Sirajganj, a city in southern Bangladesh, noise pollution is a significant issue resulting from fast urbanization, escalating vehicular traffic, and industrial activities. A study indicated [1] that the Nathullabad sector of Barisal City had the greatest noise pollution level at 86.5 dBA, whilst the Kaunia Abasik area recorded the lowest at 67.8 dBA. The research revealed that noise pollution levels are critically high in commercial districts (82 dBA), industrial zones (80.4 dBA), mixed-use regions (81.3 dBA), residential neighborhoods (72.7 dBA), and Silent locations (72.5 dBA).

Noise pollution has several repercussions that can lead to substantial physical and psychological health issues, includ-

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ing auditory impairment, sleep disturbances, increased stress, hypertension, and cardiovascular disease [2-4]. Extended exposure may also lead to psychological disorders, including anxiety and sadness. Moreover, prolonged exposure to high noise levels can exert considerable stress on the auditory and neurological systems of urban inhabitants, particularly children. Students under stress are more likely to partake in harmful habits, including procrastination, smoking, excessive alcohol use, and substance addiction [5]. Motorized vehicles constitute a primary source of noise pollution in urban areas [6]. Our country's economic status and environmental factors are negatively impacted by excessive noise. Without limitations, biodiversity would decline, eventually resulting in unsustainable human lifestyles [7]. Furthermore, noise can interfere with animals by hindering communication, navigation, and reproduction. The traffic police tasked with managing traffic, especially at congested crossings, are classified as a high-risk group susceptible to the health risks associated with noise and air pollution [8-14]. They often have impaired auditory functions and psychosocial challenges [15-18]. The World Health Organization (WHO) assessed the global disease burden linked to industrial noise and systematically identified 25 risk factors [19].

Employment may result in hearing impairment, which can be bilateral or unilateral, as well as total or partial [20]. It includes traumatic acoustic injury and Noise-Induced Hearing Loss (NIHL). Increased levels of workplace noise remain a global concern. Approximately 30 million workers in the United States are exposed to detrimental noise [21]. In Germany, four to five million individuals, representing 12 to 15 percent of the workforce, are subjected to noise levels deemed hazardous by the WHO [22]. Noise is ubiquitous in most job functions; nevertheless, certain jobs are associated with much higher noise levels, particularly those requiring impact operations, the handling of specialized materials, and the operating of commercial aircraft. Occupations most prone to Noise-Induced Hearing Loss (NIHL) encompass manufacturing, transportation, mining, construction, agriculture, and military duty. Conditions are enhancing in developed countries, as the increased awareness of the issue has led to preventative measures. While evidence about developing countries is limited, it is established that noise levels are much greater on mean than the required standards for workplaces in several wealthy nations [23-25].

Noise has both auditory and non-auditory effects on human health. Certain studies [26-31] have investigated these effects in diverse cohorts of persons functioning in settings characterized by elevated and high-frequency noise levels. Nevertheless, there has been little investigation of the auditory responses of traffic officers to vehicular emissions, particularly in India [14]. Upon understanding the health risks, traffic officers should be motivated to take appropriate action. Few individuals have expressed concern over the impact of noise or the damage it may do, as the majority do not perceive it as a significant environmental issue. Medical experts caution that extended exposure to noise levels over 80 dBA may result in either acute or chronic auditory impairment in humans.

The problem of noise in our nation at present may not appear especially severe. However, considering it is not unwise. Noise disruptions may increase uncontrolled without government intervention in the public interest [32-37]. This study aims to assess the extent of noise pollution in several areas in Sirajganj City.

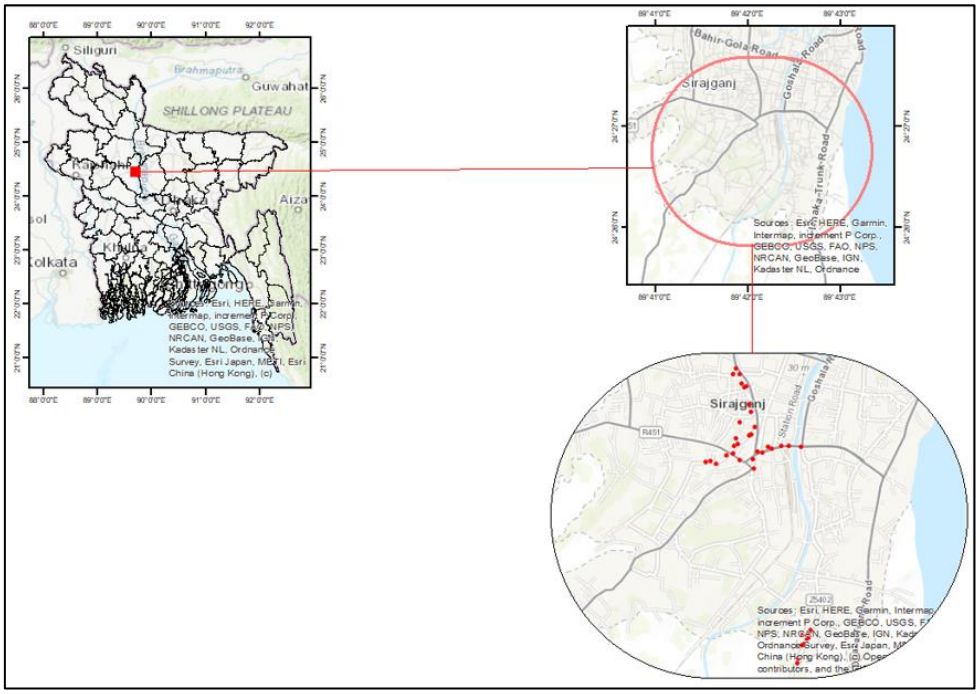


Figure 1. *Study Area of Sirajganj District Town.*

2. Methodology

2.1. Study Area

The research was carried out at Sirajganj District Town (Figure 1). The choice of Sirajganj District Town is due to its considerable tourist appeal, escalating urbanization, and a marked increase in the number of vehicles and industries in recent years. The ambient noise level in Sirajganj District Town generally surpasses international standards by two to thrice. This has potential adverse impacts on the environment and public health. This research concentrated on the Sirajganj District Town regions characterized by higher traffic volumes compared to other places. An ambient sound pressure level meter (REED SD-4023) was employed to measure noise levels in the designated area. The survey was administered on weekdays. The measurements were performed at significant traffic intersections around the city. The sound pressure level in the traffic area was evaluated utilizing A-weighting. In Sirajganj District Town, 7 unique zones and 40 sites were identified based on land usage.

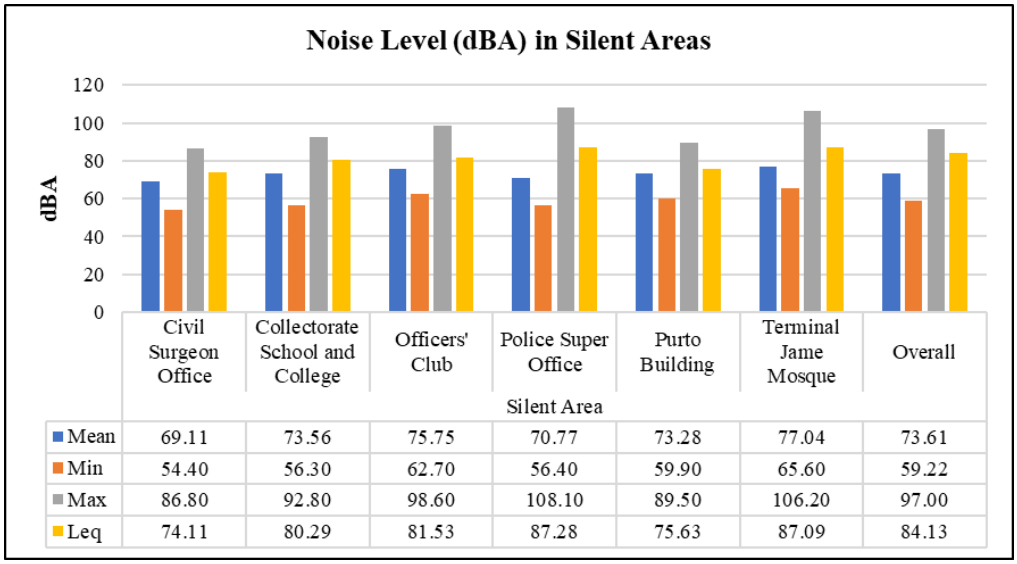
2.2. Data Collection

The sound level meter (REED SD-4023) was employed to evaluate noise levels in Sirajganj District Town from January 1, 2021, to April 30, 2021. The SD series sound level meter has three measurement ranges and enables customers to select sample rates from 1 to 3600 seconds. A user can employ an SD card (up to 16 GB) to establish a desired sample rate and promptly generate an Excel file with raw data, all without the need for software. Optional attachments include a tripod and AC adaptor for continuous long-term monitoring, along with PC software that allows users to observe live measurements.

2.3. Measuring Procedure and Analysis

The data recording function logs the maximum and minimum values. Press the REC button once to activate the Data Record feature, and a "REC" indicator will appear. The display will show the "REC" symbol. Firstly, the user needs to press the REC button once to display a "REC. MAX." indicator along with the maximum value. To delete the maximum value, press the Hold Button once; the display will then show a “REC.” indicator and continuously execute the memory operation. Secondly, the user needs to press the REC button again, and a "REC. MIN." indicator will appear alongside the minimum number. To remove the minimum value, press the Hold Button once; the display will then just show a “REC.” indicator and will continuously execute the memory function. Thirdly, to deactivate the memory recording function, press the REC button for 2 seconds. The display will revert to the current reading. The data was collected at a height above 1.5 meters above the ground while situated on the street. All types of noise barriers were removed during the assessment of the actual sound level. Data was collected every second, for a total of 5 minutes for each station. The recorded data was stored on a microSD card. The collected data were analyzed with Microsoft Excel 2010 and IBM SPSS 20. All data are given in various graphs and tables consistent with different versions of ArcGIS v.10. Version 2.1 was employed to generate a research area map and a noise attenuation map.

3. Results and Discussion

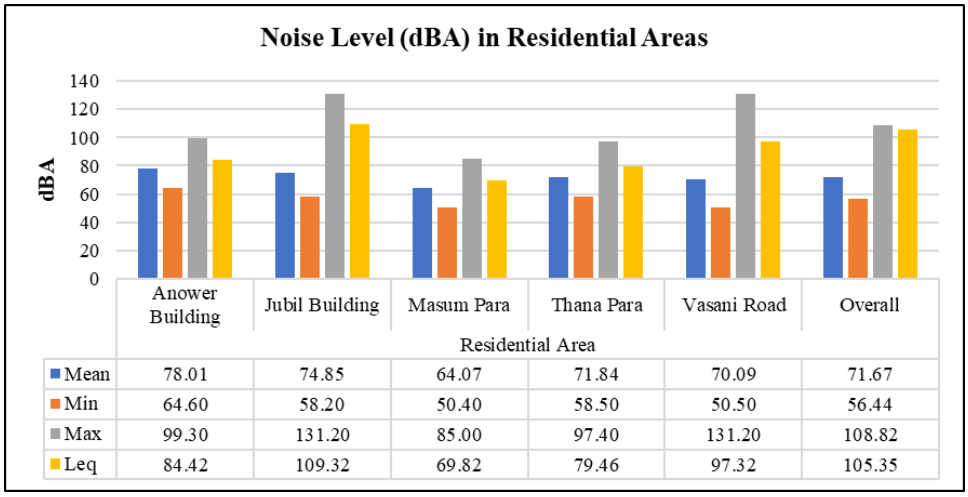


	Civil Surgeon Office	Collectorate School and College	Officers' Club	Police Super Office	Purto Building	Terminal Jame Mosque	Overall
Mean	69.11	73.56	75.75	70.77	73.28	77.04	73.61
Min	54.40	56.30	62.70	56.40	59.90	65.60	59.22
Max	86.80	92.80	98.60	108.10	89.50	106.20	97.00
Leq	74.11	80.29	81.53	87.28	75.63	87.09	84.13

Figure 2. *Noise Level (dBA) in Silent Areas.*

The mean noise level and Leq of Sirajganj District Town were found to be 73.42 dBA and 98.27 dBA.

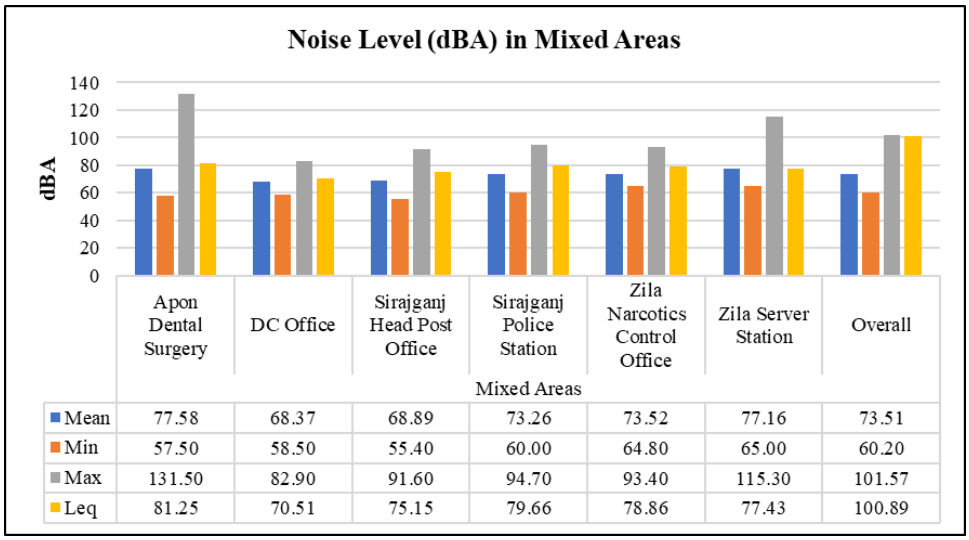
Analysis of data from 6 points in the Silent Area of Sirajganj District Town shows that, as illustrated in Figure 2, the maximum noise level recorded was at the Police Super Office (108.10 dBA), which is nearly twice the standard daytime noise level and about two times the nighttime level for the Silent Area. Conversely, the Civil Surgeon Office recorded the minimum noise level at 54.40 dBA. The recorded mean and Leq values were found to be 73.61 dBA and 84.13 dBA for silent areas. The analysis also found that the highest mean noise was explored in the Terminal Jame Mosque (77.04 dBA) and the lowest mean noise was identified in the Civil Surgeon Office (69.11 dBA). Moreover, the Police Super Office recorded maximum Leq (87.28 dBA) and the Civil Surgeon Office recorded minimum Leq (74.11 dBA).



	Anower Building	Jubil Building	Masum Para	Thana Para	Vasani Road	Overall
Mean	78.01	74.85	64.07	71.84	70.09	71.67
Min	64.60	58.20	50.40	58.50	50.50	56.44
Max	99.30	131.20	85.00	97.40	131.20	108.82
Leq	84.42	109.32	69.82	79.46	97.32	105.35

Figure 3. *Noise Level (dBA) in Residential Areas.*

Figure 3 depicts the maximum noise level found at the Jubil Building area (131.20 dBA) and the minimum noise was recorded at Masum Para (50.40 dBA) out of 5 areas in the residential area. The mean noise level was found at Anower Building (78.01 dBA) as the maximum and at Masum Para (64.07 dBA) as the minimum. Furthermore, the recorded mean and Leq values were found to be 71.67 dBA and 105.35 dBA for residential areas. Moreover, the Jubil Building had found a maximum Leq of 109.32 dBA, and the Masum Para recorded a minimum Leq of 69.82 dBA.

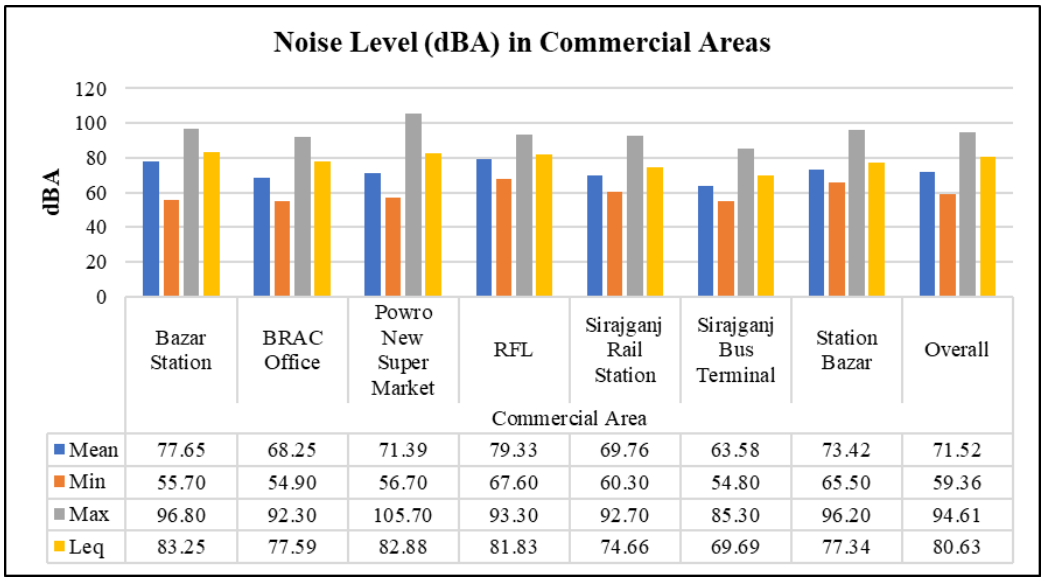


	Apon Dental Surgery	DC Office	Sirajganj Head Post Office	Sirajganj Police Station	Zila Narcotics Control Office	Zila Server Station	Overall
Mean	77.58	68.37	68.89	73.26	73.52	77.16	73.51
Min	57.50	58.50	55.40	60.00	64.80	65.00	60.20
Max	131.50	82.90	91.60	94.70	93.40	115.30	101.57
Leq	81.25	70.51	75.15	79.66	78.86	77.43	100.89

Figure 4. *Noise Level (dBA) in Mixed Areas.*

Figure 4 illustrates that Sirajganj District Town noise data shows Apon Dental Surgery (131.50 dBA) as the maximum

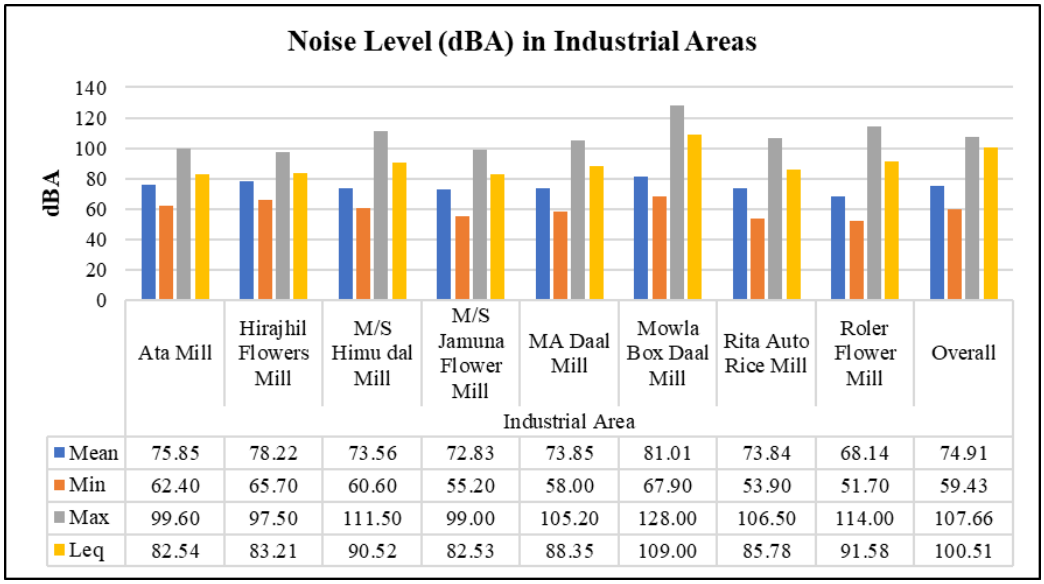
and Sirajganj Head Post Office (55.40 dBA) as the minimum among 6 areas. The maximum noise level is significantly higher than the standard noise level for the mixed areas. The recorded mean and Leq values were found to be 73.51 dBA and 100.89 dBA for mixed areas. Nevertheless, the highest mean noise level was reported at Zila Server Station (77.16 dBA) and the lowest mean noise level was found at DC Office (68.37 dBA). Both levels exceed the standard noise levels. Moreover, Apon Dental Surgery recorded the maximum Leq (81.25 dBA) and the DC Office was found to have the minimum Leq (70.51 dBA).



	Bazar Station	BRAC Office	Powro New Super Market	RFL	Sirajganj Rail Station	Sirajganj Bus Terminal	Station Bazar	Overall
Mean	77.65	68.25	71.39	79.33	69.76	63.58	73.42	71.52
Min	55.70	54.90	56.70	67.60	60.30	54.80	65.50	59.36
Max	96.80	92.30	105.70	93.30	92.70	85.30	96.20	94.61
Leq	83.25	77.59	82.88	81.83	74.66	69.69	77.34	80.63

Figure 5. *Noise Level (dBA) in Commercial Areas.*

In Figure 5, Powro New Supermarket (105.70 dBA) discovered the maximum noise level and the minimum was found in Sirajganj Bus Terminal (54.80 dBA) out of 7 areas. The recorded mean and Leq values were found to be 71.52 dBA and 80.63 dBA for commercial areas. Furthermore, the highest mean noise level was recorded at RFL (79.33 dBA) and the lowest at Sirajganj Bus Terminal (63.58 dBA). Moreover, the highest Leq was recorded at Powro New Supermarket (82.88 dBA) and the lowest Leq was found in Sirajganj Bus Terminal (69.69 dBA).

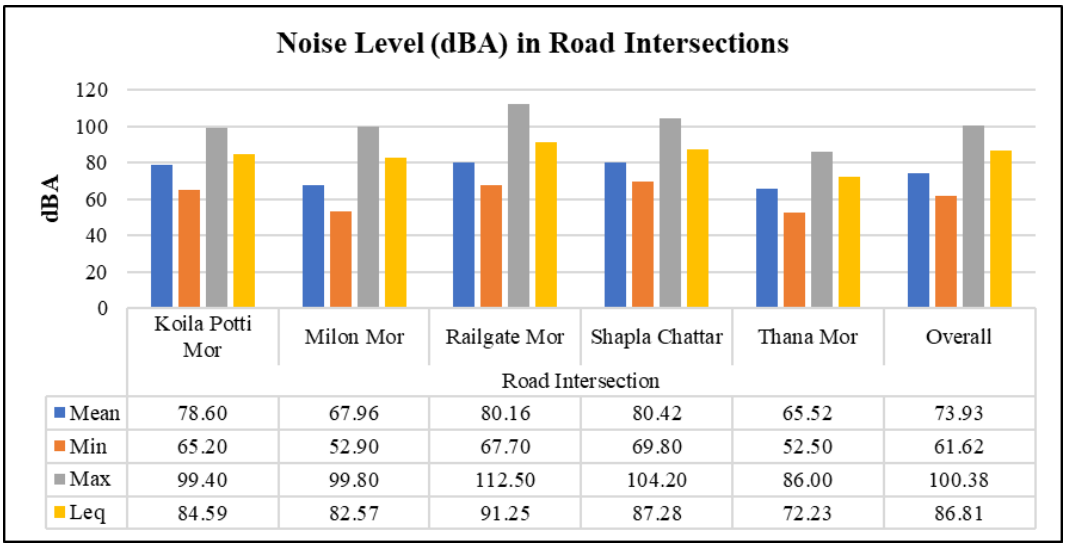


	Ata Mill	Hirajhil Flowers Mill	M/S Himu dal Mill	M/S Jamuna Flower Mill	MA Daal Mill	Mowla Box Daal Mill	Rita Auto Rice Mill	Roler Flower Mill	Overall
Mean	75.85	78.22	73.56	72.83	73.85	81.01	73.84	68.14	74.91
Min	62.40	65.70	60.60	55.20	58.00	67.90	53.90	51.70	59.43
Max	99.60	97.50	111.50	99.00	105.20	128.00	106.50	114.00	107.66
Leq	82.54	83.21	90.52	82.53	88.35	109.00	85.78	91.58	100.51

Figure 6. *Noise Level (dBA) in Industrial Areas.*

In Figure 6, the maximum noise was found at Mowla Box Daal Mill (128.00 dBA) and the minimum was reported at

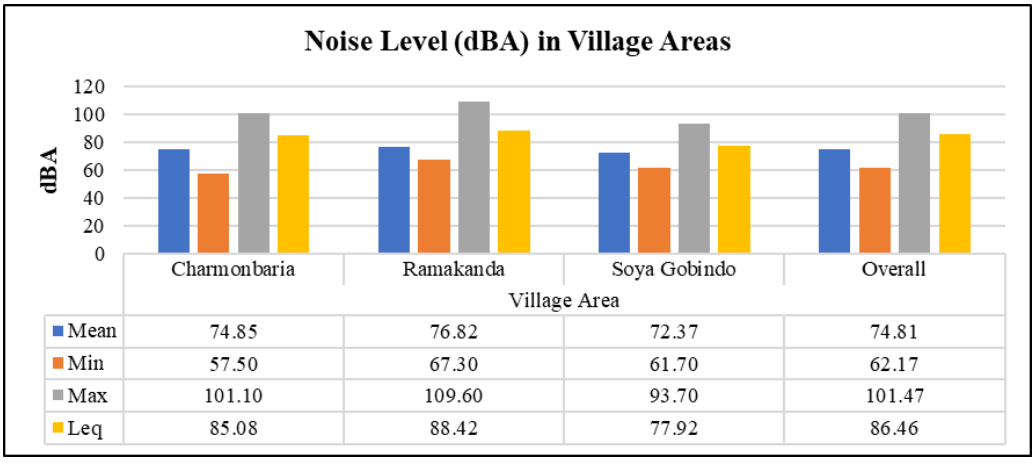
Roler Flower Mill (51.70 dBA) out of 8 industrial areas. The recorded mean and Leq values were found to be 74.91 dBA and 100.51 dBA for industrial areas. Furthermore, the highest mean noise level was discovered in Mowla Box Daal Mill (81.01 dBA), whereas the lowest mean noise level was found in Roler Flower Mill (68.14 dBA). Moreover, the maximum Leq was recorded in the Mowla Box Daal Mill (109.00 dBA), and the minimum Leq was found in the M/S Jamuna Flower Mill (82.53 dBA).



	Koila Potti Mor	Milon Mor	Railgate Mor	Shapla Chattar	Thana Mor	Overall
Mean	78.60	67.96	80.16	80.42	65.52	73.93
Min	65.20	52.90	67.70	69.80	52.50	61.62
Max	99.40	99.80	112.50	104.20	86.00	100.38
Leq	84.59	82.57	91.25	87.28	72.23	86.81

Figure 7. *Noise Level (dBA) in Road Intersections.*

In Figure 7, the maximum noise was at Railgate Mor (112.50 dBA) and the minimum was at Thana Mor (52.50 dBA), while the highest mean noise was discovered at Shapla Chattar (80.42 dBA) and the lowest mean noise was found at Milon Mor (67.96 dBA) out of 5 areas. The recorded mean and Leq values were found to be 73.93 dBA and 86.81 dBA for road intersections. Furthermore, the highest Leq was found in Railgate Mor (91.25 dBA) and the lowest Leq was recorded in Thana Mor (72.23 dBA).



	Charmonbaria	Ramakanda	Soya Gobindo	Overall
Mean	74.85	76.82	72.37	74.81
Min	57.50	67.30	61.70	62.17
Max	101.10	109.60	93.70	101.47
Leq	85.08	88.42	77.92	86.46

Figure 8. *Noise Level (dBA) in Village Areas.*

Figure 8 shows the maximum noise level in Ramakanda (109.60 dBA) and the minimum value found in Charmonbaria (57.50 dBA) out of 3 village areas. Ramakanda recorded the highest mean noise level at 76.82 dBA, while Soya Gobindo recorded the lowest mean noise level at 72.37 dBA. Nevertheless, the recorded mean and Leq values were found to be 74.81 dBA and 86.46 dBA for village areas. Moreover, the maximum Leq was discovered in Ramakanda (88.42 dBA) and the minimum Leq was identified in Soya Gobindo (77.92 dBA).

Table 1. *Dispersion of Noise Quality in Different Land Use in Sirajganj District Town.*

Land Use (N)	Mean	Minimum	Maximum	Standard Deviation	Range	Median	Rank
Silent Area (6)	73.61	54.40	108.10	7.91	73.40	53.70	4
Residential Area (5)	71.67	50.40	131.20	9.49	71.10	80.80	6
Mixed Areas (6)	73.51	55.40	131.50	7.55	72.20	76.10	5
Commercial Area (7)	71.52	54.80	105.70	8.06	71.10	50.90	7
Industrial Area (8)	74.91	51.70	128.00	9.30	74.30	76.30	1
Road Intersection (5)	73.93	52.50	112.50	10.01	74.10	60.00	3
Village Area (3)	74.81	57.50	109.60	8.01	74.10	52.10	2
Overall (40)	73.42	50.40	131.50	8.74	72.80	81.10	-

The subsequent table 1 represents the descriptive statistics for the noise quality of the study area (7 land uses). The table represents the descriptive statistics for the noise quality of the study area (7 land uses). The highest mean was found in the industrial area (74.91 dBA) and the lowest mean was identified in the commercial area (71.52 dBA). The higher ranges were found in the Industrial Area (74.30 dBA) and the lower ranges were observed in the Residential Area and Commercial Area (71.10 dBA).

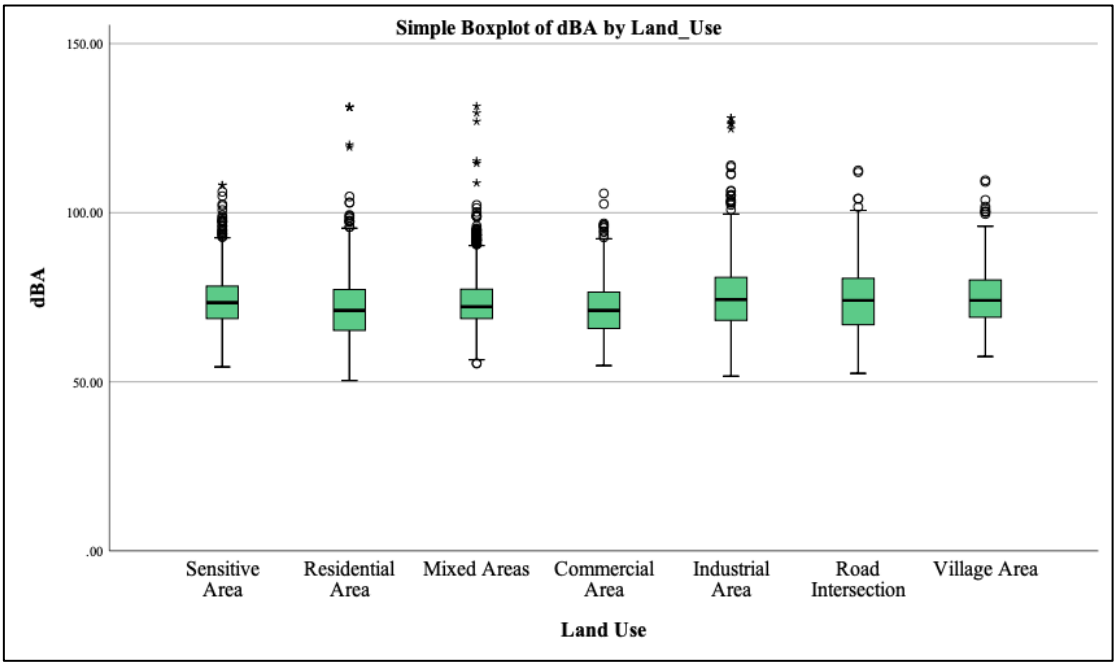


Figure 9. *Mean Noise Pollution in Sirajganj District Town.*

The whisker box plot (Figure 9) shows mean noise pollution in Sirajganj District Town. A horizontal black line marks the median. The lower boundary of the box indicates the 25th percentile. The upper boundary of the box indicates the 75th percentile. The whisker represents the maximum (upper whisker) and minimum value (lower whisker). Points above the whiskers indicate outliers.

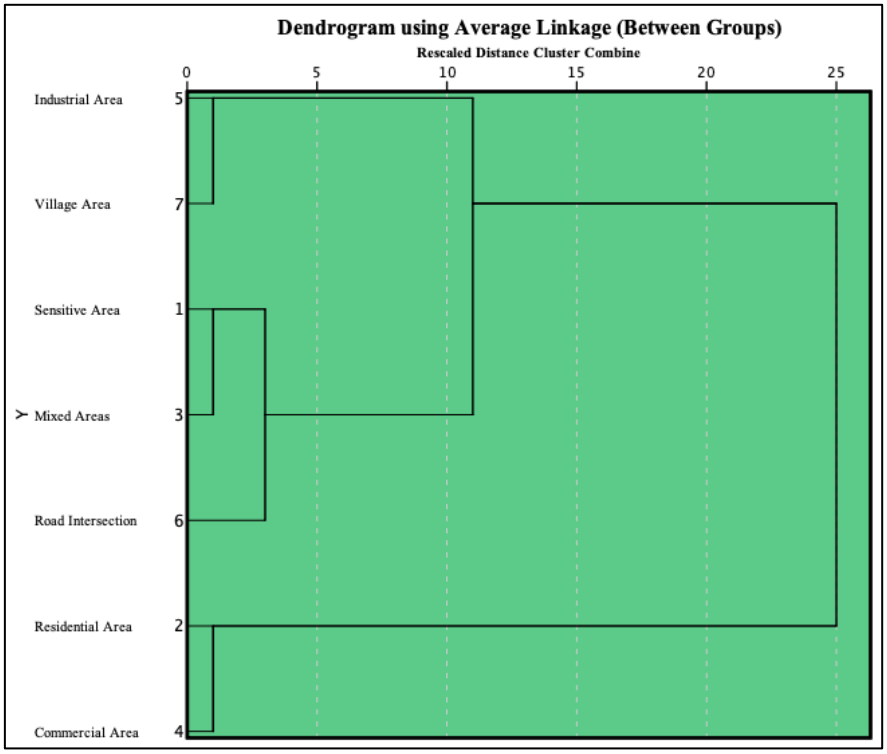


Figure 10. *Land Use based Cluster, in Terms of dBA.*

Figure 10 shows the land use-based cluster. In terms of dBA, the Silent area and mixed area are in the first cluster. The industrial area is the second cluster.

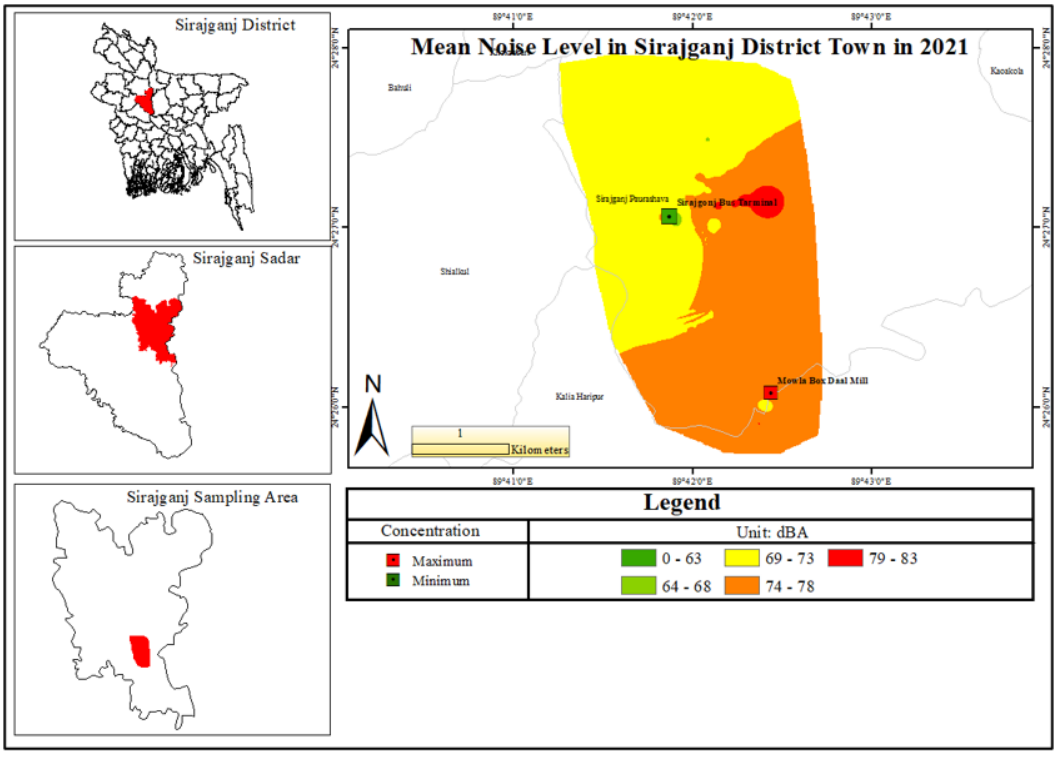


Figure 11. *Spatial Map of Mean Noise Pollution.*

Figure 11 shows the noise level at different places in Sirajganj District Town. Yellow areas are limited, while rising higher levels are shown in orange and red. The noise was found to be higher (78-81 dBA). The red zone included Mowla Box Daal Mill (81.01 dBA), Shapla Chattar (80.42 dBA), and Railgate Mor (80.16 dBA), whereas the green zone belonged to Sirajganj Bus Terminal (63.58 dBA), Masum Para (64.07 dBA), and Thana Mor (62.52 dBA).

Table 2. *Post-hoc Analysis.*

(I) Land Use	(J) Land Use	Mean Difference (I-J)	Standard Error	Sig.
Silent Area	Residential Area	1.9444*	0.29344	0
	Mixed Areas	0.1037	0.26642	0.697
	Commercial Area	2.0881*	0.27331	0
	Industrial Area	-1.2990*	0.26804	0
	Road Intersection	-0.3234	0.28705	0.26
	Village Area	-1.1977*	0.35841	0.001
Residential Area	Silent Area	-1.9444*	0.29344	0
	Mixed Areas	-1.8408*	0.27993	0
	Commercial Area	0.1437	0.28649	0.616
	Industrial Area	-3.2435*	0.28147	0
	Road Intersection	-2.2679*	0.29963	0
	Village Area	-3.1421*	0.36855	0
Mixed Areas	Silent Area	-0.1037	0.26642	0.697
	Residential Area	1.8408*	0.27993	0
	Commercial Area	1.9844*	0.25875	0
	Industrial Area	-1.4027*	0.25317	0
	Road Intersection	-0.4271	0.27322	0.118
	Village Area	-1.3014*	0.34743	0
Commercial Area	Silent Area	-2.0881*	0.27331	0
	Residential Area	-0.1437	0.28649	0.616
	Mixed Areas	-1.9844*	0.25875	0
	Industrial Area	-3.3872*	0.26041	0
	Road Intersection	-2.4116*	0.27994	0
	Village Area	-3.2858*	0.35274	0
Industrial Area	Silent Area	1.2990*	0.26804	0
	Residential Area	3.2435*	0.28147	0
	Mixed Areas	1.4027*	0.25317	0
	Commercial Area	3.3872*	0.26041	0
	Road Intersection	.9756*	0.2748	0
	Village Area	0.1013	0.34867	0.771
Road Intersection	Silent Area	0.3234	0.28705	0.26
	Residential Area	2.2679*	0.29963	0
	Mixed Areas	0.4271	0.27322	0.118

(I) Land Use	(J) Land Use	Mean Difference (I-J)	Standard Error	Sig.
Village Area	Commercial Area	2.4116*	0.27994	0
	Industrial Area	-.9756*	0.2748	0
	Village Area	-.8743*	0.36349	0.016
	Silent Area	1.1977*	0.35841	0.001
	Residential Area	3.1421*	0.36855	0
	Mixed Areas	1.3014*	0.34743	0
	Commercial Area	3.2858*	0.35274	0
	Industrial Area	-0.1013	0.34867	0.771
	Road Intersection	.8743*	0.36349	0.016

Based on observed means: *The error term is Mean Square (Error) = 74835

* The mean difference is significant at the 0

Table 2 shows significant differences in the 7 distributed land uses. The mean differences at specific land uses are significantly lower, with significance determined at the 0.05 level.

Table 3. *Comply with Noise Standard [38].*

Land Use (N)	Location	Standard Value	Within Standard (%)
Silent Area (6)	Civil Surgeon Office	50	0.00%
	Collectorate School and College		0.00%
	Officers' Club		0.00%
	Police Super Office		0.00%
	Purto Building		0.00%
	Terminal Jame Mosque		0.00%
Mean			0.00%
Residential Area (5)	Anower Building	55	0.00%
	Jubil Building		0.00%
	Masum Para		4.91%
	Thana Para		0.00%
	Vasani Road		2.21%
Mean			1.42%
Mixed Areas (6)	Apon Dental Surgery	60	0.70%
	DC Office		0.38%
	Sirajganj Head Post Office		8.17%
	Sirajganj Police Station		0.00%
	Zila Narcotics Control Office		0.00%
	Zila Server Station		0.00%
Mean			1.54%
Commercial Area (7)	Bazar Station	70	13.31%

Land Use (N)	Location	Standard Value	Within Standard (%)
	BRAC Office		66.84%
	Powro New Super Market		45.23%
	RFL		1.53%
	Sirajganj Rail Station		63.06%
	Sirajganj Bus Terminal		82.05%
	Station Bazar		23.30%
Mean			42.19%
	Ata Mill		45.63%
	Hirajhil Flowers Mill		37.54%
	M/S Himu dal Mill		61.13%
	M/S Jamuna Flower Mill		63.21%
Industrial Area (8)	MA Daal Mill	75	59.19%
	Mowla Box Daal Mill		22.98%
	Rita Auto Rice Mill		59.72%
	Roler Flower Mill		81.28%
Mean			53.84%
All Mean			20.00%

Table 3 demonstrates that 20% of areas in Sirajganj District Town belonged to the noise standard among 5 land uses. It has been observed that no areas in the silent zone met the noise standard across 6 locations, 1.42% of the areas in the residential zone met the noise standard across 5 locations, 1.54% of the areas in the mixed zone met the noise standard across 6 locations, 42.19% of the areas in the commercial zone met the noise standard across 7 locations, and 53.84% of the areas in the industrial zone met the noise standard across 8 locations.

None of the areas in the silent zone met the sound standard. The data for the residential area at Masumpara represent 4.91%, which is the highest percentage within the standard value. Furthermore, the mixed areas showed the highest ratio at 8.17% within the standard. Additionally, commercial area data is highest within the standard shown in the area of Sirajganj Bus Terminal at 82.05%. Moreover, the data from the industrial area represent the highest portion of 81.28% within the standard, as reported at Roler Flower Mill.

The present study was carried out on 7 land uses, but only 5 were included in the Sound Pollution (Control) Rules-2006. Therefore, while comparing all land uses with noise standards, village areas and road intersections were not taken into account.

4. Conclusions

The research indicated that the noise levels at all sample sites exceeded the national limit. The mean noise pollution level and Leq of Sirajganj District Town were determined to be 73.42 dBA and 98.27 dBA, respectively. The recorded mean and Leq values were 73.61 dBA and 84.13 dBA for silent areas, 71.67 dBA and 105.35 dBA for residential areas, 73.51 dBA and 100.89 dBA for mixed areas, 71.52 dBA and 80.63 dBA for commercial areas, 74.91 dBA and 100.51 dBA for industrial areas, 73.93 dBA and 86.81 dBA for road intersections, and 74.81 dBA and 86.46 dBA for village areas, respectively. The hierarchy of different land uses based on mean noise levels is as follows: Industrial Area > Village Area > Road Intersections > Silent Area > Mixed Areas > Residential Area > Commercial Area. The three locations with the highest noise pollution levels were Jubil Building (109.32 dBA), Mowla Box Daal Mill (109 dBA), and Vasani Road (97.32 dBA). In contrast, the three locations exhibiting the lowest levels of noise pollution were Sirajganj Bus Terminal (69.69 dBA), Masum Para (69.82 dBA), and DC Office (70.51 dBA), as assessed by Leq. Due to the rising number of cars and tourists, Sirajganj District Town has seen a steady rise in noise levels recently. Noise pollution is rarely regarded as a serious form of pollution since people frequently fail to recognize its detrimental effects on human health. In Sirajganj, as in the rest of Bangladesh, noise pollution is a significant but frequently disregarded issue. The government, media, and non-governmental organizations (NGOs) must work together to ease the situation and enhance living circumstances

in Bangladesh. Given that many of the sources of noise pollution are unnecessary, we cannot afford to waste time or effort delaying action to reduce it. Given its magnitude and the suffering it causes to people can no longer afford to overlook the issue of noise pollution. We must all take this matter seriously and start working toward a solution for the sake of our children's future as well as the health, welfare, and sanity of the populace. Whether we are members of the media, the general public, or workers for non-governmental groups, we all have a responsibility to contribute to the solution of the noise pollution problem. In addition, further research is needed to track the noise pollution levels in Sirajganj District Town to ensure a sustainable way of life.

Abbreviations

AC	Alternating Current
CAPS	Center for Atmospheric Pollution Studies
dBA	A-weighted Decibel
DoE	Department of Environment
GB	Gigabyte
GIS	Geographic Information System
Govt	Government
Leq	Equivalent Continuous Sound Pressure Level
Ltd	Limited
MAX	Maximum
MIN	Minimum
N	Number (in Terms of Quantity)
NIHL	Noise-induced Hearing Loss
PC	Personal Computer
REC	Record
SD	Secure Digital
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

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Informed Consent

Informed consent was obtained from each individual participant involved in this study.

Statement of Human Rights

This study was conducted in accordance with the 1964 Declaration of Helsinki and its subsequent amendments.

Statement of Animal Welfare

All animals involved in this study were treated in accordance with the ethical standards set forth by the institution at which the study was conducted.

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Conflicts of Interest

The authors declare no conflicts of interest.

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