



Bangladesh Public Administration Training Centre

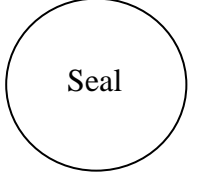
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Programme & Studies Division

Evaluation Department

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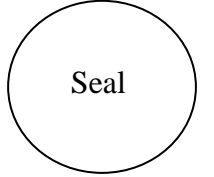
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136th Advanced Course on Administration and Development

Seminar Paper



Seal

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Policy Analysis

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Instruction to be followed

(Please read carefully)

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Abstract

The study's objective was to look at the underlying causes and effects of the current traffic jams of Dhaka and to suggest some quick fixes to solve the problem. Qualitative approach was considered for the data collection and analysis. The study identified a number of factors that contribute to Dhaka's traffic congestion, including high rates of traffic rule violations and poor enforcement, an abundance of people and vehicles, improper and illegal parking of cars, poor city road planning, lack of communication infrastructure, inactive traffic signaling systems, lack of manpower and resources and haphazard construction and maintenance. The study showed that Dhaka's traffic situation is not conducive for improved living standards. The end outcome of Dhaka's traffic bottleneck is substantial loss in public health, severe air and sound pollution, and environmental dangers. Furthermore, because of this issue, Bangladesh's micro- and macroeconomic conditions are exaggerated. The study fervently advocated some potential short-term solutions to Dhaka's ongoing traffic congestion. introduction of road pricing/congestion charge, 'more private car, more tax' and 'Two days office from home in a week rotationally' policy, administrative penalty with financial penalty, different fare structure for peak and off-peak hour, dedicated lane for rickshaws and non-motorized vehicles, steps to reclaim illegally occupied footpaths, control of illegal parking, ban of unfit vehicles by replacing public vehicles, efficient use of existing street sign and signals, alteration the time schedule of various institutions/organizations and development activities, increasing public awareness campaigns etc. are recognized by the research work as short-term remedies of Dhaka's congestion.

Keywords: Congestion, Short-term solution, administrative penalty, metro rail, elevated express way, congestion charge.

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LIST OF ABBREVIATIONS AND ACRONYMS

BPATC	Bangladesh Public Administration Training Centre
Brac	Bangladesh Rural Academy for Advancement
BRT	Bus Rapid Transit
BRTA	Bangladesh Road Transport Authority
CCTV	Close Circuit Television
CMT	Course Management Team
CO	Carbon Mono Oxide
C ₂ O	Carbon Di Oxide
<i>et al.</i>	<i>et alia</i>
GO	Government Organization
MDS	Member Directing Staff
MoP	Ministry of Planning
MRT	Mass Rapid Transit
NGO's	Non-Government Organizations
NO	Nitrous Oxide
RSTP	Revised Strategic Transport Plan
S ₂ O	Sulphur Di Oxide
USA	United States of America
USD	United States Dollar

Dhaka's Congestion: Short-term Solutions

1.0. Introduction

1.1. Background Study

Dhaka is one of the small mega cities in the world with an area of about 315.98 square kilometer (MoP 2015). Nevertheless, the city has a large number of populations which is disproportionate to its area. With this excessive population the capital city is facing numerous socio-economic problems. Among the various types of problems traffic congestion is one of the most serious socio-economic problem of Dhaka city which is very much responsible for some other socio-economic problems. The city is well known in the globe for its large population and hectic traffic jam. According to a report of an USA magazine, Dhaka is one of the top ranked cities in the world in terms of traffic congestion (The Daily Star 2015). To be an ideal city, at least 25% of its total area should be dedicated for road communication. But in terms of Dhaka city only 7.5% area are dedicated for road communication which is a vital cause for hectic traffic congestion of Dhaka city (Assignment Point 2015). In addition to this reason, there are a long list of issues which are liable for the congestion of Bangladesh's capital city. In terms of daily activities and communication of the city dweller, traffic congestion makes a miserable situation in Dhaka city, particularly in Dhaka metropolitan area. Even congestion was found at different intersection of the capital during the pandemic period (The Daily Sun 2021). No doubt this traffic jam of Dhaka metro is seriously hampering the economic condition of the capital city as well as the national economy. Therefore, as a part of solution of this problem some time-worthy and effective measures is required as early as possible to ensure a civilized human life and help the national economy.

1.2. Problem Statement

Dhaka, the fourth densely populated mega city in the world with more than eighteen million people is tackling a dreadful traffic jam presently (Rahman & Zhou 2018). Because of this congestion the city dweller is experiencing social, environmental, economic and health related hazards. In a word it can be said that the life of the inhabitants of the city has become

very unpleasant and troublesome because of this congestion. To address this vital issue Bangladesh government has been taken a good number of initiatives e.g. construction of metro rail, elevated express way, bus rapid transit etc. which are praiseworthy. But these are the long-term solutions for overcoming the congestion of Dhaka city and its adjacent area. Before completion and implementation of those long-term initiatives, some intermediate short-term (Six-twelve months) measures are badly needed to reduce the congestion for ensuring the pleasant and better life of the city dwellers.

1.3. Rationale

The capital city of Bangladesh, Dhaka has a noteworthy contribution in case of cultural as well as socio-economic upliftment of Bangladesh. According to Khan & Haque (2013) due to complex nature of traffic congestion of Dhaka city, it is treated as a vital hinderance on the way of advancement of the country. Mahmud *et al.* (2012) stated that as a consequence of having too much vehicles and population along with some other causes, the city dwellers are facing a troublesome traffic jam. Presently this congestion has become a big challenge for the city authority to administer the city effectively. As a result of the congestion, the residents of the city are experiencing three types of hazards e.g. health, environmental and financial hazard (Rahman & Zhou 2018). In fact, Dhaka city is becoming stuck city due to this chaotic traffic congestion. If prompt and effective action is not taken to address the issue, Dhaka may be abandoned. As the problem is serious and permanent solution is a matter of long time so, some short-term (Six-twelve months) and effective initiative should be taken to reduce the congestion and make the city habitable.

1.4. Objectives of the Study

The objectives of the research are;

- To identify the causes & consequence of congestion of Dhaka city; and
- To identify and suggests some time-worthy recommendations as short-term solutions based on the research findings.

1.5. Ethical Perspective

Fundamentally, ethics is a study of right and wrong, an assessment of manners and morality, and a system of idealistic rules guiding behavior. (Frize 2012). Farrimond (2013) opined that research that produces ethical results is considered to be the best kind of research. Numerous research institutions, government authorities, and scientists all acknowledge that ethical approaches are an essential component of research effort (Shamoo & Resnik 2003). Laerd dissertation (2012) stipulated that five fundamental rules must be followed at the time of the study e.g. obtaining the respondent's informed consent, protecting their security and privacy, ensuring that participants are helped by the study and avoiding providing false information. In terms of this study project, appropriate procedures have been taken to satisfy all these key ethical norms.

2.0. Literature Review

2.1. Introduction

This segment encompasses the essence of allied literature review on the seminar topic. Literature review has done with a view to collect and analyze secondary data and information regarding various issues related to the seminar topic. Hart (1998) stipulated that through literature review a researcher can understand the research topic effectively and elaborately. A researcher can realize the current 'state of the art' in making some form of assessment in terms of his research work by reviewing similar research effort of other experts and scholars (Walliman 2005). Hrat (1998) stated that a researcher can come to know regarding similar research work executed by diverse scholars, academicians, researchers and scientists by literature review. This literature review has included relevant facts, information, and statistics from a variety of views on the discussed topic.

2.2. Dhaka's Congestion Picture

The typical scene in Dhaka right now is a long line of stack automobiles on the main streets because of congestion. The congestion scenario of the city is going to worse over the course of time. Dhaka occasionally gives the impression of being an infirm city due to the continual and severe traffic. Right now, one of the city's distinctive picture is the abundance of rickshaws and motorbikes on the streets (The Daily Star 2018). Non-motorized transportation mostly rickshaw makes up a sizable portion of Dhaka's road-based transportation infrastructure (Humyra & Kishi 2016). Karim (1997) opined that, Dhaka is frequently plagued by large amounts of non-motorized traffic as well as the inappropriate and insufficient application of traffic laws. Previously, commuters only experienced traffic congestion on the main city streets, but now it begins at people's doorstep. Trips on a daily basis have become nightmares due to traffic. According to a World Bank assessment, Dhaka's average traffic speed has decreased over the past ten years from 21 kph to 7 kph, and by 2035, it may only be 4 kph, which is slower than the walking speed. As per a different research, which was commissioned by the Brac Institute, Dhaka's traffic congestion wastes almost 5 million working hours daily and costs the nation USD 11.4 billion annually (Haider 2018). He further stated that according to BRTA there are about 3.1 million registered automobiles in Bangladesh, with about a million of those in Dhaka. But according to various studies, there are currently 3.1 million registered vehicles and an estimated 5 million vehicles on the road and of those 72% lack a fitness clearance.



Figure: 2.1. Scenario of Dhaka's Congestion (Source: The Daily Prothom Alo, 2016).

The Revised Strategic Transport Plan (RSTP) of 2016 estimates that 30 million trips are made daily by people living in Dhaka. 47 percent of them are made up of buses, 32 percent by rickshaws, and 9 percent by private vehicles, which take up 76 percent of the streets. In accordance with a survey conducted by the Passengers' Welfare Association, at least 87 percent of buses and minibuses break traffic laws and across the nation, at least 64 people perish every day, while 150 more have injuries (The Daily Star 2018). Dhaka’s common scenario is people utilize the roadways as footpaths since hawkers and other usurpers occupy the actual footpaths illegally (Samsul 2021). Motorcycles, rickshaws, public buses, legunas, private cars, CNG, minibuses, and taxis are the main forms of transportation in Dhaka City (Alom 2018). According to BRTA (2018) the percentage of automobiles (mode wise) registered in Dhaka City in 2018 is depicted in figure 2.2 below.

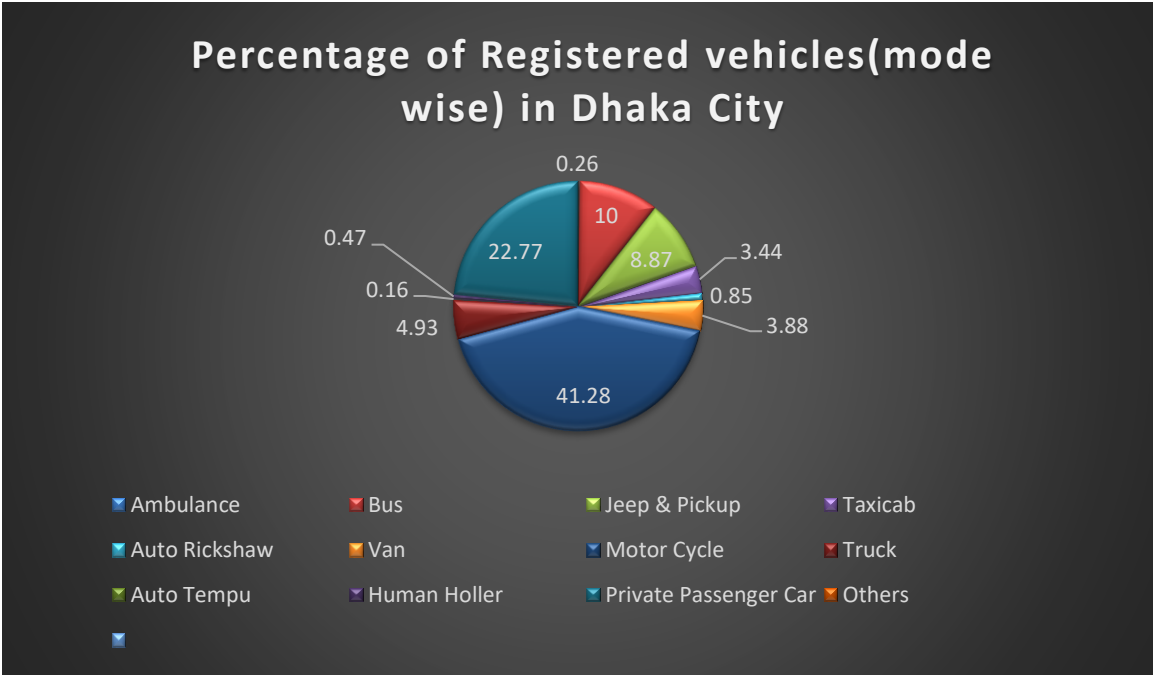


Figure: 2.2. Percentage of registered Vehicles (mode wise) in Dhaka City (Source: BRTA 2018).

Figure 2.2 shows that the number of motorbike registrations is very high and this trend is continuing to rise. The findings also demonstrate that more than 80% of traffic in the Dhaka Metropolitan Area and its surrounding areas is carried by public transportation modes, including buses, lagunas, minibuses, CNG, and rickshaws. In particular, buses account for the largest share of this traffic.

2.3. Causes of Dhaka's Congestion

According to Barnamala *et al.* (2015) large number of populations of Dhaka city, huge number of vehicles, unplanned urbanization, illegal occupancy of footpaths, reluctance of obeying traffic rules, lack of public parking space etc. are notable causes behind the traffic congestion of Dhaka. Mahmud *et al.* (2012) describes that general people think that there are twelve important reasons behind the existing traffic jam of the city. These are mainly planning defect of avenues, over population, illegal car parking, huge number of vehicles, narrow streets, various modes of vehicle etc. They further illustrated that vehicle operators think six vital reasons are liable for the hectic congestion of Dhaka city. Among the six reasons excessive rickshaws and small vehicles, violation of traffic rules, irresponsible driving, inefficacy of traffic police is notable. Rahman & Zhou (2018) opined that one of the main factors contributing to local traffic congestion is the excessive dependence on personal vehicles compare to mass transit, Over population and excessive proprietorship of personal car, movement of both motorized and non-motorized vehicles on the same road/lane, huge number of private car, violation and improper enforcement of traffic related legislations, lake of traffic personnel and non-coordination among different traffic authorities, illegal parking of everywhere, poor road signaling are identified as the prime causes of congestions of Dhaka (Shakil *et al.* 2016). In accordance with Mahmud *et al.* (2012) a total of 40% of the population does not adhere to traffic regulations, compared to a stringent compliance rate of 13% and a moderate compliance rate of 47%. Shamsher & Abdullah (2013) opined that fast growth of residents in the city area is one of the most significant cause of traffic jam in developing countries. In accordance to a report published in The Daily Sun (2021) construction works of metro rail, maintenance of sewage, drainage and roads, waterlogged due to heavy rainfall are also responsible of congestion of Dhaka.

2.4. Consequences of Dhaka's Congestion

A research done by Khan & Hoque (2013) showed that travel time is getting extended due to prolong journey because of congestion. As a consequence, both local and national economy is obstructing by losing working hour and extra fuel consumption. Hider & Papri (2021) opined that because of congestion every commuters of Dhaka lose around one working

hour every day and that's aggregate cost including other elements of traffic jam is more than 4 USD per day. Uncontrolled carbon emission from stuck vehicle due to congestion is one of the principal sources of health hazard and environment pollution in Dhaka city. All most all the people of Dhaka city are suffering from different health hazards resulted from congestion (Assignment Point 2015). As per a study conducted by Mahmud *et al.* (2012) it was found that about 73% inhabitants of the capital city are suffering from various type of physical and mental complication which are arises from congestion. Another notable consequence of traffic jam is environmental degradation. Najneen *et al.* (2010) opined that both financial and environmental losses due to traffic congestion cannot be reclaimed. Dhaka city's existing serious air and sound pollution is totally the outcome of prevailing congestion. Traffic congestion is liable for the huge emission of greenhouse gases like S₂O, C₂O, NO, CO etc. (Mahmud *et al.* 2012). Taleb & Majumder (2012) stipulated that the rate of road accident is increasing because of awful congestion of the city.

2.5. Possible Short-term Solutions of Dhaka's Congestion

According to Haider & Papri (2021) commuters think that by using more public transport instead of small vehicles the congestion scenario of Dhaka can be improved quickly. Rahman & Zhou (2018) stated that the average vehicle speed may be increased by 29.9% and the average congestion time can be decreased by 29% by transferring 20% of the passengers from private to public transportation Authority should consider expanding its double decker and fleet-buses in order to create a good urban transportation network within short period of time (Khan *et al.* 2018). Regain of illegally occupied footpaths and road-side, ban of all social, commercial and political activity on the road and road-side, introducing congestion charge/road pricing, introducing administrative penalty along with financial penalty, Introducing different fare structure for peak and off-peak hour, controlling the encroachment of roads, optimum use of over and under pass, Strict control of illegal parking and ensure of adequate parking facility, adopting 'more private vehicle, more tax' policy, use of public vehicle instead of private vehicle in all educational institutions and large organization and ensure transparency of related organizations are the potential solutions of congestion of Dhaka that can be implemented within short-time (Shakil *et al.* 2016). For better traffic management, it is necessary to solve the long-standing

malfunction of many traffic signaling devices (Barnamala *et al.* 2015). To address congestion, existing road space could be distributed using road pricing (Hervey 2000). According to Arif (2013) existence of too many regulating authorities increases the complexity of traffic management that should address for getting instant result. Sunindyo & Satria (2020) described that prediction of traffic jam by automatically analyzed CCTV data is being used as an effective and quick solution of severe congestion in many countries. According to Rahamn (2022) it is possible to reduce traffic congestion up to 80% by taking different steps following the experience of mega cities of the world. According to Khan & Hoque (2013) undoubtedly Dhaka city is being dominated by traffic congestion because of excessive stress of automobiles as well as want of sufficient roads and other infrastructure. They recommended that initiatives like construction of required road infrastructure, introduce of public vehicle, reduction of vehicle number should get priority to get rid of the prevailing curse of congestion. To run the wheel of development and ensure the pleasant life of city dweller of Dhaka, concern authority should take immediate needful measures to control the messy scenario of traffic congestion. With an intension to address the said situation this research has been done.

3.0. Research Methodology

3.1. Introduction

According to Kothari (2004) research methodology is a tactic for explaining the research problem methodically. A clear conception on research methodology along with research techniques is required for a researcher. Suitable choice of a methodology is an important aspect for the researcher (Davies & Hughes 2014). Mainly two types of research method are used in terms of research work; one is quantitative method and another is qualitative method. As per Davies & Hughes (2014) another method can be used which is combination of quantitative and qualitative method named as mixed method. Kothari (2004) opined that appropriate selection of methodology is an important issue of a research work. Choy (2013) stipulated that long-time frame is needed to conduct the research and data evaluation in case of quantitative methodology. In terms of large population this methodology is the most effectual approach for data collection. Generally, Qualitative approach are used in case of contextual information collection and respondents are spontaneous to respond in this approach (ACET Inc 2013). Qualitative approach

demands pliability, active attention as well as mental quickness (Davies & Hughes 2014). With a view to identify the causes & consequence of congestion of Dhaka city and suggests some time-worthy recommendations as short-term solution based on the findings this research work was executed.

3.2. Selection of Methodology

As the research population is small, active attention of the respondents was needed, allocated time schedule was limited and comprehensive data and information was required, so finally qualitative approach was used in this research. To find out the answer of the research problem, both primary and secondary data were used and analyzed. Semi-structured interview of key informant and one to one interview techniques were used for primary data collection. In order to collect primary data, required number of competent officials and persons were interviewed from both government and private sectors. In terms of this research the vital informants were the high-level officials and policy makers of the concern ministries and different stakeholders related to road transport and communication. In addition, ideas from scholars and experts was consider. Interrelated Literatures, journals, repots, books, periodicals, newspapers, documents of government and related international organizations and online documents were reviewed to collect secondary data. As data and information collection through qualitative method are simple and flexible in nature, thematic tools were used to examine the collected data.

3.3. Selection of Respondent

Respondents were carefully chosen from a variety of sectors and stages in order to gather the actual and necessary data. Respondents from a variety of professions were chosen because they had in-depth knowledge, proficiency, and firsthand observations on different characteristics of congestion and traffic management of Dhaka city. GO-NGO Professionals involved in traffic management and formulation as well as implementation of traffic rules were also chosen as respondents. In terms of selection of respondent, consideration was given to a variety of factors, including professions, working organization, levels of experience etc. In order to know more about what politicians thought about the topic, they also asked for their responses. With the

intention of get real-life experience on the research topic, leader of the transport association, proprietor of vehicles, drivers and workers of transport sector were included as respondents.

3.4. Preparation and distribution of Interview Questionnaire

The formation of the interview question is regarded as a crucial step for a research project. The research's goals and objectives should be reflected in the question. If not, the data collected will not produce the expected results for the study. In order to understand the current state of the traffic jam in Dhaka and its remedies, a sizable amount of literature was studied prior to the preparation of the question. An interview question was prepared to gather respondents' opinions and perceptions on the research issue in light of a thorough literature evaluation and in accordance with the study's goals and objectives. The interview question and a forwarding letter were sent to the responders through e-mail. In the forwarding letter, it was explained why the research was being done and how crucial it was for respondents to participate. As Appendix A, a sample question with a forwarding letter is attached. Participants were contacted numerous times through phone and e-mail to ensure that the completed question was returned on time. The researcher himself conducted the in-person interview.

3.5. Data Compilation

Basically, in-person and e-mail interviews were utilized to collect the data and information. Fifty potential and competent respondents were asked to take part in an e-mail interview with the aim of collect information. The survey was completed by 47 out of the 50 respondents, who provided a plethora of informative, practical, and helpful comments and suggestions. In order to get actual and real-life experience and data, a face-to-face interview with 10 respondents was also done. As these respondents were important to the study but were unable to use e-mail due to illiteracy, therefore in-person interviews were required. They provide some practical and realistic information and valuable suggestions that are very much helpful to find out the results of the set objectives of the research.

4.0. Data Analysis

4.1. Introduction

The prime objective of this segment is to illustrate the research findings by analyzing and discussing the gathered data and information which is considered as a complex task. According to Casterle *et al.* (2012) data analysis and organization of data is the most complicated portion in a research work. To obtain the objective of this research work, data and information were mainly collected through E-mail and face-to-face interview and literature review.

4.2. Rate of Response

In the allotted period, forty-seven completed e-mail questions containing some insightful suggestions were received out of fifty that were distributed. With regard to the e-mail interview, it is calculated that the rate of response is 94%. The attained rate of response can be viewed as satisfactory considering the characteristics of the research, nature of the participant's sample size and other comparable aspects.

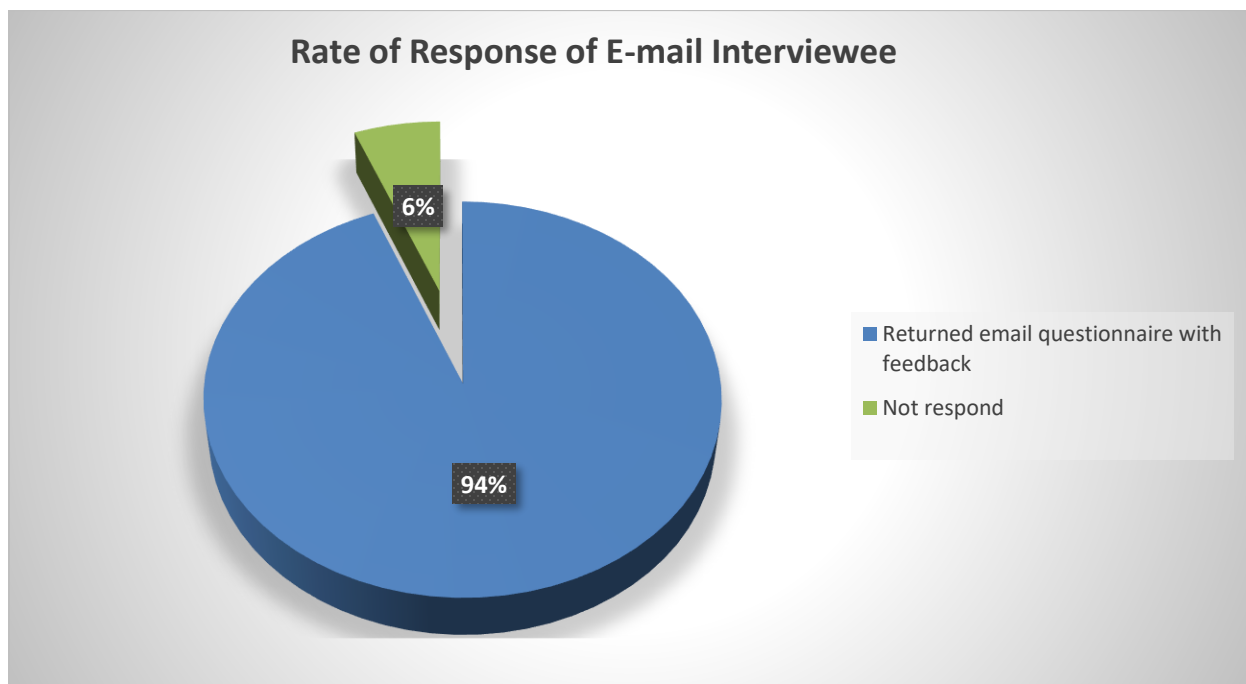


Figure: 4.1. Rate of Response of E-mail Interviewee.

4.3. Respondent's Information Based on Various Factors

For a true portrayal of the present scenario of Dhaka's congestion, respondents were chosen based on a variety of characteristics from a variety of organizations, professions, sectors, and experience levels. Detailed statistics on various aspects of the interviewees are stated below.

4.3.1. Respondent's Statistics Based on Workplace

Table 4.1 stipulates that fifteen of the forty-seven respondents work for government organizations, eight are work for non-govt organizations (NGOs), five are employed by private organizations, seventeen are self-employed and two are employed by other organizations.

Table: 4.1. Respondent's Statistics Based on Workplace

Sl. No.	Organization Type	Participant's Number	Percentage (%)
01.	Government Organization	15	31.91%
02.	Private Organization	05	10.64%
03.	Non-Govt. Organization	08	17.02%
04.	Self Employed	17	36.17%
05.	Others	02	04.26%
Total		47	100%

Figure 4.2 shows Respondent's Statistics Based on Workplace. It demonstrates that the majority of respondents (36.17 percent) are self-employed and government employees ranking is second (31.91 percent). Interviewees from non-governmental organizations, private organizations, and

other organizations make up 17.02 percent, 10.64 percent, and 4.26 percent respectively.

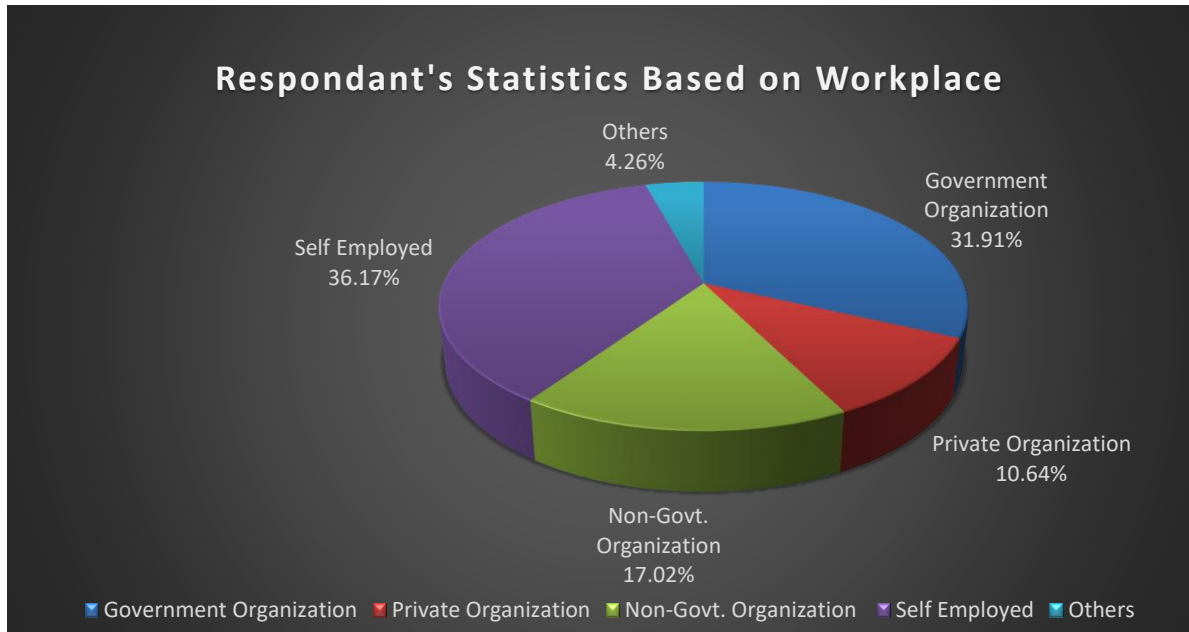


Figure: 4.2. Respondent's Statistics Based on Workplace.

4.3.2. Respondent's Information Based on Profession/Designation

Table 4.2 stipulates respondent's information based on profession/designation. Nineteen of the 47 respondents worked as administrators or executives for GO-NGOs that were directly involved with or in charge of Dhaka's traffic management/administration system.

Table: 4.2. Respondent's Information Based on Profession/Designation

Sl. No.	Profession	Respondent Number	Percentage (%)
01.	Politician	2	04.25%
02.	Administrator/Executive	19	40.43%
03.	Journalist	5	10.64%
04.	Teacher	4	08.51%
05.	Vehicle operator	3	06.38%
06.	Planner/Engineer	10	21.28%
07.	Businessmen (Transport)	4	08.51%
Total		47	100%

There were ten planner/engineers that had extensive experience in both planning and construction. Two policymakers, who had the potential to contribute to the formation of policies, took part in the interview. Three vehicle operators and four transport businessmen participated in the interview and supplied their real-life observations.

Figure 4.3 shows that Administrators and executives made up the majority of the responses overall. Administration/executive responders made up 40.43 percent of the total. Planner/engineer replies came in second place (21.28 percent). Both teachers and businessmen (transport) respondents shared the same responses (8.51 percent). Interviewees from politicians, journalists and vehicle operators were 4.25 percent, 10.64 percent, and 6.38 percent respectively.

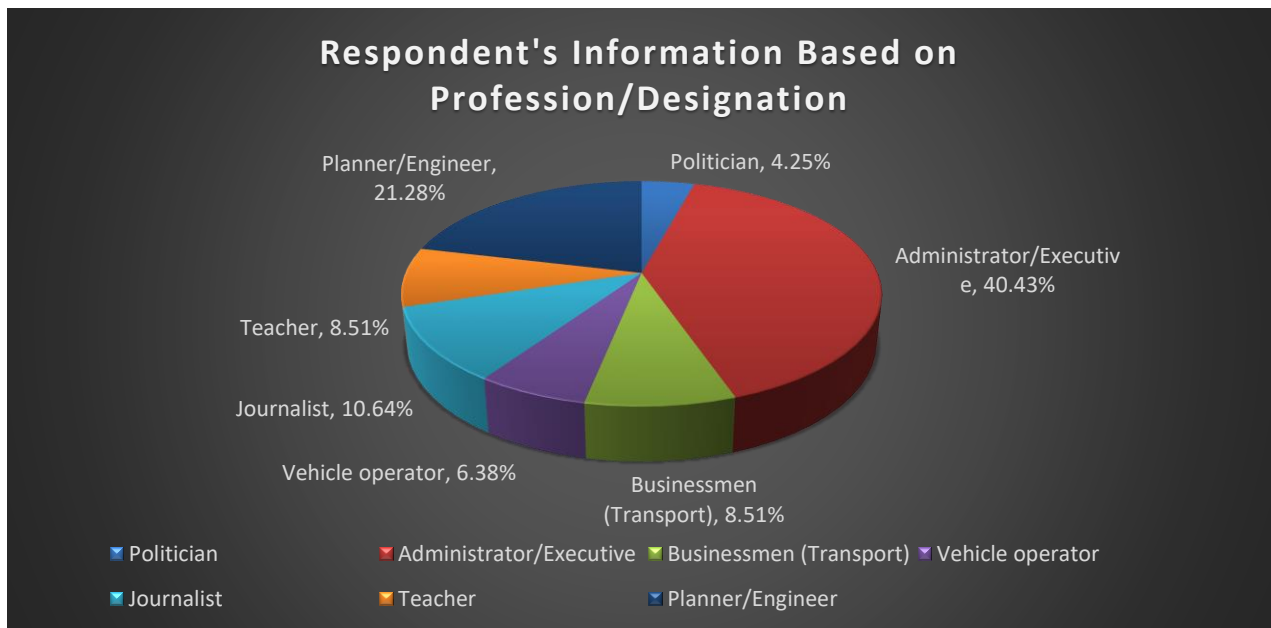


Figure: 4.3. Respondent's Information Based on Profession/Designation

4.3.3. Respondent's Statistics Based on Working Experience

Figure 4.4 and table 4.3 shows how long the respondents have worked at their current jobs. According to the data, 8.11% of respondents have less than five years' experience, followed by 23.40% for those with six to ten years' experience, and 27.66% for those with eleven to fifteen years.

Table: 4.3. Respondent's Statistics Based on Working Experience (years).

Sl. No.	Service Length (Years)	Respondent Number	Percentage (%)
01.	Below 5	04	08.51%
02.	6 – 10	11	23.40%
03.	11 – 15	13	27.66%
04.	Over 15	17	36.17%
05.	Not applicable	02	04.26%
Total		47	100%

The study's best source for accurate and useful data is the respondents, who make up around half of respondents (36.17 percent) and have more than fifteen years of expertise. 4.26 percent of respondents also revealed that they had no prior work experience.

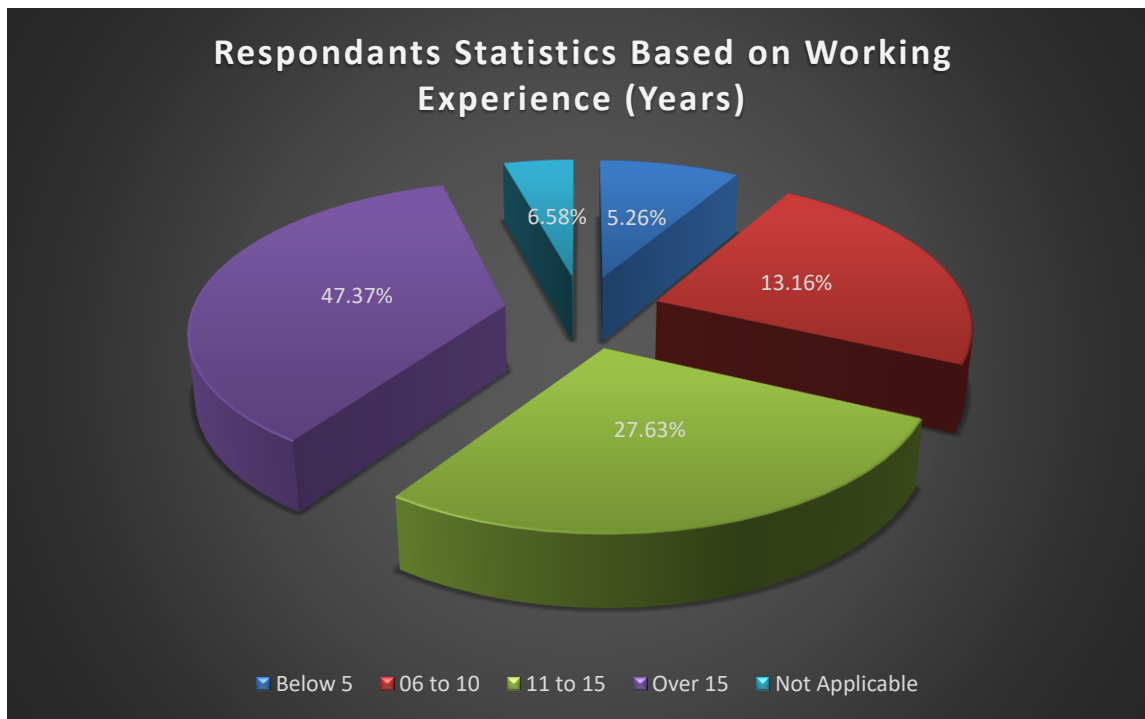


Figure: 4.4. Respondents Statistics Based on Working Experience (years).

4.4. Analysis of Interview Data and Information

As interview technique is the most popular in case of qualitative data collection so, two types of interview techniques e.g. face-to-face and E-mail interview were followed for data collection. Analysis of collected data and information for both types of interviews are illustrated bellow;

4.4.1. E-mail Interview

Interview question were sent to 50 respondents with forwarding letter through e-mail for their valued opinion and suggestions on the research topic. Among 50 respondents 47 were responded and given their valued views and opinion. Out of the 47 respondents two were politicians, two were representative from civil society, five were journalists, nine were mass people as passengers, two were university teachers, eight were NGO workers, four were leaders from transport owner association and fifteen were senior and mid-level bureaucrats. Respondents were provided a large number of significant opinion and suggestions. Analysis of the opinion and suggestion provided by the respondents are illustrated bellow;

4.4.1.1. Respondents views on Causes of Dhaka's Congestion

- Around 95% interviewees were depicted that illegal occupancy of footpaths and road side, huge number of vehicles, wrong and illegal car parking, lake of adequate public parking and traffic rules violation are the vital cause of Dhaka's congestion.
- Above 85% respondents were opined that unplanned and lack of sufficient communication infrastructure, inactive road signaling system, unfit vehicles, over population, too many rail crossings are triggering the traffic jam of Dhaka city.
- Unplanned construction and development work, unorganized urbanization, various political and commercial activities on the roads, tendency to overtaking and accident are identified as notable causes behind the congestion of Dhaka by more than 78% interviewees.
- Around 68% respondents think that inadequate logistic and manpower, dated system of traffic management, poor implantation of traffic rules, encroachment of roads, lack of coordination among the different authorities concern with the traffic management are liable for the hectic traffic scenario of Dhaka city.

- Furthermore, improper public-private vehicle ratio, lack of awareness of city dwellers, water logging during rainy season, movement of diverse speed vehicle on the same lane, too many mods of vehicle are also considered as important reason for traffic jam by around 66% respondents.

4.4.1.2. Consequences of Dhaka's Congestion as per Informants view

- All the interviewees claimed that city dwellers are being affected financially, mentally, physically and environmentally as a consequence of congestion.
- 100% respondents of the research stipulated that traffic jam is prolonging the travel time to double or triple. Huge working hour is being waste which hampering the national economy.
- Above 78% of the interviewees are believed that each and every resident are suffering from one or more than one physical or mental complication due to traffic congestion of the city.
- Around 76% of the research population illustrated that environmental degradation e.g. air and sound pollution of Dhaka are the unpleasant consequence of the prevailing woeful congestion of Dhaka.

4.4.1.3. Interviewees Opinion for Short-Term Solutions of Dhaka's Congestion

- Around 95% interviewees opined that regain of illegally occupied footpaths and road-side will be the most effective attempts to quick manage the congestion of Dhaka. Approximately 89% respondents believed that by banning all social, commercial and political activity on the road and road-side, congestion scenario can be developed notably within a short time. Initiative to develop the pedestrian facility was identified by the around 85% participants as a significant means in this regard.
- Introducing congestion charge/road pricing at rush hour was considered by above 78% interviewees as an effective and quick measure to reduce congestion. Again, same number of the participants stated that through introducing administrative penalty along with financial penalty, prevailing congested scenario can be improved dramatically over night. Introduce of different fare structure for peak and off-peak hour was marked by about 74% respondents as an active tool to reduce congestion.

- By controlling the encroachment of roads was marked by 70% interviewees as a means to lower congestion. Approximately 66% of them stipulated that optimum use of over and under pass could be a change maker in this regard.
- Strict control of illegal parking and ensure of adequate parking facility were revealed by the 64% respondents as a vital instrument to decrease Dhaka's traffic jam. Approximately 62% respondents think that strict follow of 'no new shopping mall/trade Centre/organization permission without having parking facility' policy will play a significant role in this regard.
- About 74% of the interviewees were identified that by banning all unfit and illegal vehicle and 62% were discovered that by adopting 'more private vehicle, more tax' and 'two days office from home in a week rotationally' policy, existing volume of vehicle can be reduced that will help to diminish congestion.
- Approximately 70% of interviewees opined that all educational institution, GO-NGO office, factory, trade center industry etc. located inside the city, must be used dedicated public vehicle instead of private vehicle to make the situation better.
- It was revealed by the 67% respondents that firmly maintain of dedicated lane for rickshaw and other human-driven vehicles will bring a good result within a short time to manage the mess.
- It is significantly identified by the 67% respondents that construction and repair work should start after at 10 pm and close at 6 am to avoid congestion. 62% of them opined that to control the congestion official time schedule for garments, factories and industries may be changed to 12 am - 8 pm instead of existing schedule. They further opined that school time schedule may be rescheduled class wise for a better outcome.
- It was stipulated by around 59% of the participants that initiative to restart the circular waterway, effectual operation of Hatirjheel to Gulshan water root, inaugurate the implemented Mass Rapid Transit (MRT) and Bus Rapid Transit (BRT) within shortest possible time will be a prolific effort to address the congestion.
- 64% interviewees were emphasized on the effectual public awareness building program on the use of footpaths, over and under pass, obeying traffic rules, benefit of walking etc.
- Efficient use of existing modern street sign and signal, co-ordination among diverse authorities concern with the traffic administration and management, transparency of

related organizations is considered by some of the respondents to tackle the horrible situation.

4.4.2. Face-to-face Interview

As, some of the selected respondents are not educated and have no access to internet but they have vast knowledge and real-life experience on the current traffic jam of Dhaka city so, face-to-face interviews were arranged to collect their views, opinion and real-life observation. Ten interviewees were invited in face-to-face interview. Among the ten participants three were transport worker leaders, three were drivers, two were transport workers and two were passengers.

4.4.2.1. Respondent's view on causes of Dhaka's congestion

Cent percent interviewees depicted that narrow road, presence of excessive rickshaw and small vehicles, poor implementation of traffic rules, illegal occupancy of road-side, inconsiderate parking are mainly responsible for traffic congestion of Dhaka. Eight out of the ten think that increasing pressure of over population, inefficiency of drivers and helpers, too many intersections and rail crossing, unfit and illegal vehicles are behind the existing traffic jam. Five of the respondents stated that construction of mega project like metro rail and non-coordinated development work of different authority, water logging during rainy season, political and commercial activities on the roads are worsening the congestion picture of Dhaka.

4.4.2.2. Respondent's view on Consequences of Dhaka's Congestion

All of them are claimed that public health scenario is being degrading due to this unpleasant congestion. All most all the drivers and transport workers are facing the adverse health-related effect e.g. hypertension, weakness, bad headache, dehydration, heart diseases due to traffic jam. They also suffering from different types of ear, nose and throat related diseases which are end result of air and sound pollution, arises from traffic congestion. They further mentioned that they are facing financial loss due to lose of working hour, extra fuel consumption and physical as well as mental complications.

4.4.2.3. Respondent's view on Short-Term Solutions of Dhaka's Congestion

All of them felt evict of the illegal occupants from the roads and footpaths, replacement of small vehicles by public vehicles, adequate parking facility are the main short-term solutions of current congestion. 80% respondents think that smart and effective implementation of traffic rules and road sign, coordinated approach in terms of development and repair activities, training for transport workers and drivers and 50% of the interviewees are believed that dedicated public vehicles for large organizations, reduction of non-motorized vehicles and ban of unfit and illegal vehicles are the potential short-term solution of Dhaka's congestion.

5.0. Research Findings

The E-mail and in-person interviewees noted illegal activity on the roads, including unauthorized use of footpaths and roadside space, inappropriate and excessive vehicle density, improper and illegal parking of cars, lack of adequate public parking, traffic law violations, excessive population, an excessive number of rail crossings, unorganized construction and development work, and various political and commercial activities on the streets, water logging during the rainy season are the vital causes behind the congestion of Dhaka. Additionally, the respondents to e-mail interview cited lack of manpower and logistics, outdated traffic management system, road encroachment, lack of coordination among traffic management agencies, improper public-private vehicle ratio, lack of awareness among city residents, propensity for accidents and overtaking, unplanned urbanization, the movement of different speed vehicles on the same lane and excessive number of vehicle modifications as other significant contributing factors to Dhaka's congestion. The results of the literature review and the opinions of those who took part in face-to-face interviews are identical to those stated above.

According to literature assessment, congestion has a negative impact on city people's finances, well-being, physical health, and environment. Huge working hour is being waste and travel time is prolonging to double or triple because of bottleneck which hampering the national economy. Most of the participants in the face-to-face and email interviews shared the same opinions. City inhabitants experience a variety of physical or mental complications as a result of traffic congestion. By analyzing the available literature, it was determined that uncontrolled

carbon emissions from stuck vehicles caused by traffic are one of the main causes of health risks, environmental deterioration and pollution in Dhaka which is corroborated by the opinions of email interviewees. Road accidents and greenhouse gas emissions are both rising due to congestion, in accordance with literature research and email interviewees.

Regaining control of illegally occupied footpaths and roadside, strict control of illegal parking, provision of adequate parking facilities, and ban on all social, commercial and political activity on the road and roadside will be the most practical short-term solutions to Dhaka's congestion, according to literature review and e-mail interviews respondents. In accordance with the e-mail interviewees opinion, traffic congestion can be reduced by implementing congestion charge or road pricing during rush hour, introducing administrative fines in addition to financial penalties and different fare structure for peak and off-peak hours, adopting the "more private vehicle, more tax" policy, and strictly adhering to the "no new shopping mall/trade center/organization permission without having parking facility" rule. The literature research backed up this interpretation of the interviewees. Most e-mail interviewees, as evidenced by literature review, advocate for banning unfit and illegal vehicles, using dedicated public transportation instead of private vehicles at all educational institutions, GO-NGO offices, factories, trade centers, industries, etc. located inside the city, restarting circular waterways, effectively operating Hatirzheel to Gulshan water root, and launching implemented Mass Rapid Transit (MRT) and Bus Rapid Transit (BRT) within the shortest amount of time as means of quick manage the congestion. Both literature review and e-mail interview unveiled that Efforts to improve pedestrian facilities, limit road encroachment, make the best use of overpasses and underpasses, Efficient use of existing modern street sign and signal, co-ordination among diverse authorities concern with the traffic administration and management, construction and firmly preserve a separate lane for rickshaws and other human-powered vehicles would help to quick manage the Dhaka's traffic chaos. E-mail interviewees suggested that to reduce the congestion of Dhaka city, repair work should start after at 10 pm and close at 6 am to avoid the congestion, official time schedule for garments, factories and industries may be changed to 12 am - 8 pm instead of existing schedule, schooling time can be reschedule class wise, effectual public awareness building program should be arranged on benefit of footpaths, over and under pass uses, outcome of obeying traffic rules, and useful of walking etc.

6.0. Conclusion and Recommendations

Congestion has been ruled Dhaka city for the past quarter century which is an unpleasant reality. Despite several public and private initiatives were made to solve this issue, but nothing noteworthy was accomplished. Instead, the level of congestion is getting worse. This study was carried out in this context to pinpoint the root causes and effects of the traffic congestion in Dhaka as well as to suggest some immediate fixes. Based on the study's findings it is possible to conclude that the study's goals and objectives were met. According to research, Dhaka's existing traffic management system and congestion issue are quite unsatisfactory to the city's residents. Root causes of Dhaka's congestion are successfully identified by research. At the same time research finding has efficaciously exposed the consequences of congestion which is shocking. In essence, the reasons of the traffic gridlock in Dhaka conceal the answers. Finally, it can be said that research finding in terms of short-term solutions of Dhaka's congestion can show the best possible way out in this regard. Considering all types of findings, the study suggests that The Government of Bangladesh should take immediate initiative to implement following recommendations as short-term (Six-twelve months) solutions of Dhaka's congestion;

1. Steps should take to reclaim the footpaths and roads that have been illegally taken over by occupants and forbid any commercial and political activities there.
2. Stringent control of illegal parking, adequate parking facility and strict implementation of traffic legislations have to ensure.
3. 'More private vehicle, more tax' and 'No new shopping moll/trade Centre/organization permission without having parking facility' policy should introduce and implement.
4. Road pricing or congestion charge in rush hour, administrative penalty along with financial penalty, different fare structure for peak and off-peak hour should be introduce.
5. Action has to take to develop the pedestrian facility, control encroachment of roads and optimum use of over and under pass.
6. 'Two days office from home in a week rotationally', policy has to introduce.
7. Existing huge unfit and illegal vehicles should be banned and use of dedicated public vehicles instead of private vehicles by all educational institution, GO-NGO offices,

factories, trade centers, industries etc. located inside the city should be ensured to reduce the excessive number of vehicles that are triggering Dhaka's congestion.

8. As rickshaw and non-motorized vehicles plays an important role in case of Dhaka's communication so arrangement of separate lanes for these modes of vehicles should get priority.
9. Initiative has to take to activate all the existing signaling system and introduce of modern street signaling system.
10. Official time schedule for garments, factories and industries located inside Dhaka city should be rescheduled to 12 am – 8 pm, from existing schedule, and schooling time schedule should be rescheduled class wise.
11. Measures have to take to ensure specific and shortest possible time-table for development activities. Construction and repair work should start after at 10 pm and close at 6 am to avoid the congestion.
12. Steps have to take to arrange public awareness building program on the use of footpaths, over and under pass, obeying traffic rules, benefit of walking etc.
13. Ensure effective co-ordination among diverse authorities related to traffic management.
14. Effectual operation of Hatirjheel to Gulshan water root, restart of existing circular waterway, inauguration of implemented Mass Rapid Transit (MRT) and Bus Rapid Transit (BRT) within shortest possible time should be part of the strategy for Dhaka's traffic management.

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Appendices

Appendix - A

136th Advanced Course on Administration and Development (ACAD)

Bangladesh Public Administration Training Centre (BPATC)

Savar, Dhaka

Research Title: Dhaka's Congestion: Short-term Solutions

The purpose of this study is to assess the respondents' ideas and perceptions on Dhaka's congestion and possible short-term (Six-twelve months) solutions. This study will be executed as an accomplishment of prerequisite of the Advanced course on Administration and Development at the Bangladesh Public Administration Training Centre, Savar, Dhaka. The collected data and information through this research will be utilize only for the study and personal information of the respondents will never be unveiled. I do believe that the research findings will be more pertinent through your valued opinion, observation and practical knowledge. In order to carry out this research, you are respectfully urged to cooperate.

Sincerely yours,

Ashrafur Rahman (Researcher)

A participant of 136 ACAD Course

BPATC, Savar, Dhaka.

E-mail: ashrafur_15575@yahoo.com

Unit: A

1. Personal Information [please put a tick (√) where appropriate]

i. Type of organization:

(a) Government [] (b) NGO [] (c) Private []

(d) Self Employed [] (e) Others [] (f) Not applicable []

ii. Service/Experience Length:

(a) Below 5 years [] (b) 6-10 years [] (c) 11-15 years []

(d) Over 15 years [] (e) Not applicable []

iii. Designation/Area of working:

- | | |
|---------------------------|-----|
| (a) Policy maker | [] |
| (b) Engineer/Planner | [] |
| (c) Administrator/Manager | [] |
| (d) Vehicle operator | [] |
| (e) Transport business | [] |
| (f) Mass people/Passenger | [] |
| (g) Others | [] |

Unit: B

INTERVIEW QUESTIONS

1. What are the major causes of Dhaka's congestion?
2. What are the consequences of Dhaka's congestion?
3. What are the short-term (Six-twelve months) solutions of Dhaka's congestion?