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Growing Traffic in Peshawar: An Analysis of Causes and Impacts

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ABSTRACT

Peshawar is increasingly transforming into a city of congestion and traffic related problems due to growing number of vehicles coupled with lack of expansion in the existing road network and effective traffic management. This paper is aimed to study the status of growing traffic, its main causes and effects, road network analysis vis-à-vis the prevalent traffic management in the city. For this purpose relevant secondary data was collected from Excise and Registration Department, Peshawar; Communication and Works Department, Peshawar; National Highway Authority, Peshawar; Bureau of Statistics, Peshawar; Highways Department Peshawar; Peshawar Development Authority and Headquarter Traffic Police, Peshawar. Information was also collected through questionnaires survey and interviews with drivers, general commuters and personal observation. The findings reveal that during 1998-2009, the proportion of increase in number of vehicles is 126.4 % while that of road network expansion is only 0.85 %. The data shows that major contribution to increasing number of vehicles is private cars, which constitute 75.35 % of the total registered vehicles and has shown 228.98 % increase during 1998-2009. Besides, the greater number of road-blockages and check posts created by the security personnel in the wake of terrorism threats is another cause of traffic jams in the city. Furthermore, the situation has caused extra fuel consumptions and delays. The paper suggests effective traffic management and awareness; planning and development control with measures to discourage the use of private cars in the city.

KEY WORDS: Proportion, Road Network, Road Blockages, Traffic Management, Planning and Development Control

Introduction

Cities of today largely depends on transport system for their economic survival and socio-environmental sustainability. Housing patterns, land utilization, economic and commerce centers are all shaped by the transport system. Although,

the transport system has a direct impact on all sectors of an economy, its environmental, economic and social impacts are significant as these are directly related to quality of life and urban productivity. The impacts of ill-planned transport on human environment include congestion, more energy consumption, pollution and traffic crashes. Mankind has been endeavoring for the improvement of transportation since early history of civilization. This improvement is not only done for the easy communication of services but also for the exchange of goods and services. Consequently, this improvement has uplifted the standard of living and lifestyle of humans. A best transportation system results into a well-developed society and a progressive country.

This paper examines the intensity of traffic and transportation system in Peshawar city. The paper is divided into four sections. The section one is comprised of introduction to the study and study area as well as statement of the problem. A theoretical basis of study is also part of this section. The second part discusses the methods and materials used for the collection of data and information. The third section describes results and findings of the study, while the last section of the paper is about the conclusions and suggestions.

Study Area and Statement of the Problem

This study is focused on investigating the pattern of traffic growth and its causes and effects on commuters and residents of Peshawar city. Peshawar is the Capital City of Khyber Pakhtunkhwa and the administrative center of the Federally Administered Tribal Areas of Pakistan. Founded by Kushan King Kanishka in the 2nd Century AD, the city once called Purushapura. It was Kushan leader Kanishka who made it his capital. Owing to its importance, it remained the target of successive Afghan, Persian and Mongol invaders over centuries. It was named Peshawar by the Mughal emperor Akbar.

Peshawar city is one of the most polluted and congested city of the country as far as traffic is concerned. Encroachment in busy markets and huge traffic on roads causing congestion, which has made life miserable for drivers and for people who even could not find way to pass while walking in different areas. Vehicular movement at snail's pace has become a routine matter in Peshawar and once a motorist enters city area during business hours could not get out in less than an hour. The most sufferers are the drivers and the pedestrians from the present state of traffic congestion and encroachment, especially women and children, who could not find way to walk because of congestion, immature driving habits and occupation of the footpaths by the shopkeepers and venders.

A visit to different congested areas like Hayatabad Chowk, Gora Qabrastan, University Town chowk, Suri pull, Hasht Nagari, (chargano chowk) Bacha khan chowk and different markets including historic Qisa khuwani bazaar, Chowk Yad Gar, Pipal Mandi, Kohati bazaar, Gunj gate, board bazar, karkhano markets etc

may help realize the difficulties being faced by pedestrians and drivers of different vehicles.

Customers park their vehicles near their shops because of lack of car parks and security. Besides this, almost all shopping malls, restaurants, wedding halls and establishments on the city's road do not have car parks and their customers are used to park vehicles along the road side. All these things contribute in increasing traffic problems specially congestion. The appalling thing is that most of the newly developed building, offices, restaurants and trade centers on Jamrood road, after the year 2000, even do not have car parks which are clear violation of the Peshawar Development Authority building By-law rules and which raises few question on Peshawar Development Authority and on the provincial government as well.

Besides all violations of the rules and carelessness from people, the present law and order situation also contributes to increasing traffic problem. The ongoing war on terror in Afghanistan affects every sector of the economy, and the bad transport sector is one of them. Due to suicide attacks, bomb blasts and terrorists presence in the area, the law enforcement agencies made blockages and check posts on every road for security reasons, which too create huge traffic congestion. Not only blockages and check posts but the authorities, in the core of the city, have permanently blocked many of the roads for every kind of traffic, which has further reduced the already strained network capacity.

Theoretical Framework

Motorization is closely associated with the GDP of a country. Increase in income rises living standard and travel distance which encourage for more personal vehicles. In Karachi, according to State Bank of Pakistan report, during the last half of 2004, different banks have loaned and financed US$ 0.37 billion for automobiles, which is 2.5 times higher than the loans released for house purchase and construction (Ahmed et al. 2008).

The environmental and social impacts of urban transportation are seen as a threat to the sustainability of the environment. According to a report, the transport sector's energy consumption and gas emissions will likely be doubled by the year 2025. Therefore, there is a strong need of sustainable transportation system especially in the mega cities of the world (Qureshi and Huapu, 2007).

Usually with development, the death rates fall but in transport sector, the situation is radically different. Traffic accidents are a notable exception both for developed and developing countries. Between 1975 and 1998, deaths due to traffic accidents increased by 44% in Malaysia and by over 200% increase in Colombia and Botswana. Moreover, the World Health Organization has also predicted that by the year 2020, traffic fatalities will be the sixth leading cause of deaths and the second foremost reason of disability in developing countries of the world (Kopits and Cropper, 2005).

Traffic management is a very complex and difficult matter in any of the metropolitan city of the world. In developed countries, it is a difficult and a complex affair because of more vehicles on roads and in developing countries; it is a serious issue because of the bad traffic management. According to a report, in the past two months, because of traffic jams in Karachi, more than 500 peoples have lost their lives on roads and the officials blame private vehicles for these incidents. According to conservative estimates, more than 300 private vehicles are registered every day in Karachi and it reaches to 1.5 million. The customesr find easy access to private vehicles because of car financing schemes from different banks, low prices of CNG and LPG (Humayun, 2006).

To a commuter or traveler, congestion means loss in time, missed opportunities and frustration. To an employer, congestion means loss of workers' productivity, trade opportunities, delivery delays, and increased costs. To solve congestion problems is feasible not only by constructing new facilities and policies but also by building new information technology in transportation management systems. A growing body of evidence proves that simply expanding a road infrastructure cannot solve traffic congestion problems. In fact, building new roads can actually compound congestion, in some cases, by inducing greater demands for vehicles-travels that quickly eat away the additional capacity. Therefore, many countries are working to manage their existing transportation systems to improve mobility, safety, and traffic flows in order to reduce the demand of more vehicles-use (Wen, 2008).

Because of traffic jams and over speeding, fifty thousand people died and 2 million were injured on the road of United States in 1965. According to the national safety council, it is a coincidence that the number injured in 1965 exactly equaled to the total number of hospital beds in the US. The total cost of these accidents was US$ 8.5 billion, exactly the same amount of budget for highway construction and improvement (Drew, 1968). Moreover, the traffic condition of the United States is getting even worse day by day. It is estimated that a common driver annual delay is in excess of 47 hours per year. Moreover, due to traffic jams, every year more than 2.3 billion gallons of fuel get wasted. Based on 2003 figures, the Texas Transportation Institute says that the cost of U.S traffic delays is, conservatively, US$ 63.1 billion a year, and it is not getting any better (Robert, 2006).

About 28,000 rickshaws with no documents and route permits ply on the city roads of Peshawar, while only 8,000 rickshaws have some sort of papers / documentation. These rickshaws are mostly driven by underage drivers. According to official statistics, some 8,243 rickshaws have obtained route permits but these documents need to be renewed every year. These rickshaws not only contribute to traffic jams but also increase emission of hazardous gases, especially noise pollution, which have been causing various health problems for city dwellers. In Peshawar, the noise level ranges between 90 and 100 decibel in various parts of

the city, while the maximum value set by the WHO is 85 decibel (daily Peninsula, 2010).

Air pollution from motor vehicles is one of the most serious and rapidly growing environmental problems in the big cities of the developing world. Due to rapid rate of motorization, urban transport is gradually determining the state of air pollution in many Asian cities. The increasing size of cities and the chaotic increase of work places and residential areas lead to longer and per person increasing number of trips (Shabbir et al. 2010).

Traffic accidents impact on the economy of the developing countries at an estimated cost of 1–2% of GNP per annum. Causes of motor vehicle crashes are multi factorial and involve the interaction of a number of pre-crash factors that include people, vehicles and the road environment. Human error is estimated to account for between 64 and 95% of all causes of traffic crashes. Old vehicles, overloading, lack of safety belt, helmet use, poor road design, maintenance and the traffic mix on roads are other factors that contribute to the high rate of accidents (Odero et al. 1997).

As measure to reduce congestion and pollution by 850,000 private cars in a city, Shanghai city residents will soon be able to rent cars for short periods. The car-sharing model project was displayed by Germany at the Urban Best Practices Area of the Expo 2010 Shanghai. The model would be attractive to customers who only use a car occasionally, as well as to those who would sometimes like access to a vehicle of a different type from the one they use regularly. On average, a shared car can replace six private cars, the case suggested and many Shanghai residents approved of the idea (Yiyao, 2011).

Latin America's teeming cities are facing disordered and overloaded transport systems. In financial and industrial megalopolis Sao Paulo (Brazil), commuters are routinely stuck in traffic jams for hours. In Caracas, where 62% of vehicles are private and gasoline prices are cheap, experts say every commuter spends two to three hours a day in their car. In Mexico city, the commuters in average takes daily between three quarters to one hour on one way. In Venezuela's capital, "Caracas on the move" plan is in the work; which will restrict traffic on 81 avenues. Mexico already has a rotating traffic ban, based on residents' license plate numbers, barring them from city streets one day a week. Meanwhile, Buenos Aires last year launched a major plan aimed at reorganizing traffic including more parking meters, fines and employing officers for traffic management (Presse, 2009).

The increase of transportation demand has a direct impact on economic growth and development of a country. Like most of other countries, Pakistan has been following a pattern of development, which is based on low cost energy and transport. According to a national transport research, in Pakistan, the growth rate of passenger and goods traffic has been much higher than the growth rate of population and GNP. From 1971-1972 to 1984-1985, the passenger and goods traffic carried by rail and road transport increased by 156 percent and 255 percent respectively (National Transport Research Centre, 1985).

Methods and Materials

To meet objectives of the study, both primary and secondary data was collected through various methods and techniques. Secondary data was obtained from various offices and concerned departments. The offices visited include Excise and Taxation office Peshawar; Communication and works Department Peshawar; National Highway Authority Office Peshawar; Bureau of statistics Office Peshawar; Highways Department Peshawar; Peshawar Development Authority and traffic Police Head Quarter Peshawar. Besides consulting different journals, research reports, internet was also used to extract the required information. Primary data was collected through questionnaires; field survey and personal observations. During collection of primary data, the study area was divided to carry out stratified sampling and hence questionnaires were filled from different respondents including drivers of public transport and personal vehicle owners in a random format. Information was also recorded through general observation, besides interviews with officials of different concerned departments. The data obtained was analyzed and shown in various tables and charts.

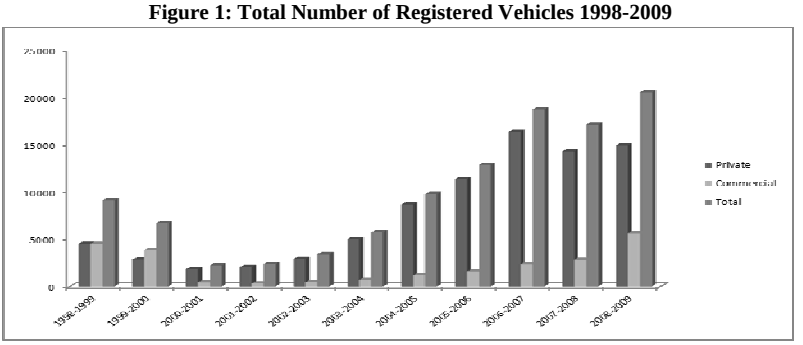
Results and Findings

Data and information collected through afore-stated techniques was analyzed and its results are discussed below.

Pattern of Traffic Growth

The growths of private and commercial vehicles registered in Peshawar as well as vehicles moving in from other parts of the country and its comparison with other major cities of the province are shown in the following Figures.

Figure 1: Total Number of Registered Vehicles 1998-2009

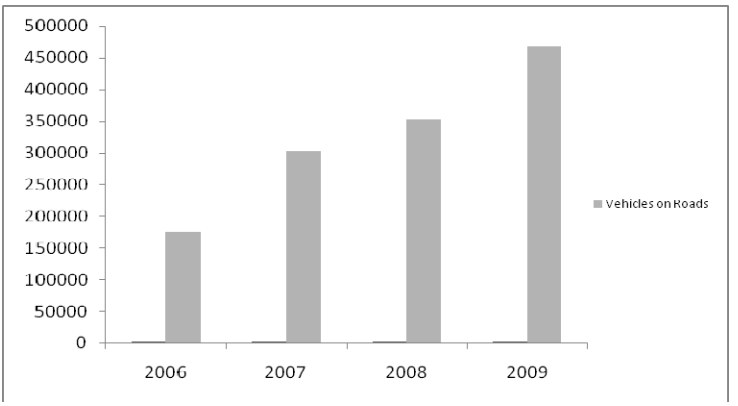


Source: Excise and Taxation Office, Peshawar

Figure 1 shows the total number of commercial and private vehicles registered with the excise department of Peshawar for the year 1998 to 2010. The table depicts that the growth of private vehicles is much higher than the commercial

vehicles (23.85 %), which account 228.98 % from 1998 to 2009. The great number of private vehicles is considered the main cause of congestion in the city.

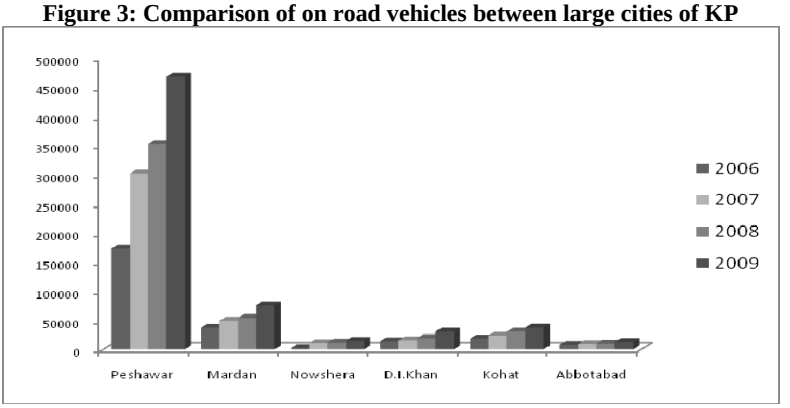
Figure 2: On-Roads Vehicles in Peshawar (2006- 2009)



Source: Bureau of Statistics, Khyber Pakhtunkhwa, 2010

The above Figure reveals the growth of on-road private and commercial vehicles in Peshawar, which include both registered and unregistered along with vehicles coming from other parts of the country to Peshawar.

Figure 3: Comparison of on road vehicles between large cities of KP



Source: Bureau of Statistics, Khyber Pakhtunkhwa

The Figure shows the comparison of on-road vehicles between six big cities of Khyber Pakhtunkhwa for the year 2006 to 2009. It is revealed that the number of vehicles for all years in the Figure is significantly higher in Peshawar, which increased by 169.45 % from 2006 to 2009.

Table 1: Comparison of Permit holders with non-Permit holders

Types of vehicles	Permit Holders	Without Permit holders
Rickshaws	6250	23443
Buses	526	1146
Vans	317	330

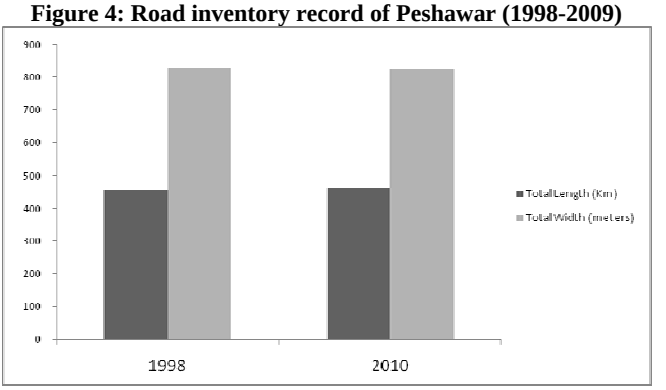
Source: Daily "AAJ", 2 September, 2009

The above table quoting data from a report in a daily shows comparison of vehicles with "traffic permit" (i.e. permission to ply in the city) with non-permit vehicles in the city. The number of vehicles without "traffic permit" many time higher that the permitted vehicles. This also indicates the poor performance of traffic management in the city.

Expansion in Roads Network

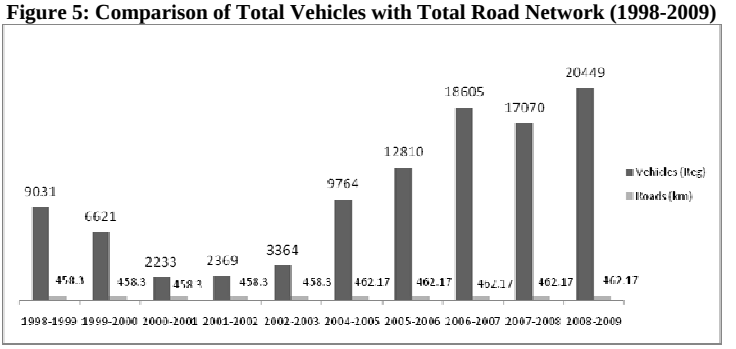
The road inventory record of Peshawar city for the year 1998 to 2009 shows that there has been no attention to expansion in road network by the concerned authorities. The result of road inventory is shown below.

Figure 4: Road inventory record of Peshawar (1998-2009)



Source: Communication & Works department, Peshawar

Figure 5: Comparison of Total Vehicles with Total Road Network (1998-2009)



Source: C&W and Excise & taxation office Peshawar

The Figure above shows that the vehicles increased at a higher rate; however, no expansion was done in the road network to manage the growing number of vehicles in the city.

Socioeconomic Effects of Existing Traffic

The ill planned traffic is affecting the social life as well as the economic conditions of all commuters in the city. Based on the information collected from drivers and commoners, it was revealed that traffic problems significantly impact their life, wellbeing and daily activities on account of increasing traffic jams, longer time to reach destinations; extra fuel consumption and health and psychological impacts due to noise and traffic related air emissions. The detailed overview of these effects can be discerned from the following Table.

Table 2: Socioeconomic impacts of existing traffic in Peshawar

Response about the time in reaching their destination in comparison with past		
Time	**Respondents**	**%age**
Same time	01	3.37
Double time	14	46.67
More than double	11	36.67
Less than double	04	13.33
Response about the time spend in traffic jam on daily basis		
Time	**Respondents**	**%age**
15 min	01	3.33
20 min	03	10
25 min	09	30
30 min	07	23.33
45 min	08	26.67
90 min	02	6.67
Drivers response about the additional consumption of fuel due to traffic jam		
Rupees	**Respondents**	**%age**
200	10	33.33
150	06	20.00
100	09	30.00
50	05	16.67
Response of drivers about the effect of increasing traffic on their social life		
	Respondents	**%age**
Reduce income	19	64
Reduce social activities	11	36
Response of drivers about the main reason of traffic increase in Peshawar		
	Respondents	**%age**
Urbanization	0	0
Private cars	30	100
Public Transport	0	0
Any other	0	0
Response of drivers about the effect of check posts on traffic		
	Respondents	**%age**
Increase traffic Jam/Useless	30	100
Useful	0	0
Response of drivers about the present traffic management in the city		
	Respondents	**%age**
Satisfied	3	10
Unsatisfied	27	90

Suggestions of drivers for improvement of traffic management		
Suggestion	**Respondents**	**%age**
Remove check posts & blockers	06	20
Increase road network	06	20
Private vehicles	09	30
Flyovers & underpasses	07	23.33
Improve public transport	02	6.67

The table shows that about 50 % commuters take double time than the past, and the vehicles owners including drivers of the private public transport spend extra charges on account traffic jam / slow movement. Further, it is importantly revealed that the main cause of traffic growth is private vehicles i.e. cars and the various check posts erected by the security personnel in wake of the terrorism wave in the country, especially in Peshawar city.

Conclusions and Suggestions

It is concluded from the results that Peshawar city is in appalling condition due to ill planned fast growing traffic, especially during the past few years. Although, various factors including increasing population, rising income and shift to a market economy contribute to growing traffic in the city, the lack of a decent public transport has particularly led to increasing motorization / personal private cars. Being the capital city as well as centralized development style, great numbers of vehicles come to Peshawar from different parts of the country, besides greater number of Rickshaws plying without “permit” in the city. However, contrary to keep pace with the growing traffic in the city, no attention has been paid to expansion in the road network between 1998–2009.

The city lacks proper traffic planning and management and therefore, 90 % of the respondents are not satisfied with the present traffic management. In addition to private vehicles / cars, the check posts and blockages erected by security personnel on different location cause serious congestion, which is counterproductive in terms of time, extra fuel/gas charges, and hence the greater air emissions and its psychological and health impacts. It is revealed that the private cars owners and drivers of public transport spend about PKR 150-200 on extra fuel/gas consumption due to slow movement / traffic jams in reaching their destination, hence restricting their movement and their social activities. To overcome various factors causing traffic problems, congestion and the related environmental and social problems in Peshawar, the following measures are suggested for early implementation;

Traffic Management and Awareness

- All government departments related to the transport sector must be under one window for their better coordination and management.
- To relieve congestion, obstacles /road blockages should be removed and flyovers / under passes be constructed at few locations like Hayatabad Chowk, Firdous to Judicial Complex, and Tehkal bus stop to *Gora Qabrestan*.
- To overcome overcrowdings causing traffic jams at one specific time, the timings of schools, colleges, universities and offices should be changed to different hours of the day.
- The traffic management could improve by giving sensitization trainings to traffic police and their salaries and allowances be enhanced to their satisfaction.
- The drivers of public transport should be given proper education and also encourage people to obey the traffic rules.

Planning and Development Control

- To avoid ribbon development, the government should ban further hotels, trade centers, shopping plazas, housing schemes and wedding halls along main highways and roads in the city.
- The constructing of flyovers, under passes and roads expansion should be based on comprehensive surveys in the planning process for transport sector in the city.
- Car parking must be ensured as basic condition for approval of constructions, especially commercial centers along the roads.

Discouraging Private Cars

- To reduce the fastest ever traffic growth, the use of private cars should be discouraged through the introduction of decent public transport, including circular rail and transit transport in the city. The government should ban car schemes by different commercial banks and increase import duty on private vehicles.

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