THE ADVERSE IMPACT OF INCREASING TRANSPORTATION ON POPULATION: A CASE STUDY OF THE HISTORIC PESHAWAR CITY

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Abstract:

The purpose of the present study is to identify the transportation problems in the Historic Peshawar City and to come up with viable suggestions for improvement. In this regard, a survey was conducted from 1st to 31st May 2008 in six localities of the city. Sixty individuals, selected through random sampling, were interviewed. A mixed type of questionnaire was used to collect the relevant data. Results were interpreted in percentages. The study shows that the greatest problem associated with the ever growing transportation is mismanagement, which results into wastage of time (30%), wastage of fuel (28.33%), generation of pollution (18.33%), occurrence of road-accidents and stress (15%), and road damages (8.33%). In Peshawar City, the transportation problems are complex, and need an integrated approach to be solved.

Introduction:

Transportation system, an organised way for the movement of people and goods from one place to another, is the back bone of economy and heads a country on the path of development and welfare of its people. If well managed and efficiently functionalised, it ensures better accessibility to markets and investments [8]. It carries a social and environmental load [1]. On contrary, a poor transport system has an economic cost such as reduced or missed opportunities. Efficient transportation stimulates internal and external trade, facilitates the exchange of goods between the urban and rural centres, leads to specialised agricultural and industrial production, makes unattractive areas good for settlement, increases the mobility of labour, helps in stabilizing prices, opens opportunities for investment in less developed areas and eliminates inequalities in wealth due to unequal resources.

The well developed means of transportation greatly helps in provision of education facilities, connects people of different regions and nationalities and, as such, promotes better understanding and good ties between states and increases social welfare of the people by providing them basic amenities of life. The fast and improved transport helps in restoring peace and maintaining law and order in the country. A properly coordinated transport system enables a government to defend the country on sound footings. Organised extended transport systems arouse political awareness among the masses. The economic importance of transportation can be achieved both at macro and micro levels.

The macroeconomic level transportation and mobility confers are linked to a level of output, employment and income within a national economy. In many developed countries, transportation accounts between 6% and 12% of the GDP. The micro-economic level transportation is linked to producer, consumer and production costs. The importance of specific transport activities and infrastructure can thus be assessed for each sector of the economy. Transportation accounts on average between 10% and 15% of household expenditures, while it accounts around 4% of the costs of each unit of output in manufacturing, but this figure varies greatly according to sub sectors [1]. Although by itself not a sufficient condition for development, the slack transport infrastructures is a constraining factor on development.

While many of the economic impacts of transportation are positive, there are also significant negative impacts assumed by individuals or by the society in one or another way. Assessing those negative impacts of increased transportation in the subject area, i.e., Peshawar City, is the core of this study. Increase in population speeds up urbanisation, which brings many developmental changes associated with certain problems. Among all, transport problem is very serious that is faced both by the developed countries like America, United Kingdom, France and Japan, and developing countries like Pakistan, India, Bangladesh and Iran. In the developed countries, the nature of the problem is different such as traffic jams, wastage of time and fuel, parking problems, etc. Their roads are better, noise pollution is well controlled due to strict legislation, and the condition of vehicles is much better than in the developed countries. Separate lanes are allotted to heavy vehicles. Public transport is much in use, because it is available to all and is economical [7]. In under-developed countries the situation is totally different. Here, even in big cities, donkey carts, old and un-repaired vehicles are frequently seen on the roads. The condition of roads is not good because heavy and light vehicles use the same lanes. During working hours, the roads are packed with traffic.

Transportation System in the Peshawar City

Transportation system in the Peshawar City is just like other cities of the country. Although it is not developed and not effective in fulfilling the needs of the country, yet it is still the most fundamental factor to promote the economy. The most frequently used means of transport are cars, buses, rickshaws, motorbikes, bicycles, trains, trucks, trailers, tractors, aeroplanes and even animal and hand carts.

The historical Peshawar City is situated near the eastern end of the Khyber Pass and sits mainly on the Iranian plateau along with the rest of the Northwest Frontier Province. It is literally a frontier city of South-Central Asia and has been the link route of the Silk Road [2]. It is rapidly growing with a population of 2,982,816 in 1998. The current population growth rate is 3.29% per year, which is higher than the average of many other cities in the country.

The inhabitants of the city consist mainly of two groups: the majority are Pushtuns the Pushtu speakers, and Peshawaris or *khaarian* (the city-dwellers) the Hindko speakers. In addition to them, thousands of Tajiks, Hazaras, Uzbeks, Persians, Panjabis, Chitralis and Gypsies can be found in the city. Its urban population is 48.68% (983,000 persons) and rural population 51.32% (1,036,000 persons). The male and female ratio is 1.1:1, while average annual growth rate is 3.56%.

The environment has suffered tremendously due to an ever increasing population, Afghan influx due to successive Russian and American invasions, unplanned growth, and a poor regulatory framework [6]. Air and noise pollution are a significant issue in several parts of the city, and the water quality, once considered to be exceptionally good, is also fast deteriorating [3].

Hypothesis to be tested

The increasing transportation, along-with its positive impacts, has also some adverse effects on our daily life that can also be referred to as problems. The hypothesis we are going to verify is: *increasing transportation has an adverse impact on population.* The Peshawar City is selected as a case study.

Research Methodology

The study was conducted from 1st to 31st May 2008 in the Peshawar City. Using simple techniques of research, we personally interviewed people who are directly exposed to the transportation system in the city. A mixed type of questionnaire was used for this purpose. Sixty individuals from various walks of life were interviewed selected through random sampling from six different areas—Gulbahar, Faqeerabad, Shaheen Town, Board Bazaar, Androon City and Charsadda

Road—10 from each locality. These included daily wage workers, professionals, transporters, teachers, students, working women and even the housewives as they also go out for their household requirements. Along with personal interview method, observation technique was also used as the researchers are directly the stakeholders of the issue.

Results

Table 1: Problems caused by increased transportation

S. No	Problems Identified	Frequency of Respondents	% age
1	Pollution	11	18.33
2	Waste of time	18	30.00
3	Waste of fuel	17	28.33
4	Accidents & Stress	09	15.00
5	Road damages	05	08.33
	Total	**60**	**100.00**

From the above responses, it is clear that the main problem caused by increased and unorganised transportation is the waste of time and fuel.

Table 2: Factors causing transportation problems

S. No	Factors Identified	Frequency of Respondents	% age
1	Job opportunities	19	31.67
2	Heavy duty and Slow speed vehicles	10	16.66
3	Concentration of schools	07	11.67
4	Lack of parking areas	13	21.67
5	Easy Auto loan schemes	02	03.33
	Expensive rental houses within the city	09	15.00
	Total	**60**	**100.00**

The above table shoes that the main factor responsible for increased and unorganised transport system is the job opportunities that are mostly available in cities.

Table 3: Recommendations of respondents for making the transportation system better

S. No	Recommendations from Respondents	Frequency of Respondents	% age
1	Provision of facilities in public sector will reduce pressure of private cars	15	25.00
2	Construction of subways and over head bridges	15	25.00
3	Car parks	05	08.33
4	Ring roads and bypasses	20	33.33
5	Separate routes for heavy vehicles	05	08.33
	Total	**60**	**100.00**

As for as the solution to the increased transportation is concerned, the main suggestion made by the respondents is the construction of ring road and bypass.

Discussions:

The most significant adverse impacts on population identified in the area are:

- **Wastage of resources:** Congested traffic and traffic jams observed frequently cause wastage of our scarce resources time, fuel, and even performance. Traffic jams near Hashtnagari bus stand, Khyber Teaching Hopial, and Hayatabad become worst at times.
- **Congestion** is the worst problem associated with the increased transportation. People move to the city for better opportunities, but it has caused into population and traffic congestion, which has given birth to many other problems [9].
- **Mental stress:** It was also observed among the citizens that because of heavy traffic jams people come under mental stress and their behaviour becomes harsh, which make them angry on petty and even on non-issues.
- **Loss of life:** Heavy and prolonged traffic blockage has also taken the death toll high of the patients on the way to hospital because they cannot be moved hastily in time.
- **Pedestrians:** Pedestrians also face problem in movement because of congested roads.
- **Road maintenance:** Heavy duty traffic like big trailers and trucks usually over burdened damages roads and results into expensive maintenance work.
- **Accidents:** Congested and uncontrolled traffic also results in road accidents and takes its tax in the form of many lives every day. The problem is more severe in front of schools and hospitals, where children and weak people are prone to danger.
- **Air quality:** Increased transportation damages air quality. Especially, the internal combustion engines cause acidic rain, and are a potential threat to the Ozone layer. Some pollutants (NOx, CO, O_3, volatile organic compounds, etc.) can produce respiratory troubles and aggravate cardiovascular illnesses. The amount of CO in the air over Suray Pul is more than 9%, while the %age recommended is less than 3%.
- **Noise:** A major irritant, noise, badly effects human health and most often human welfare. Depending on emission intensity, it can be manifested in three levels: psychological disturbances (perturbations, displeasure), functional disturbances (sleep disorders, loss of work productivity, speech interference) or physiological disturbances (health issues such as fatigue, and hearing damage). Noise and vibration associated with trains, trucks, and planes in the vicinity of airports are major irritants. These effects were observed in the residents of Androon City, Board Bazaar and Charsadda Road.
- **Water quality:** Accidental and nominal runoff of pollutants from transport such as oil spills, are sources of contamination for both surface water and groundwater. In our study area Oil spills from the tankers supplying fuel to the petrol pumps were observed.
- **Land takes:** Transport is a large consumer of space when all of its supporting infrastructure and equipment are considered. Furthermore, the planning associated with these structures does not always consider aesthetic values as is often the case in the construction of urban

highways. These visual impacts have adverse consequences on the quality of life of nearby residents. The most striking example was observed along the Great Trunk Road, where green belt is now obsolete. And it's for the sake of expansion of road.

Now we take a look into factors that resulted in increased transportation in our study area of Peshawar City.

Factors causing increased transportation in the Peshawar City:

- **Mobility:** The growing economy emerges with the need for increased mobility, which creates congestion on roads. Peshawar is provincial capital city and thousands of people travel to and back home from Peshawar daily in connection with their business and jobs. This has persistently increased demand for transportation.

- **Consumer finance schemes:** There was a boom of consumer financing schemes by the banks during the end of 1990s and then in the early years of the present decade. During this time banks promoted automobile-loan schemes, to which people responded overwhelmingly. Auto loans available on easy terms and conditions, boomed road-trafficking in the city, especially, the cabs. The scheme also enabled the lower income groups to purchase vehicles for their personal use and contributing to congestion on roads.

- **Expensive rental houses:** Another issue that we observed during the study is the very expensive rental houses inside Peshawar City. Majority of the workers when asked about their daily travelling responded that they wish to reside near their work places, but they cannot afford renting expensive houses.

- **Concentration of industry:** The industrial estate at Hayatabad is also putting its share in aggravating the transportation problems. Concentration of industry in the industrial estate has increased the demand for workers from the suburbs of Peshawar who have to travel daily, and put extra pressures on transport.

- **Wage differentials:** Another cause identified during the study is the wage differentials. Many workers, when asked that why don't they prefer to work in their residential areas, replied that they get relatively higher wages for their work in the city as compared to their native villages even though they have to bear the daily travelling expense.

- **Under-developed markets in adjacent areas:** It was also observed that the areas adjacent to city lack job opportunities. Those markets are still underdeveloped and do not provide enough job opportunities to their locals. Thus there is an excessive flow of labourers to Peshawar.

- **Unplanned expansion:** In the absence of proper check and balance system, unplanned expansion of the city is another major factor of transportation problems. These localities do not follow the municipality rules, the roads in such places are very narrow and unplanned and the result is congestion and traffic jams in these areas.

- **Heavy traffic hours:** It was also observed during the study that in the city there is no time management to control heavy traffic. Heavy traffic is also running on the roads even in the peak hours that further aggravate the traffic jams.

- **Concentration of schools:** During the study it was also observed that certain roads get packed with traffic jams in school hours early in the morning and closing times. It was observed on the Warsak Road, where there is too much concentration of schools.

- **Shortage of parking areas:** Another factor contributing to traffic congestion is the shortage of parking areas. It was observed that all the major shopping areas of Peshawar City, where there is pressure of excessive traffic, lack parking facilities. People have to park their vehicles on road sides that results into traffic jams.

Recommendations for betterment of transportation system in the Peshawar City

Here we present some suggestions to address the transportation related issues in the Peshawar City.

- **CNG buses:** If we want to reduce the burden of private vehicles on roads, one possible policy option could be the introduction of CNG buses. Once these buses are properly maintained and service quality standards are met, people will prefer to travel by these buses and burden of small vehicles on roads can be significantly reduced.

- **New routes identification:** Introduction of CNG buses is not enough; we have to explore new routes as well. During the study it was identified that there are still many areas of Peshawar City which are not covered by the existing public transport. So there is a need to cover all possible routes so that people could benefit from the public transport.

- **Carbon tax:** Another possible policy option that can be implemented to minimize the use of private vehicles is the imposition of carbon tax. Carbon tax is an environmental tax that is imposed to control environmental damages due to carbon emissions. The tax can also be used as an effective tool to control pollution emitted from all sort of vehicles [10].

- **Heavy traffic timings:** To address the issue of congestion, heavy traffic should not be allowed to enter the busy roads during peak timings. Rather these may travel in night times or off peak hours in the day time.

- **Separate lanes:** Separate lanes should be introduced for low speed traffic. For example rickshaws, *tongas*, bicycles, etc., such low speed traffic creates hurdles in the flow of traffic.

- **Planned expansion:** A city's form greatly influences and is influenced by travel patterns (the classical land use-transportation cycle). The development of urban form has been one of the root causes of many transportation problems throughout the world. The rapid, unplanned, and uncoordinated growth of cities has dispersed their populations, with more people moving from the city centres to the urban periphery. This dispersion reduces access to public transportation and makes the cost of building and maintaining new public transportation systems prohibitive [4]. Thus there is a need for planned expansion of the city.

- **Check on concentration of schools:** concentration of schools and industry on some specific roads of Peshawar has also caused transportation problems, so there is a need to have a fair distribution of such congestion points throughout the city to reduce the traffic burden and wastage of time resource.

- **Job opportunities in suburbs:** Another possible option to reduce the flow of traffic is to provide job opportunities in suburbs of Peshawar. Many industries can be shifted to suburbs which would not only reduce the traffic burden (by providing jobs to the residents of suburbs) on Peshawar but would also help in managing a relatively clean environment in the city.

- **Population planning:** Growth in population naturally causes growth in car ownership, and the greatest growth rate in motor vehicles has been seen in the past few years and is expected

in the future, primarily in urban areas. So there is a need to check population growth to avoid the future problems of over transportation [5].

- **Strict driving license policy:** Rough driving that is a major cause of accidents, should be checked strictly. There should be a proper driving learning schools and driving license should only be given once the school has evaluated the driver.

- **Inspection of vehicles:** There should be a system of proper inspection of vehicles on roads on random basis, to address the environmental damage issues.

- **Ring roads and by-passes;** Construction of ring roads and by-passes can also prove an effective way to manage uninterrupted traffic flows. Signal free corridors can be built that will not only maintain the traffic flows but will also save time and fuel.

- **Park and ride:** The concept of Park and Ride that is very common in western countries can also be introduced. Under this system you park your car on the edge of the built up area and then ride a bus or train into the congested urban centres [11].

- **Multi-storey car parks:** To address the problem of lack of parking areas, multi storey car parking centres should be opened up. This will certainly help in reducing the traffic jams caused by road side parking.

- **Construction of sub ways and over head bridges:** At over-crowded roads for, e.g., on University Road opposite University Public School will reduce the burden on the road due to pedestrians and will also reduce the risk of accidents.

Conclusion:

Urban areas in developing countries like Pakistan require new approaches in addressing their transportation problems. We must make these approaches "city specific," even for cities within the same country. In addition, we must realise "that solutions designed for cities of developed countries cannot directly be applied to the urban areas of our country. "However, we can and "should learn from the mistakes already made in developed countries (like the United States) where unbalanced transportation systems are exacting enormous costs.

Another factor we must also acknowledge "the interrelationships that exist between different urban trends and impacts." Addressing problems in isolation would not be very effective because of the complex and whole nature of the urban transportation system. Interrelated problems require "integrated strategies" implemented over time, from the immediate and short term to the gradual and long term.

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