A Study on Highway Logistics problem from Dhaka to Chittagong in Bangladesh

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Introduction

Transport system provides one of the basic infrastructures and acts as a pre-requisite for socio-economic development of a country. The government of Bangladesh has accorded priority to build up a necessary surface transport system, particularly a suitable road transport network. Development of a suitable road transport network will play an important role in achieving desired targets of macro-economic development of the country. Surface transport network in Bangladesh is concerned, road, rail and inland waterways. Logistics function has a major impact on a society's standard of living. In a modern society, we have come to expect excellent logistics services, and tend to notice logistics only when there is a problem. The approach we have chosen to present a general over view of Bangladeshi peoples thinking about the problem of goods transportation and how to solve them on the priority basis. In this case, we have undertaken a field survey by the ECR method and experimental study. The purpose of this study is to building a unique service of goods transportation by the highway communication. Keeping lots problems of transportation in mind, the present investigation was designed to identify the problems of physical distribution from Dhaka to Chittagong (two major cities) highway and to introduce the better logistics policy in Bangladesh.

Existing road facilities in Dhaka-Chittagong region

Road traffic scenario in Bangladesh is characterized by the presence of both motorized and non-motorized vehicles plying on all roads. In other words, there is predominant traffic mix on all roads in the country. This is one of the serious problems for road network in Bangladesh. It should be mentioned here that the total fleet of on-road motorized vehicles in Bangladesh has increased significantly. The growths of trucks were increased about 11.2 percent. Road transport network from Dhaka to Chittagong is 278 km. and compare with the other area is little satisfactory. Goods movement of these areas is mainly depend on trucking and it is around 80% of total goods, time required around 5 hours.

Table 1. Dhaka-Chittagong areas road width (metre)

No	Category of roads	Crest Width (metre)	Pavement Width (metre)	Shoulder Width (metre)
1	National Highways (a) Category A (b) Category B	 12.20 12.20	 7.32 5.50	 2.44 3.36
2	Regional Highways (a) Category A (b) Category B	 11.00 11.00	 5.50 3.66	 2.75 3.67
3	Feeder Roads (Type A)	7.32	3.66	1.83
4	Thana Connecting Roads	7.32	3.66	1.83

Roads in Bangladesh are classified in four main groups; national highways, regional highways, feeder roads and local roads. National highways connect the national capital with district headquarters, port cities and international highways. Regional highways connect different regions and district headquarters not connect by national highways. Feeder roads connect thana (lowest tier of administration) headquarters and important growth centers. Local roads include municipal roads and rural roads, which connect union headquarters, villages and thana headquarters with the nearest paved road network. All categories of road Crest width, Pavement width and Shoulder width shows in table 1.

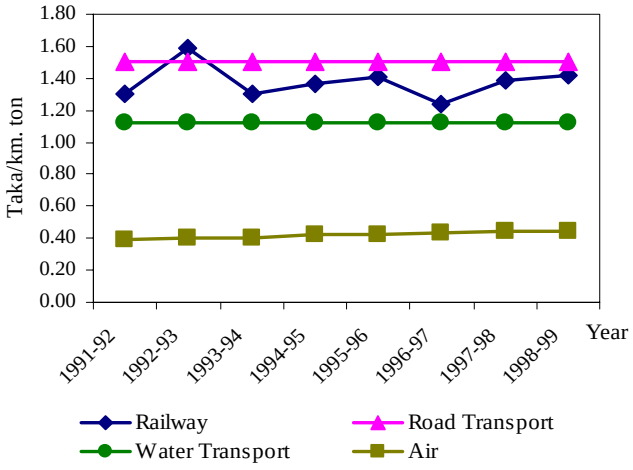

Figure 1. Fare distribution in different modes (1Yen=0.47 taka)

Fare or price is the amount of money that a customer pays for the product or service offering. A key logistics activity is

Key word: Dhaka-Chittagong highway, Logistics, and ECR method
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to actually provide for the movement of materials and goods from point of origin to point of consumption. Transportation involves selection of the mode like air, rail, water, truck or road. In Bangladesh rate of fare in goods mobility is different from each transportation modes. Trucking is little satisfactory its constant from the year of 1991-99, per ton in 1.50 taka/km. Others modes, which fare also displayed in the figure 1.

Data Collection and result of survey analysis

a) Proceedings of questionnaire survey

In describing the lots of problems and shortage of available data, it is difficult to know the depth of goods sector problems in Bangladesh. So, we are taking part in the field survey and to gathering the opinion of conscious people, which result showed in below. For this, to take part in survey by questionnaire method and it is contained the problems of logistics as above. We made a survey groups and our main targets is collecting the conscious people opinions. Which is worked this survey respondents contacted with them then made appointments and after that collects all-important information by physical interview systems.

b) Survey methodology and design

Here the ECR method was employed in the survey. This type of survey was performed asking the individuals what they would choose hypothetical scenarios. The first part stated preference, which dealt solely with the individual's perception regarding the impact of goods movement by road or trucking. The second part, options were presented through the ECR method. In view of the complexity of this experiment, the number of 10 items is given. And then asked them to mark the item 1 to 10 following the grading scale. Where 「+5」point was at the most important value, and the 「-5」 point was the lowest important value. In others point 「+4 」to 「+0」and 「-4」to 「-0」is given to the gradual marking. However, finally make the sum of total point of all items become 0 point. In other sense, it is called a plus minas 5-point method. The third part of the survey contain the opinion concretely truck transportation in Dhaka-Chittagong region fulfilling the public demand and finally the free comments.

c) Data results

A total of 40 persons were interrogated who reside in the Dhaka city, some persons have their houses in Chittagong city. In this survey 30 were male, which 75% and only 10 female, 25% only. Most of them were in the middle to below 60 years old. Out of them 50% were to be 30-39 age groups, which is 20 people and the 40% were in the 40-49 age group holder means 16 people and rest of 4 people means 10% only the 50-59 aged groups.

Table 2. Time and Characteristics of respondents

Time:	January 14th 2002 - April 21st 2002
Sex:	Male 30 (75%), Female 10 (25%), Total 40 (100%)
Profession:	Tradesman 19 (47%), Office worker 10 (24%), Teachers 5 (13%), Engineers 3 (8%), Students 3 (8%)

Survey is conducted from 14th January 2002 to 21st April 2002, in the Dhaka City area of Bangladesh. All the respondents of 40 are related in the field of physical distribution by road or very conscious about road transportation. Out of them, 47% were tradesman, 24% were office workers, 13% were in teaching profession, 8% were engineers and rest of 8% were students in profession.

According to the interrogated survey we can understand the importance of goods demand and distribution items, which is Garments, vegetables, fruits, fishery, furniture, crops, fertilizer, imported goods, exporting goods, computer, computer parts, machinery parts, raw goods, forestry, mineral product, cement and iron, plastic goods, books, electronic goods, live-stock and industrial goods etc. in these two major cities.

In the third part of the survey, result shows that out of 40 respondents, 80% people think Dhaka-Chittagong road transport or trucking does not fulfils the public demand and in other 20% respondents don't have any comment. In the free comment site every person makes their comment to developing systems of two major cities in Bangladesh. All the comments or their demand is more organized systems, permanent terminal, systematic fair systems, increasing truck number, developing information system, introduce modern technology following developed country, more width highway road, removing roadside market, modern truck system, smooth warehouse connection and others organization combination is very important of physical distribution.

Problems of highway logistics in Dhaka-Chittagong

1) The fare

The fare is the key item of logistics transportation. Presently there are some rules in maintaining the fare policy. In practice, the company doesn't follow the rule. People or customer negotiates for fixing the price of goods to the destination place.

2) Number of trucks

The number of trucks is seemed to sufficient in Dhaka-Chittagong route. For the logistics transportation, needs good management of them is needed to improve the quality services. This is very important for physical distribution of goods.

3) The diagram of truck services

The diagram of truck services is very important for logistics operation. As compared to other areas, highway connection of this region is very nice. But along the roadside, there are many open markets, which make some time the traffic jams.

4) Expert hands

Expert hands are important for operating the logistics transportation. For loading and unloading the goods, lots of times are consumed and the public goods are damaged very often. Logistics is very difficult with non-trained and inefficient workers.

5) Truck terminal and information technology

Terminal is prime for goods movement and information technology of Bangladesh is very poor in every sector. In logistic transportations, both are very important. Due to the lack of combination in many sectors, Dhaka-Chittagong truck services is not a unique one and the information systems are of poor quality as well. But for operating the logistics transportation, this is very important to develop.

6) Traffic safety

Safety plays an important role for logistics transportation. Safe transportation and safe shipment is one of the main requirements of goods mobility in Bangladesh.

7) Transportation time

Time is also an important factor for logistics mobility of goods. The rapid urbanization of Bangladesh has been a vital factor, and logistic transportation prefers the distribution of goods in time.

8) Environment pollution

Environment pollution is a very emerging phenomenon in all over the world and current systems detract the environments. Logistics is followed the recycle systems or recovering systems perfectly. Present services in Dhaka-Chittagong are not fulfilling the environmental demand. Logistics operation follows the environment carefully and minimizes the environmental pollution.

9) Responsible workers

Responsible workers are very important part of physical distribution. In establishing the logistics these persons are related to the distribution processing, loading, unloading of goods, information network and also the wrapping or packing processing. So, this item is important in transportation. Responsible workers can make the good logistics transportation.

10) Warehouse

In Bangladesh, there prevails a big gap between storehouse and goods transportation. All kind of goods is increasing and there is no combination between storage and goods mobility. So, it is a big problem for logistic transportations. Especially from truck terminal to warehouse there is no convenient warehouse, for logistics transport-planning warehouse is important for physical distribution. Dhaka-Chittagong truck transportation needs is to make the combination, because information system is very poor and warehouse to terminal is far.

Dhaka-Chittagong Highway logistics evaluation by the ECR method

In between the 10 items of the problems here, it is easy to clarify the results of evaluation by the ECR method, which

①	The fare is cheap.
②	For goods mobility truck vehicle is enough for the shipment by road.
③	The diagram of truck services is in time and straight (without jams).
④	For shipment expert hands is enough for works.
⑤	Current truck terminal is good & information technology is available.
⑥	Traffic safety is significant for shipment.
⑦	Transportation time is short for shipment.
⑧	Reduce the environmental pollution and taking care the policy is good.
⑨	Attitudes of the responsible workers are very sincere.
⑩	Warehouse is enough for shipment in the both cities.

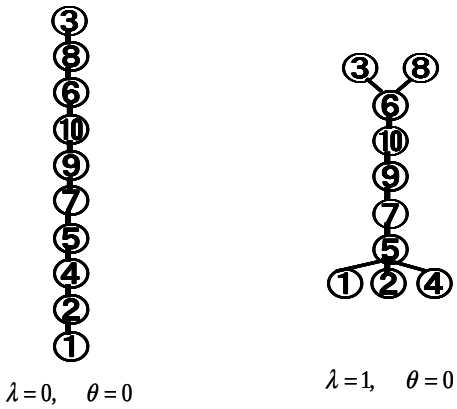

Figure 2. Schematic Diagram of Dhaka-Chittagong Logistics evaluation

showed in the figure 2. Firstly we evaluate the value $\lambda = 0, \theta = 0$, and then the result of this evaluation can make

important structure of problems. Here, the result shows us the important preference of relationship, as shown above. We found these gradual objects by the ECR method that comes from survey.

In the evaluation of $\lambda = 1, \theta = 0$, λ value is changed and then the result of description is shown in the figure $\lambda = 1, \theta = 0$, where, λ means important factor of in these relationships. When $\lambda = 0$, values found the result, here uses that value to put the reverse opinion or different opinion holder in twice then the preference group cut the comparison relation. In reverse relation making the big value into the λ, if preference relationship make the relation then the opposite opinion holder people opinion also became the small. In this picture $\lambda = 1, \theta = 0$, results shown the importance of preference items, which is also ③ the diagram of truck services is in time and straight, ⑧ reduce the environmental pollution and taking care policy and ⑥ traffic safety is significant for shipment.

In the reverse opinion we also found the result ③, ⑧ and ⑥ is very important for Dhaka-Chittagong highway logistics. Using the ECR method we can evaluate this types of high valued evaluation. This results means there is no any contradictory persons and these items are very important, which is cleared in the above figure 2.

Container train ser vices evaluation result

In my previous study of Dhaka-Chittagong container train services, evaluated the public opinions by the ECR method and categorized the problems by the relationship link. The

①	The fare is cheap.
②	The number of trains are too many.
③	The diagram of train services is in time and straight.
④	For shipment expert hands are available.
⑤	In the freight transportation information systems is available.
⑥	Container services are enough for goods shipment in train.
⑦	Transportation time is very short for shipment.
⑧	Reduce the environmental pollution and taking care the policy is good.
⑨	Attitudes of the responsible workers are very sincere.
⑩	Warehouse is enough for shipment in the both cities.

Figure 3. Schematic diagram of container train Evaluation

$\lambda = 0, \theta = 0$

result found the number of ① the fare is cheap, ③ the diagram of train services is in time and straight, ④ for shipment expert hands are available. This results means, different from the road transportation in these regions.

Considering the value of evaluation

ECR method provided the category of services and here the most considerable point of view is items ③, ⑧ and ⑥. These three items are very important in the ECR evaluation that has the high value in the Dhaka-Chittagong highway or truck transportations.

After observing the evaluation results of both transportations here we found the item ③ (the diagram of truck services is in time and straight) is very important in both transportations. Items ⑧ and ⑥ is important in road transports only and in container train item ① and ④ is important. Based on this above result we have briefly summarized some of the current problems of physical distribution. In this regard logistics should be involved in the development process of physical distribution. It is clear that 'fare' and 'expert hands' are important for container train, where as for highway it doesn't seem to be important. But the 'environment' and 'traffic safety' are also important for highway transport. Highway transport or truck is convenient for physical distribution of goods. It can transport goods in any locality efficiently and can provide additional benefits. Time and services are as well important factors for physical distribution. For highway goods transportation time is around one hour and 30 minute shorter than container train. Therefore, peoples are satisfied to using highway transportation systems.

Other distinct problems among corporate groups of physical distribution and facilities of both transportations are different from many aspects. It is suggested that making proper combinations among corporate groups of distribution can run physical distribution phenomena smoothly.

These analyses also suggest a policy implication that the item ③ as the most important value for future development of physical distribution in Bangladesh. This survey not only focuses the present systems but also the suggestions for their further improvements as well. Following this evaluation results, it can be concluded that for these two big cities in Bangladesh, item ③, ⑧ and ⑥ are very much important for improving the physical distribution planning in future.

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