**Planning Commission**
**(Transport Division)**

**1. Subject: Study proposal on Determination and Evaluation of Traffic Congestion Costs by Road Transportation in India**

I. **Background:** The current estimation of time loss and costs of traffic congestion is lacking a scientifically valid empirical database concerning the queue speed and time loss, as well as a methodological soundness of the value-of-time of commuting and leisure, and may hence lead to serious errors. In fact, the low willingness-to-pay of commuters for using a toll road indicates that the benefit of traffic time gains is estimated to be much lower than a significant part of the wages. The time loss of road vehicles because of traffic congestion, in general, is determined on the basis of roughly estimated queue lengths, time periods of congestion and mean queue speed. The registration of queue length and duration is mostly done manually by means of observations of highway policemen / general traffic policemen and might lead to considerable estimation errors. The queue speed varies a lot by time and location and the use of an average value for a whole network can make the estimation of time loss very hazardous.

In order to address the freight delay and prioritize freight projects, public-sector researchers and planners need to know the impact of delay on stakeholders. This input information is important for understanding the benefit of transportation improvement projects and for justifying infrastructure investments. However, to date, freight planning decisions are made in the absence of defensible cost / benefit analyses. While the cost of improvements can be confidently estimated, the benefits of investment are much more difficult to identify, especially for users such as shippers. Therefore, a question is typically asked: what is the value of delay in freight transportation?

The value of delay study is essentially a special value of time study, which has been studied for carriers for decades. Estimates typically consider the direct costs to carriers because of delay in traffic (Wynter, 1995), which include fuel cost, truck operation cost such as truck / tempo / trailer lease and maintenance, and driver wage and benefit. However, this direct assessment method does not consider indirect impacts in terms of lost productivity to the carrier fleet. For example, the time spent in congestion affects

carriers' ability to schedule freight shipments and reduces their fleet capacity for serving more clients.

The purpose of this research is to study the value of delay to shippers by examining additional cost to them. This study has been planned to focus on three aspects which were considered the most relevant to the investments in highway infrastructure — the trucking industry, inter-city buses, and in view of its very important but largely unfulfilled role in enhancing road safety, the motor insurance industry.

**2. Terms of Reference:**

- Identify the weaknesses of the actual methods of registration and determination of the congestion time loss.
- Assess the application remote sensing and aerial method in measuring the traffic congestion.
- Evaluate the traffic congestion costs and / or value of delay by road transportation.
- Study how freight delay incurs costs to shippers and how the cost varies with the shipper's operational characteristics.
- Propose study methodologies to quantify the shipper's value on delay.
- Conduct a pilot survey among a limited number of shippers for model testing.
- Apply inventory management models and analyze the impact of highway delay.
- Assess the value on delay on the inventory management and supply chain management.
- Work-out the effectiveness of countermeasures to fight against traffic congestion.
- Suggest mechanism for effective road traffic management.

**3. Objectives:**

- How can the time loss of road users be determined consistently?
- Which external effects are involved by road transport and what is their importance?
- How can the costs of traffic congestion be evaluated methodologically and quantitatively?
- Which are the costs and benefits of different strategies?

## 2. Research Proposal

**Subject** – 'Inter-state Regional Transport Planning and Medium-term Planning for Development of Maharashtra State; having transport linkages with other States/UTs in India- using Input-Output (I-O) Analysis Study,'

### 1. Background:

Planning Commission undertook in earlier decades of 1970s and 1980s and sponsored a few studies on transport planning and policy requisites, in socially and economically backward hilly and forest regions, like North-Eastern region, Himalayan region, and Vindhya region, where the inhabitants were geographically segregated from the main stream plan areas, due to lack of transport facilities even for movement of persons and of daily needed goods and services; and handicapped by the most inadequate transport modes.

National Council of Applied economic Research (NCAER), New Delhi undertook the Regional Transport Survey of North-Eastern Region, sponsored and funded by North-Eastern Council (NEC), Shillong; another study of Meghalaya Techno-economic survey; (and a Perspective Plan for Telangana rural electrification) were completed during 1975-1979. These studies reported projections of all commodities movements between States/UTs/Regions/Districts; of North-Eastern region (NER) and from and to outside NER, taking into account, projections of production/supplies of all those commodities from and to NER; and then projections for different modes of transport and relevant & requisite number of vehicles for movements of men and goods within (State & UTs) NER and from and to NER (States & UTs). As part of the study, Origin and Destination (O-D) survey were undertaken; so that those results of O-D surveys were benefitting to bridge the secondary data gaps and supplementing to span and spread the results over all spatial dimensions of regions, enveloping NER or of Meghalaya. Since the, 1978-1979, no major studies of the kind were undertaken by major sponsoring/funding bodies.