1 Introduction

1.1 Background

The total population of Egypt over the ten-year period between 1996 and 2006 increased from 59 million to 73 million, with an average annual growth rate at 2.04%. The Greater Cairo Metropolitan Area (GCMA) hosts the largest share of population, economy, industry, and human resources in Egypt. With a population that stood at 17 million in 2006 and fast rate of urbanization (expected to reach 24 million in 2027), GCMA is one of the largest mega cities in the World and is Egypt's largest agglomeration (22% of Egypt's population).

Traffic congestion is a serious problem in the Cairo metropolitan area with substantial adverse effects on personal travel time, vehicle operating costs, air quality, public health, business environment and business operations. The causes of traffic congestion are complex, as are the range of possible policies and investments that could be arrayed to address the problem. In CGMA, about 2/3 of all motorized trips are made by public transport (mostly taxis and minibuses), and there are therefore tremendous opportunities for improving traffic congestion through accelerated modal shift to mass transit systems. The government has committed itself to significantly support modal shift, improve fuel efficiency in the urban transport sector, and identify cost effective investments and measures.

The government's vision for transforming the urban transport sector in GCMA is reflected in the Greater Cairo Urban Transport Master Plan. The implementation of plans for GCMA has been slower than envisioned and traffic has increased more than originally expected. For instance, the previous JICA 2003 report projected a reduction of the travel speed from 19 km/h to 12 km/h by 2020 in the worst case scenario. The most recent estimates indicate that the travel speed had fallen to around 12 km/h in 2005, notably due an increased car ownership associated with higher income growth and urbanization.

Part of the problem for properly addressing urban congestion arises from the lack of appropriate technical studies, with clear methodologies, specifically aimed at assessing the economic costs of congestion. These studies would help assess the magnitude of the problem, its types, and locations, therefore providing a solid ground for making appropriate policies and investments recommendations.

1.2 Objective of the Study

The Objective of this study is at first to assess the baseline and economic cost of current congestion in GCMA, based on which to prepare policy recommendations and an action plan to reduce traffic congestion. In order to achieve this important objective, the study will be carried in two main phases:

- The **first phase** will at the outset involve the review of traffic congestion in GCMA, its causes, types and location, with the final objective of assessing the overall economic costs and the associated energy inefficiencies. This will permit depicting a clearer image of CGMA' complex traffic congestion problems and associated costs, and inform policy makers about their real magnitude.
- The **Second phase** will involve prioritizing and recommending a package of specific fiscal (congestion pricing schemes, fuel subsidies), regulatory (vehicle inspection norms and standards, regulation of public transport, public transport pricing), and investment (traffic management and public transportation investments) measures.

This assignment will cover the first phase of the study only. The first phase will involve the following activities:

- Task 1: Review literature, organize first consultative workshop, and prepare inception report
- Task 2: Assess information need, and collect additional data as necessary.
- Task 3: Identify the causes, types and locations of traffic congestion.
- Task 4: Quantify the direct economic costs of traffic congestion.

1.3 Structure of this report

Section 2 presents a comprehensive assessment of the data and information needs of this study, identifying sources and samples of existing data and describing additional data that were collected as part of Task 2.

Section 3 presents an analysis of the extent of traffic congestion in the GCMA, its main causes and key locations. Specifically, the section describes the detailed analysis performed on the Floating Car Survey (FCS) data and discusses the results. The section also presents the results of the consultative workshops we conducted with traffic experts from academia, industry and Ministry of Interior.

In section 4, we present the estimation of the direct economic cost of traffic congestion in Cairo. In this stage, economic costs of travel time delay, travel time unreliability, costs of excess fuel consumption, the associated cost of CO2 emission due to fuel consumption, and eventually total direct economic costs of traffic congestion in Cairo will be estimated.