Arab Republic of Egypt

The Mediterranean Partner Countries

perspective on the Cooperation in R&D

in sustainable urban mobility"

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Ministry of Environment

EEAA

Introduction of Electric Bus Technology in Egypt

By

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INTRODUCTION

- Urban air pollution is a major environmental problem in Egypt. Greater Cairo is among the world's largest cities with over 16 million people, With respect to public transportation in Cairo, more than 3.6 million commuters ride the some 13,000 buses daily.

- A plan for reducing the pollution levels in Egypt and effective abatement of greenhouse gases globally must therefore address transportation

The high level of air pollution is creating various types of problems in Egypt:

- Environmental impacts, such as greenhouse emissions and photochemical smog.

- Health problems caused by the smog and other air pollutants.

- Degradation of national monuments; high pollution causes corrode building materials, while also the vibrations of heavy duty buses that go to and from these places can cause less stable structures to collapse.

Legal Frame Works

The following Laws and Ministerial Decrees related to vehicles and motorcycles have been issued:

- Production of all types of two-stroke motorcycles was prevented as per the Ministry of Commerce and Industry Decree number 85/2004.

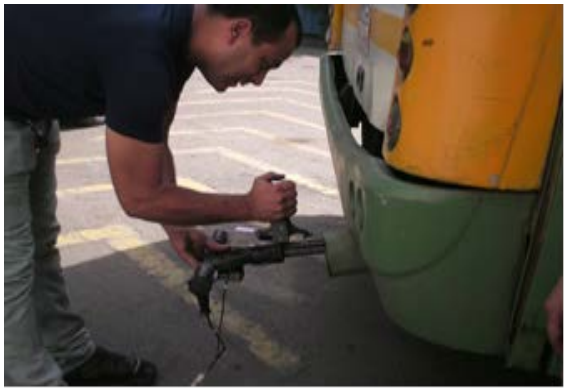
- Importing of all types of two-stroke motorcycles is not permitted as per to the Ministry of Commerce and Industry decree number by 23/2008.

- Law No. 121/2008 and its amendment No. 160/2013 concerning scrapping out of old Taxi cars.

I. The state of art in Greater Cairo Governorates on sustainable urban mobility;

1- Vehicles Emission Test

- An integrated vehicles inspection centres operated by Privet sectors under implementation with cooperation of MoI



- Inspection program of vehicles exhausts on roads.

- Inspection program of Public Transportation Authority Buses

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2 - Replacement of Old vehicles

- Replacement of old taxies project in Greater Cairo (42000 old Taxies were replaced with new ones and scraped out).

- Replacement of 1000 old microbuses pilot project in Cairo Governorate & planning to replacement all 50,000 old microbus in Greater Cairo.

- MoE is implementing a-pilot project to replacement of 1000 existing two-stroke by 4-stroke motorcycles in Greater Cairo, and planning to replacement the all 2- stroke motorcycles.

ViajeoPLUS

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3- Establishment of an integrated 4-lines for underground Metro cover the Greater Cairo Governorates.

4- Introducing several hundreds of new buses to service at CTA which are working with CNG

5- Encouraging non motorized transport (Cycling & walking) in middle size provincial cities (We have already 2 pilot projects under implementation in Fayoun & Shebin El Kom Cities

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6- Establishment of demo green garage in Cairo Transport Authority (CTA) which will be equipped by modern testing, repair and maintenance facilities and having environmental and computerized maintenance management systems (a demo project is under implementation in cooperation with AFD). Project may be replicated in case of achieving success

7- Enhancement of the role of Urban Transport Regulatory Agency in improving public transport

8- Getting in contact with concerned authorities to persuade the Prime Minister and MoF to provide motivation to electric cars importers

II. The legal framework for Egypt on sustainable urban mobility;

1.Complete the Integrated Vehicles Inspection Centers allover Egypt.

2. Replacement of all old vehicles allover Egypt.

3.Implement green and sustainable transportation projects such as:

- Non motorized transportation (walking – bicycles) in new cities.
- Use electric-powered buses in old cities and heritage areas.
- Use mass transit and expansion in establishment of subway network in Greater Cairo.
- Use river and railways to transport goods.

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4. Improvement the quality of diesel fuel that use in Egypt.

5.Extend using CNG fuel in transport sector in Egypt.

6. Encourage the privet sector to investment in public transportation

III. Solutions and recommendations to further improve the current state;

Introduction of Electric Bus Technology in Egypt

- EEAA recommends introduction of electric buses / minibuses / privet cars, charged by solar cells stations for public transport and tourist buses in city center, residential and touristic areas (like old Cairo and Giza Governorates)

- **It can be one of the research Topics with Viajeo)**

To promote electric buses in Egypt , assistance is strongly needed from one or more of **international donors**

The basic concept is to have a Multi-phase Pilot Project in Cooperation between EEAA , Cairo Governorate & Cairo Transport Authority with :

An initial **Phase 1,** in which 12 electric buses have to be tested and evaluated. Electric drive system of the buses would be integrated into Egyptian buses produced by local manufacturers to achieve the best goals. This phase would be followed by

Phase 2, in which more buses would be employed at different places and also in downtown on longer routes in Cairo. Phase 2 would also encompass a more detailed study on the possibility of local manufacturing of the electric drive systems.

The overall objective of the proposed PILOT PROJECT is "to introduce to Egypt a viable electric bus in which the battery will be charged by SOLAR ENERGY to secure significant benefits and sustainability in various segments of the country.

It may be proposed to split Phase 1 in two;
in Phase 1a, two buses would be tested (with Donor support) and a proposal for Phase 1b would be formulated, in which 10 more buses would be tested.

The Egyptian Environmental Affairs Agency (EEAA) will be the national executing agency in charge of overall coordination with the various stakeholders, while Cairo Governorate / Cairo Transport Authority would be responsible for project implementation.

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The expected outcomes of the proposed pilot project (Phase 1 a) are:

Experience enhancement on electric buses by building on the monitoring of the operation of the two test vehicles;

Capacity enhancement of Transportation Authority Managers and operation and maintenance personnel to participate in the programme;

Creation of the basis for the launching of the next phase.

Recommendations:

1- Preparation of technical proposal for introducing Electric vehicles to Egypt.

2- Checking possibilities of financing Phase 1.

3- Testing the buses at various sites under different operating conditions to determine the required specifications adjusted to suit the Egyptian environment.

4- Construction of solar power stations at different locations for charging batteries.

5- A study should be made on the economic feasibility of manufacturing batteries and (parts of) the electric drive system in Egypt.

6- Conducting different levels of training programmes in operation and maintenance of electric buses (Electric drive system and batteries.)

7- Battery type must be selected properly to fulfill the following requirements:

- Environment friendly (non toxic)

- High Capacity

- Durable (capability to be charged and recharged not less than 10000 times)

8 -Establish & implement a plan for traffic safety campaigns (It can be one of the research topic with Viajeo) .

Thank you