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BUILDING CAPACITY FOR MORE EFFICIENT AND CLEANER ENERGY USE IN THE TRANSPORT SECTOR

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Building capacity for more efficient and cleaner energy use in the transport sector

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Why Efficient Transport Sector?

Efficient transport systems are a necessity for economic development and social welfare and also reduce the scope for an adverse impact on the environment.

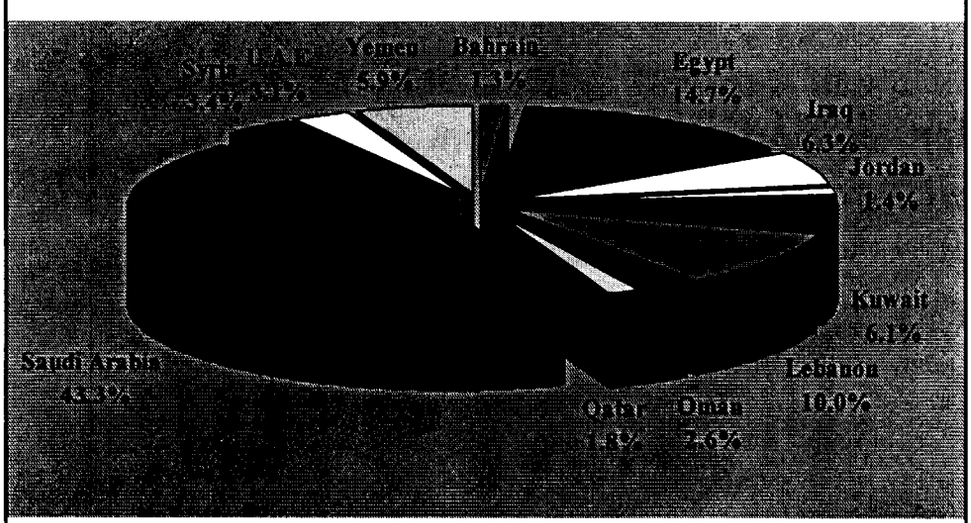
Important factors affecting energy efficiency in ESCWA transport sector

Summary Characteristics of the sector

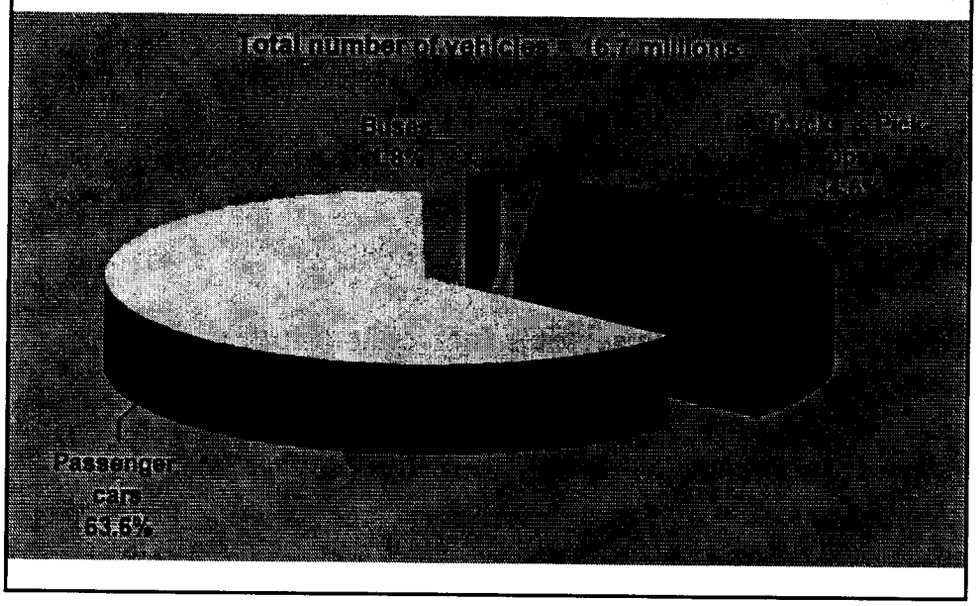
- High volume of motor vehicles
- High Car ownership rate
- Old and poorly maintained vehicles
- Inadequate Public transport
- Traffic system needs improvements

Percentage of Motor Vehicles in ESCWA countries (2000)

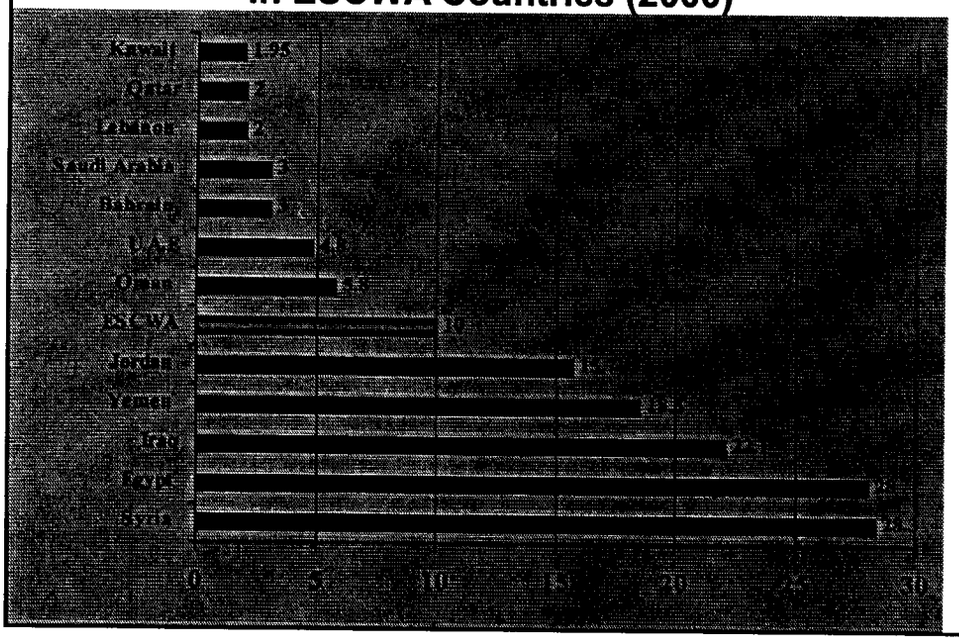
Total number of vehicles = 16.7 millions



Percentage Share of the Different Mode of Motor Vehicles (2000)



Vehicle Ownership Rates in ESCWA Countries (2000)



Important factors affecting energy efficiency in ESCWA transport sector

The sector's energy use

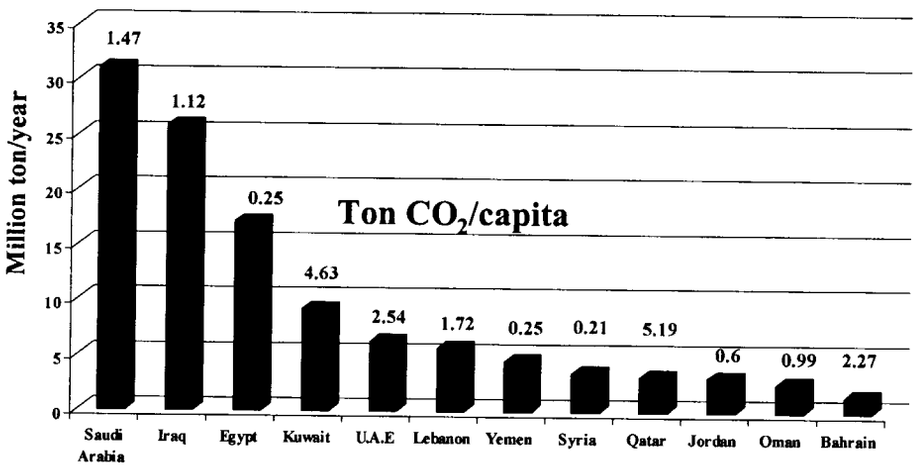
- The sector accounted for 43.6% of the total petroleum products consumed in 1999 in ESCWA countries
- Fuel consumption in 1999 was: - Gasoline 73.3%
  - Diesel 27.7%
- Between 1994-2000, the sector's fuel consumption growth rate increased by 4.8% per year
- Growth Rate of fuel consumption (4.8%) exceeded the rate of primary energy consumption (4.4%) for the same period.

Important factors affecting energy efficiency in ESCWA transport sector

The sector's environmental impact

- Impacts on air quality
  - Local pollution (traffic gases, particular matters, noise)
  - Global warming (GHG emissions)
- Impact on water and land resources
  - Run-off polluted water from roads
  - Oil incidents at sea
  - Infrastructure development
  - Disposal of expired cars, batteries, tires, etc..
  - Rising sea level
  - Increased surface water salinity
  - Change in vegetation patterns
- Impact on human health

CO2 emissions in the Transport sector of ESCWA member countries (2000)



Main benefits of energy efficiency initiatives in transport sector

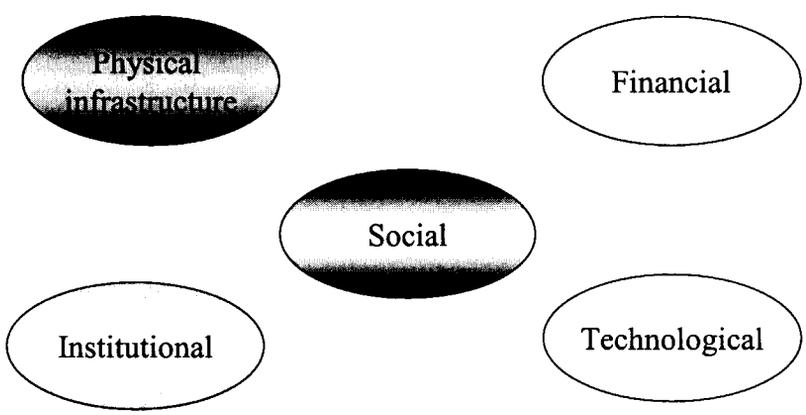
- **Economic and social benefits**
  - **Monetary savings for individuals/government**
  - **Better utilization of physical resources of the transport infrastructure**
  - **Reduction of time wasted in congested traffic**
  - **Improve road safety**
  - **Contribute to a more social and friendly urban environment**

Main benefits of energy efficiency initiatives in transport sector

- **Environmental benefits**
  - **Improve local air and water quality**
  - **Minimize associated health risks**

Major barriers to deployment of energy efficiency in ESCWA transport sector

- **These could be:**



Major barriers to deployment of energy efficiency in ESCWA transport sector

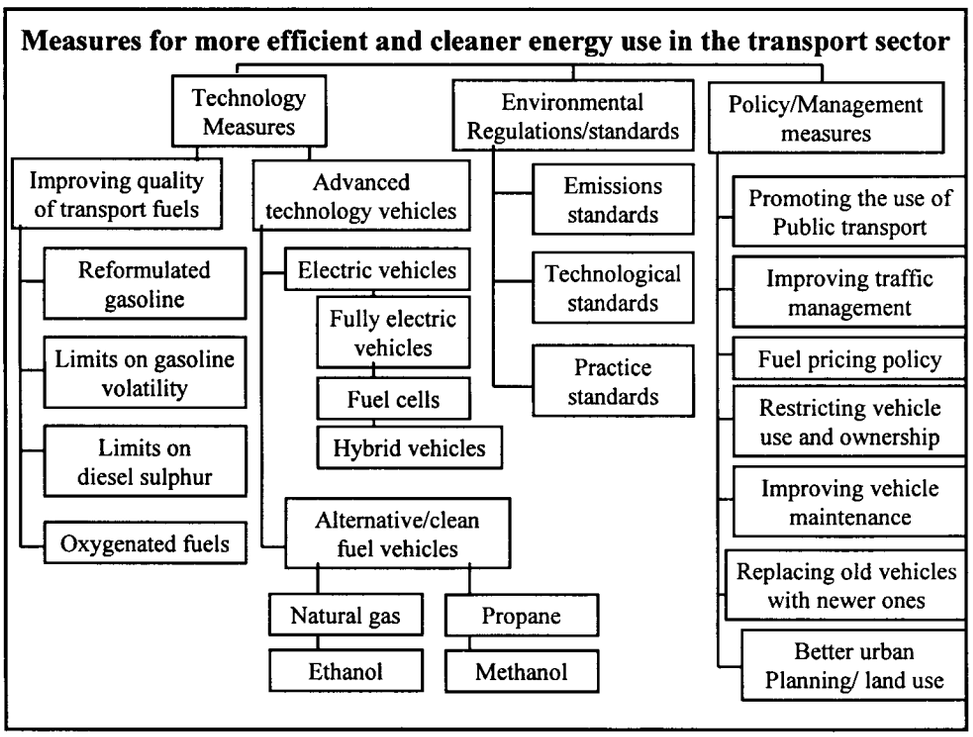
- Increase in urban settlement activity without corresponding increase in transportation capacity
- Lack of effective traffic management particularly in the most ancient and congested areas in the region
- High dependency on private car for travel
- Lack of financial resources to support energy efficiency initiatives

Major barriers to deployment of energy efficiency in ESCWA transport sector

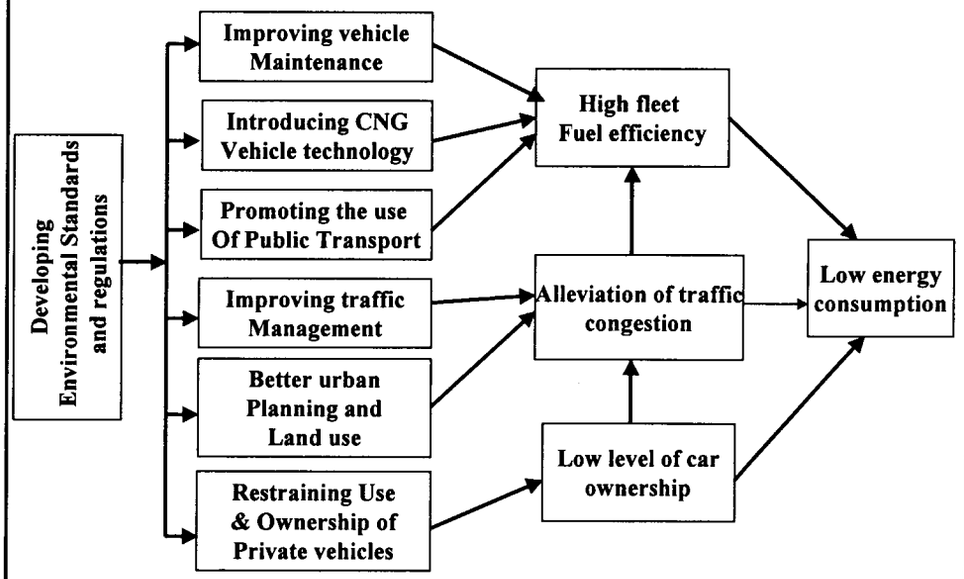
- Subsidies (fuel, tax exemption)
- Cost of new energy efficient technologies (e.g. hybrid vehicles) is high
- Lack or insufficient environmental standards and regulations and enforcement policies relating to transport

Major barriers to deployment of energy efficiency in ESCWA transport sector

- **Lack of awareness about the magnitude of environmental damage caused by transport sector activities**
- **Low priority in national development plans**
- **Lack of capacity building in the field**



Measures leading to more efficient & cleaner energy use in the ESCWA transport sector



Capacity Building needs for more cleaner and efficient Energy use

- **Transfer and development of emerging environmentally clean energy technologies and alternative fuels for transport**
  - » R&D, pilot projects demonstration, bilateral/multilateral collaboration, building on existing experience
- **Institutional strengthening**
  - » Enacting and enforcing relevant policies and regulations, development and harmonization environmental standards and regulations, human resources development
- **Access to information**
  - » Establishing database, information centers, monitoring programmes

Capacity Building needs for more cleaner and efficient Energy use

- **Building the financial capabilities**
  - » Revenues generated from local projects (public or private), foreign investments, international financing mechanisms (CDM, GEF)
- **Public participation**
  - » Awareness campaigns, education, incentives

The Egyptian experience in using compressed natural gas vehicles technology

Background

- Egypt suffers from serious pollution caused by the intensive motor vehicle activities in its already congested cities
- Egypt enjoys good reserves of natural gas that could be utilized
- Many environmental policies and regulations relevant to the transport sector exist part of the national energy efficiency strategy and programmes

The Egyptian experience in using compressed natural gas vehicles technology

The Approach

- Assessment of experiences and technology and identification of viable options
- Funds allocation (Private companies, GEF, USAID...)
- Pilot project demonstration both by the government and private companies (Petrobel, GasTec, NGV, CarGas)

The Egyptian experience in using compressed natural gas vehicles technology

The Achievements

- Design establish and own CNG centers and systems
- Testing available equipment for its suitability for Egyptian conditions
- Building up local expertise in natural gas vehicle technology, including performance of all maintenance and repairs required for the natural gas system and supply customers with spare parts
- Convert vehicles to operate on CNG

The Egyptian experience in using compressed natural gas vehicles technology

The Achievements

- Promoting the use of natural gas reserves in Egypt, of the standards, regulations and incentives that would be required to sustain a viable natural gas vehicle industry in Egypt
- Increasing public awareness of natural gas technology
- Drawing attention to the environmental benefits of the natural gas vehicle programme

Egypt CNG vehicles
Facts & Figures

- The total number of CNG-powered vehicles in Egypt increased from 10,640 in 1998 to 27,414 in 2000. An average annual growth of about 79% during the initial year of the project
- Taxis made up 74.3% of that total and private cars accounted for 13.3%, while buses and light-duty trucks represented 9% and 3.4% respectively
- The total number of CNG fuelling stations increased from 21 in 1998 to 43 in 2000, averaging about 52% annual growth. There are about 21 additional fuelling stations under construction

Egypt CNG vehicles
Facts & Figures

- **Total annual gas sales have increased from 56 million m^3 in 1998 to 135.3 million m^3 in 2000, an average annual increase of about 71%**
- **The total number of CNG-fuelled vehicles in Egypt represent about 2.2% of all such vehicles worldwide and make's Egypt the seventh largest national CNG vehicle fleet in the world**

Recommendations

Considering that

- **The transport sector in ESCWA region is a major energy consumer and source of pollution**

And that

- **There is an urgent need to undertake initiatives at the national and regional levels to reduce adverse impact on environment and achieve energy conservation**

Recommendations

The ESCWA countries need to:

- **Promote capacity building initiatives on the application of efficient and cleaner energy technology in the transport sector**
- **Integrate national transport strategies with their overall national energy strategies**
- **Conduct assessment studies on the applications of efficient energy measures such as natural gas vehicles technology and evaluate the market potential by those countries which have natural gas reserves**

Recommendations

The ESCWA countries need to:

- **Mobilize local, regional and international financial resources to support energy efficiency initiatives**
- **Initiate human resources development plans to plan, implement and evaluate national energy efficiency projects through practical training , education, incentives, etc..**
- **Organize training programmes for the transfer and exchange of existing experiences in the field of transport energy efficiency between the countries through the existing cooperation mechanisms**

Recommendations

The ESCWA countries need to:

- **Coordinate efforts to review , update and harmonize regulations and standards relevant to the energy used in the sector at the national, regional levels in order to promote sustainable energy consumption pattern in the region.**

Thank you