Greening the Urban Environment

Mass Transit: An Integrated Approach to Sustainable Urban Development

Khalid Z. El Adli, Ph.D., Assoc. AIA, F. Assoc. ASLA
Rapid urbanization
Climate change
Scarcity of natural resources
Shrinking public budgets

Unsustainable urban environments
By 2050, 70% of the world's population will be living in cities.

Rapid Urbanization

• 43.1% of Egypt’s population live in cities;
• 56% in the Greater Cairo Region (GCR) as well as Alexandria governorate;
• Urban planning, infrastructure and service delivery has not been able to keep up with rapid urbanization experienced over the last four decades.
Ills of Urbanization

- Poor environmental conditions
- Population overload
- Pressure on resources
- Destruction of natural habitat
Cities are economic engines, they are the major consumers and distributors of goods and services responsible for:

- most of the world’s energy consumption
- 50% of the world’s economic output.
Cities should be connected, competitive, and attractive.
Cities should adopt environmental, economic and socially responsible solutions through:

- Sustainable landuse planning
- Innovative housing strategies
- Strategies for green urban development
- Sustainable mobility & transport
- Energy conservation & renewable energy
- Sustainable building practices
- Green governance & economy
- Waste Management & Recycling
Sustainable Mobility & Transport
- Rapid urbanization w/ almost no investment in public transport.
- Congestion tackled w/ further car-based infrastructure.
• Car-dependent settlement patterns.
• Numerous cities around the world followed similar development patterns.
The EU Model

• An “integrated transport paradigm”
• Funds channeled into public transport.
Copenhagen: A Success Story
BRT Success Stories

- Bogotá, Colombia
- Ahmadabad, India
- Istanbul, Turkey
- Johannesburg, South Africa
- Curitiba, Brazil & many more
The Cairo Metro Network
• Spans 78km w/ three lines;
• Carries around 4.1 million passengers per day;
• Reported to have the highest number of boarding's per km of any metro system.
Other Transportation Modes

• Bus, minibus, and microbus routes.
• GCR bus network (approx. 450 official bus & minibus routes, along w/ numerous informal microbus services.
• CTA operates 3,000 buses on 366 routes.
Yet, still lacking kilometers of sufficient transit service

Rapid Transit Ratio (RTR) - km of rapid transit per million urban residents

- Paris: 76
- London: 55
- Mexico City: 33
- Beijing: 21
- Cairo: 8
Capital Cost

- Underground Metro
- Elevated Rail
- LRT
- BRT

Capital cost (US$ million/km)

Passengers per hour per direction
Benefits of Mass Transit

on 1 light rail train
Benefits of Mass Transit
Multi-modal Transportation Network

DO THE RIGHT MIX
Greenway Network & Nile Promenade

Giza City Greenway Network
Green Mobility & Transportation Network
(Metro, BRT, Water-Taxi & Bike Sharing)
مشروع تطوير شبكة الطرق بمنطقة جامعة القاهرة

كلية الهندسة
كلية الفنون التطبيقية
حديقة الأورمان
حديقة الجبرات
كوبيري الجامعة
شارع المساحة
شارع النقى
جامعة القاهرة
vironnement de la ville de Caire avec un certain nombre de bâtiments et des rues.
مشروع تطوير شبكة الطرق بمنطقة جامعة القاهرة

جمعة القاهرة
كلية الآداب التطبيقية
شارع الدقي
شارع المسالحة
حديقة الأورمان
حديقة الحيوان
كلية الهندسة
فورى الجامعة
THANK YOU