



Standing Committee for Economic  
and Commercial Cooperation of the  
Organization of Islamic Cooperation  
(COMCEC)

COMCEC Coordination Office



# Conceptual Framework of Urban Transport in Megacities of Developing Countries – the Global Trends

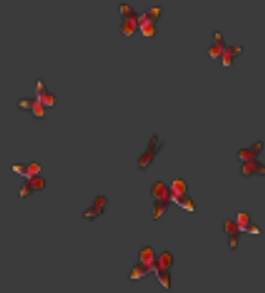


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# Introduction – WYG and Fimotions



Colin Shield



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your mobility solutions



# Content

1. The study
2. What is a megacity?
3. Analysed OIC megacities
4. Conceptual Framework
5. Conclusions



# 1. The study



## Background

- ◆ Rapid urbanisation creates problems and challenges
- ◆ 7 of 28 megacities belong to the Islamic World
- ◆ Important role of Islamic megacities in global sustainability

## Objectives

- ◆ Analyses the latest trends in OIC megacities
- ◆ Identifies common challenges faced by these cities
- ◆ Develop recommendations for policy actions

## Methodology

- ◆ Desk top literature review
- ◆ 3 case studies - site visits and meetings.
- ◆ SWOT analysis of all OIC megacities

# 2. What is a Megacity?



UN definition = a city with a population of above 10 million people

Currently there are 28 megacities in the world:

- ◆ 7 in the Islamic world
- ◆ 22 in the developing world
- ◆ 7 in the developed world

Urban Agglomeration	Country or area	Population(thousands)			Rank			Average annual rate of change (%) 2010-2015
		1990	2014	2030	1990	2014	2030	
Tokyo	Japan	32530	37833	37190	1	1	1	0.6
Delhi	India	9726	24953	36060	12	2	2	3.2
Shanghai	China	7823	22991	30751	20	3	3	3.4
Cuidad de Mexico (Mexico City)	Mexico	15642	20843	23865	4	4	10	0.8
Sao Paulo	Brazil	14776	20831	23444	5	5	11	1.4
Mumbai (Bombay)	India	12436	20741	27706	23	8	5	4.6
Kinki M.M.A. (Osaka)	Japan	18389	20123	19976	2	7	13	0.8
Beijing	China	6788	18591	24502	24	8	6	3.6
New York - Newark	USA	16086	18591	19885	3	9	14	0.2
Al-Qahirah (Cairo)	Egypt	9892	18419	24502	11	10	8	2.1
Dhaka	Bangladesh	6621	16982	27374	24	11	6	3.6
Karachi	Pakistan	7147	16126	24838	22	12	7	3.3
Buenos Aires	Argentina	10513	15024	16956	10	13	18	1.3
Kolkata (Calcutta)	India	10890	14766	19092	7	14	15	0.8
Istanbul	Turkey	6552	13954	16694	25	15	20	2.2
Chongqing	China	4011	12916	17380	43	16	17	3.4
Rio de Janeiro	Brazil	9697	12825	14174	13	17	23	0.8
Manila	Philippines	7973	12764	16756	19	18	19	1.7
Lagos	Nigeria	4764	12614	24239	33	19	9	3.9
Los Angeles- Long Beach- Santa Ana	USA	10883	12308	13257	8	20	26	0.2
Moskva (Moscow)	Russian Federation	8987	12063	13257	8	20	26	0.2
Guangzhou, Guangdong	China	3072	11843	17574	63	22	16	5.2
Kinshasa	Democratic Republic of the Congo	3686	11116	19996	50	23	12	4.2
Tianjin	China	4558	10860	14655	37	24	22	3.4
Paris	France	9330	10764	11803	14	25	33	0.7
Shenzhen	China	875	10680	12673	308	26	29	1.0
London	United Kingdom	8054	10189	11467	18	27	36	1.2
Jakarta	Indonesia	8175	10176	13812	17	28	25	1.4

Source: United Nations, 2014

# 3. Analysed OIC Megacities



Urban Agglomeration	Country or area	Population(thousands)			Rank			Average annual rate of change (%) 2010-2015
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Al-Qahirah (Cairo)	Egypt	9892	18419	24502	11	10	8	2.1
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Jakarta	Indonesia	8175	10176	13812	17	28	25	1.4
Tehran	Iran	6365	8353	9990	26	40	42	0.9

Source: United Nations, 2014

# 4. Conceptual Framework



## Framework of 10 subject areas:

1. Transport network and land use planning
2. Mode availability and shares
3. Freight and servicing
4. Road safety
5. Institutions and organisational structure
6. Urban infrastructure financing
7. Health
8. Climate change
9. Social exclusion
10. Human dimension

# 4.1 Transport Network and Infrastructure



## Developed world:

Predict and provide after WWII: more trips are generated after new infrastructure becomes available

## Developing world:

- ◆ Monocentric form, narrow streets, irregular and unclassified networks
- ◆ Rapid motorisation and change of modes without infrastructure adaptation leads to huge transport problems.

## Best practice

Efforts to manage capacity: regulatory policy instruments such as parking restrictions, emissions standards and driving

## Bad practice

- ◆ Capacity increase instead of management
- ◆ Sprawl: higher costs of sprawling infrastructure, limits the viability of PT.



# 4.1 Transport Network and Infrastructure

## Land use and urban form

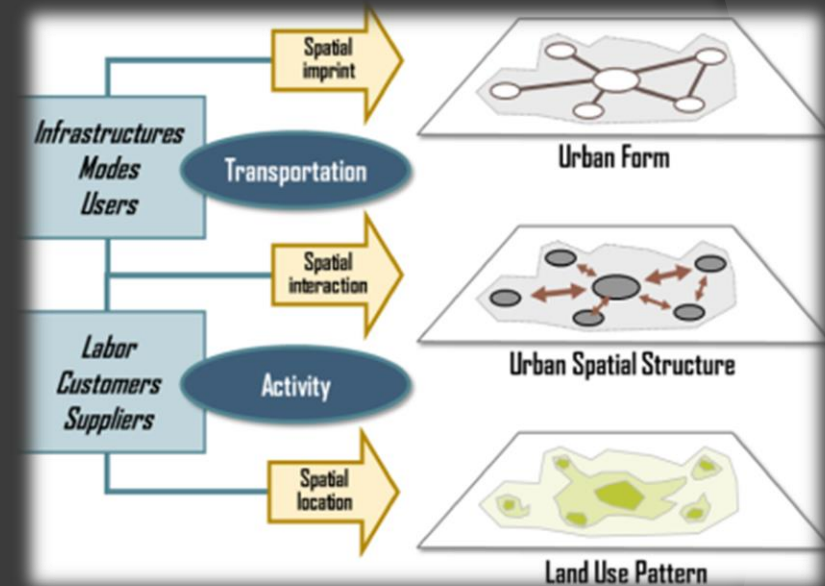
Physical separation of activities in an urban environment inevitably leads to longer distances travelled.

### Developed world:

- ◆ Automobile technology developed
- ◆ Town planning began separating functions by zoning, followed by decentralisation and dispersion of the city.
- ◆ In Europe, more compact cities.

### Developing world:

- ◆ Primacy (all the major functions of a country concentrated in one, very big city)
- ◆ Monocentricity (concentration of all key activities of the city in the central area)



# 4.1 Transport Network and Infrastructure



## Land use and urban form (best practices)

### ◆ Transit Orientated Development (TOD)

Hong Kong, Tokyo and Singapore are pioneers in TOD

### ◆ Planning regulations

- Promoting mixed land uses
- Minimum density standards
- Mixed use regulation and a density bonus for developers
- Max parking standards

# 4.2 Mode availability and shares



Analysis divided into three areas:  
private motorised, public transport and Non Motorised Transport (NMT)

## **Developed:**

- ◆ Evident effects of motorisation
- ◆ Efforts to reverse its impacts through investment in public transport and NMT.

## **Developing:**

- ◆ Lower levels of car ownership yet significantly bigger congestion problems
- ◆ Paratransit very common in developing world megacities.
- ◆ NMT usually made up of varied mix of modes which reduces the efficiency of the traffic
- ◆ Organic pattern and mixed land uses in the cities result in very high shares of walking trips.

# 4.2 Mode availability and shares – best practice



## ◆ BRT Curitiba

TOD and public transport oriented strategy sustained by strong political commitment and social engagement.

## ◆ Cycling in the Netherlands

- Coordinated implementation of measures that reinforce the impact of each other in promoting cycling.
- Combination of direct and indirect measures to promote cycling:
  - Extensive systems of separate facilities
  - Intersection modifications and priority traffic signals
  - Traffic calming
  - Bike parking
  - Integration with public transport
  - etc



# 4.3 Freight and servicing

- ◆ Key area for economic growth
- ◆ The area with the least transferrable policies.
- ◆ Difficult to find uniform regulatory solutions for urban freight due to huge diversity

## Developed:

- ◆ As urban density increases, logistics facilities decentralise.
- ◆ Urban logistics centres move further away from the cores of the cities.
- ◆ Fragmentation of the organisations involved in the supply chain
- ◆ Operations expand beyond the borders of the urban area

## Developing:

- ◆ Absence of peripheral routes or bypasses
- ◆ Different nature of markets, small and owner operated shops that are unlikely to store large amounts of goods or adopt other measures such as out of hours deliveries.



# 4.4 Road safety

- ◆ Human and economic costs (loss of human capital, hospitalisation, and material costs).
- ◆ UN Decade of Action for Road Safety 2011-2020 officially launched 11/5/11.



## Developed:

- ◆ Pedestrians, cyclists and motorcyclists continue to be the most vulnerable users in developed countries.
- ◆ Comprehensive and clear legislation
- ◆ Enforced with appropriate penalties
- ◆ Public awareness campaigns

## Developing:

- ◆ Almost 85% of fatalities due to road accidents occur in low and middle income countries.
- ◆ India ranks number one with 110,000 people killed every year.
- ◆ Limited public spending
- ◆ Inadequate enforcement
- ◆ Limited data collection

# 4.5 Institutions/organisational structure



## Developed:

- ◆ City wide transport authorities have been in place for years and have developed their structure
- ◆ Complete deregulation of public transport. Lack of balance in provision, services available on profitable routes and low or no availability on less profitable routes and areas.
- ◆ Still issues with monitoring and evaluation and information sharing and adaptation.

## Developing:

- ◆ Less clear institutional framework
- ◆ Fragmentation of responsibilities and management
- ◆ Lack of clear vision for the future
- ◆ Lack of control over competition and private sector
- ◆ Instability and lack of vision leads to focus on short term impacts

# 4.5 Institutions/organisational structure

## – best practice



- ◆ **Transport for London (TfL)**
- ◆ Bus services are not entirely privatised
- ◆ TfL defining vehicle and operation standards and managing the concessions of services in a competitive environment
- ◆ Established fare structures and a ticketing system and wide coverage real time information.
- ◆ **Crucial factor:**
  - Central management for better providing coordination of services
  - Complimentarily of modes
  - Seamless multimodal travel for all passengers



# 4.6 Urban Transport Infrastructure Financing

- ◆ Finding adequate sources of finance is a prominent issue in both the developing and developed worlds
- ◆ Consistency of financial arrangements within the overall urban strategies:
  - Dev'd: taxation income & private investments can be secured to a certain extent
  - Dev'ing: less consistent, as such funding sources and models employed on an individual project basis

# 4.6 Urban Transport Infrastructure

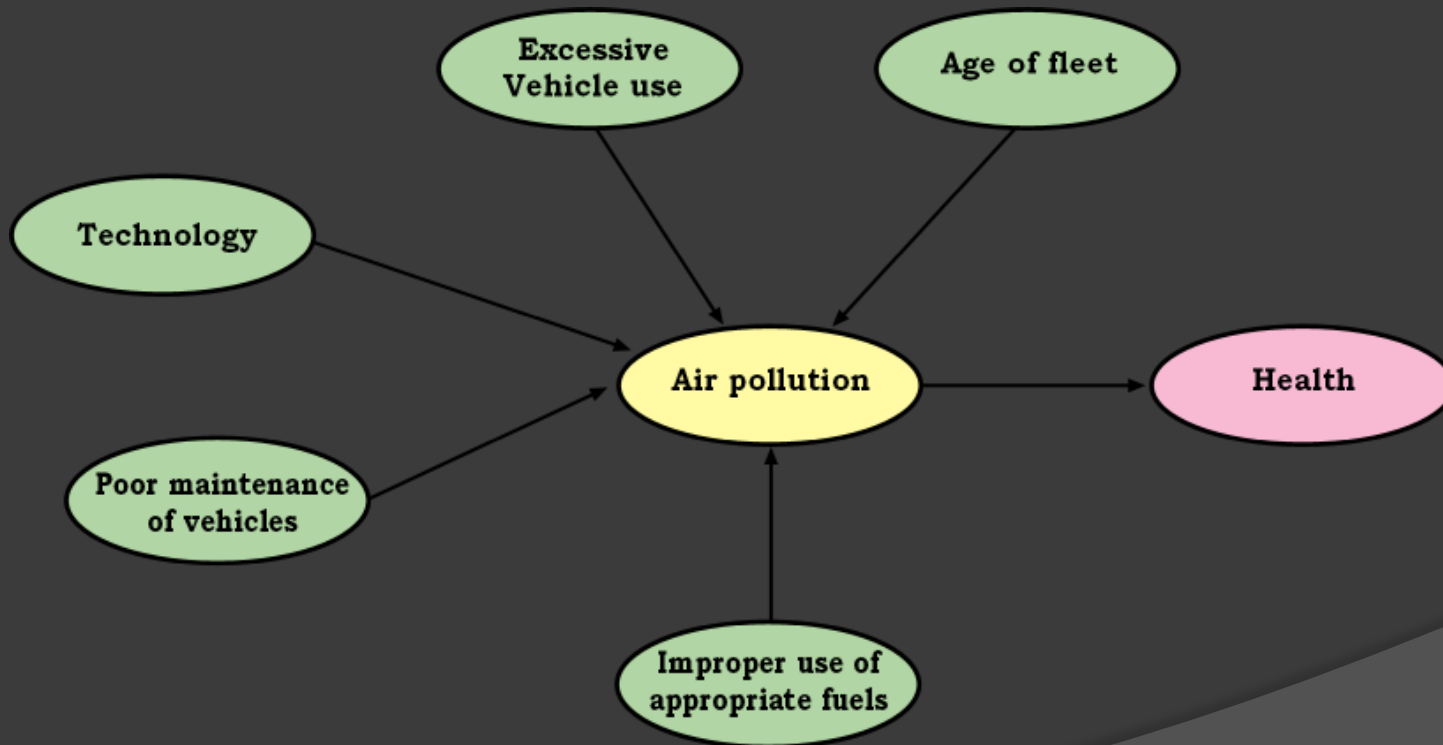
## Financing

- ◆ Funding mechanism in developed megacities:
  - Concession, privatisation, contracting out
  - PPP
  - Land value capture
  
- ◆ Funding mechanism in developing megacities:
  - International funding streams (MDBs and MFIs)
  - PPP (primarily for financing ports)
  - Local sources (user fees, fuel taxes, etc).



# 4.7 Transport and Health

- ◆ Intensive use of private motorised transport has serious indirect impacts on public health
- ◆ Diseases caused by air pollution



# 4.7 Transport and Health

## ◆ The highest cardiovascular mortality rates:

- Dhaka (7000/year)
- Beijing (5500/year)
- Karachi (5200/year)
- Cairo (5000/year)
- Delhi (3500/year)

## ◆ At the low end:

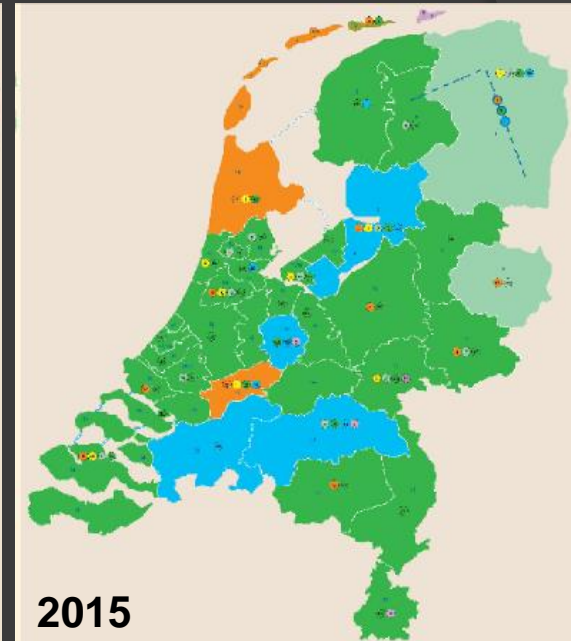
- Osaka-Kobe (20/year)
- Sao Paulo (50/year) → support bio fuels

## ◆ Reduction in the total physical activity levels leads to non communicable diseases recognised as a leading cause of mortality worldwide:

- Low cardiovascular conditions
- Cancer
- Diabetes

# 4.7 Transport and Health

- ◆ **Transport and health in developed megacities:**
  - Problem recognition since 1950s
  - Introduction of vehicles emission standards



Source: CROW KpVV

# 4.7 Transport and Health

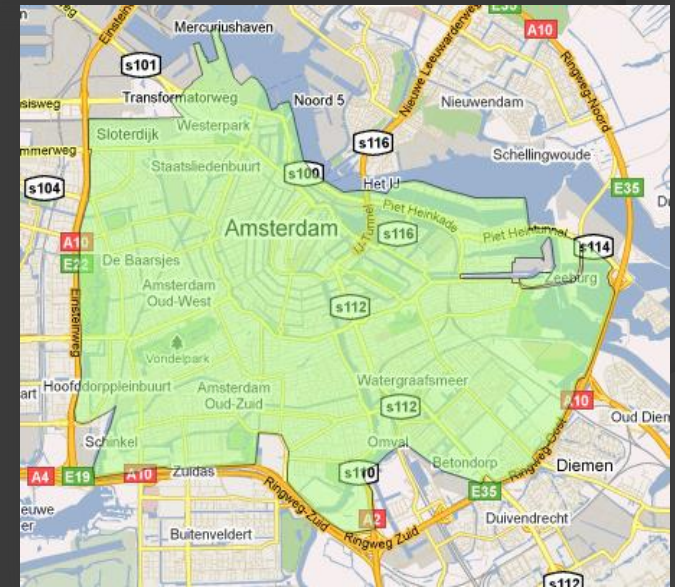
## ◆ Developed:

- Promoting sustainable transport modes (health benefits of active modes)
- Implementing behavioural strategies (fuels pricing, walkable cities)
- Introducing Low Emission Zones



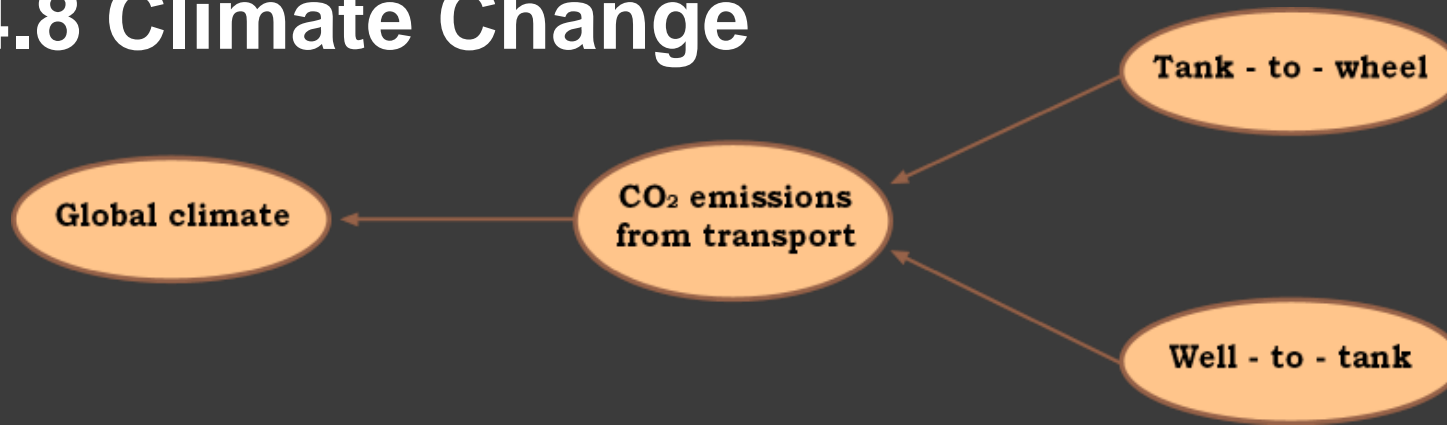
## ◆ Developing :

- Measures to reduce vehicle emissions are yet to be adopted
- Fuel subsidy
- Lack of an effective policy framework



Source: Municipality of Amsterdam

# 4.8 Climate Change



Most megacities are vulnerable to the impact of climate change (flooding) due to their locations on the coast or along major rivers.

	Developed megacities	Developing megacities
Vulnerability levels	More exposed in terms of assets	More exposed in terms of population
Commitment	Emission reduction targets in the national agendas	A clear vision needs to be accepted by involved stakeholders
Key policy	Paradigm shift in transport planning	Affordable, adaptable and implementable carbon free vision
Effectiveness of policy actions taken	At a city level	Direct interventions by city governments

# 4.8 Climate Change



## Contrasting approaches to transport planning





# 4.9 Social exclusion

- ◆ Transport is one of the factors contribute to social exclusion
- ◆ The most vulnerable groups: the urban poor, elderly, women and disabled people

	Developed megacities	Developing megacities
Employment	Unequal distribution of access opportunities to employment	High proportion of expenses for work journey
Gender	Men and women are generally considered to have the same access	Higher impact to the women's quality of life
Disabilities	Access to public transport, infrastructure and public spaces are provided	Gaining acceptance but issue in translating policies into the provision
Ageing population	Accessible transport as a means to increase the mobility of elderly	Official planning is usually absent

# 4.10 Human dimension

- ◆ Streets as public space contribute to urban prosperity.
- ◆ Sustaining the human dimension in transport planning → sustaining the quality of life
- ◆ In developed megacities, concern for the human dimension is increasing



Source: Verkeersnet.nl

# 4.10 Human dimension

## ◆ In developing megacities:

- Not enough streets
- Concept of walkability and social interactions are not applicable
- While walking on streets is a necessity, not a choice
- Many initiatives have been started by private sectors in city centres



# 5. Conclusions

- ◆ The rapid population growth and urbanization of megacities is one of the most urgent current global issues.
- ◆ Around 80% of the top 30 of world megacities belong to developing countries  
→ potential, opportunities and challenges for sustainability
- ◆ Trends differ significantly between developed and developing cities

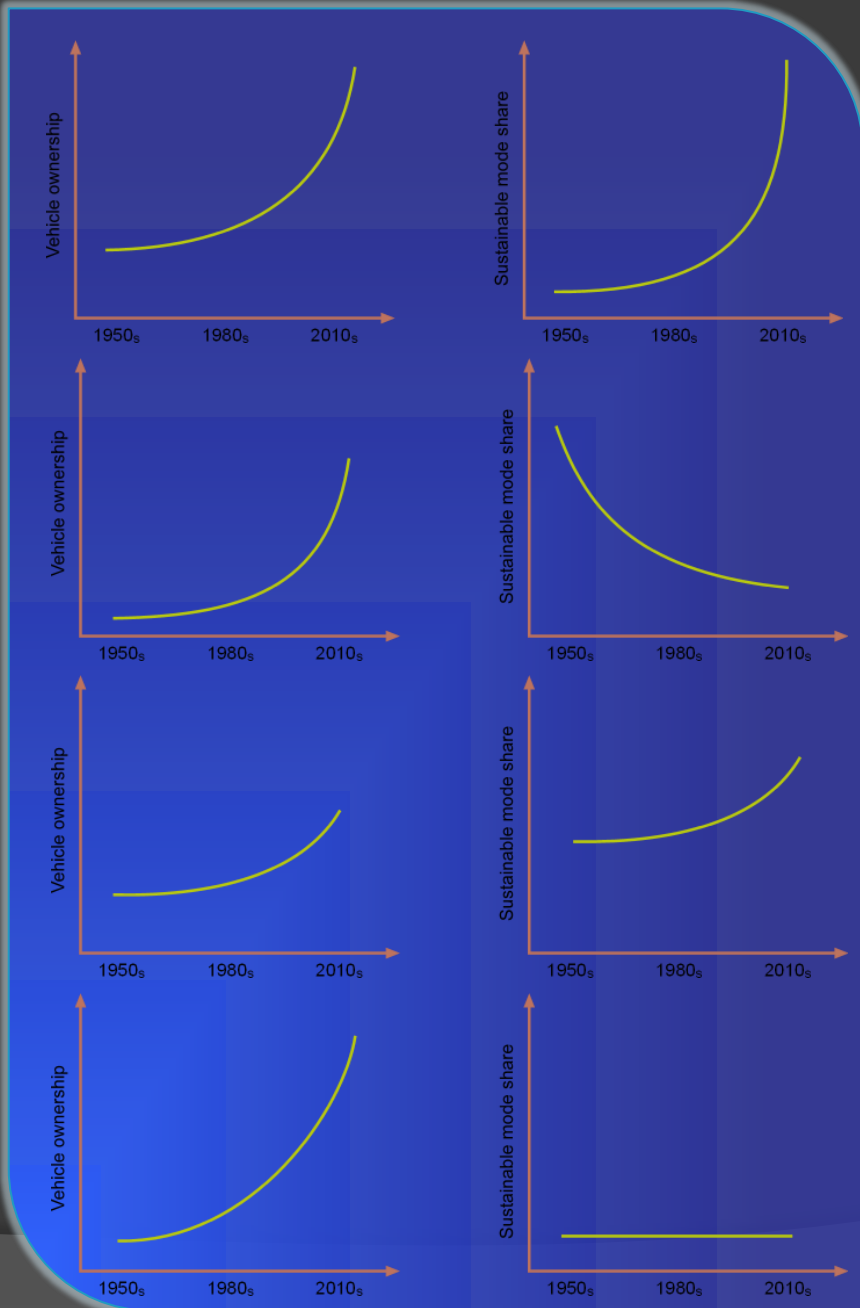
## Developed:

- Longer periods of political stability and economic prosperity
- Old independent centres of commerce of the global north
- Have already gone through rapid urbanisation and motorisation
- Evolved from steady but increasing sprawl and motorisation to more compact and sustainable cities

## Developing:

- Often in areas of political and economic instability
- Colonial centres of commerce in the global south
- Rapid expansion after WWII and rapid motorisation
- Huge investment demands for infrastructure and other services beyond the capacity of developing countries

# 5. Conclusions



Developed world

Asia

Africa

Middle East



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**Thank you for  
listening**

**Any Questions?**