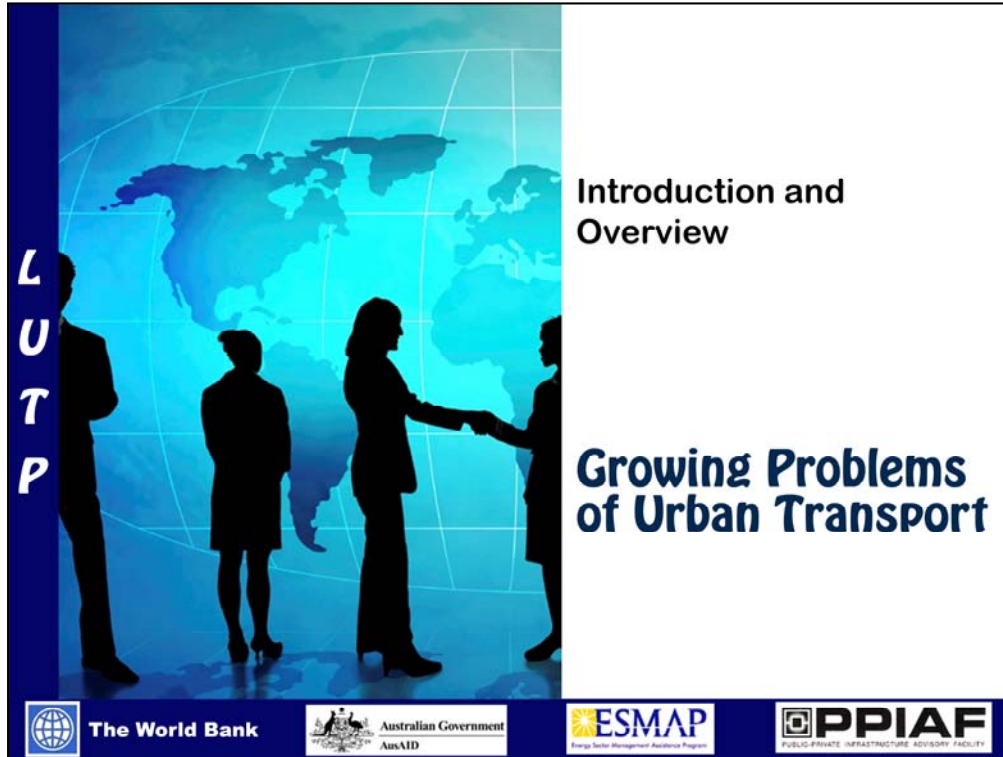


1010P



INTRODUCTION AND
OVERVIEW

GROWING PROBLEMS OF URBAN TRANSPORT



Cluster 1/Module 1 (C1/M1): Growing Problems of Urban Transport.

This presentation is one of the support materials prepared for the capacity building program *Building Leaders in Urban Transport Planning (LUTP)*.

Support for LUTP was provided by:

- The World Bank
- Australian Agency for International Development Aid
- The Energy Sector Management Assistance Program (ESMAP), and
- Public-Private Infrastructure Advisory Facility (PPIAF).



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ESMAP
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PPIAF
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Objectives

- **Recognize major transport issues**
 - Congestion
 - Air pollution
 - Carbon dioxide emissions
 - Increasing energy consumption with income
 - Safety and road accidents
- **Understand challenge and key role of vision, policies, institutions**
- **Appreciate need for a paradigm shift when developing strategies**

LUTP Growing Problems of Urban Transport (C1/M1) 2

The key objectives of this module are to create an awareness of the growing problem of urban transport, particularly in the developing world. At the end of this module you will be able to recognize major transport issues such as:

- Problems associated with congestion
- Growing concerns about air pollution
- Problems regarding carbon dioxide emissions
- Concerns related to increasing energy consumption with income
- Problems regarding safety and road accidents

You also will gain an understanding of the challenge and key role of a vision, policies and institutions in dealing with these problems. You will begin to recognize the need for a paradigm shift when developing strategies.



Opening Exercise



How would you rank the main problems facing urban transport in your city?

- **Please rank the most important problem 1, the next most important problem 2, ...**

Rank	Problem	Rank	Problem
	Congestion		Inadequate, unaffordable public transport service
	Accidents		Poor walking environment
	Poor road condition		Environmental impacts including air pollution and noise
	Fuel price		Rapid urbanization and sprawl
	Inadequate parking		Ineffective insitutions

Are there important problems in your city that are not listed here? What are they?

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Growing Problems of Urban Transport (C1/M1)

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Our opening exercise is designed to get you to start thinking about the major issues and challenges that cities are facing with regard to transport. The slide shows 10 problems that are often cited as major problems.

How would you rank these problems for your city? Please rank the problems from 1 to 10 with 1 being the most important problem and 10 being the least important problem.

Are there important problems in your city that are not listed here? What are they?

Take about 5 minutes to do this exercise.



Increasing Congestion



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In this first module, we will look at the major issues and challenges that cities are facing with regard to transport. We will also discuss ways to move forward in dealing with these issues and challenges.

The most visible problem of transport, in most cities, is severe congestion. Congestion plagues all types of cities—large and small, rich and poor, Eastern and Western Hemispheres, Developed and Developing. Congestion is a major problem.



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Not Just Cars...



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Two wheelers are becoming the dominant mode of personal transport in most of Asia and constitute an increasing share of transport in Africa and Latin America. If this trend continues...



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Slide 6



...we could soon be faced with a situation in which a person could buy a new car but have nowhere to go as they would be stuck in traffic.



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Not Just Congestion...

Urban air pollution is estimated to cause around 800 thousand deaths in urban areas every year *WHO*

Transport accounts for around 14% of human-created GHG emissions *BBC, 2009*

Every hour, 40 people under the age of 25 die in road accidents around the globe

Road traffic crashes cause 1.2 million deaths worldwide *WHO, 2010*

LUTP Growing Problems of Urban Transport (C1/M1) 7

It is not just congestion.

Urban air pollution has also become a big problem that adversely impacts the health of the people. Estimates by the World Health Organization show that air pollution contributes to approximately 800 thousands deaths in urban areas every year.

Transport also accounts for approximately 14 percent of Green House Gas emissions created by humans. That contributes a huge impact toward global climate change.

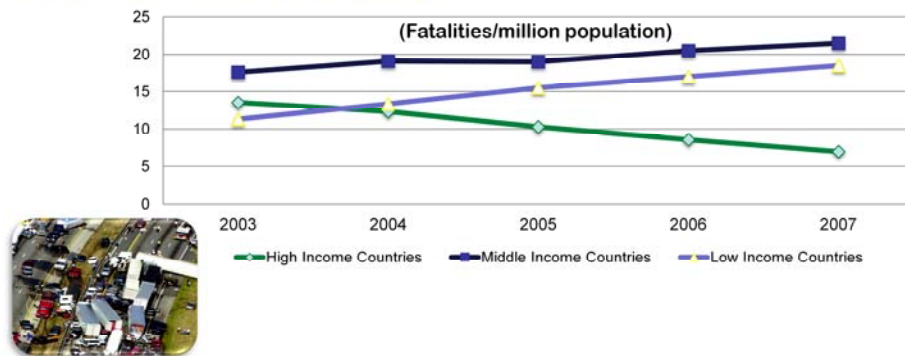
Further, each year, road crashes cause 1.2 million deaths worldwide.

Every hour, 40 people under the age of 25 die in road accidents around the world.



Traffic Accidents

- Increasing trend in developing countries
- Nearly 3,500 people die on the world's roads every day
- Children, pedestrians, cyclists and the elderly are the most vulnerable



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Growing Problems of Urban Transport (C1/M1)

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Now, let's examine these problems more closely.

This graph shows the trends in traffic accidents in low, medium and high income countries from 2003 to 2007. As you can see from this graph, the fatalities per million people is on the increase in low and medium income countries, though declining in high income countries. Nearly 3,500 people die on the world's roads every day—and children, pedestrians, cyclists and the elderly are most likely to be killed.



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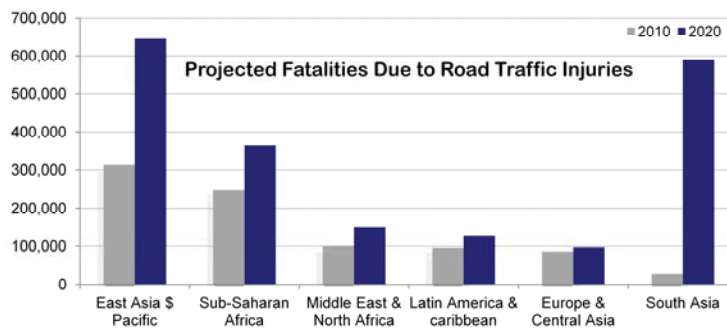
ESMAP
Energy Sector Management Assistance Program



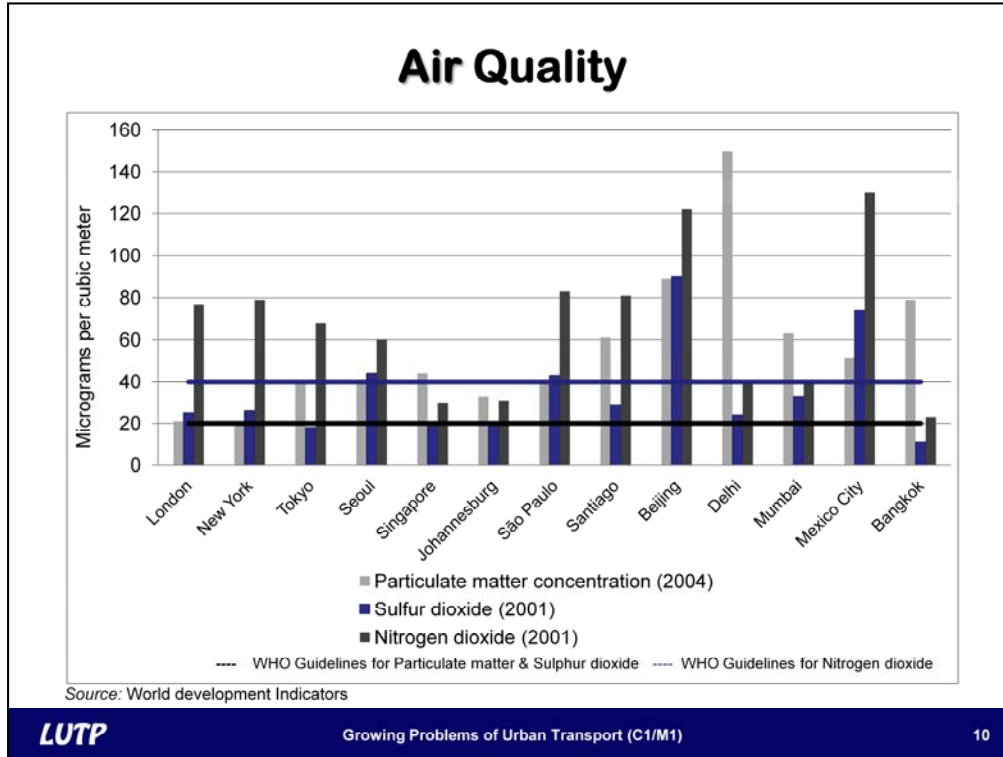
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Safety

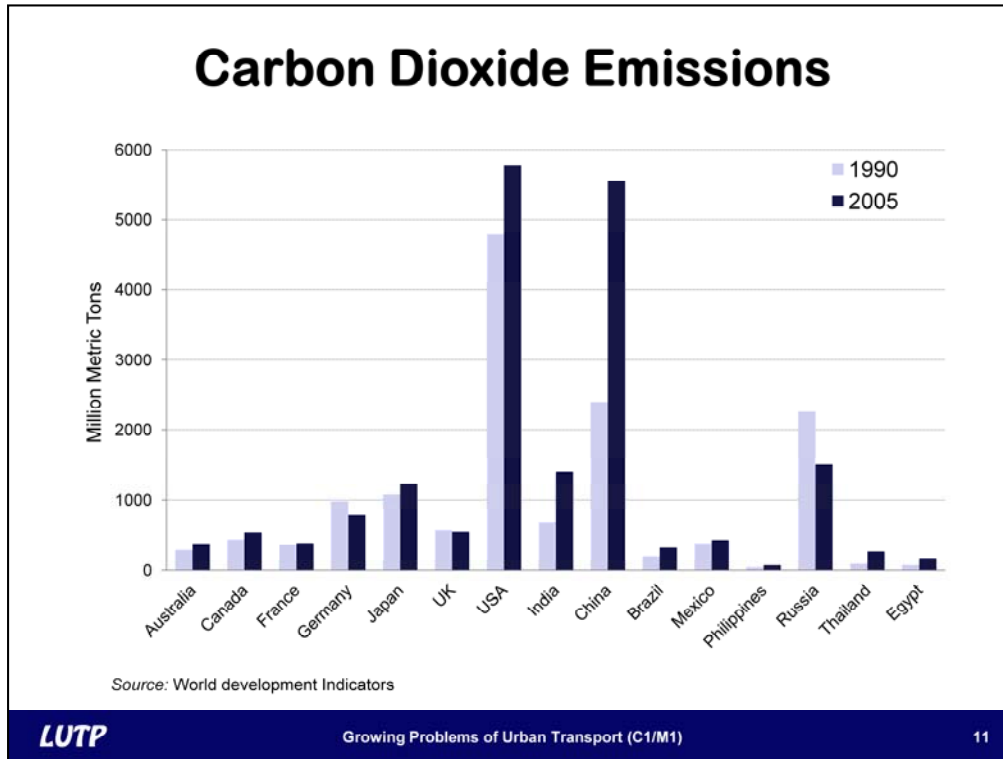
- Nearly 1.3 million people killed annually, and 20–50 million more injured
- Road traffic injuries have become the leading cause of death for people aged 15–29 years
- Over 90% of road traffic deaths and injuries occur in low-income and middle-income countries, which have only 48% of the world’s registered vehicles
- Nearly half (46%) of those dying on the world’s roads are “vulnerable road users”: pedestrians, cyclists and motorcyclist



This slide shows that more than 90 percent of the road traffic deaths and injuries each year occur in low and middle income countries. These countries have only 48 percent of the world’s registered vehicles. Besides, nearly half of those dying in road accidents are “vulnerable road users” defined as pedestrians, cyclists and motor cyclists.

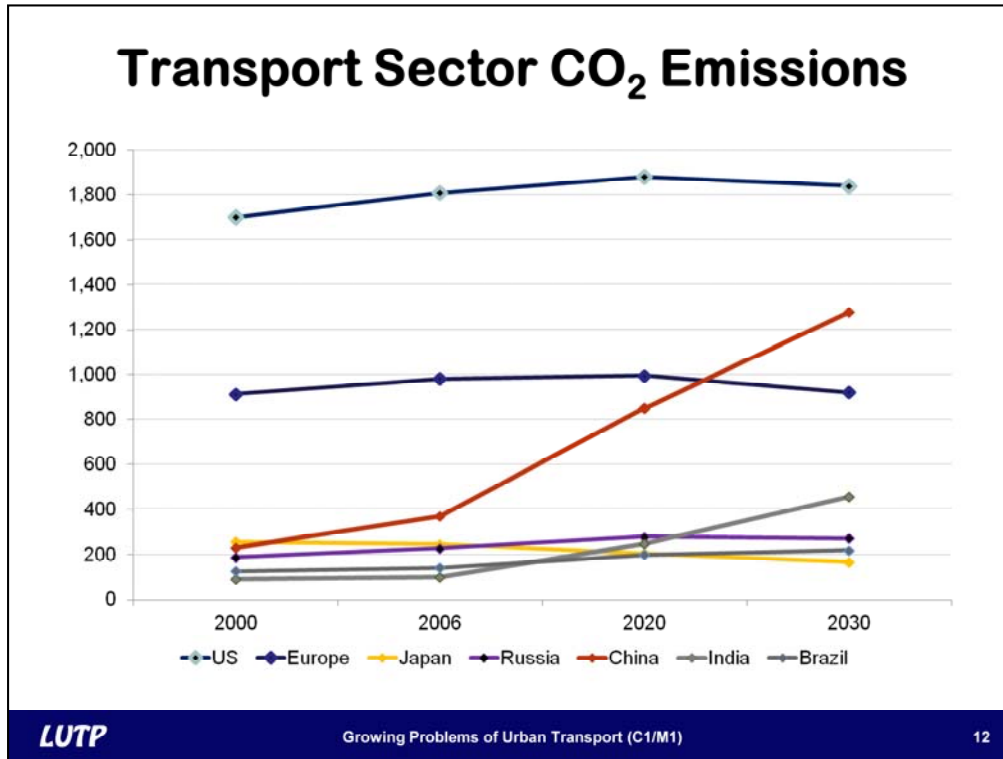


This slide shows that air pollution in several cities around the world is well above the acceptable norms prescribed by the WHO. While Particulate Matter is the key concern in cities such as Delhi and Bangkok, Nitrogen Dioxides are the main concern in most others.

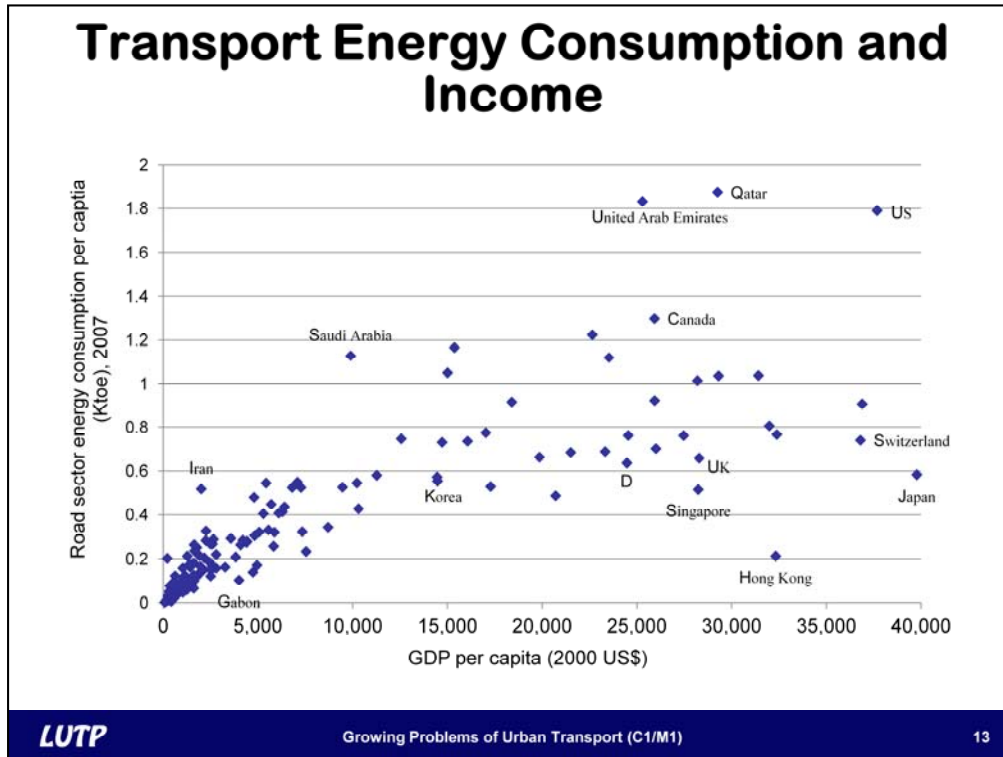


Looking at carbon dioxide emissions in 1990 and 2005, we find that the level of those emissions has increased in most countries, with China and India showing the highest increase. The US and China are the largest emitters of this pollutant.



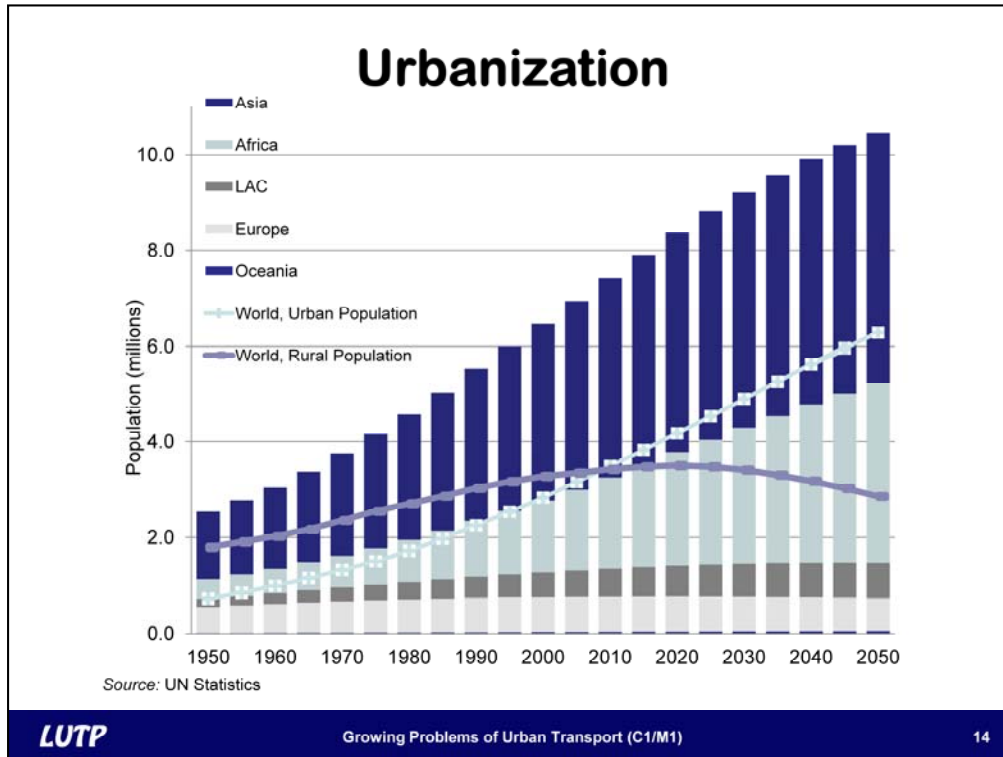


This slide shows the changing pattern of transport sector carbon dioxide emissions in the US, Europe, Japan, Russia, China, India and Brazil. As is evident, a decreasing trend is projected for the higher income countries whereas China and India are projected to have very large increases in their carbon dioxide emissions from the transport sector in the next twenty years.



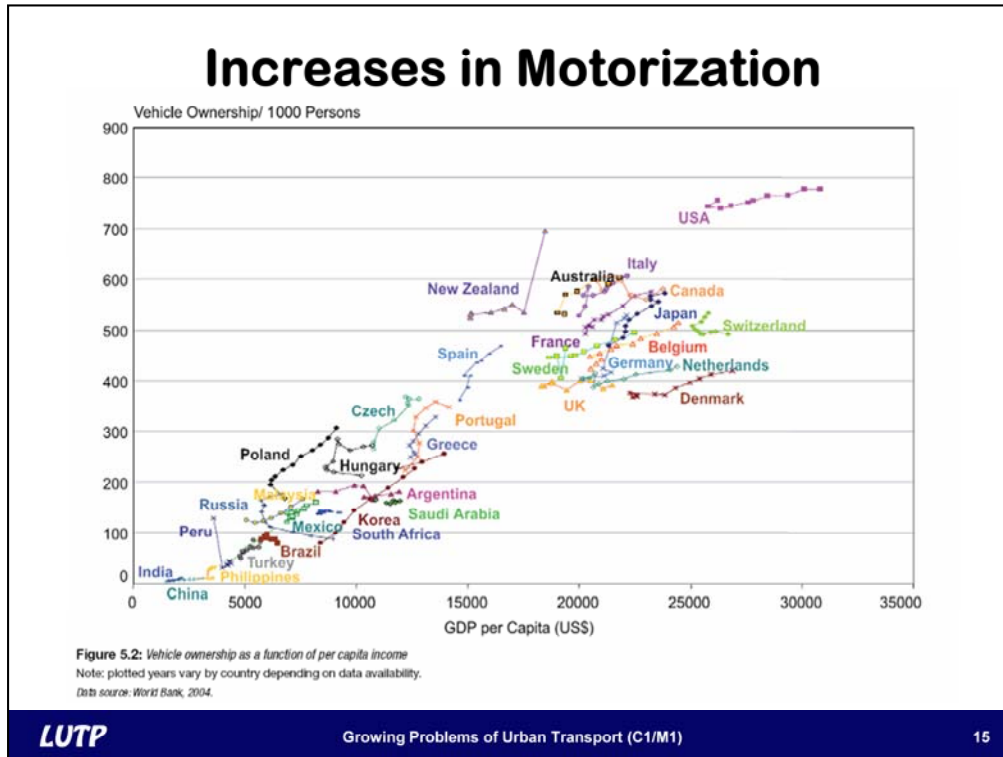
Energy consumption in transport increases with income. As income levels rise in the cities of the developing world, large increases in energy consumption and GHG emissions can be expected. This graph shows how transport energy consumption tends to increase as income levels rise.

Now, why is all of this happening?

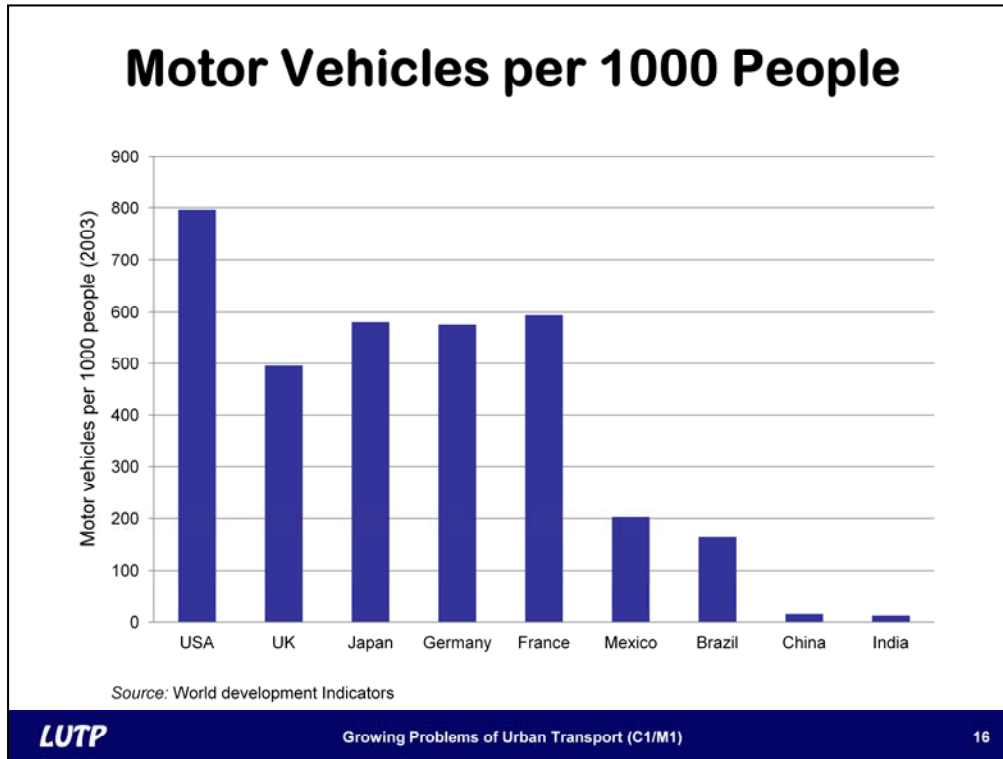


Clearly, rapid urbanization is the prime cause for this. As may be seen from this graph, we are now at a stage where half the world's population lives in its cities and this share is projected to go up. The largest increases will happen in Asia and Africa.



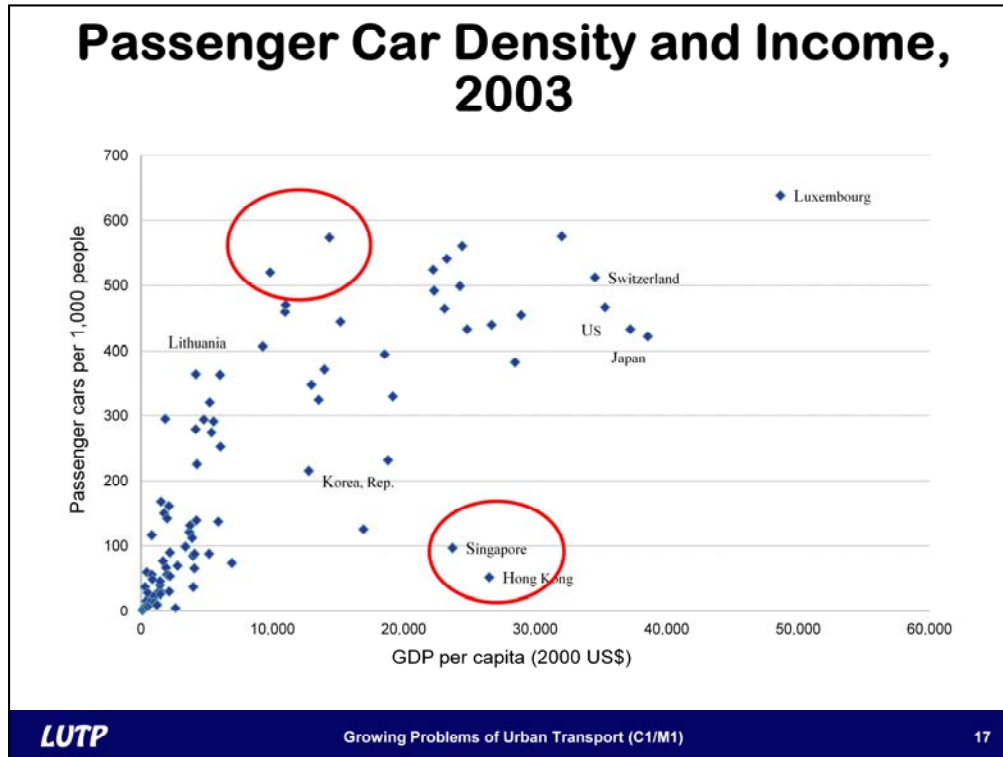


Increasing income has been found to lead to increasing motorization, as is evidenced in this graph. High income countries like the US, Japan and those in Europe have high levels of per capita vehicle ownership whereas lower income countries like India and China have lower levels of vehicle ownership.



This can be more clearly seen from the graph now presented.





This graph shows passenger car density to income. While the general trend is that higher income levels lead to a higher car density, there are some examples, like Singapore and Hong Kong, where car densities are low even at high incomes. On the other hand, there are examples where car densities are high even at low incomes. As we go along we will learn to recognize that the kind of situation seen in the cities of Singapore and Hong Kong are most desirable and sustainable.



Thus:

- **A huge problem on our hands**
- **The problem is rapidly getting worse**
- **Need to plan, not just for the current problems, but a near doubling in the next one generation**

Clearly, we have a huge problem on our hands. Given the fact that the urban population is projected to nearly double in the next 25-30 years, we are not just looking for remedies to today's problems but to remedies that will help us resolve a near doubling of the problem in the next generation. A challenge indeed.



So Far Efforts Have Been Towards –

- Increasing road capacity
- Enhancing public transport capacity

These are not enough

Need a paradigm shift and a fresh look

How have most cities tried to deal with this problem so far? Past efforts have largely focused on increasing the road capacity to accommodate the larger number of vehicles and on increasing the capacity of public transport to meet the growing demand.

Unfortunately, this has not been enough. Increasing road capacity may help alleviate the problem in the short term, but in the longer term, with increasing numbers of motor vehicles, the roads become equally congested, but at a higher level of traffic. This is not what we want, similarly increasing the capacity of public transport vehicles only adds to the number of vehicles on the road and does not necessarily encourage a shift towards public transport from personal motor vehicles.

Public transport needs to be more attractive for people to shift to it from their personal cars and motor-cycles.

All of this calls for a paradigm shift on how we plan urban transport.



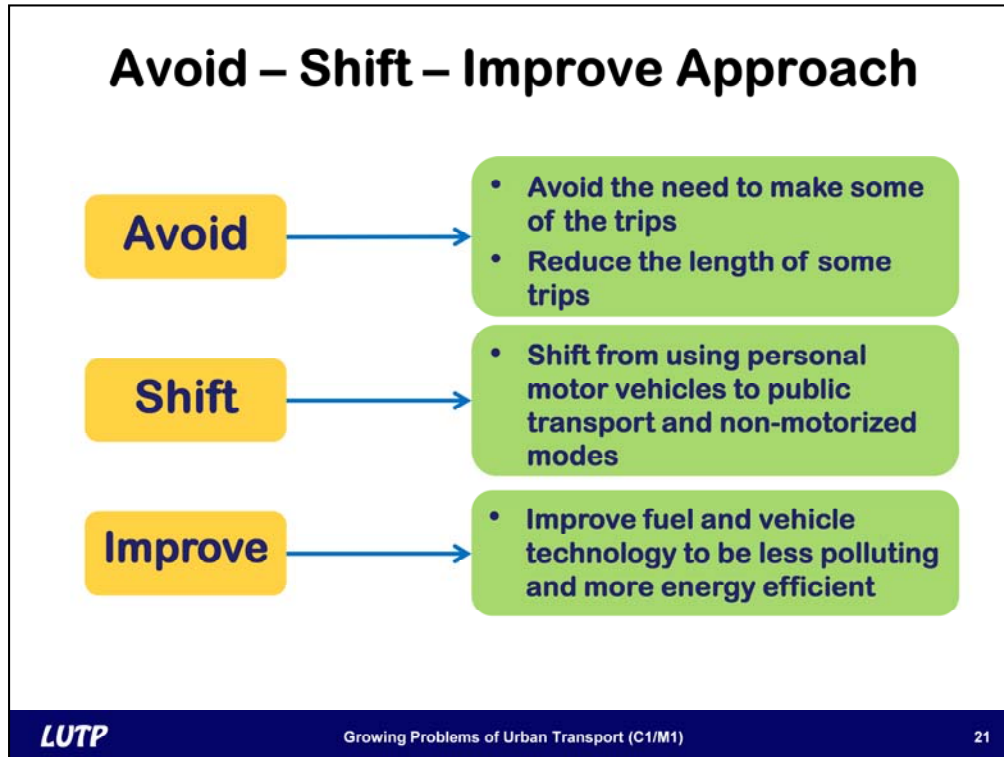
Therefore – The Need to Rethink Urban Transport

Need to focus on:

- Thinking holistically
- Demand – not just supply
- Moving people – not vehicles
- Clean/alternative technologies

There is a need to rethink urban transport. Clearly it is necessary to think holistically and in a comprehensive manner where the effort is not just at supply side measures like building roads and fly-overs or mass transit systems but also at demand side measures such as reducing the need for travel, the length of each trip and the number of vehicle kilometers. It is necessary to facilitate the movement of people – not the movement of vehicles. These two are very different. Alternative technologies that are clean and fuel efficient also need attention.



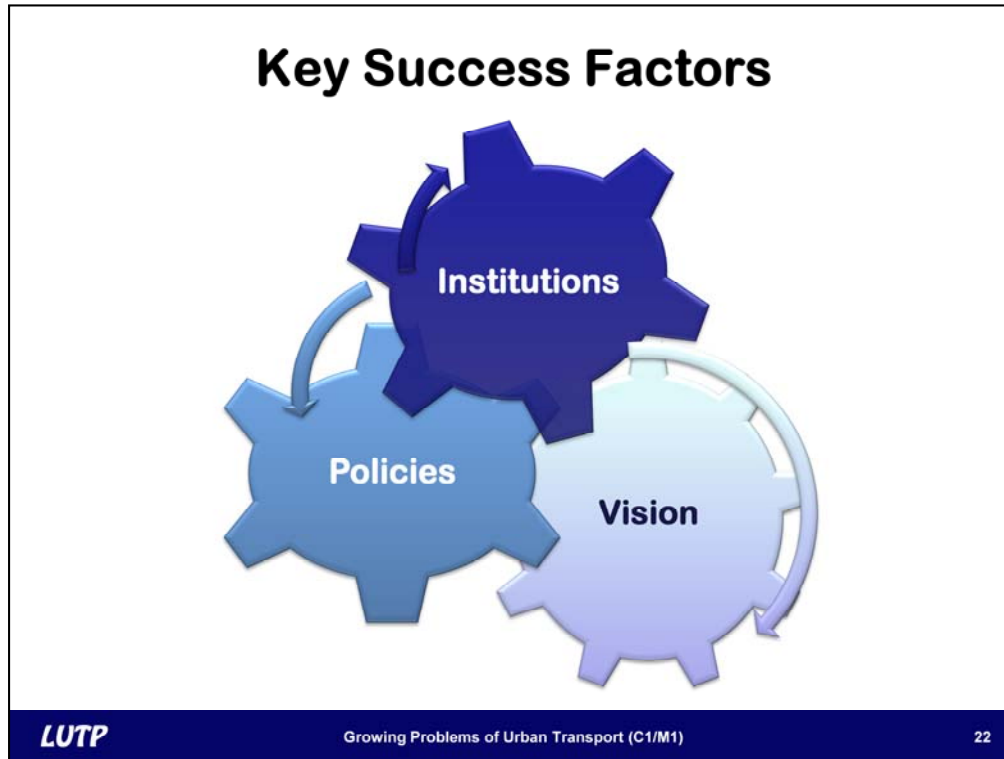


The Avoid-Shift-Improve approach is generally considered the way forward.

Avoid means avoiding the need to make some of the trips that we normally make, and thereby reducing the need for travel.

Shift has to focus on moving people from the use of their personal motor vehicles towards more sustainable modes such as public transport, walking or cycling.

Improve relates to improving the efficiency of motor vehicles so that they consume less fuel and emit less pollutants.



Now, what are the key success factors for this?

Vision, appropriate policies and appropriate institutions seem to be the key success factors towards sustainable urban transport.



Vision - What Kind of Future?



Do we want a sprawling city with a lot of highways



Or a compact city where we can reach most places by walking or public transport

LUTP Growing Problems of Urban Transport (C1/M1) 23

With regard to vision, we need to be clear about what kind of city we want to live in or create.

Do we want a sprawling city with a huge network of highways and plenty of space for every household as we see in the upper image? Or do we want a compact city where we can reach most places by walking or public transport as we see in the lower image? This is the first decision that every city must make.

Having done this, a city needs to create the correct policies.

Getting the Policies Right

- **What kind of land use plans**
- **Motor vehicle ownership vs. usage**
- **Balancing supply with demand management**
- **How much and what kind of public transport**
- **Public vs. private ownership / operations**
- **How to finance and who pays**

Cities must determine policies with regard to the type of land-use plans they desire. They can choose mixed land use that allows for short trip lengths or they can choose segregated land use, which requires longer trip lengths.

Other questions to consider:

- What measures do we want to put in place to discourage the use of personal motor vehicles?
- How do we balance supply side measures with demand side measures?
- What kind of public transport do we want to have?
- Who will operate such public transport systems – the public sector or the private sector?
- Who will pay for these public transport systems?

These are important policy issues that need to be considered. We will discuss them in greater detail in a separate module.



Institutions Are Critical

- **Coordinate all aspects of urban transport**
- **Focus on planning, contracting and oversight – not on operations**
- **Effective regulation and enforcement**

Institutions are also critical in ensuring the success of sustainable urban transport. They need to be able to coordinate all aspects of urban transport and take full responsibility for an extremely complex task. These institutions must be able to focus on planning, contracting and oversight rather than on operations. They also need to be effective in regulation and enforcement.

We will look at such institutions in greater detail in a separate module.



Summary



- Challenges are huge
- Way forward is not easy

**An “Art”, more
than a “Science”**

Clearly, the challenges are huge and the way forward is not easy.

It is often said that planning urban transport is more of an “Art” than it is a “Science”.

