



# Third Regional EST Forum

Presentation of Myanmar

*17-19 March 2008*

*Singapore*

# Total land area

676,577 Km<sup>2</sup>

# Population

55.4 million (2006)

Growth rate 2.02%

# Vehicle

1027345



# EST Relating Policies & Legislations

- National Environment Policy (1994)
- National Health Policy (1993)
- Myanmar Agenda 21 (1997)
- Motor Vehicle Law (1964) & the Law Amending the 1964 Motor Vehicle Law
- Motor Vehicle Rules (1989)
- The Defile Traffic Act (1907)
- The Highways Act (1907)
- The Towns Act (1907)
- The City of Yangon Municipal Act (1922) & the Law Amending the City of Yangon Municipal Act (1991)

# EST Relating Policies & Legislations

- The Petroleum Act (1934)
- The Factory Act (1951)
- The Union of Myanmar Public Health Law (1990)
- The Private Industrial Enterprise Law (1991)
- The Mandalay City Development Law (1992)
- The Development Committee Law (1993)
- The Science & Technology Development Law (1994)

# Land use planning



- Major growth corridor of Yangon
  - northwards from CBD (before 1988)
  - east/westwards (Plan after 1988)
- 2.5 million trees were planted in Yangon between 1989 and 2005

# GROWTH OF YANGON BEFORE 1988



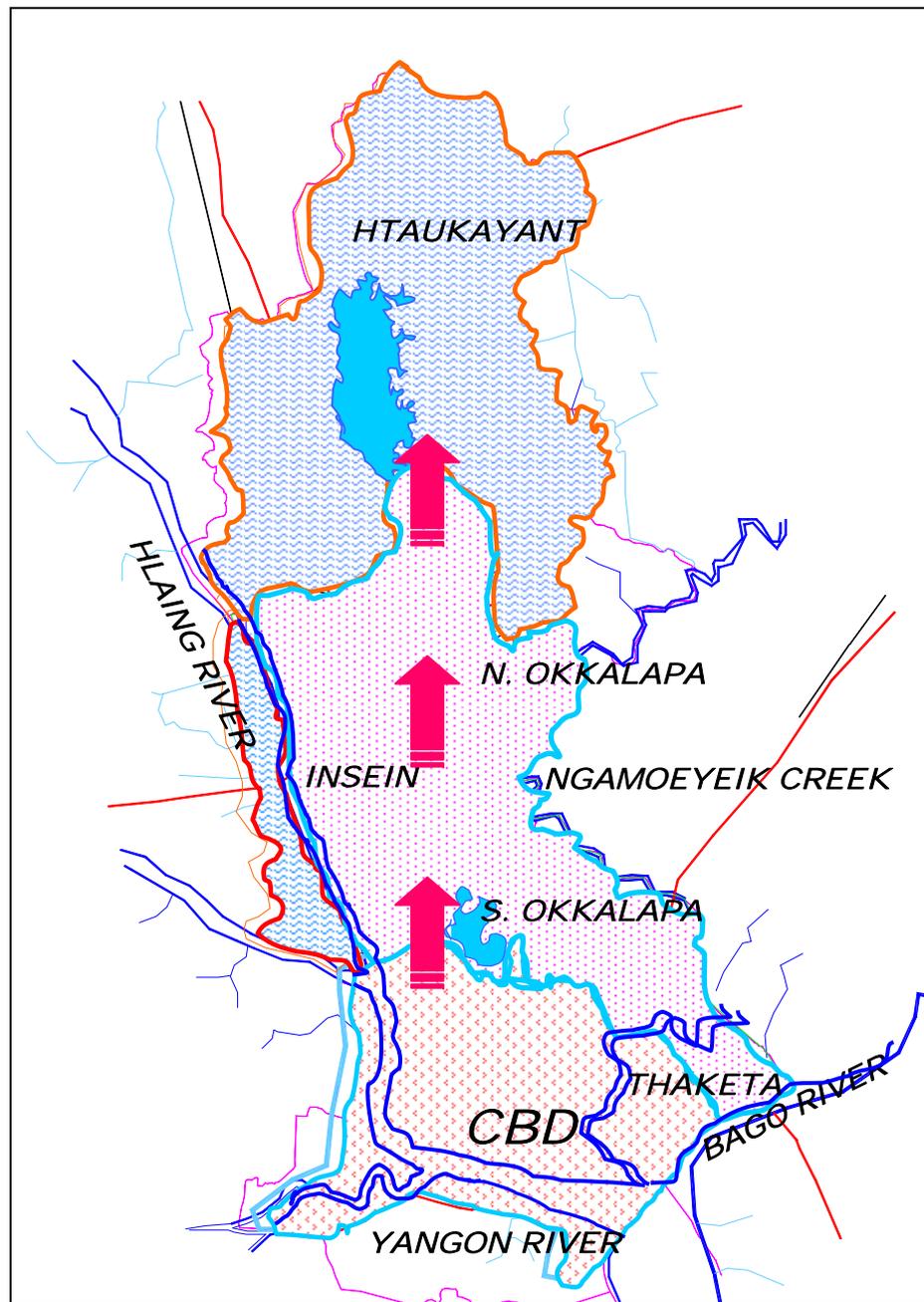
-  1940 - 86.20 sq.km
-  1974 - 208.51 sq.km
-  1985 - 346.13 sq.km

## PATTERN OF GROWTH

**MAJOR GROWTH CORRIDOR  
NORTHWARDS FROM CBD**

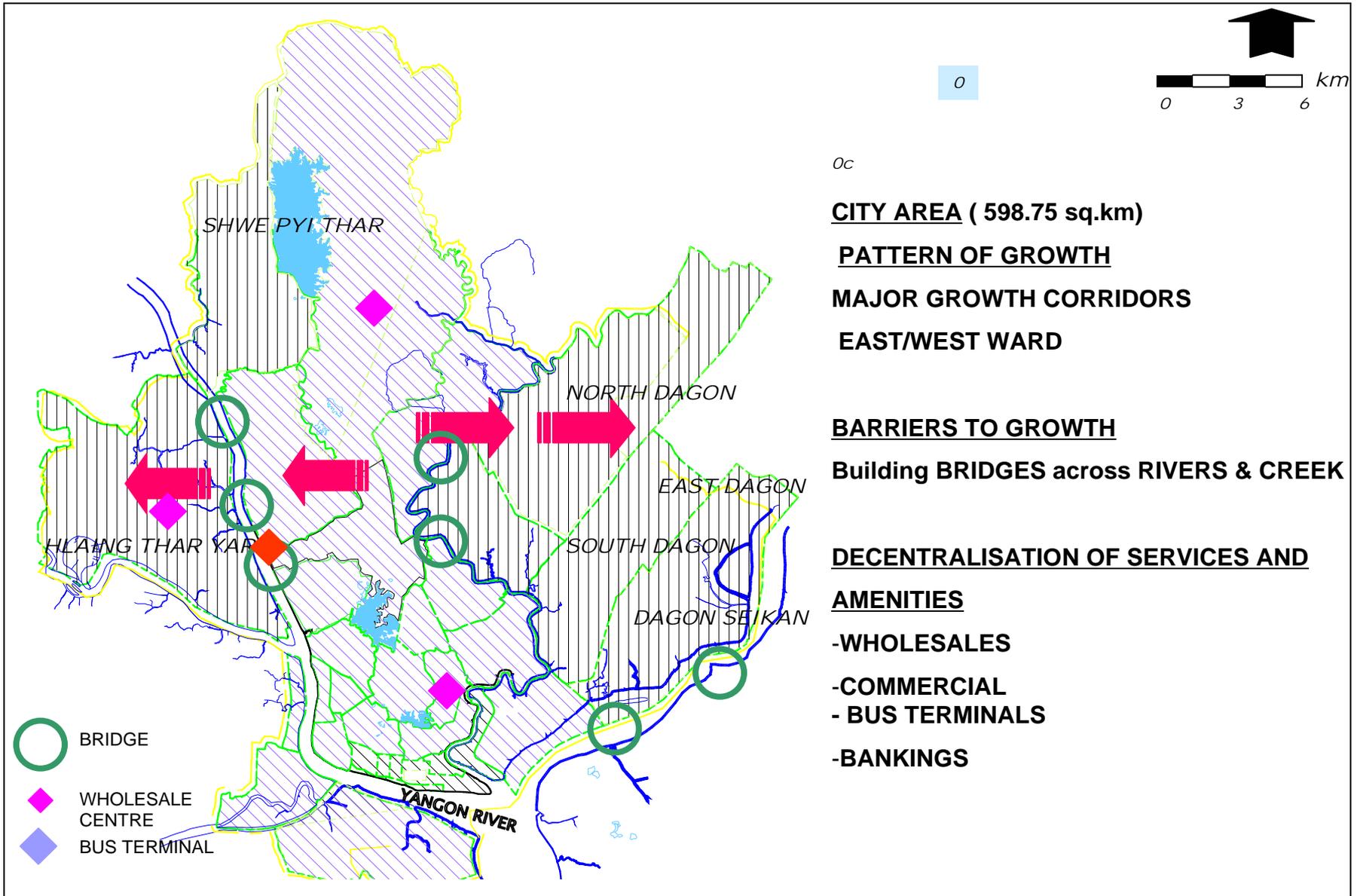
**BARRIERS TO GROWTH  
HLAING RIVER  
YANGON RIVER  
NGAMOYEYK CREEK**

**CONCENTRATION OF SERVICES AND  
AMENITIES  
ONLY IN CBD  
WHOLESALE  
COMMERCIAL  
BUS TERMINALS  
BANKING**

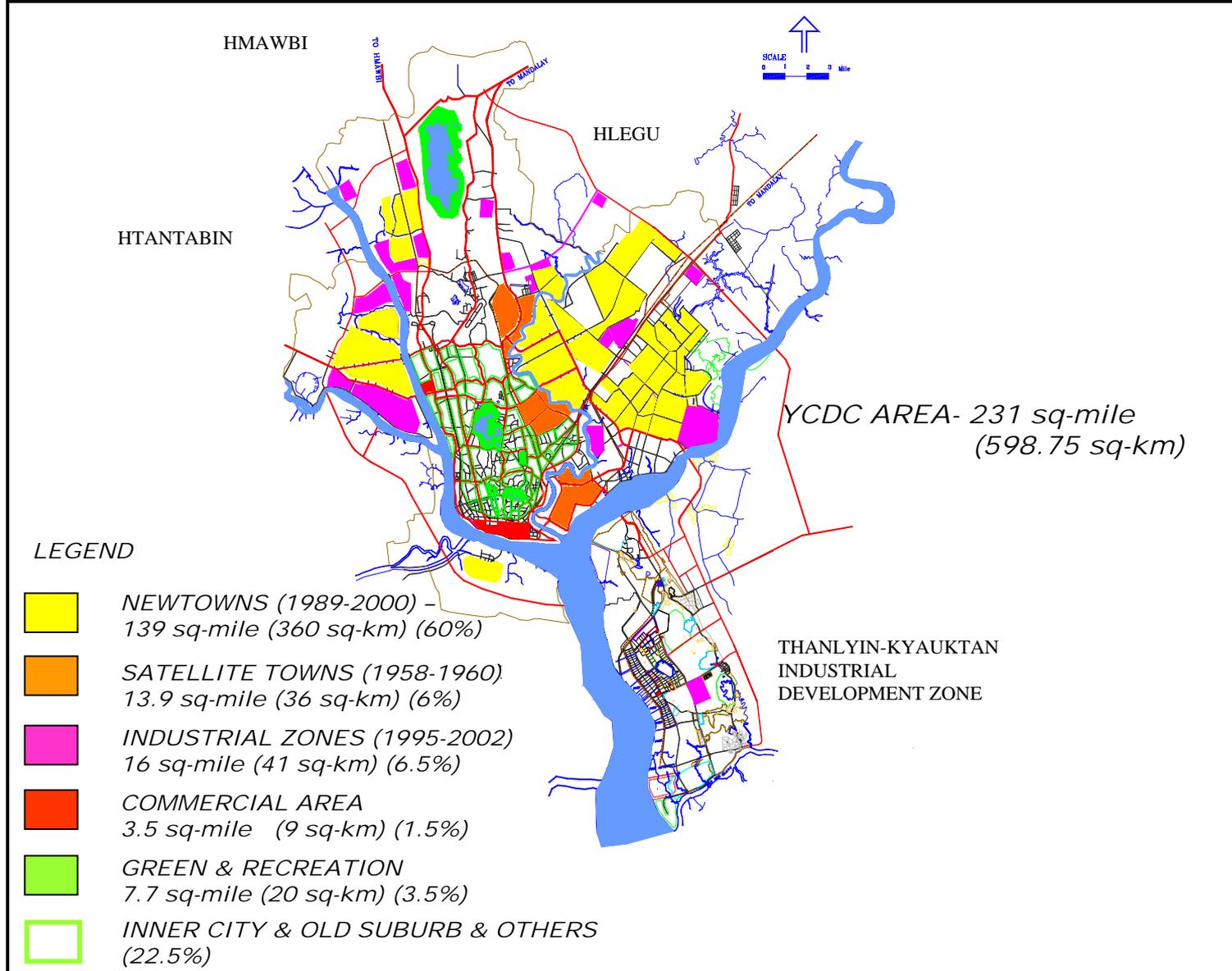




# GROWTH OF YANGON AFTER 1988



# EXISTING LAND USE PATTERN OF YANGON CITY



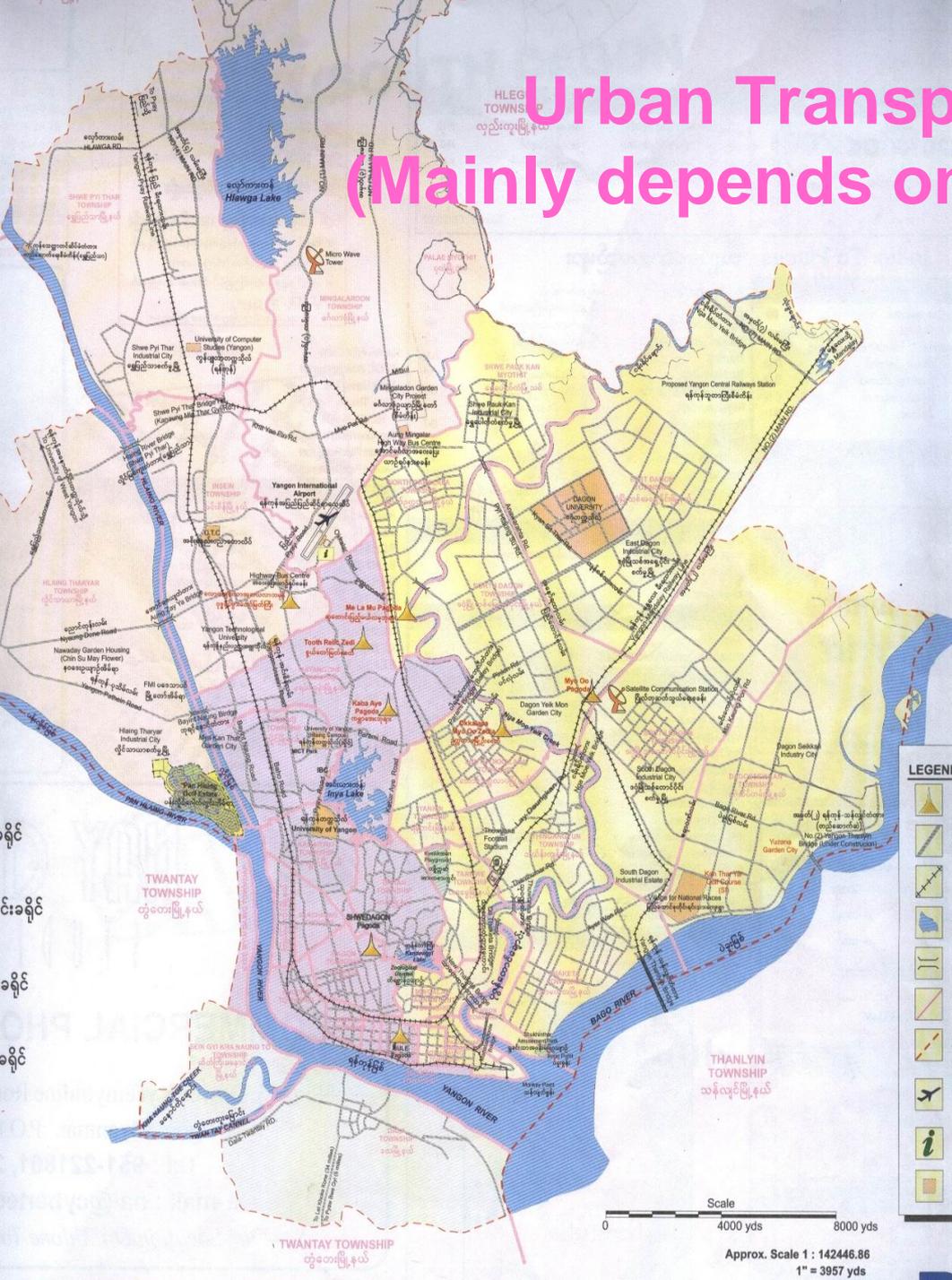
# Urban Transport

Jan 2008 for Yangon

- 15 bus lines, 4.4 million passengers/day
- 200 trips/day of circular trains (4085814 passengers )
- 10 number of river ferries/day to other side of Yangon (1184984 passengers)



# Urban Transportation (Mainly depends on bus system)



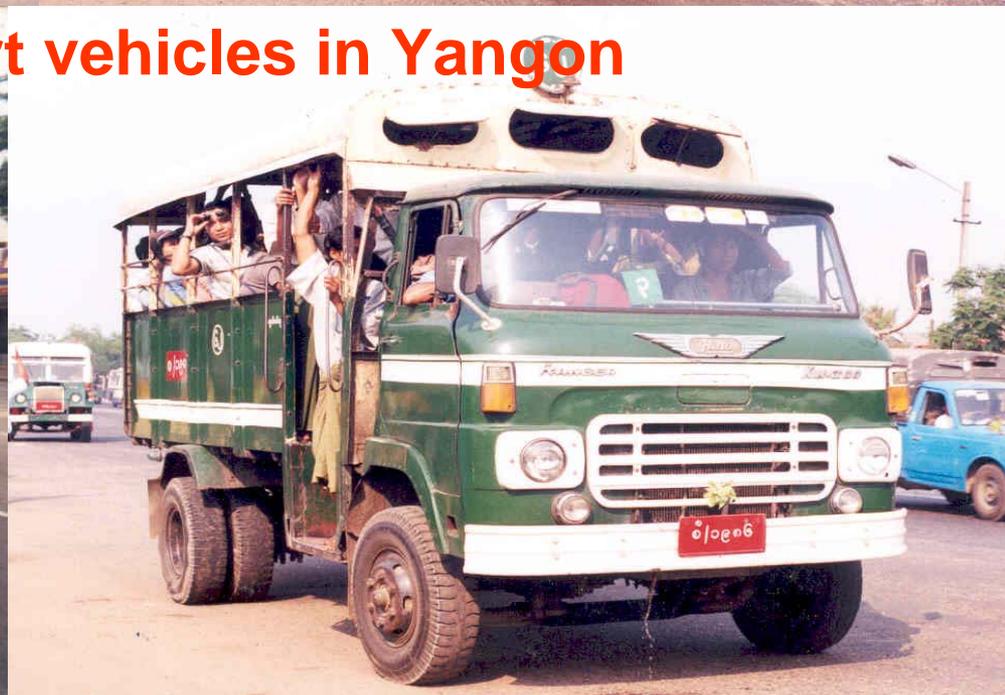
- **Bus Routes - 307 Nos**  
(15 Main Organizations)
- **Bus Fleet - 6297 Nos**
- **Bus Trip/day - 18982 Trips**
- **Passenger/day - 4.4 Millions**

## Circular Railways

- **No. of Trips/day - 200**
- **Passenger/day - 131800**



## Types of public transport vehicles in Yangon



# Current Plans of Yangon Urban Transport

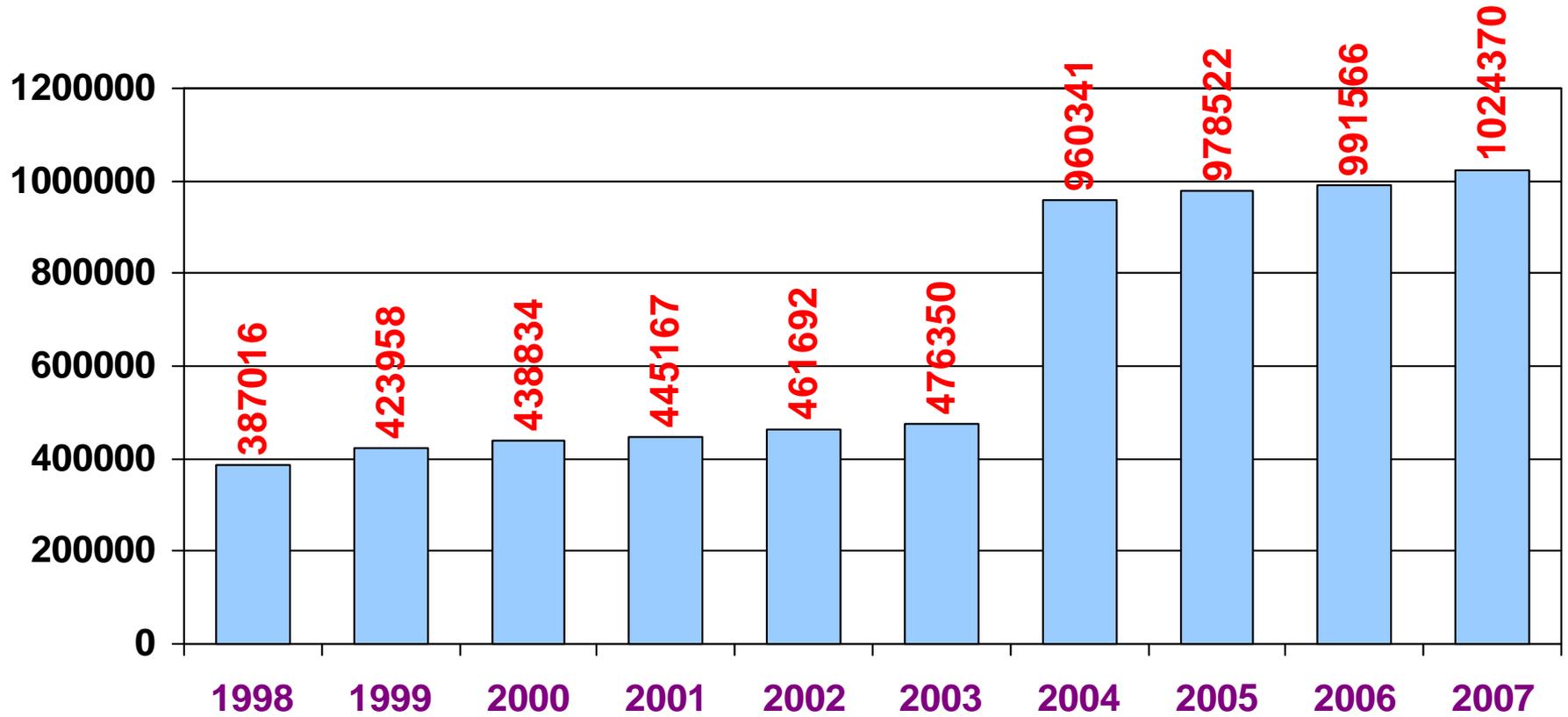
- Parking fees - hourly in CBD
- No parking or stopping in the four main arterial roads of CBD (morning & evening peak hours of office days)
- No alongside parking at 6 lane-traffic roads
- New public transport lines: Bandoola & Shwe At-the (air-conditioned bus)
- Road infrastructure in Yangon (mile)
  - Tar 274,Hard Core 184,Earth 264(1988)
  - Tar 1268,Gravel 5,Hard Core 300,Earth 304(2007)
- Taxi service: 6185 Nos. of taxis

# Number of registered vehicles as of Jan 2008



	Whole Country	Yangon Division	Mandalay Division
• Passenger Car	214821	133350	42128
• Truck ( Light Duty )	23835	13925	2019
• Truck ( Heavy Duty )	33080	9741	6083
• Bus	19399	10681	2775
• Two Wheel	655777	3054	217126
• Three Wheel	5318	-	1547
• Optional Vehicle	12744	8927	1470
• Trawlergi	62371	2285	8146
<b>Total</b>	<b>1027345</b>	<b>181963</b>	<b>282294</b>

# Growth of Vehicle Population (1998-2007)



# Non-motorized transport

- Bicycles and trishaws are used in the suburbs of Yangon and other major Cities
- Bicycles are widely used in Mandalay
- NMV are used in all country sides (except hilly regions)
- NMV are limited to CBD of Cities during day time



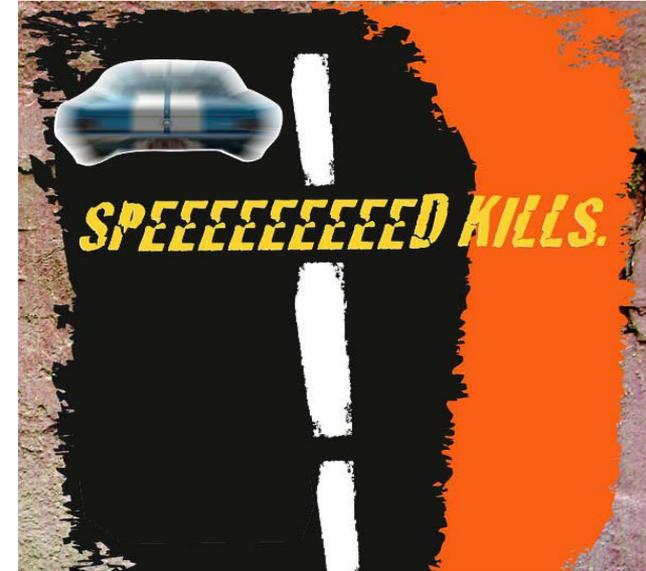
Challenge: Traffic delay and jam by NMV if permitted to CBD and busy roads.

# Plan/ Programs to address Climate Change Issue

- Myanmar is a party to the United Nation Convention on Climate Change (UNFCCC) and its Kyoto Protocol. As a follow-up activity of the protocol, the NCEA is doing activities to implement the National Communication Project starting from 2008
- Regarding the CDM Project, there is no example project in transport sector so far.

# Road Safety

- Restriction imposed by the Trade Council on the model number and manufacturing year of imported car has prevented an accumulation of old cars in Myanmar.
- Target for reduction of traffic accidents (2004-2009)
  - To reduce 50% of traffic accidents
  - To reduce death rate by 25%
  - To increase helmet wearing
  - To increase seat-belting nation-wide



## Measures to traffic congestion and problems

- (a) Traffic police patrols are placed along the main roads of Yangon
- (b) Using one-way road system
- (c) Defining no entry zone for slow moving vehicles
- (d) Defining no entry zone for over 3 tons vehicles
- (e) Prohibited car parking at a particular roads
- (f) Prohibited car parking at a particular roads in the morning and evening hour
- (g) Permit only passenger buses to use right way of the road
- (h) Defining " No Horn Zone" in CBD area

# Statistics of traffic accidents

- **Whole country** - Accident 6583, Injury 12358, Death 1527  
Fatality/10000 people 14.91  
Fatality/100000 people 2.06
- **Yangon** – Accident 1319, Injury 2498, Death 208

\* Challenges: Most of the accidents- by drivers' violation

Current Plans:-Enhancing to increase driving training schools

- Compulsory attendance to driving training schools before driver license test
- Cancellation & withdrawal of driving license
- Traffic education & publicity
- Educative exhibition, talks & traffic rules competition
- Road safety research
- Administrative actions & effective actions
- Using CCTV cameras at peak junctions
- Active cooperation & cooperation

# Air quality monitoring

- Air monitoring was conducted in 3 selected sites in Yangon: commercial, residential and surrounding near to industrial zone.
  - ❖ Suspended Particulate Matter & Particulate Matter
    - Commercial area 342.58  $\mu\text{g}/\text{m}^3$ , 177.69  $\mu\text{g}/\text{m}^3$
    - Residential area 168.61  $\mu\text{g}/\text{m}^3$ , 68.59  $\mu\text{g}/\text{m}^3$
    - Industrial area 127.32  $\mu\text{g}/\text{m}^3$ , 66.95  $\mu\text{g}/\text{m}^3$
  - ❖  $\text{NO}_2$  and  $\text{SO}_2$ 
    - Residential area 1.14  $\mu\text{g}/\text{m}^3$ , 23.22  $\mu\text{g}/\text{m}^3$
    - Industrial area 0.37  $\mu\text{g}/\text{m}^3$ , 28.36  $\mu\text{g}/\text{m}^3$
- "No legal instrument or institutional mechanism exists for monitoring ambient air quality and air pollution."

# Traffic noise management

- Practicing Standard of Road Transport Administration Department - Noise Max db 115
- Using apparatus for initial and renewal registration (road worthiness, measures for noise and emission)
  - Weigh Bridge
  - Exhaust Emission Tester
  - Head Lamp Tester
  - Brake Tester
  - Side Slip Tester
  - Sound Level Tester



# Cleaner fuel

- Road Transport Administration Department has been equipped inspection devices to respond automobile source air pollution.
- Using CNG in place of petrol and diesel (short term) and bio-fuel (long term)

• Number of vehicles-	Gasoline	Diesel	CNG	LPG
	813137	199272	14884	52

- CNG stations: 38
- The Government is encouraging the use of CNG for City transportation & commercial vehicles



# Jatropha Curcas Plantation

Government is encouraging the plantation of Jatropha through out the country since 2004

- Total plantation area - 1 million acre (0.4 million hectares)
- No of plants per acre - 480 nos.(1190 nos. per hectare)
- Oil produce per acre - 120 to 160 gallons per year
- Oil produce per hectare - 1340 to 1795 liters per year

# Vehicle emission control, standards, Inspection and maintainace

- Motor Vehicle Law (1964) and Motor Vehicle Rules (1989)
- Practicing Standard of Road Transport Administration Department - Exhaust Emission (Smoke) <50% Bosh Unit
- Prohibition of aged cars (over 20 years of manufacturing) to be registered out of the Yangon City Development Area.
- Renewal interval
  - Annually for motor vehicles
  - Bi-annually for motorcycles



Exhaust Emmission Test

## Types of inspection for emission control

1. Annual inspection ( renewal registration ) & initial inspection
2. Surprise check inspection
3. Patron inspection

## System of inspection for emission control

1. Visual inspection
2. Theoretical inspection
3. Inspection with equipment



## Enforcing Activities for extreme smoking vehicles

- 1<sup>st</sup> phase- give warning notice and force to maintain the exhaust system of vehicle
- 2<sup>nd</sup> phase- withdraw the issued vehicle registration certificate and vehicle inspection certificate
- 3<sup>rd</sup> Phase- take punishment

# Knowledge base, awareness and public participation

- Road safety educative exhibition is held in Yangon bi-annually together with competition
- Road safety educative talks are being carried out (Nation-wide)
- Traffic safety campaign: competition of cartoons, posters, photographs, essays & articles (professional & high school level)
- Prize winning works are displayed at the exhibitions
- Road Safety Week (2007): held nation- wide (23 April 2007-29 April 2007)

*Thank You*