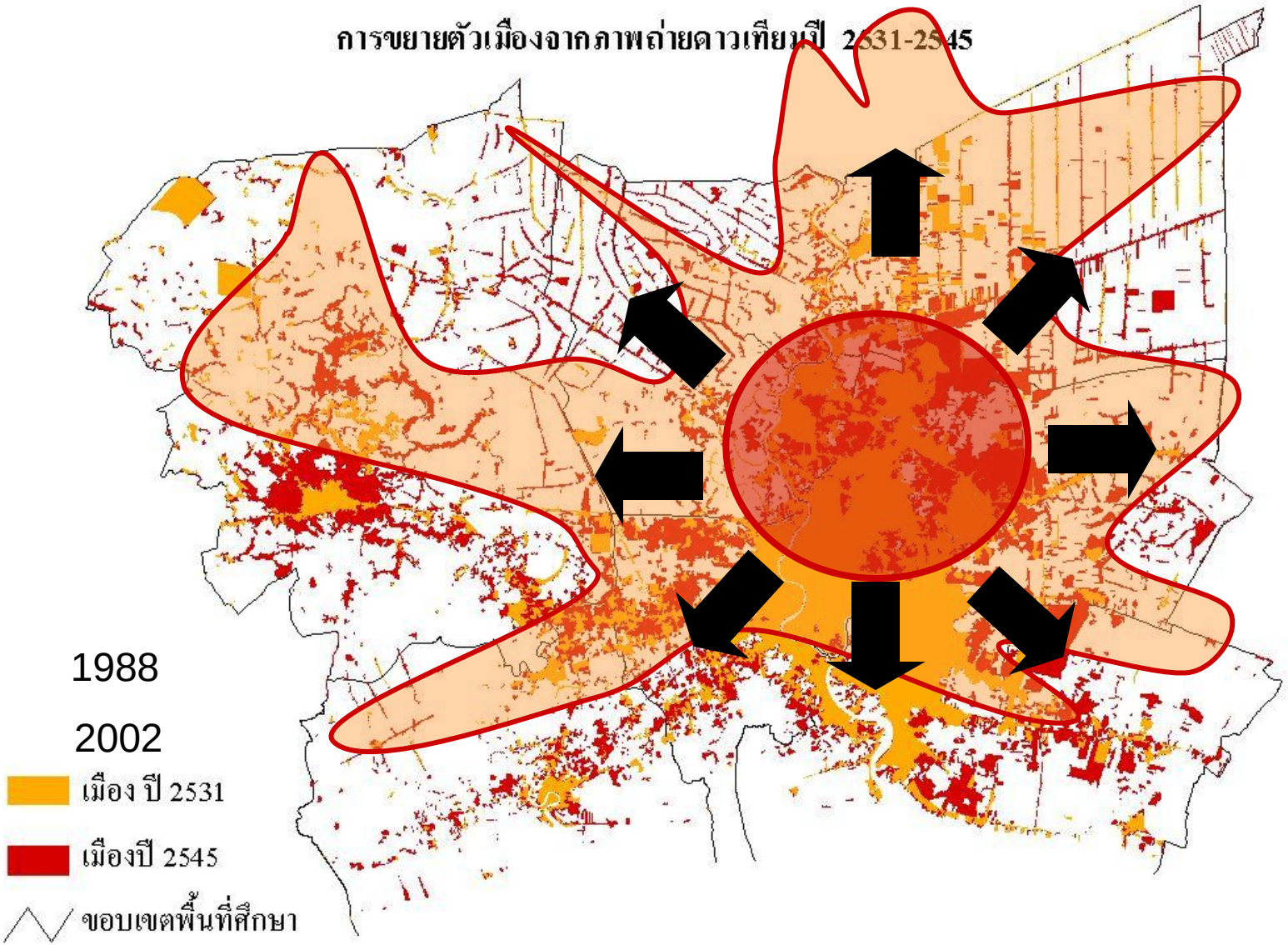
Environmental Sustainable Transport Towards Low Carbon Society: THAILAND

The 5th Regional EST Forum
August 23rd , 2010

Presented by : **Mr. Chamroon Tangpaisalkit**
Inspector General
Ministry of Transport

Bangkok situation

Bangkok's Land Use (Urban Sprawl)

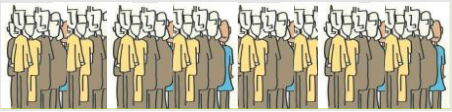


Travel Pattern of people in Bangkok

Total

17

Mil. Trips/Day



Mass Transit 4%

Bus 35%

6

Mil. trips/Day

Sky Train

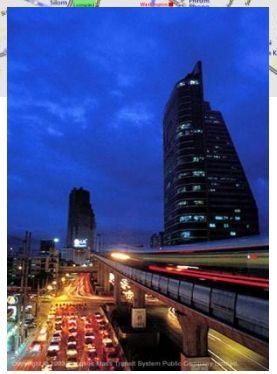
0.45

Mil. Trips/Day

Subway

0.18

Mil. Trips/Day



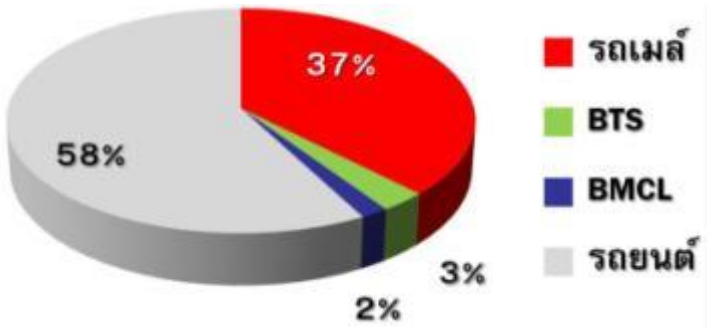
Car 56%

9.5

Mil. Trips/Day

Current pattern

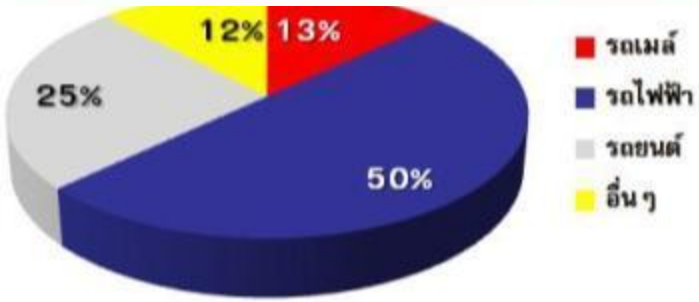
[illegible]	BTS	BMCL	รถยนต์	รวม
6.5	0.5	0.2	10	17



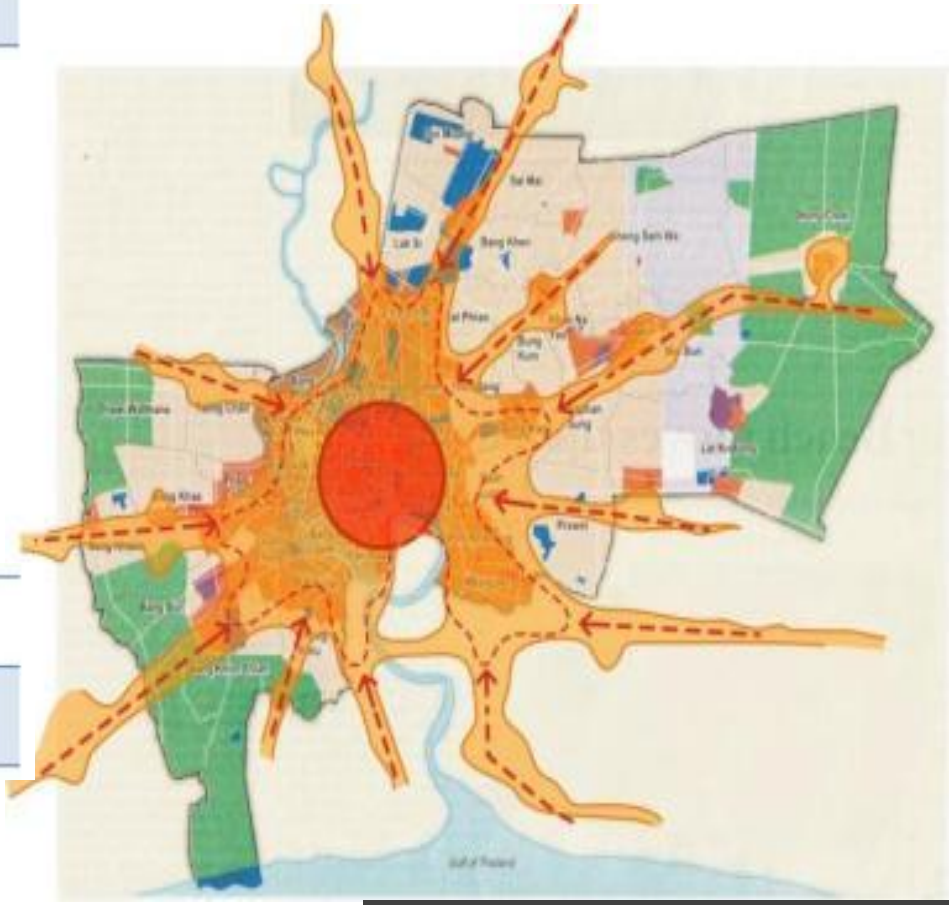
Expected pattern: year 2029

(full network,495 km: 12 lines)

รถประจำทาง	อื่น ๆ	รถไฟฟ้า	รถยนต์	รวม
2.21	2.04	8.5	4.25	17



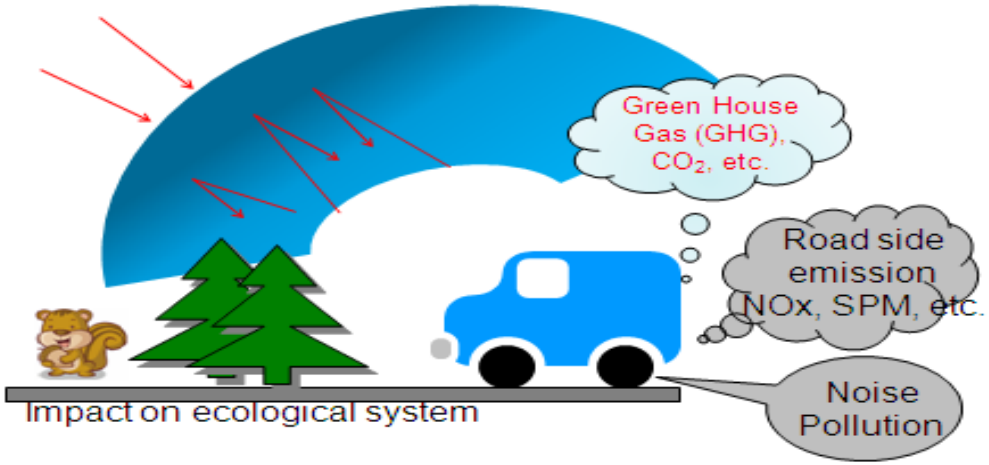
Travel Pattern of people in Bangkok



Single CBD

Why transport should be taken seriously?

- Transport consumes a quarter of the world's energy,
- accounts for some 25 percent of total CO2 emissions,
- 80 percent of which can be attributed to road transport.



- Transport is almost entirely dependent on oil / fossil fuels
- Transport sector used over 20% of total energy consumption in 2005
- Emissions of particulate matter (PM) and related exposure – health impacts
- High CO, HC, and NOx emissions

Quality of Life

The CO_2 PROBLEM IS A TRANSPORT PROBLEM, PREDOMINANTELY CARS AROUND URBAN AREAS

Environmentally Sustainable Transport

Towards Thailand

To be Environmental Sustainable Transport

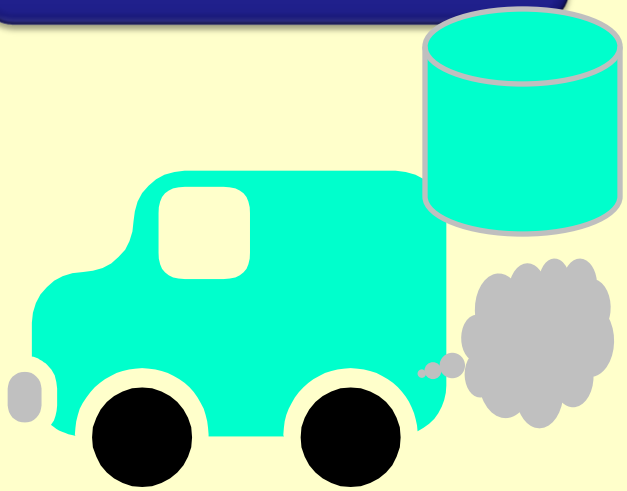
- **A**void – Saving Carbon Through Urban Development
  - Land Use and urban development plan
  - Internalizing costs at an early stage of development
  - Shifting the balance away from high-carbon transport
- **S**witch: Co-benefits of Transport, Development
  - Bus Rapid Transit and other improvements to transport system
  - Careful transition from smaller to larger, better managed transit vehicles
  - Congestion pricing and other strategies to reduce externalities
- **I**mprove by Operations, Technology: Carbon costs Count
  - Lower fuel use/km with improved traffic flow
  - Higher vehicle occupancy
  - Efficient vehicles, low carbon fuels – Mostly national initiatives
- **F**inance: Local Authorities, MDBs
  - Demonstrations
  - Measurement and evaluation techniques

Source: Lee Schipper, 2009

Avoid – Shift – Improve Concept

Improve

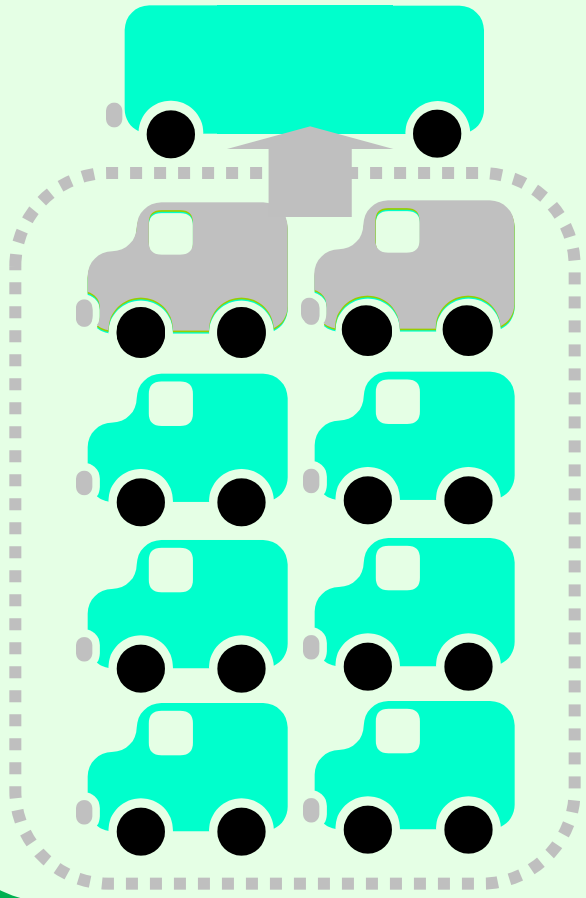
Use Renewable Energy such as Bio Fuel



Improve Fuel Consumption

Shift

Divert to Mass Transit



Total CO2

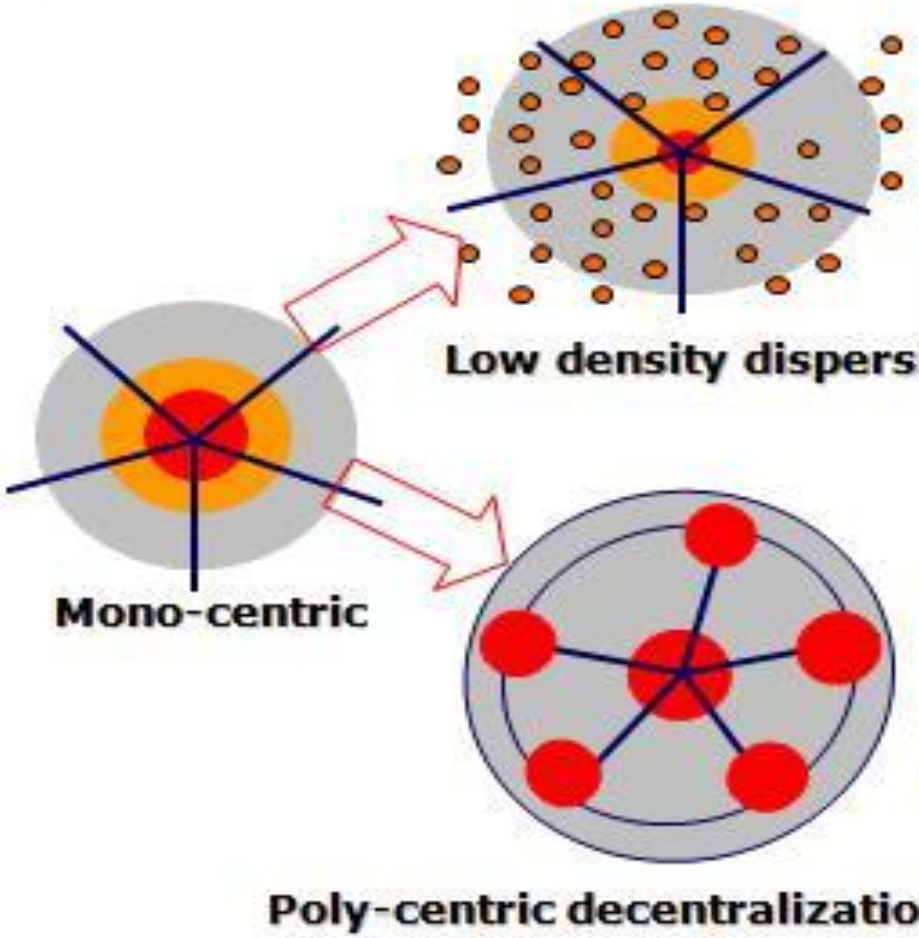
Reduce traffic/driving distance (avoid)

Source: Dr.FuKuda, 2009

Avoid

Avoid – Shift – Improve Concept

Expected City



- ใช้รถยนต์ส่วนตัวเป็นพาหนะหลักในการเดินทาง

→ ไม่ควรเป็น !

No

- ใช้ระบบขนส่งสาธารณะเป็นพาหนะหลักในการเดินทาง

→ ควรเป็น !

Yes !!!

Shift

Avoid – Shift – Improve Concept

Integrated Multimodal Transport

Shift

Avoid – Shift – Improve Concept

Network of MRT: ~350 km. (approval by the Cabinet: March 18,2008).
Expected ridership : 5 millions/day
Full network under Mass Rapid Transit Master Plan in Bangkok Metropolitan Region (2010 – 2029):12 routes totaling 495 km

Clean Development Mechanism (CDM) in transport sector

ACM0016

- NM0266: Methodology for Rail Based Urban Mass Rapid Transit Systems (MRTS)
- NM0258: Methodology for Bus Lanes

- In Oct. 2009 both are approved as:

Approved consolidated baseline and monitoring methodology

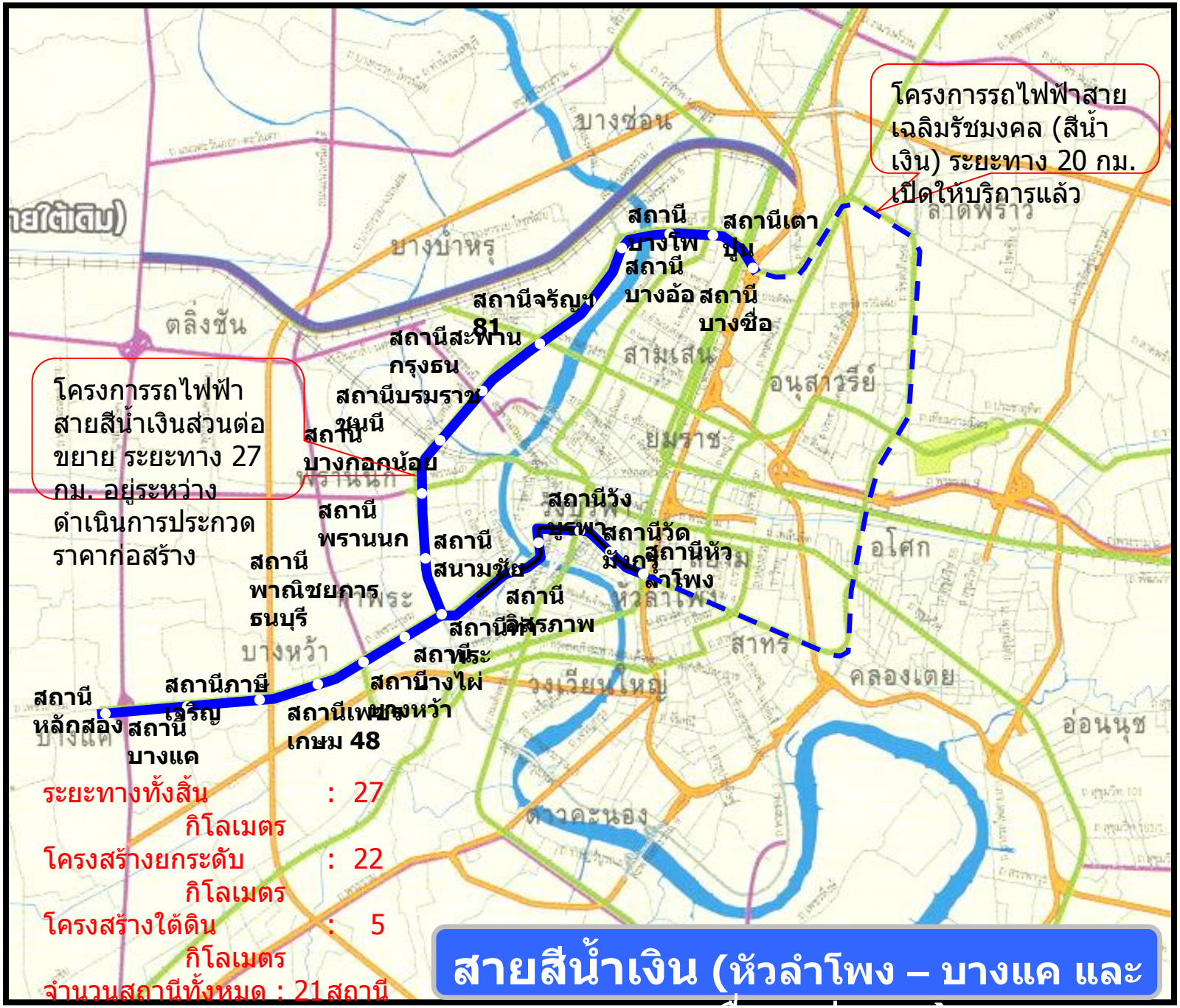
ACM0016

"Baseline Methodology for Mass Rapid Transit Projects"

ACM0016

Mass Rapid Transit Systems (MRTS)

- MRTS are collective urban or suburban passenger services operating at high levels of performance, especially with regard to travel times and passenger carrying capacity.
- They can be based on elevated, surface level or underground roads or rail systems.
- E.g. subways/metros, Light Transit Rail (LTRs) including trams or suburban heavy duty rail systems, also road-based bus systems.
- Road-based MRTS are bus systems using bus-lanes, which can also be called Bus Rapid Transit (BRT) systems.


โครงการรถไฟฟ้าสายเฉลิมรัชมงคล (สีน้ำเงิน) ระยะทาง 20 กม. เปิดให้บริการแล้ว
โครงการรถไฟฟ้าสายสีน้ำเงินส่วนต่อขยาย ระยะทาง 27 กม. อยู่ระหว่างดำเนินการประกวดราคาก่อสร้าง
สถานีบางโพ
สถานีเตาปูน
สถานีบางอ้อ
สถานีบางซื่อ
สถานีจรัญฯ 81
สถานีสะพานกรุงธน
สถานีบรมราชชนนี
สถานีบางกอกน้อย
สถานีพรานนก
สถานีสนามไชย
สถานีวังเดิม
สถานีวัดมังกร
สถานีหัวลำโพง
สถานีสิรภาพ
สถานีพระราม 3
สถานีบางไผ่
สถานีวงหว้า
สถานีเพชรเกษม 48
สถานีภาษีเจริญ
สถานีบางแค
สถานีหลักสอง
สถานีพาณิชยการธนบุรี
ระยะทางทั้งสิ้น : 27 กิโลเมตร
โครงสร้างยกระดับ : 22 กิโลเมตร
โครงสร้างใต้ดิน : 5 กิโลเมตร
จำนวนสถานีทั้งหมด : 21 สถานี
สถานียกระดับ : 17
สายสีน้ำเงิน (หัวลำโพง – บางแค และ

Bangkok Blue Line Extension, Thailand
ACM0016

Years	Estimations of baseline emissions (tCO_2e)	Estimations of project activity emissions (tCO_2e)	Estimations of leakage (tCO_2e)	Estimations of overall emissions reductions (tCO_2e)
2016	57,493	31,890	0	25,603
2017	60,357	33,817	0	26,540
2018	63,158	35,744	0	27,414
2019	65,897	37,670	0	28,227
2020	68,919	39,796	0	29,123
2021	71,874	41,921	0	29,952
2022	74,762	44,047	0	30,716
2023	77,586	46,172	0	31,414
2024	82,249	49,441	0	32,808
2025	86,811	52,710	0	34,100
2026	91,273	55,980	0	35,293
2027	95,637	59,249	0	36,388
2028	99,905	62,518	0	37,387
2029	104,078	65,787	0	38,291
2030	108,158	69,057	0	39,101
2031	112,145	72,326	0	39,819
2032	116,042	75,595	0	40,447
2033	119,850	78,864	0	40,986
2034	123,570	82,133	0	41,436
2035	127,203	85,403	0	41,801
2036	130,750	88,672	0	42,080
Total	**1,937,719**	**1,208,792**	**0**	**728,927**

Shift

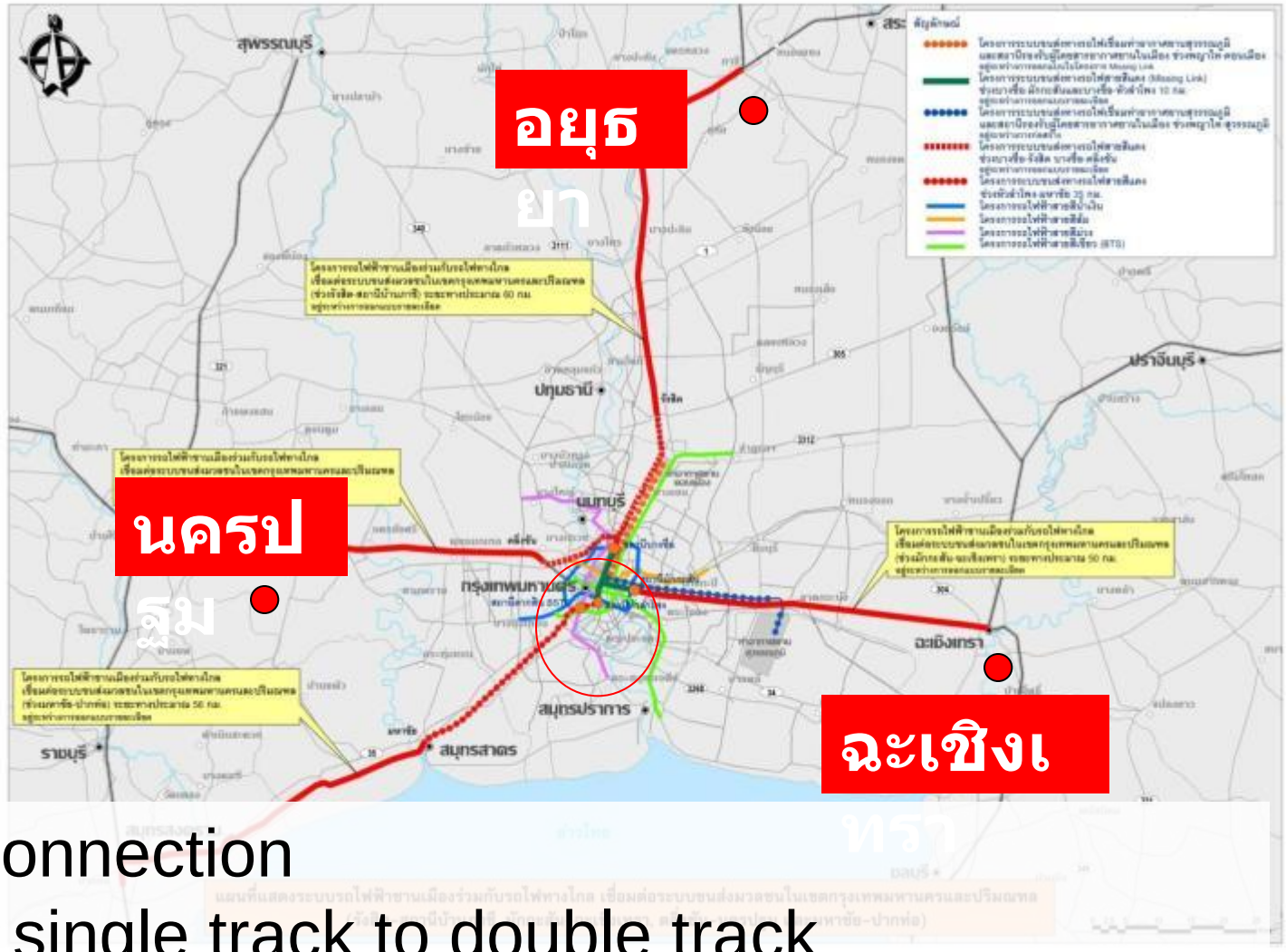
Avoid – Shift – Improve Concept

Bus Rapid Transit or BRT is a new transit system in Bangkok.

- The first bus routes from Satorn to Ratchaprug covering 15 km.
- The whole network of BRT will be comprises 10 routes totaling 216 km.

Shift

Avoid – Shift – Improve Concept



Intercity rail connection

Change from single track to double track

Shift

Avoid – Shift – Improve Concept

Non-Motorized Transport : is one of travel choices,

- **Bicycle lanes** alongside motor lanes or running trough public parks have been built.

- **Bicycle parking spaces** and other cycling facilities have been provided.

Improve

Avoid – Shift – Improve Concept

1. Vehicle Emission Standards

- New Vehicles
  - Followed EU standards, Implementing dates are 2 years after
- In-use Vehicles
  - The emission standards are used as reference standards for inspection and maintenance programme, consisting of Black Smoke, CO, HC, White Smoke, and Noise

Improve

Avoid – Shift – Improve Concept

Inspection and Maintenance Programme

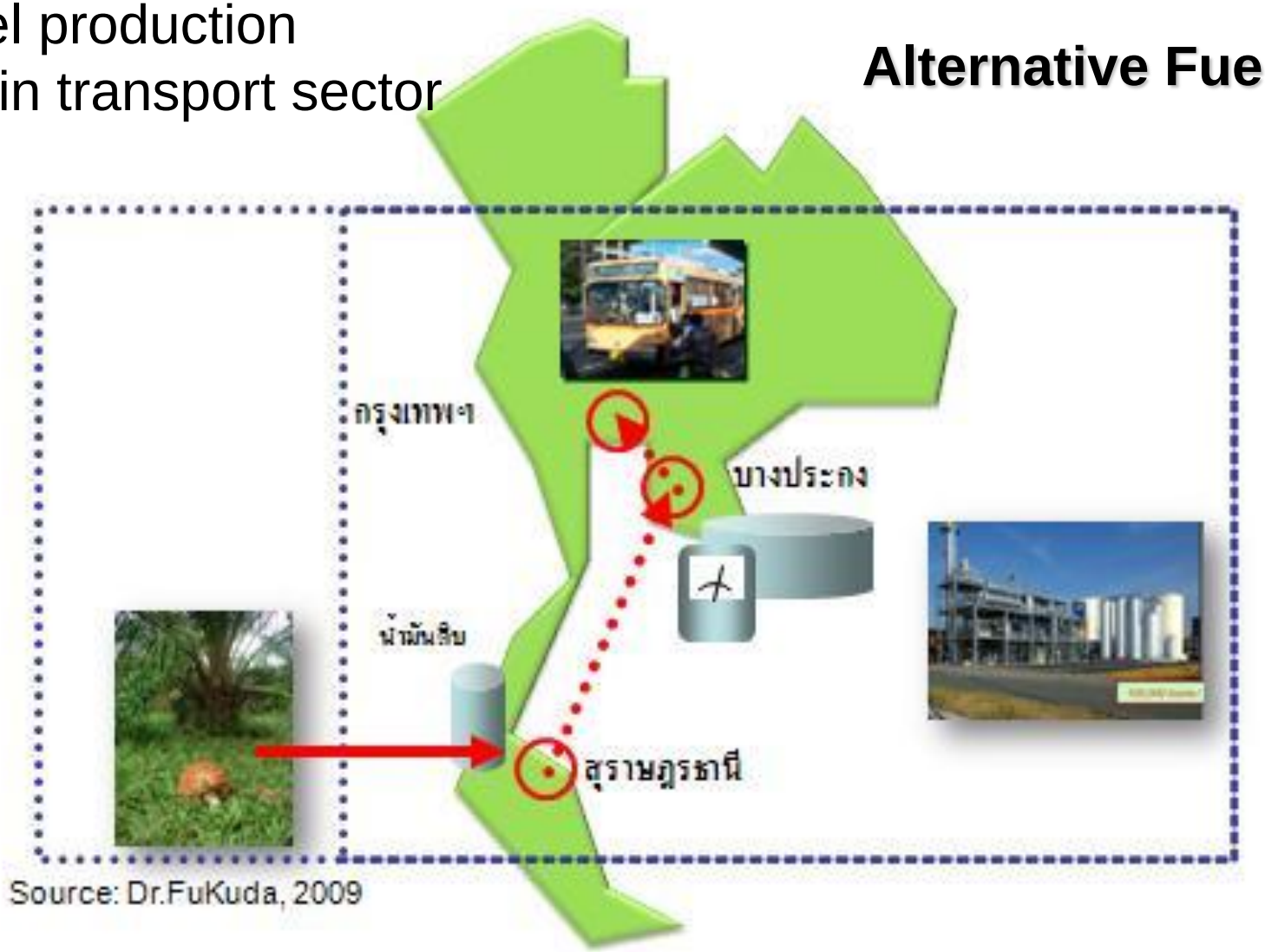
- - All vehicles are required to pass the in-use vehicle standards prior to the renewal of license.
- - Preventive Maintenance helps reduce PM up to 65% and save fuel consumption up to 30%
- - Roadside Inspection reduces emissions from in-use vehicles

Improve

Avoid – Shift – Improve Concept

Bio-diesel production
to utilize in transport sector

Alternative Fuel



Source: Dr.FuKuda, 2009

Improve

Avoid – Shift – Improve Concept

Promotion of CNG and Low carbon fuel
In public transport (BMTA's buses)

รถร้อน

รถ NGV

Conventional buses using diesel

NGV buses

จำนวนรถทั้งหมดกว่า 10,000 คัน

แยกเป็น ขสมก 3,500 คัน
รถร่วม 6,500 คัน

* ปล่อย CO_2 น้อยกว่า

Conclusion

Promoting EST will generate:

- **Environmental benefits:**
  - Improvement in local air quality
  - Reduction of GHG gas emission

- Socio-economic co-benefits:
  - Direct return from energy saving
  - Avoiding the cost of traffic jam
  - Stimulate economic livelihood / competitiveness
  - Equitable mobility and safety
  - New business opportunities
  - New finance through urban Transport CDM project
  - Saving health costs (air pollution, accidents, etc)

Thank You

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