THAILAND'S experience on Emission measurement and mitigation policies

26 September 2013

UNESCAP , Bangkok

Office of Transport and Traffic Policy and Planning , OTP
Ministry of Transport, Thailand

TOPIC

- Current situations

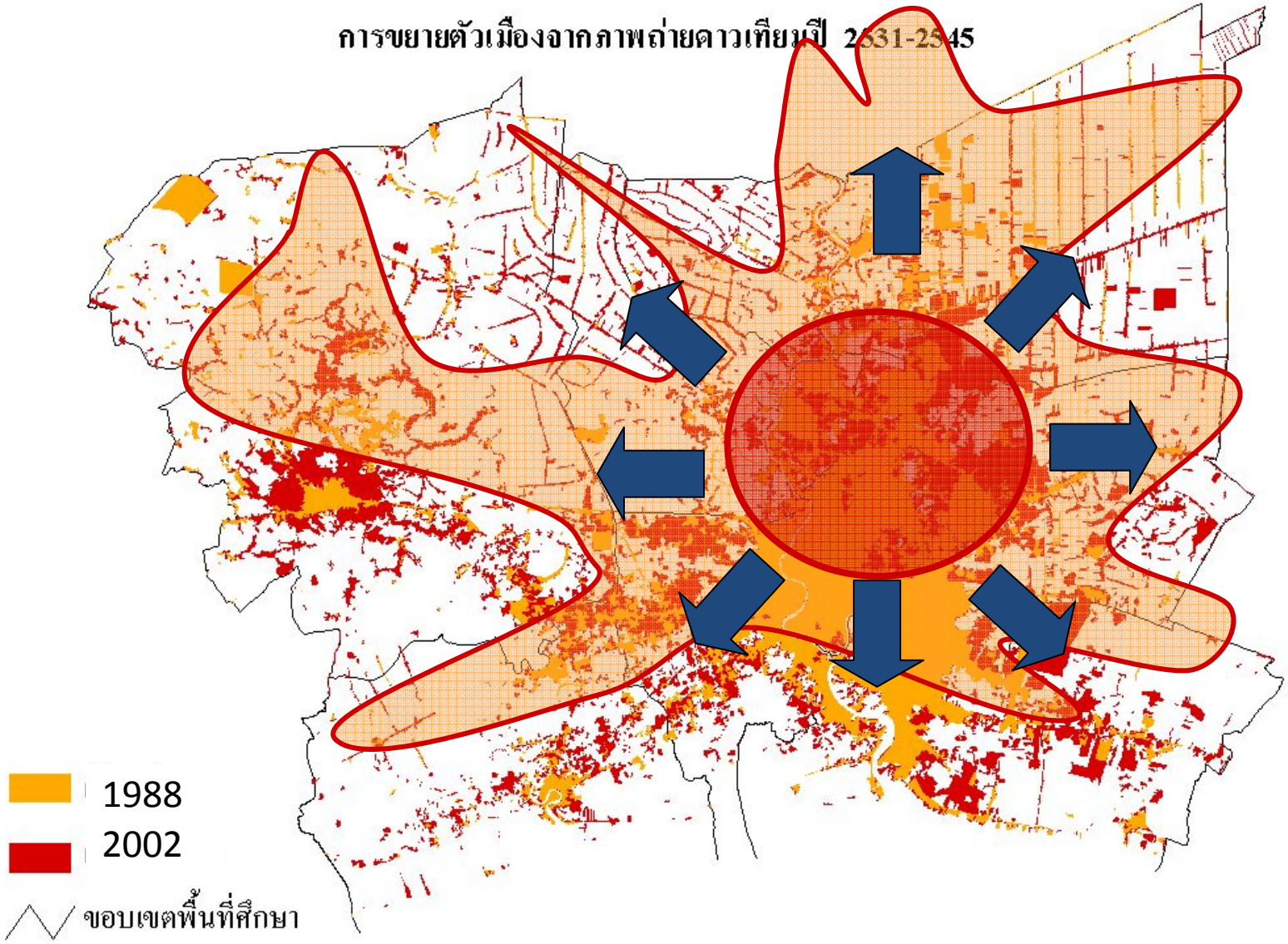
- Environmental Sustainable Transport Master Plan

Bangkok Metropolitan Region , BMR
POPULATION : 17.5 millions
AREA : 7,760 sq.km.
GDP 68 % of National GDP

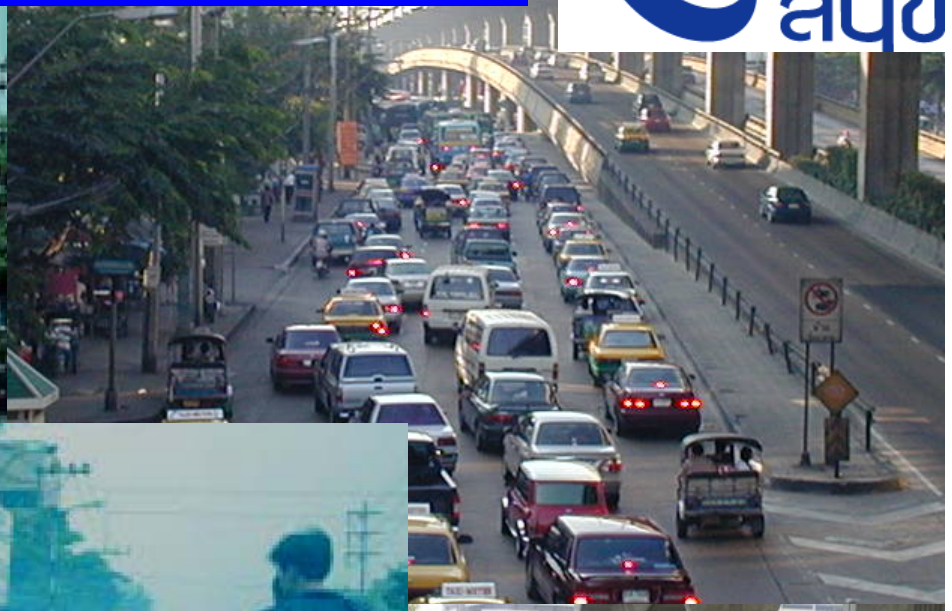
Bangkok Metropolitan

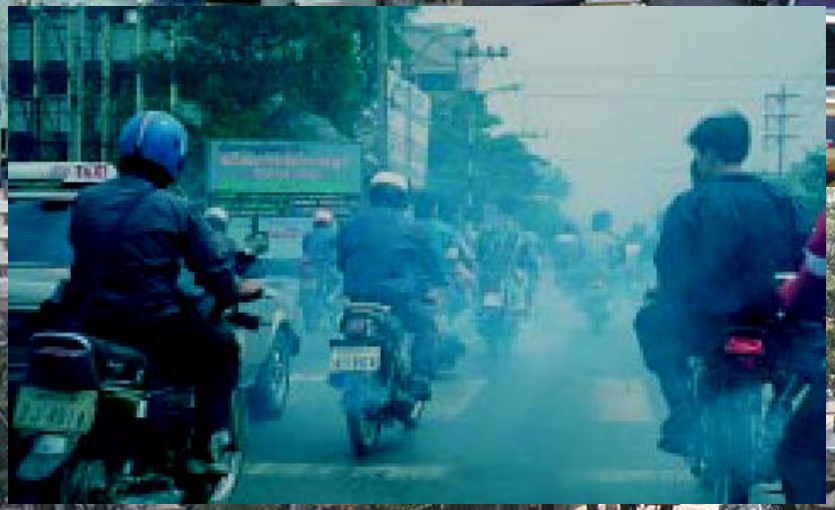
Panorama

Bangkok's Land Use (Urban Sprawl)

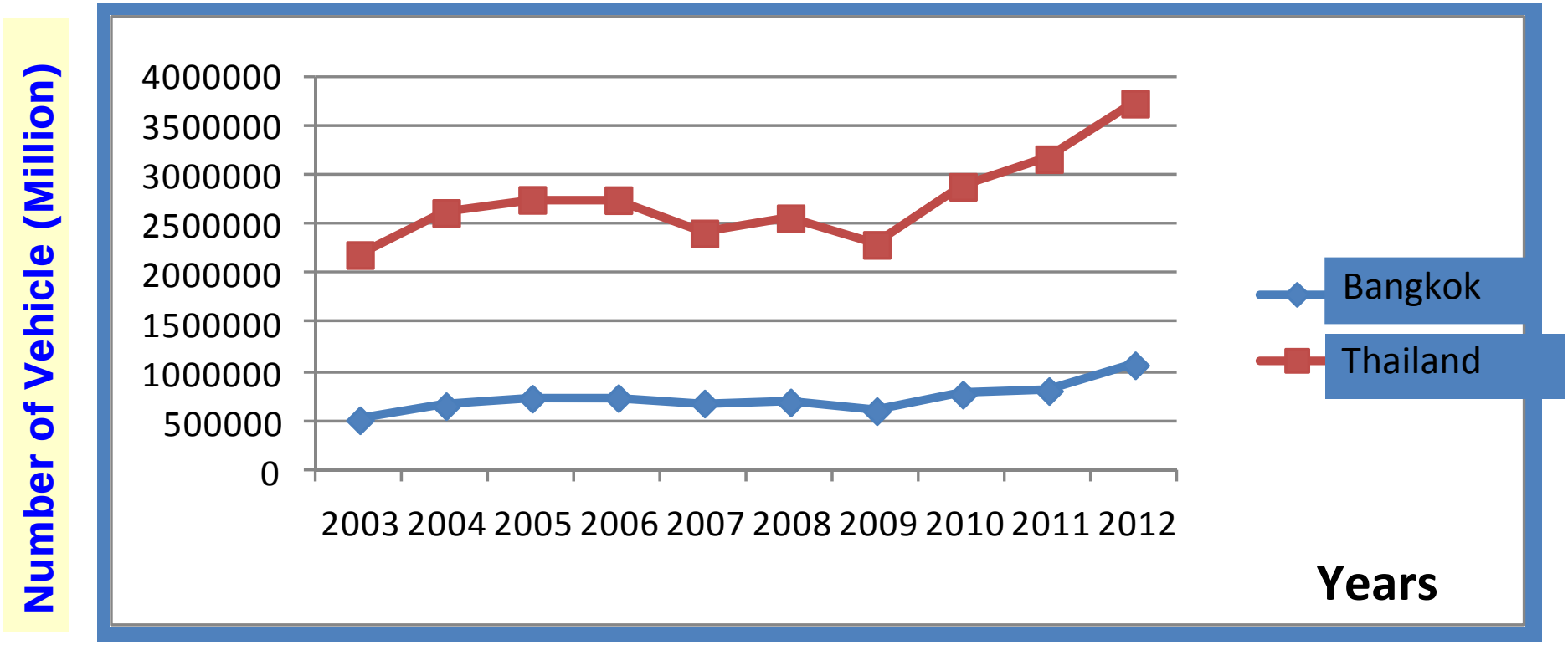


Bangkok situation



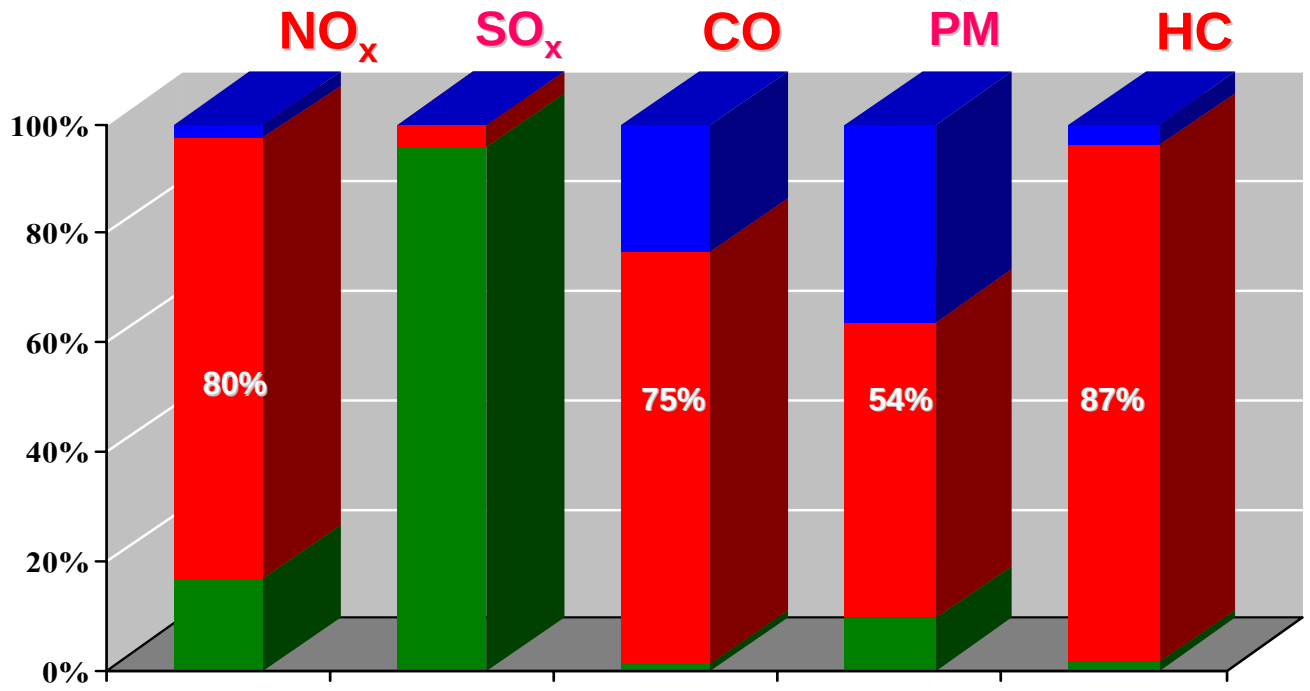


Number of Vehicle registration : 2003 - 2012



Source: Department of Land Transport

Ratio of Air Emissions (Pollutants) In Bangkok



% Point source

% Mobile sources (Motor Vehicle)

% Area source

Quality of Life

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

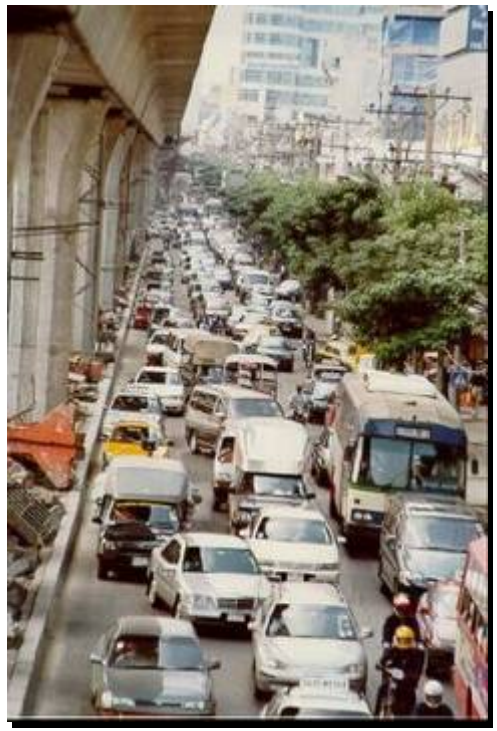
Air Pollution

- **Health Impact**
- **Air pollution from transport sector (Bangkok)**
  - **75% of CO**
  - **80% of NOx**
  - **54% of PM**

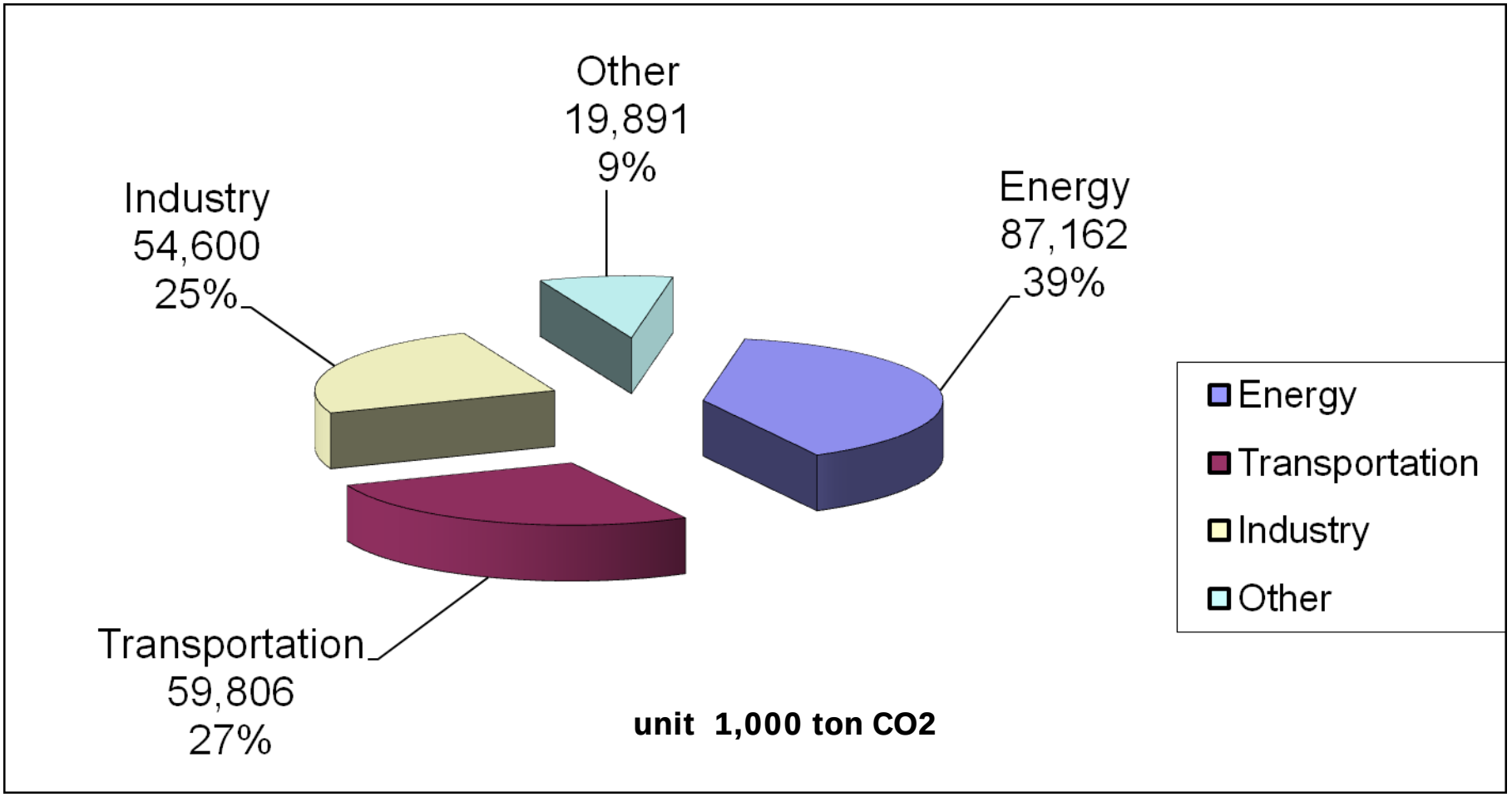
3th Winner
Photo Competition CAP- Swisscontact 2002
"Don't Distrub My Breathing"

Social Impact

- Road Accident
- Injuries
- Death
- Stress

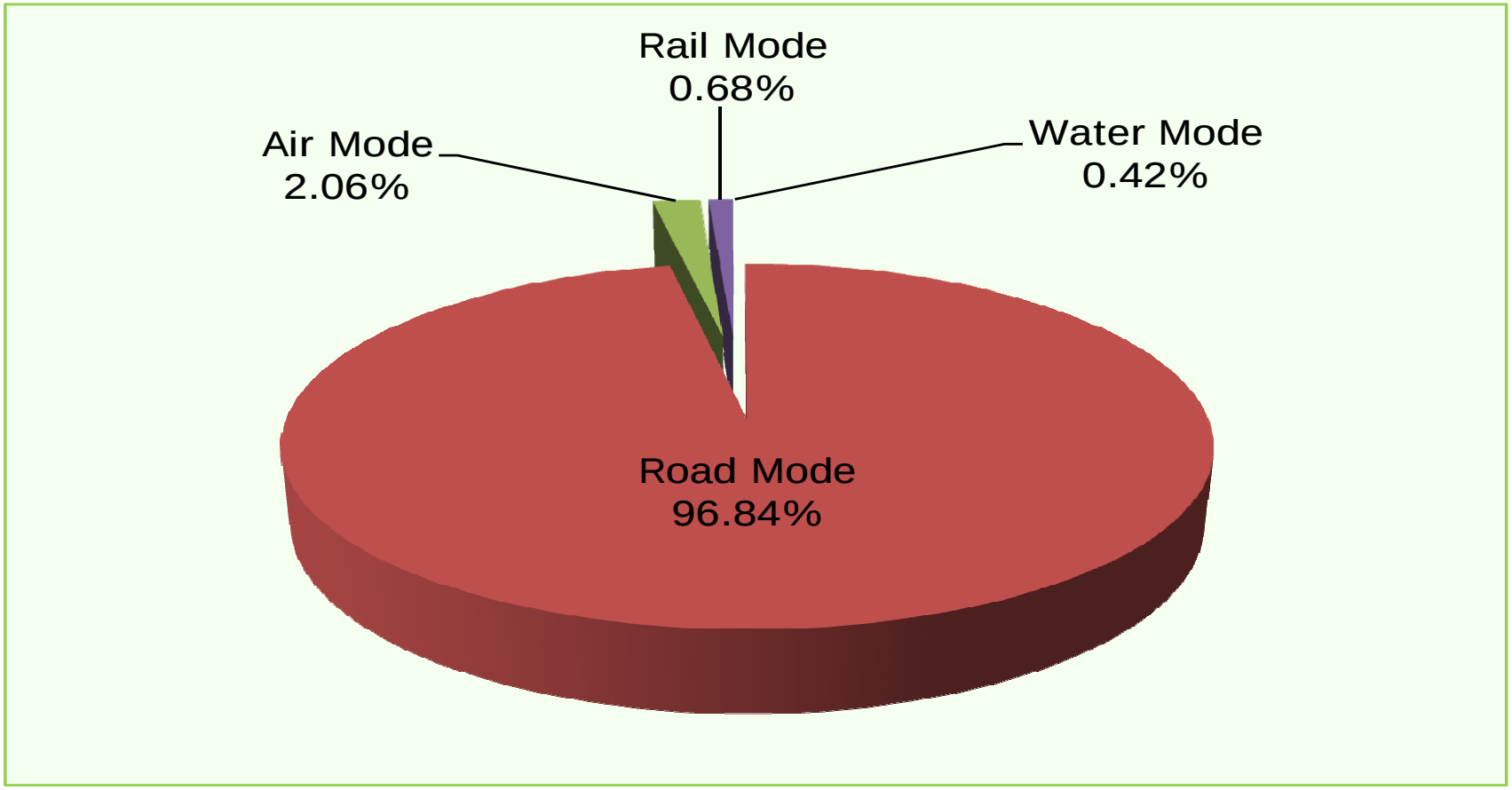


GHGs Emission by Sector : 2011



Source: Thailand Energy Statistic 2012

Volumes of Greenhouse gas released by Thailand's Transport Sector



Source: *National Greenhouse Gas listing*

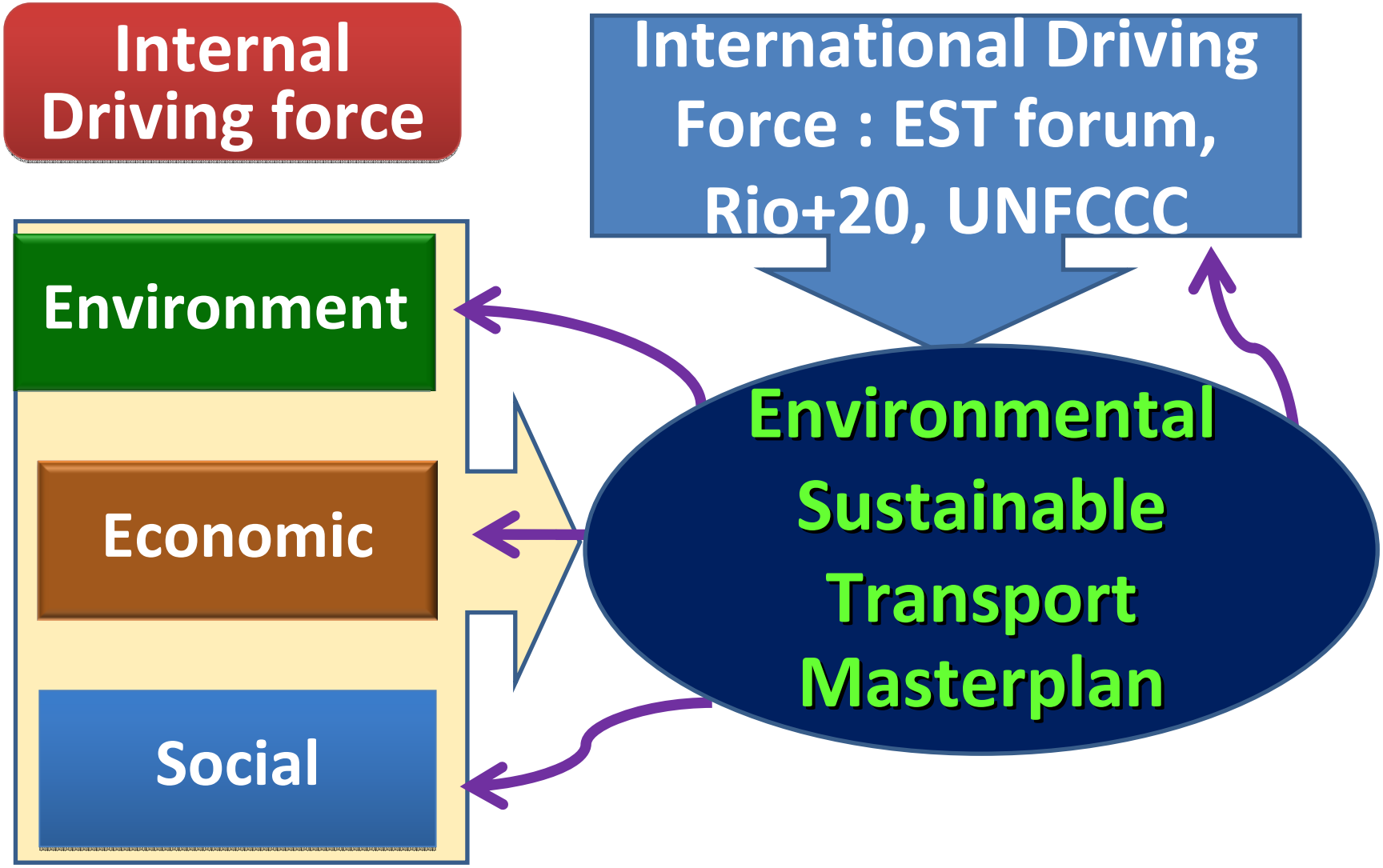
11th Thailand National Economic and Social Development Plan (Transport Sector During Year 2010-2015)

International Trade Agreement	Climate Change	Sub – regional Corporation	Energy	Aging Society

Green Transportation

- Change to Alternative Energy , Green Energy and Efficiency use in Energy
- Road and Rail integrated Network around country and Neighboring Country
- Improve Multi-modal Transportation
- Improve Transport System, Efficiency , Effectiveness, Accessibility, Safety ,Transport for all, (Aging people and Handicap)
- More Public Private Participation(PPP) Investment

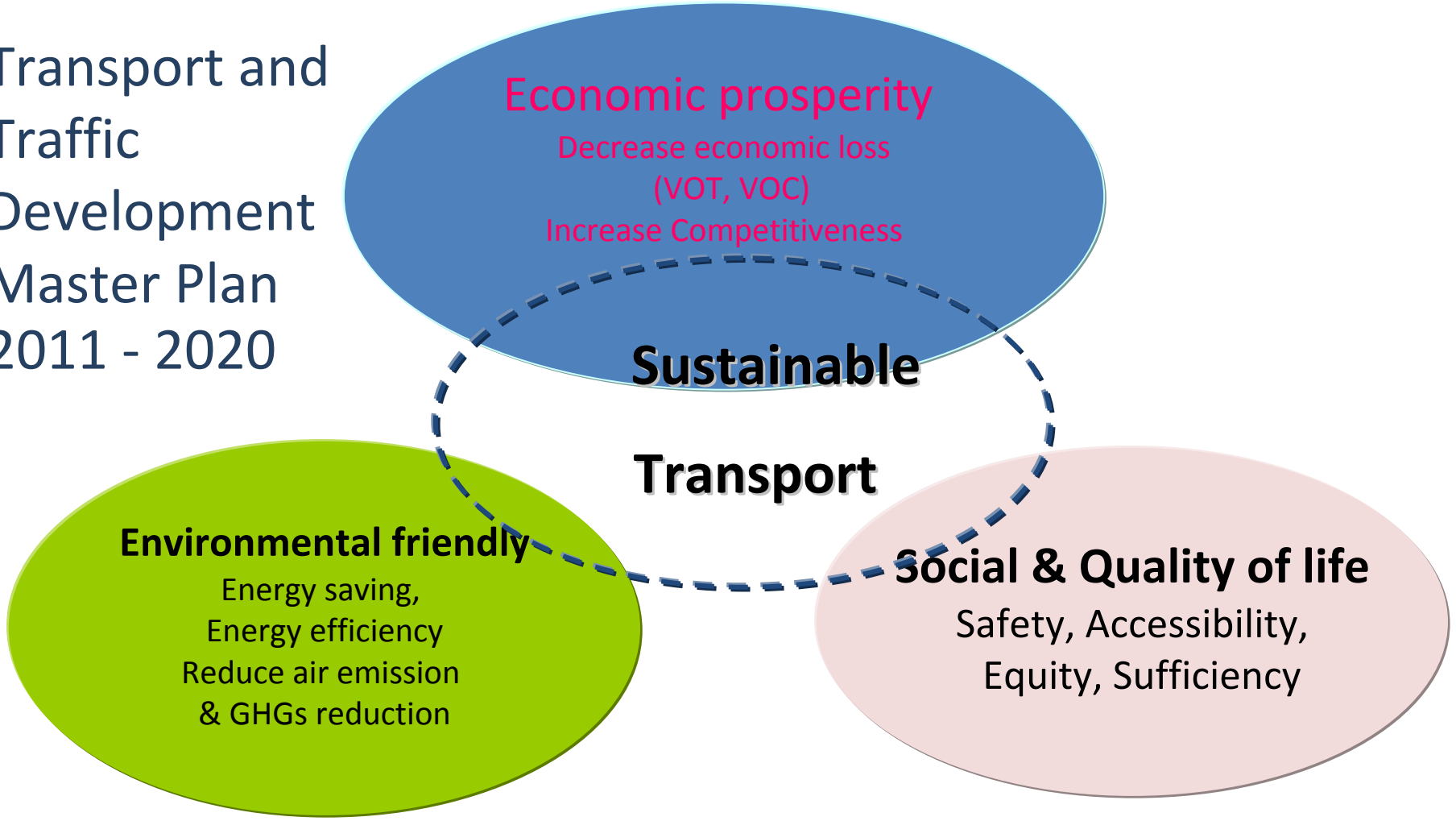
Master Plan Development



Ministry of Transport

Vision : Toward Sustainable Transport

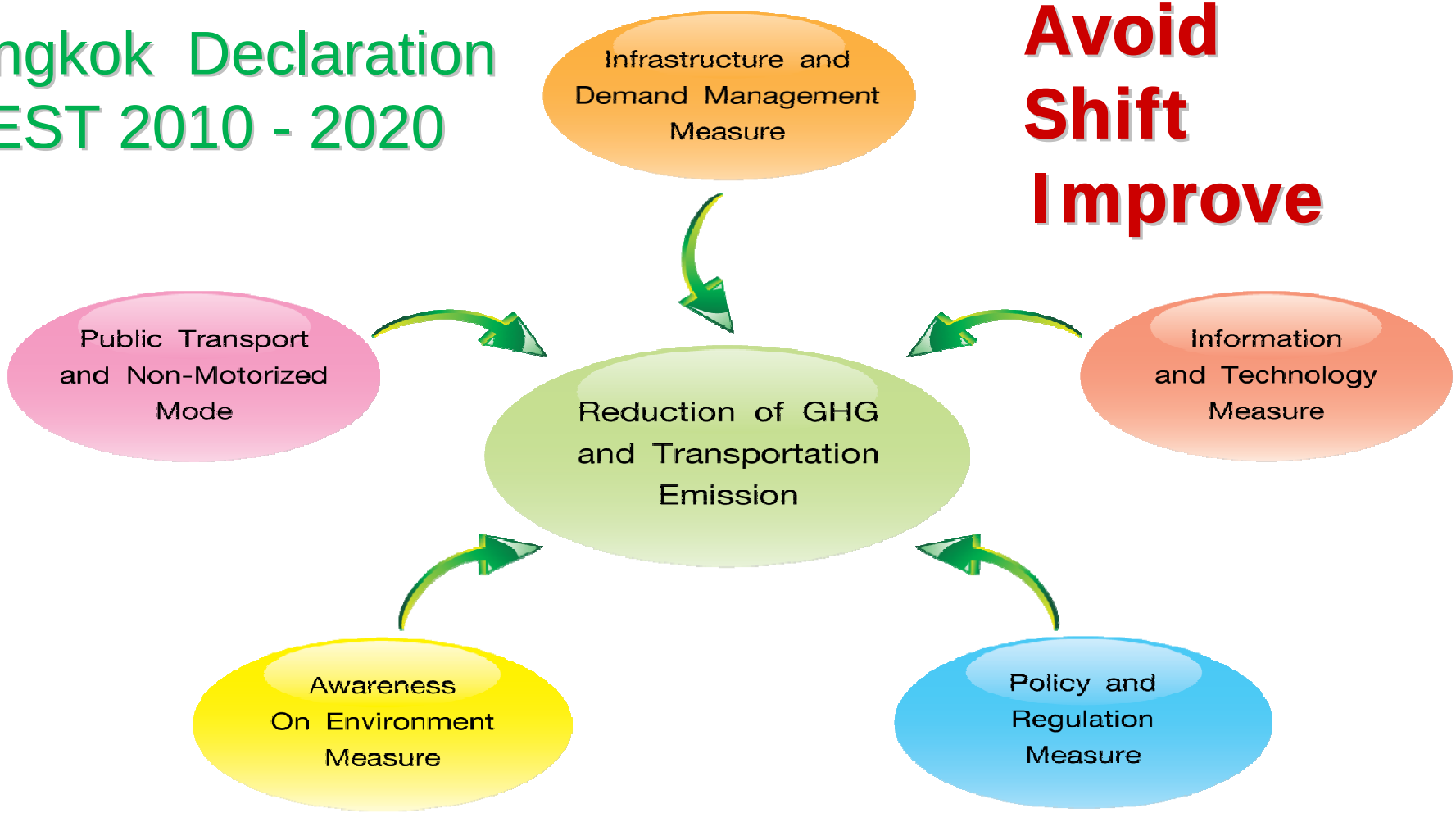
Transport and Traffic Development Master Plan 2011 - 2020



SUSTAINABLE TRANSPORT MASTER PLAN

Bangkok Declaration
EST 2010 - 2020

Avoid
Shift
Improve



STRATEGY

Strategy 1: *Upgrade capability of agencies and personnel for the development of an environmentally sustainable transport system.*

Strategy 2: *Establish appropriate plans and mechanisms for interfacing and monitoring of transport and traffic work plans/measures/projects; and to move them forward to implementation.*

Strategy 3: *Establish comprehensive and inter-connected transport infrastructure.*

Strategy 4: *Efficient transport management for sustainability and greenhouse gas reduction.*

Strategy 5: *Promote transport R&D and adoption of environment-friendly innovations and technologies.*

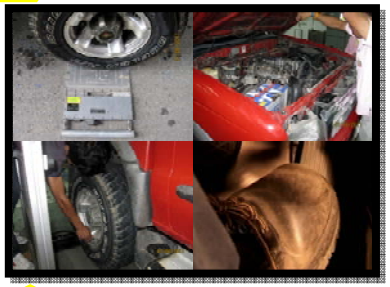
Strategy 6: *Promote public awareness of the environment.*

Strategy 1: Upgrade capacity of agencies and personnel for the development of an environmentally sustainable transport system. (11 plans/projects)	• **Upgrade capability of bus services quality** • **Development and Training in "Global warming and transport"**
Strategy 2: Establish appropriate plans/mechanisms for interfacing/monitoring of transport and traffic work plans/measures/projects; forward to implementation (19 plans/projects)	• **Plan for development of public transport in regional cities** • **Study of sustainable and environmental-friendly water and air transport**
Strategy 3: Establish comprehensive and inter-connected transport infrastructure (44 plans/projects)	• **Mass rapid transit projects (15 projects)** • **Construction of Sea port in Chumporn province**

Strategy 4: Efficient transport management for sustainability and greenhouse gas reduction (22 plans/projects)	• Procurement of new efficient buses with low pollution emissions (BMTA's3183 NGV buses) • Study of standards for parking control/fee collection of parking lots
Strategy 5: Promote transport R&D and adoption of environmentally – friendly innovations and technologies (15 plans/projects)	• Promotion of R&D of efficient high-tech equipment • Promotion of the use of eco-friendly vehicle
Strategy 6: Promote Public awareness about environmental issues (9 plans/projects)	• Holding public relations activities and provision of knowledge about eco-friendly driving • Study and production of national public relations materials to disseminate information about global warming

Emission Test (Laboratory Test)

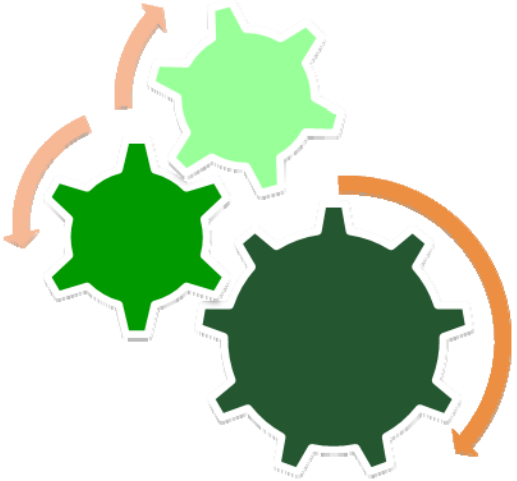
1 การเตรียมรถตัวอย่าง



2 การนำรถขึ้นแท่นทดสอบ

3 การเตรียมข้อมูลรถทดสอบและรูปแบบการขับขี่

4 การเตรียมเครื่องมือและระบบทดสอบ



5 การเตรียมกระดาษกรองในกรณีทดสอบรถยนต์ดีเซล

6 การดำเนินการทดสอบมลพิษจากรถยนต์

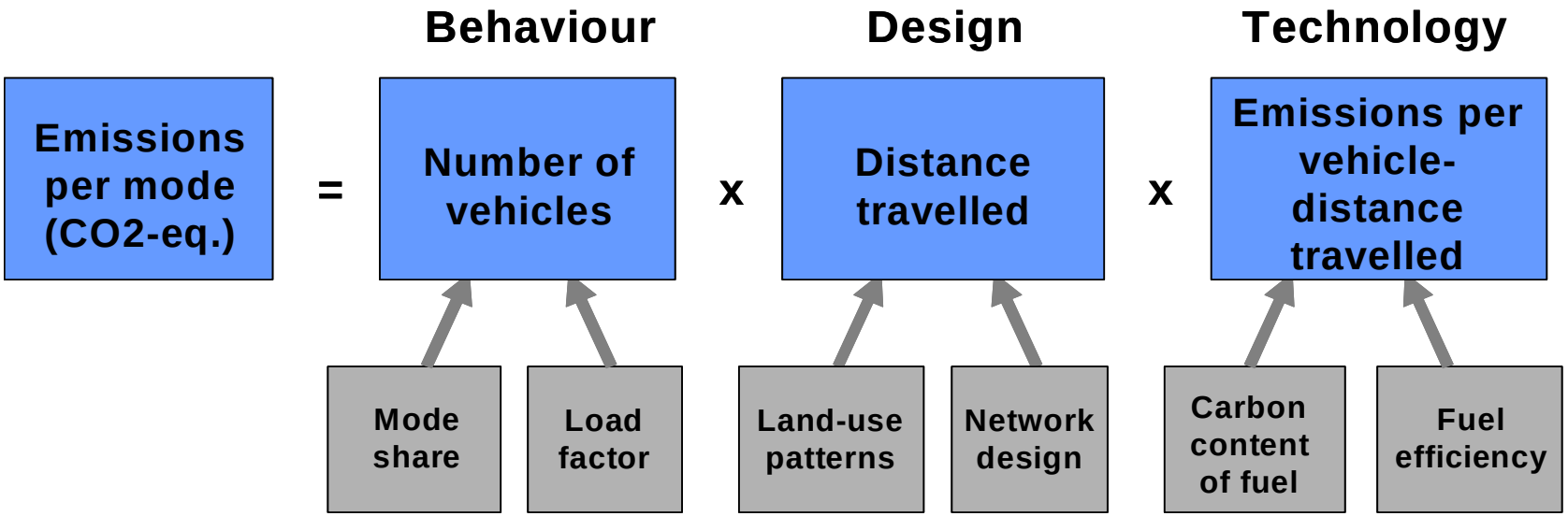
7 การวิเคราะห์ข้อมูล

8 การประมวลผลข้อมูล

GHGs Analysis by project/programme

1. คำนวณการลดการปล่อยก๊าซเรือนกระจก (%) ในพื้นที่อิทธิพลของโครงการโดยใช้สมมติฐานการเปลี่ยนแปลงการเดินทางในสมการ Equation - ASI

ปริมาณมลพิษ = จำนวนเที่ยวการเดินทาง X ระยะทางที่เดินทาง X ตัวคูณการปล่อยมลพิษ



Transport Model :

Nationally

NAM

Year	Growth Rate	CO_2 NAM	ผลต่าง	**Energy Consumption	CO_2 Energy
2553		34.84		24,594	57.07
2554	2.41%	36.43	22.23	25,186	58.44
2560	3.20%	43.99	22.01	30,425	70.60
2573	3.20%	62.30	26.61	46,810	108.62
			46.32		

BMR

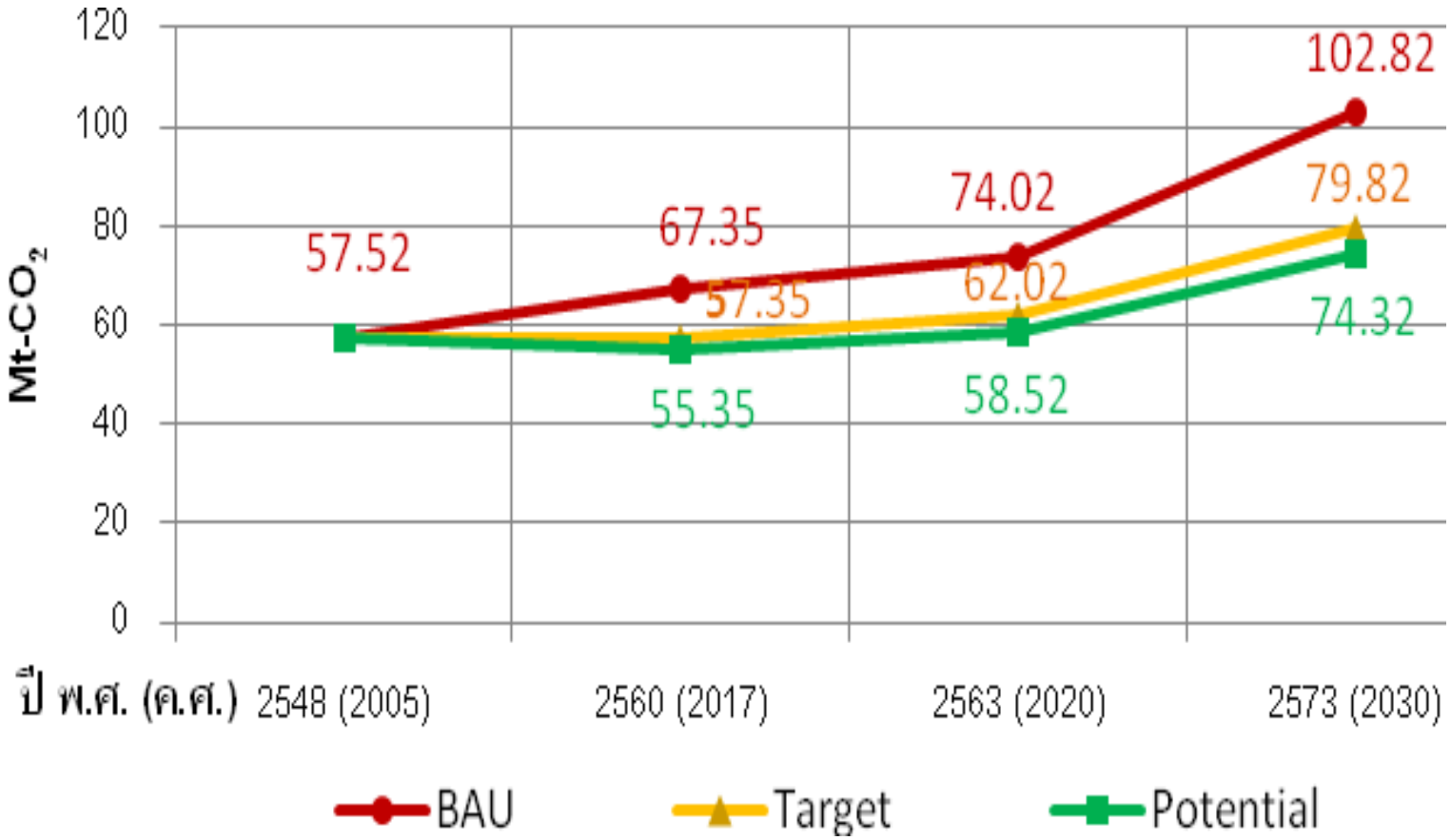
e-BUM

Year	Growth Rate	CO_2 e-BUM	ผลต่าง	** Energy Consumption	CO_2 Energy
2553		18.05		11,347	25.22
2554	3.20%	18.21	7.17	11,710	26.03
2560	3.20%	24.35	7.82	14,146	30.47
2573	3.20%	35.90	6.12	21,305	37.98
			2.08		

*ปริมาณก๊าซ CO_2 หน่วยเป็น ล้านตัน

**การใช้พลังงานในภาคขนส่ง หน่วย ktoe

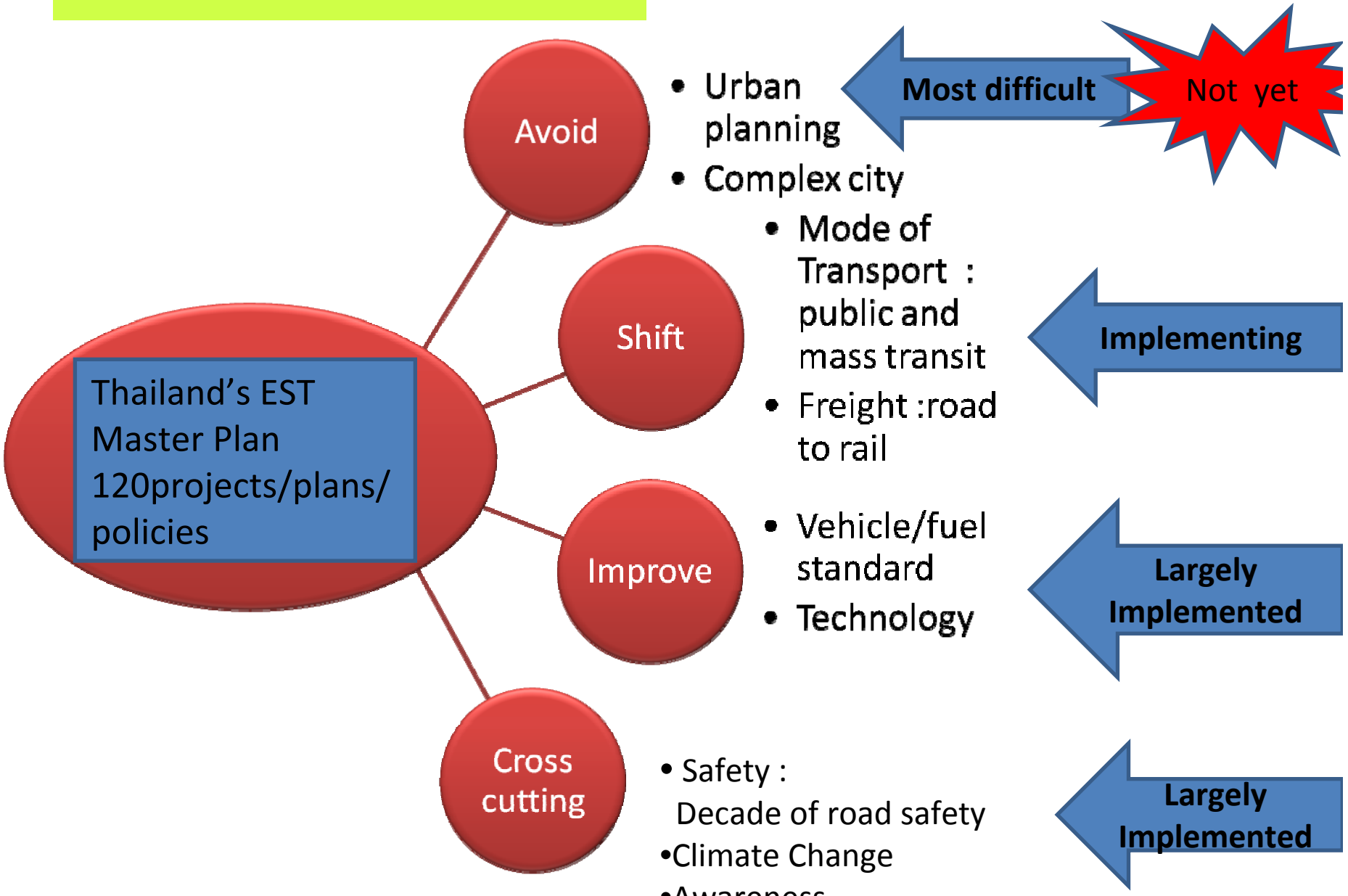
GHGs emission from Transport sector



Potential
GHGs reduction in Transportation Sector

Year	GHGs at BAU (Million tons CO_2 e)	Potential of GHGs reduction	
		(Million tons CO_2 e)	%
2005	57.52	-	-
2017	67.53	11 - 13	16 - 19
2020	74.02	15 - 16	20 - 22
2030	102.82	27 - 30	26 - 29

Conclusion


Thailand's EST Master Plan 120projects/plans/ policies
Avoid
Shift
Improve
Cross cutting
• Urban planning
• Complex city
Most difficult
Not yet
• Mode of Transport : public and mass transit
• Freight :road to rail
Implementing
• Vehicle/fuel standard
• Technology
Largely Implemented
• Safety :
Decade of road safety
•Climate Change
•Awareness
Largely Implemented

Thank you

Further information, please contact
chutinthorn.p@gmail.com