

Win-Win Solutions to Climate Change and Transport

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United Nations
Centre for Regional Development



Ministry of Land,
Transport and Maritime Affairs
Republic of Korea



Ministry of the Environment
Government of Japan

New UNCRD publication

1.Climate change and transport

2.Co-benefits of EST

3.Carbon markets

Win-Win Solutions to Climate Change and Transport



February 2009



United Nations
Centre for Regional Development



Ministry of Environment
Government of Japan

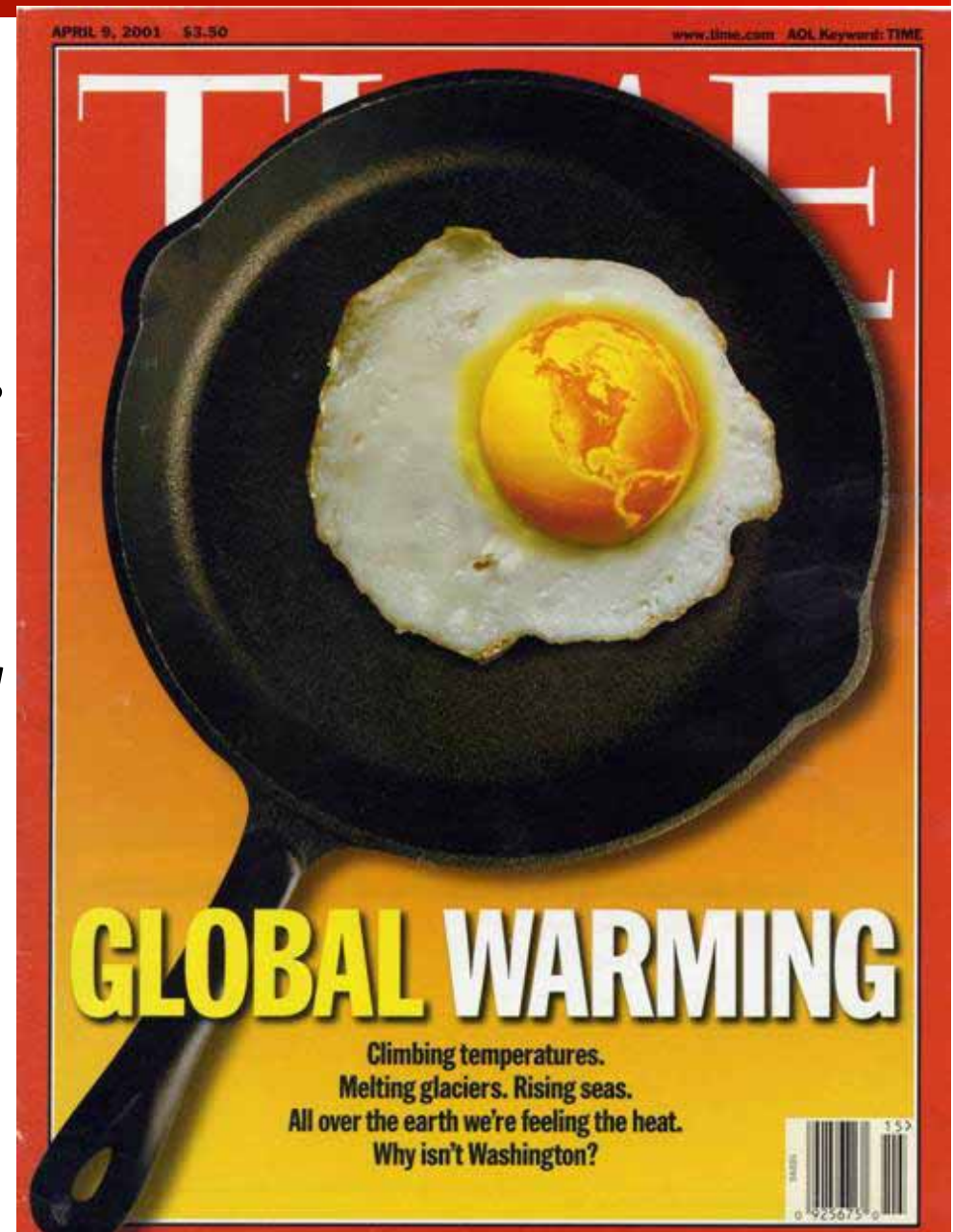
Components of Environmentally Sustainable Transport (EST)



Climate Change

"Given the nature and magnitude of the challenge, national action alone is insufficient. No region can insulate itself from these climate changes. We need to confront climate change within a global framework, one that guarantees the highest level of international cooperation."

**Ban Ki-Moon, Secretary General
of the United Nations, 24
September, 2007**



“Warming of the climate system is unequivocal...Eleven of the last twelve years (1995-2006) rank among the eleven warmest years in the instrumental record of global surface temperature (since 1850).” (IPCC, 2007)



Atmospheric CO₂ concentration



Growth rate of 1-2 ppm per year

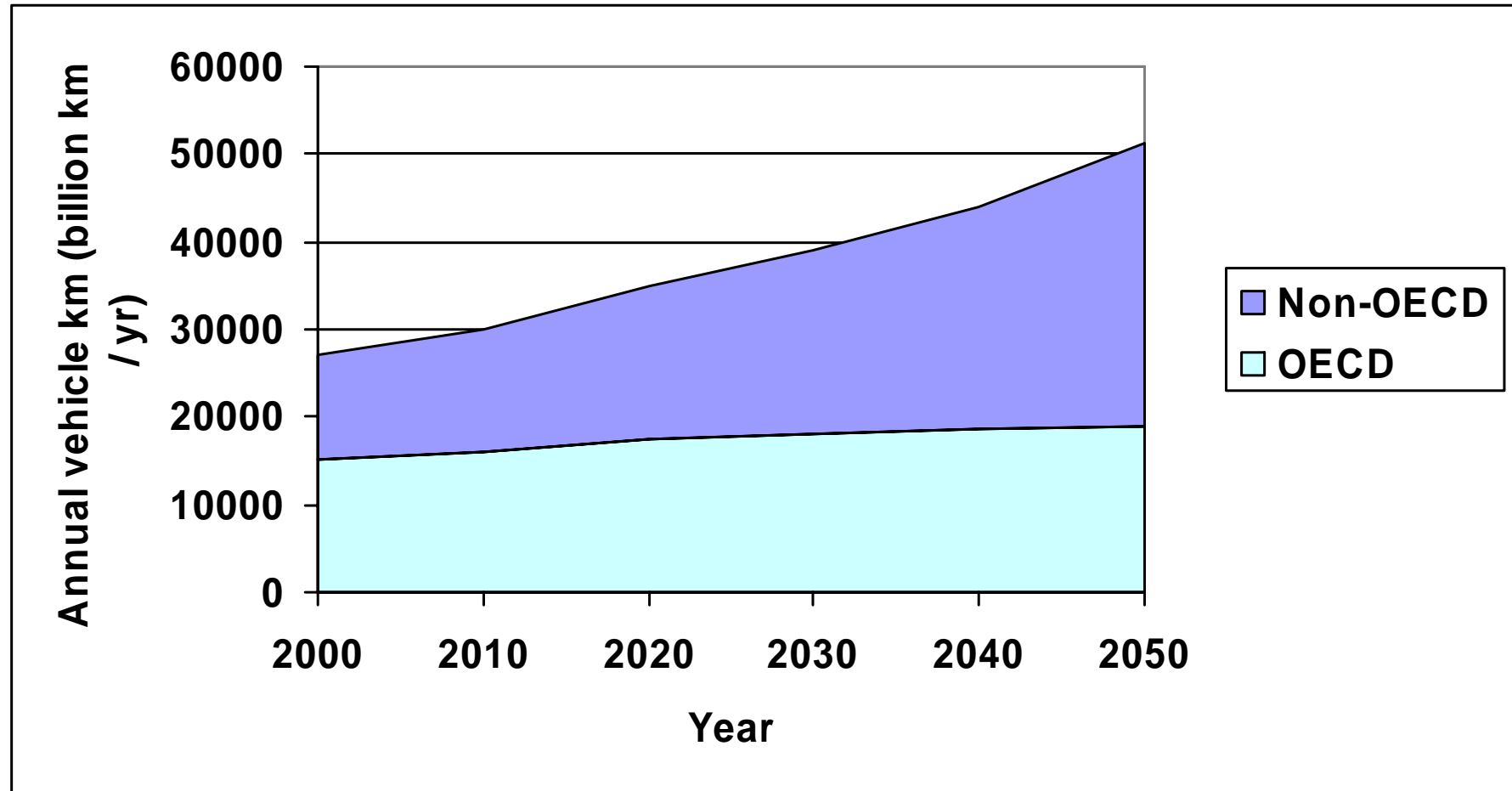
Transport represents the fastest-growing sector of greenhouse gas emissions at over 2.1% per year.

IEA projections for transport emissions growth by 2020:

- ☐ **China: 143%**
- ☐ **Indonesia: 122%**
- ☐ **India: 91%**

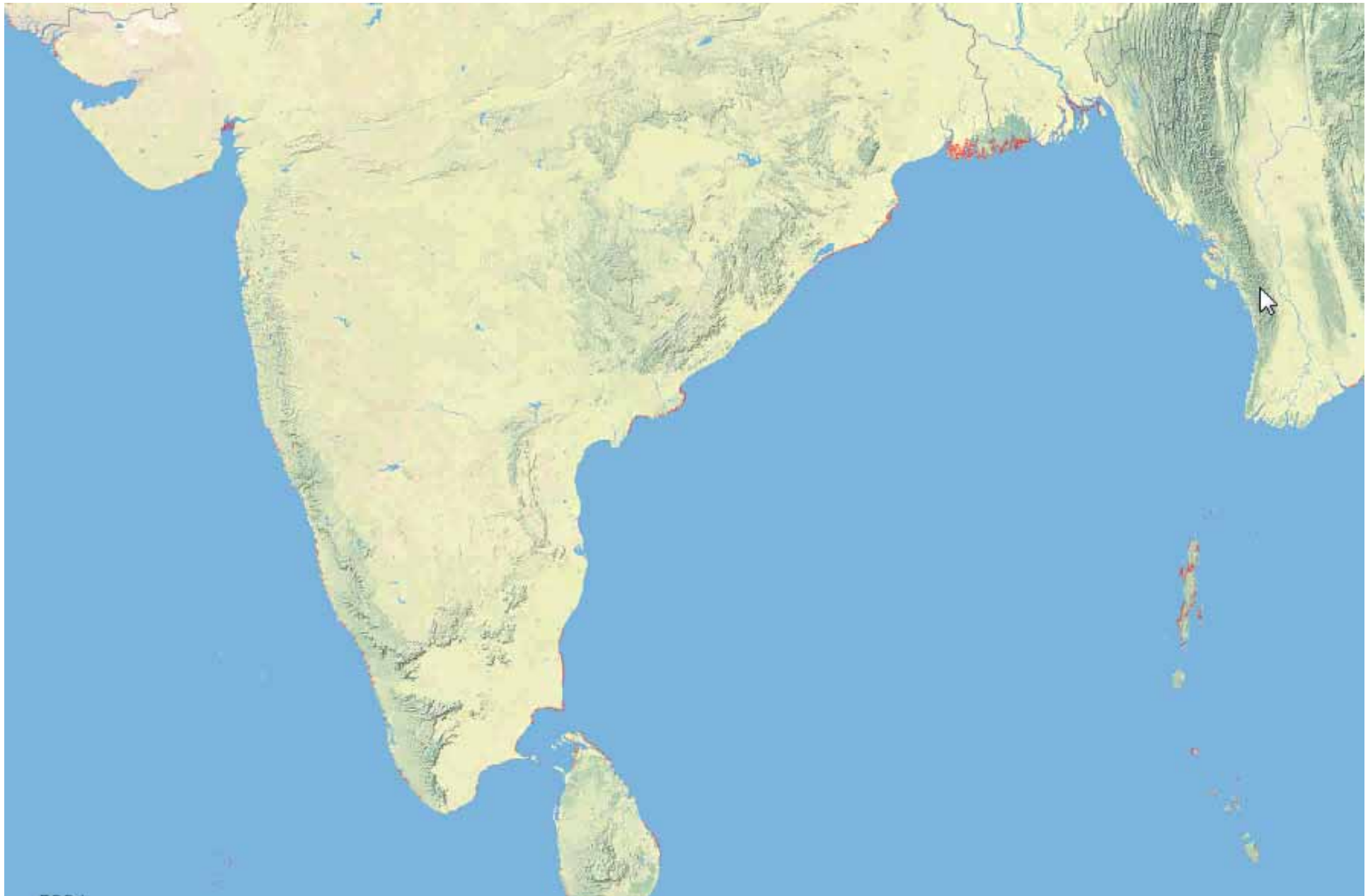


Growth in Cars and Motorcycles





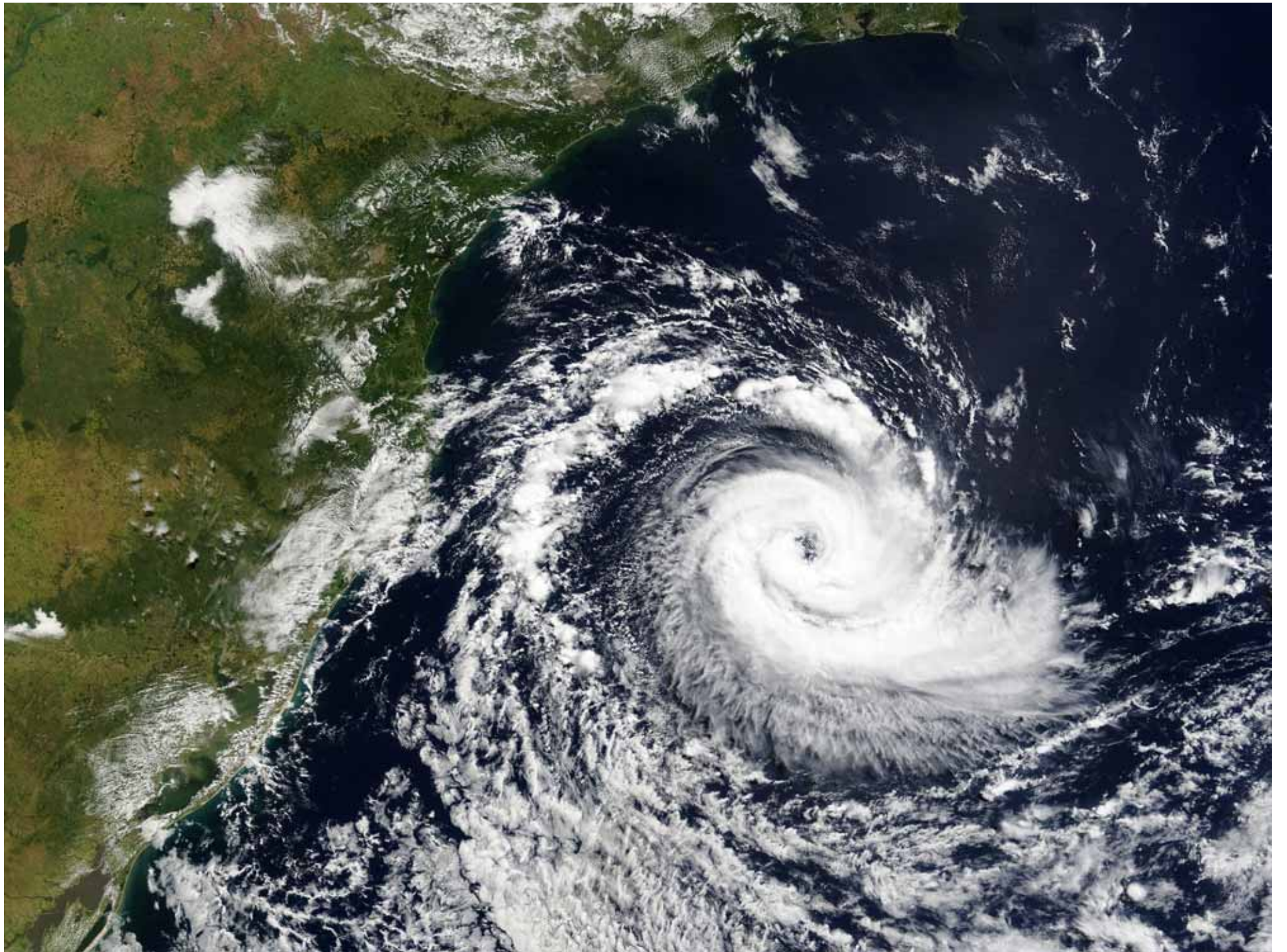
Sea Level Rise in South Asia



Sea Level Rise in Southeast Asia













DISEASE WARNING

West Nile Virus
Has Been Confirmed
In This Area

This disease is transmitted to humans & horses by the bite of infected mosquitoes.

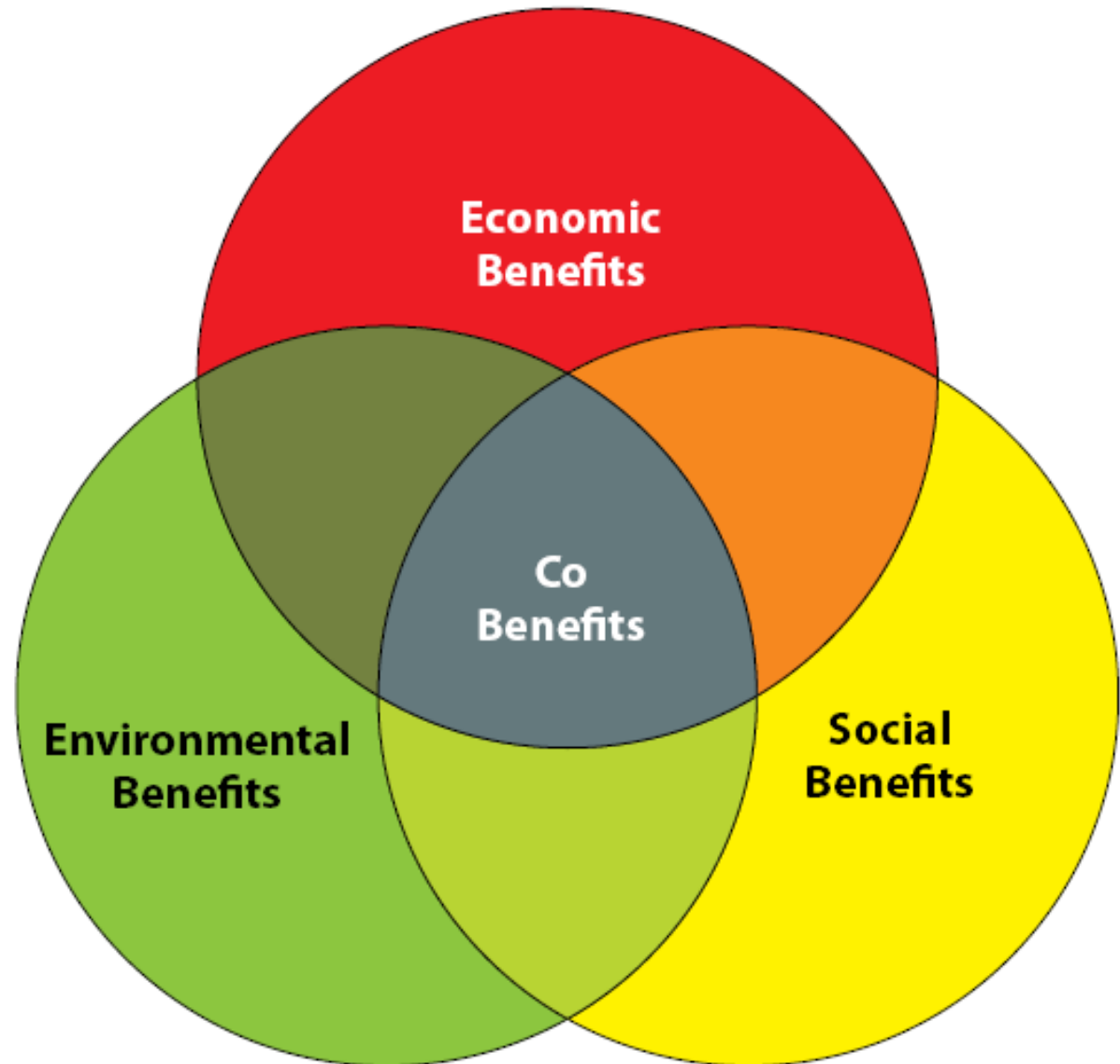
FOLLOW THESE PRECAUTIONS

- AVOID ACTIVITY IN THIS AREA between dusk and dawn when mosquitoes are most active.
- APPLY MOSQUITO REPELLENT containing the active ingredient DEET when outside.
- WEAR PROTECTIVE CLOTHING (loose, light colored, long



What are Co-Benefits?

**Realisation of
multiple
objectives
within a single
strategy**



- ✓ Congestion reduction
- ✓ Consumer spending savings
- ✓ Employment creation
- ✓ Small- and medium-sized enterprise development
- ✓ Traffic accident reduction
- ✓ Technology transfer
- ✓ Reduced dependence on imports / energy security
- ✓ Economic productivity / efficiency improvements



- ✓ Greenhouse gas reductions
- ✓ Particulate matter reduction
- ✓ Sulphur oxides reduction
- ✓ Nitrogen oxides reduction
- ✓ Carbon monoxide reduction
- ✓ Volatile organic compounds (VOC) reduction
- ✓ Noise reduction
- ✓ Solid waste reduction
- ✓ Water contaminant reduction



Social Co-Benefits

- ✓ Health improvements (obesity reduction, fitness, etc.)
- ✓ Crime reduction / security enhancement
- ✓ Gender equity promotion
- ✓ Universal access for physically disabled
- ✓ Scholar access improvement
- ✓ Convenience and comfort
- ✓ Community sociability
- ✓ Reduction in community severance



1. Vehicle Efficiency Improvements



Roadway construction



Vehicle testing & maintenance



Fuel economy standards



Alternative fuels

Vehicle Efficiency Improvements

Benefits	Road construction	Vehicle maintenance and testing	Fuel economy standards	Clean fuels
Economic benefits				
Congestion reduction Consumer spending savings Employment creation Small-enterprise development Traffic accident reduction Technology transfer Energy security Economic productivity				
Environmental benefits				
Greenhouse gas reductions Particulate matter reduction Sulphur oxides reduction Nitrogen oxides reduction Carbon monoxide reduction VOC reduction Noise reduction Solid waste reduction Water contaminant reduction				d d d d d
Social benefits				
Health (e.g. obesity reduction) Crime reduction Gender equity promotion Universal access for disabled Scholar access improvement Convenience and comfort Community sociability Reduction in severance				

Building more
roadways to combat
traffic congestion is
a bit like buying
larger pants to
combat obesity



Alternative fuels

- ☐ Clean diesel
- ☐ Compressed natural gas (CNG)
- ☐ Liquid petroleum gas (LPG)
- ☐ Electric
- ☐ Bio-diesel
- ☐ Ethanol
- ☐ Hybrid electric
- ☐ Hydrogen (fuel cell technology)





- ☐ Displacement of food crops
- ☐ Increases in food prices
- ☐ More intense usage of fertilizers crops
- ☐ Ocean “dead zones” resulting from intensified pollutant run-offs
- ☐ Biodiversity depletion from monoculture crop production
- ☐ Increased greenhouse gas emissions from nitrogen fertilizers
- ☐ Reduction in tropical forests from agricultural conversions
- ☐ Water table losses from increased irrigation demands



2. Public Transport



Bus Rapid Transit



System integration



Fare-free services

Public Transport

Benefits	Bus Rapid Transit	System integration	Fare-free service
Economic benefits			
Congestion reduction Consumer spending savings Employment creation Small-enterprise development Traffic accident reduction Technology transfer Energy security Economic productivity			
Environmental benefits			
Greenhouse gas reductions Particulate matter reduction Sulphur oxides reduction Nitrogen oxides reduction Carbon monoxide reduction VOC reduction Noise reduction Solid waste reduction Water contaminant reduction			
Social benefits			
Health (e.g. obesity reduction) Crime reduction Gender equity promotion Universal access for disabled Scholar access improvement Convenience and comfort Community sociability Reduction in severance			

BRT in Asia



Hangzhou



Changzhou



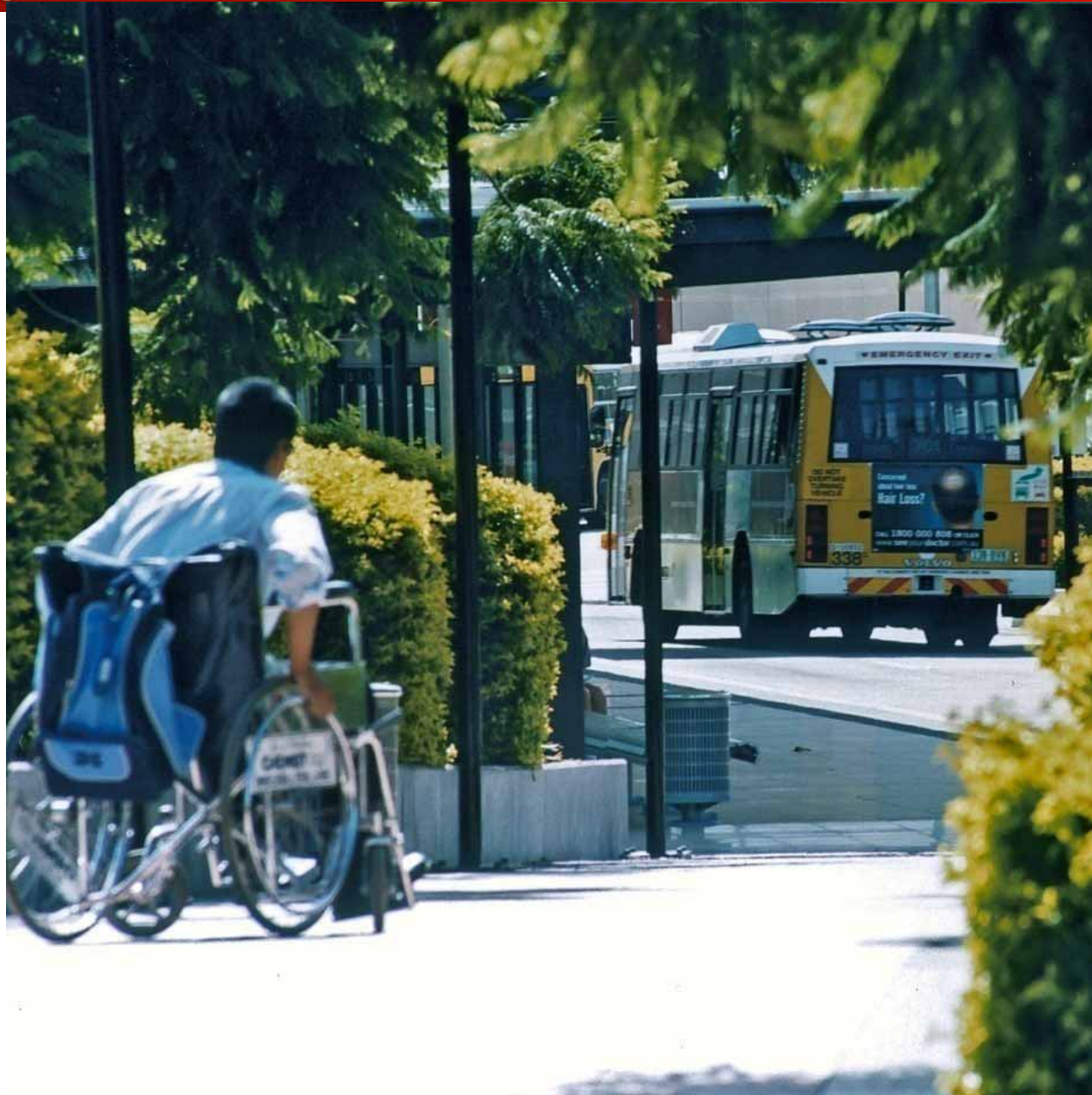
Beijing



Jakarta



Universal access



3. Non-Motorised Transport (NMT)



Pedestrian facilities



Bicycles and pedicabs



Bicycle rental services



Car-free days

Non-Motorised Transport

Benefits	Pedestrian upgrades	Pedicabs	Bicycle rentals	Car-free day
Economic benefits				
Congestion reduction Consumer spending savings Employment creation Small-enterprise development Traffic accident reduction Technology transfer Energy security Economic productivity				
Environmental benefits				
Greenhouse gas reductions Particulate matter reduction Sulphur oxides reduction Nitrogen oxides reduction Carbon monoxide reduction VOC reduction Noise reduction Solid waste reduction Water contaminant reduction				
Social benefits				
Health (e.g. obesity reduction) Crime reduction Gender equity promotion Universal access for disabled Scholar access improvement Convenience and comfort Community sociability Reduction in severance				





Viva
cities for people

Bicycle Rental Programmes



velib'

Paris



Copenhagen

Car-Free Days

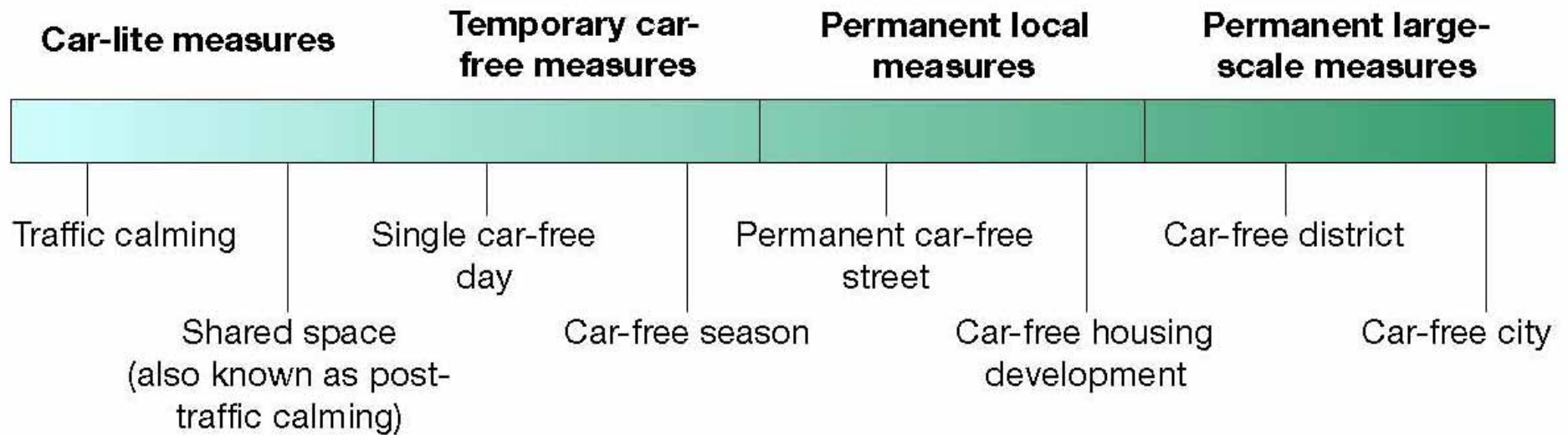


Bangkok



Jakarta

Types of Car-Free Measures



■ OBESE NATION

Too fat for our own good

THE image of an obese 33-year-old gentleman and a remark by a 69-year-old about his 11-year-old grandson running out of breath while scaling slopes (NST, June 9) suggest we should shift our attention from rural health to urban health.

The Ministry of Health has done well in promoting rural health. The health problems have now shifted.

Diseases related to urban lifestyles are on the rise. One in four Malaysians is obese, according to a survey made in 1999.

Malaysians are slowly and surely on the road to self-destruction.

The cause: compulsive eating habits. Most people (including I) eat on seeing food rather than when feeling hungry.

Everyone you care to talk to at buffets will admit they overeat. They think it is *rugi* (a loss) not to eat as much as they can.

The amount people eat at buffets is about 4-5 times the amount they normally eat at regular meals elsewhere.

Office meetings and functions are almost always accompanied by food. Sometimes workshops or meetings organised by public and private institutions take place in hotels.

"Meeting packages" offered at most hotels usually contain six meals a day plus sweets on the conference tables! The participants are forever on sugar and fat.

Fat cells behave as storage cells of the body. They can balloon out to more than 100 times their normal size to accumulate excess fat that is ingested.

Fat cells, like brain cells, are classified as permanent cells, meaning the cells do not have the capacity to divide and multiply upon reaching maturity unlike the cells that form our skin, mucous membranes and gut.

An obese person has the same number of fat cells as when he was thinner, except the size of each of his fat cells is bigger than normal.

If we store foodstuff in the food cabinet for a long time, the food would turn bad and

become poisonous to eat. The same thing happens in these expanded fat cells.

The diseases that come with obesity are numerous and well known — from diabetes to depression.

No organ is spared the wrath of toxic substances released from "obese" fat cells.

Obese children become obese adults. This is a fact. Parents are wholly responsible for shaping their children.

Popular eating-places where parents take their kids to these days are fat food joints. Oops! I mean fast food restaurants.

They are taken there to celebrate joyful events like birthdays, passing exams, etc.

Fat food joints have sprung up everywhere, even in small towns.

PROFESSOR DR NOR HAYATI OTHMAN
Deputy Dean (Research)
and Professor of Pathology,
Universiti Sains Malaysia,
Kubang Kerian, Kelantan



GLOBAL PROBLEM: Obesity is fast becoming a major problem worldwide.



4. Transportation Demand Management



Vehicle Restrictions



Fuel Pricing

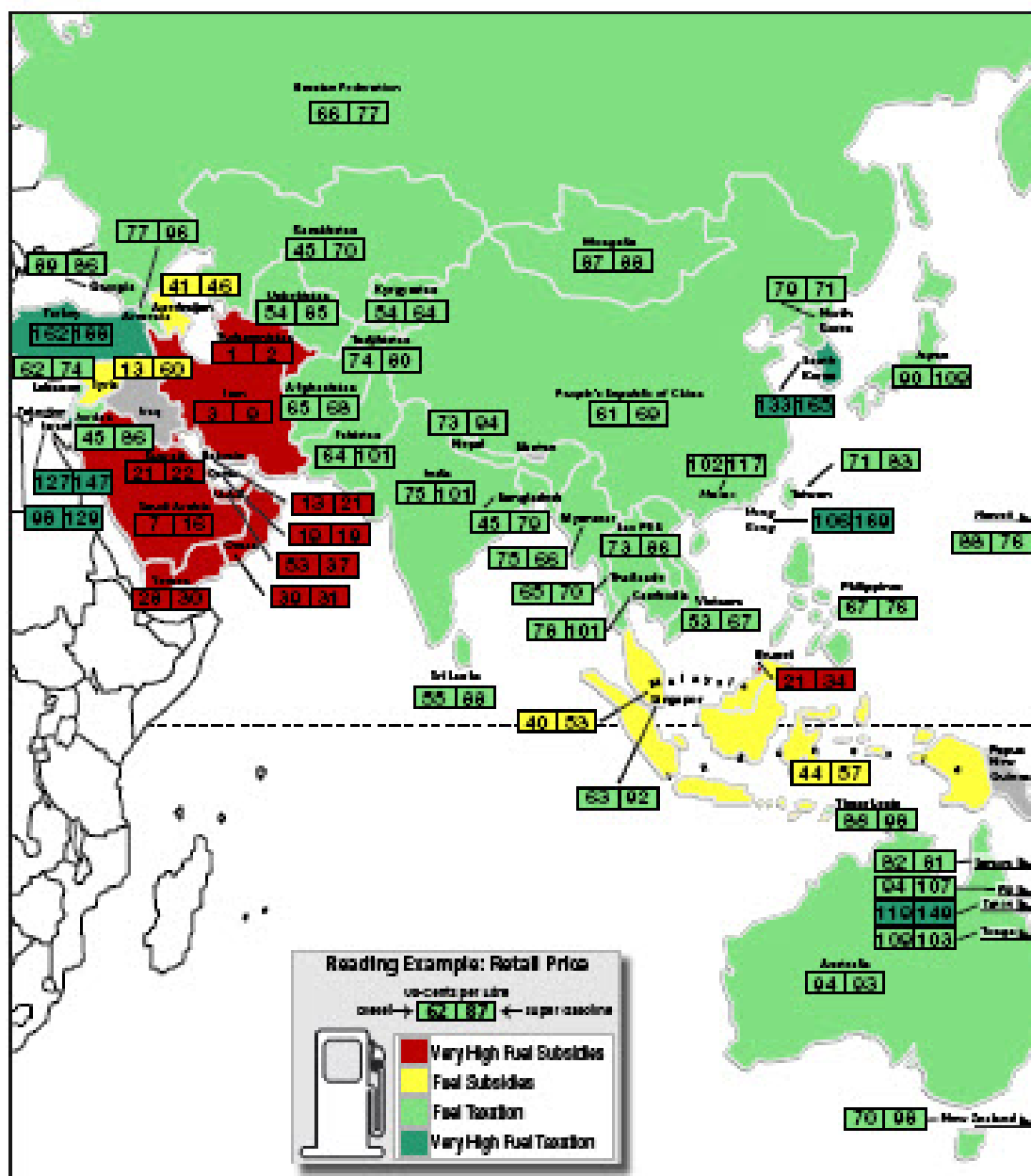


Parking Restrictions

Transportation Demand Management

Benefits	Vehicle use restrictions	Fuel taxes	Parking levies
Economic benefits			
Congestion reduction Consumer spending savings Employment creation Small-enterprise development Traffic accident reduction Technology transfer Energy security Economic productivity			
Environmental benefits			
Greenhouse gas reductions Particulate matter reduction Sulphur oxides reduction Nitrogen oxides reduction Carbon monoxide reduction VOC reduction Noise reduction Solid waste reduction Water contaminant reduction			
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Fuel Subsidies



Parking space levy

A set annual fee for every non-residential parking space in the city

Examples

Sydney: **Earns city US\$ 31 million/yr**

Perth: **Earns city US\$ 8.2 million/yr**



5. Land Use



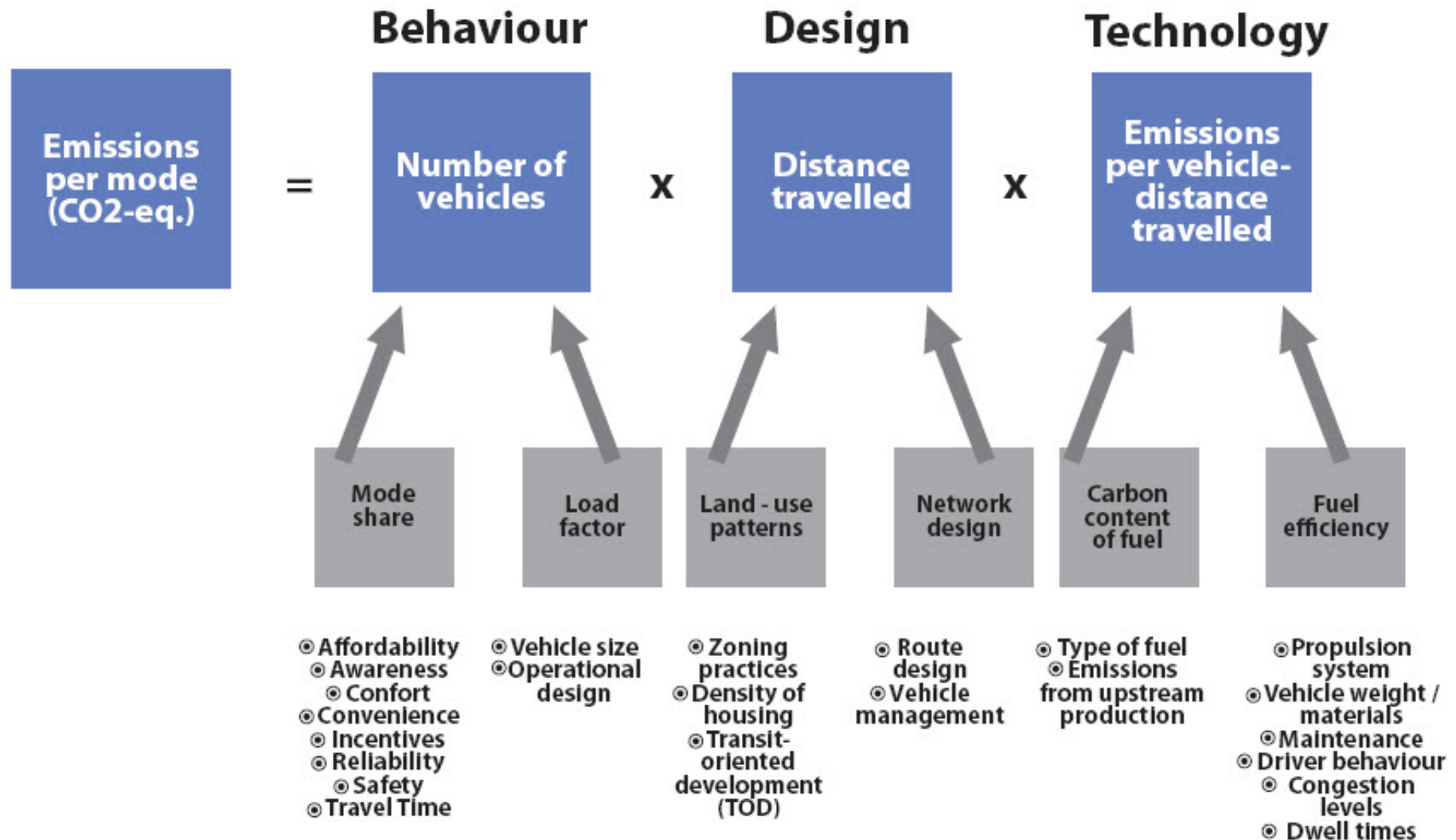
Smart Growth



Transit Oriented Development

Benefits	Smart growth policies	Transit-oriented development
Economic benefits		
Congestion reduction Consumer spending savings Employment creation Small-enterprise development Traffic accident reduction Technology transfer Energy security Economic productivity		
Environmental benefits		
Greenhouse gas reductions Particulate matter reduction Sulphur oxides reduction Nitrogen oxides reduction Carbon monoxide reduction VOC reduction Noise reduction Solid waste reduction Water contaminant reduction		
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Calculating Emission Reductions



Carbon Markets

Prices

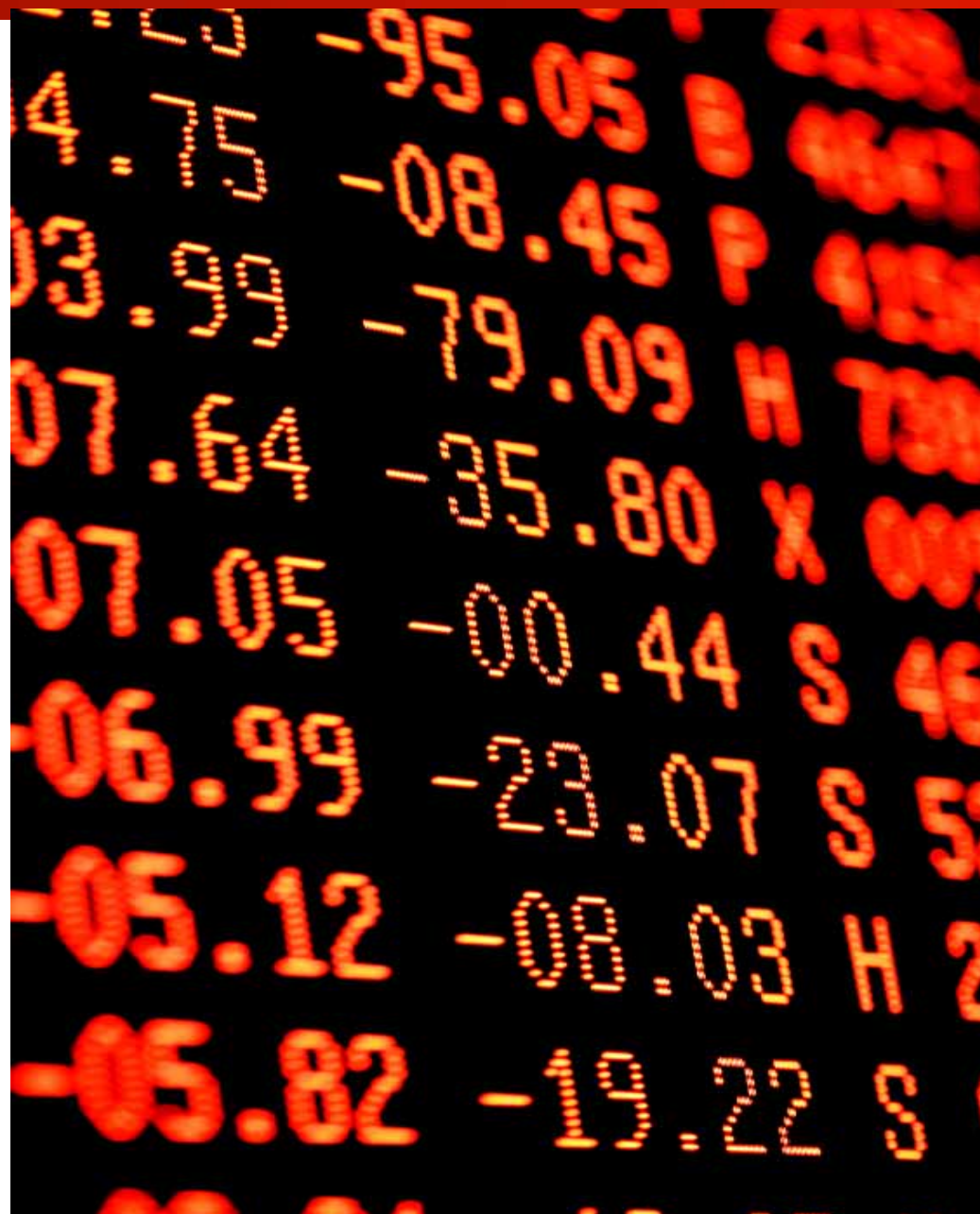
Point Carbon EUA OTC
assessment (EUR/t)

23 Feb 09

DEC 2009

€9.65 -0.28

Last 30 days



**4 474 CDM projects
(February 2009)**

**Only two transport-sector
projects to date**

- ☐ **Difficulties in
establishing baselines**
- ☐ **Additionality
requirements**



- ❑ Post-2012 framework
- ❑ Development of market-based trading mechanisms
- ❑ Meaningful involvement of development nations



Poznan, Poland

1. Air travel:

37 700 kg of CO₂

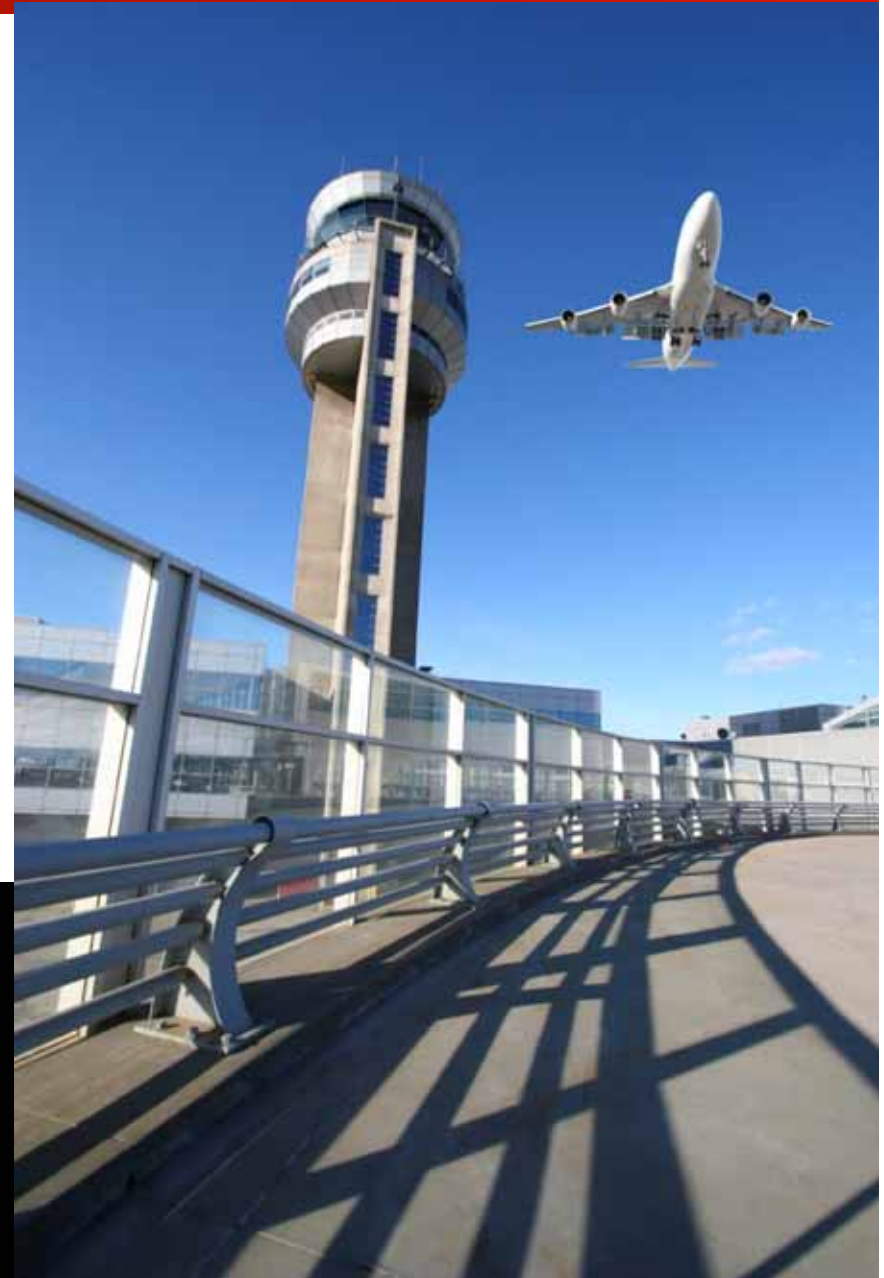
2. Ground travel:

1 034 kg of CO₂

4. Other (printing, lights, etc.):

890 kg of CO₂

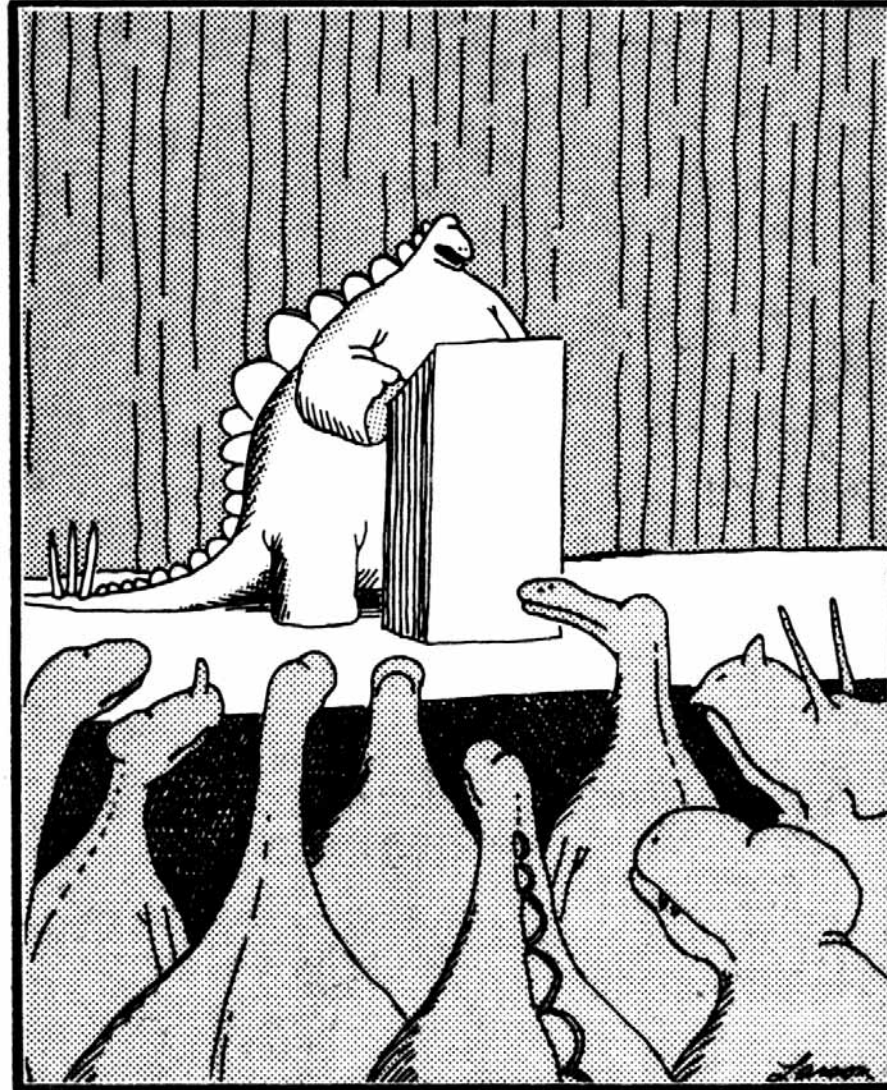
**Total:
39 624 kg of CO₂**





United Nations
Centre for Regional Development





"The picture's pretty bleak, gentlemen. ... The world's climates are changing, the mammals are taking over, and we all have a brain about the size of a walnut."



Thank You

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