

Global trends in Road safety Safety engineering /safety audit an inescapable necessity ?

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* Grateful acknowledgement to (World Bank , GRSP , ADB and others)
for use of some of the slides in this presentation

**What I am not going to
talk about**

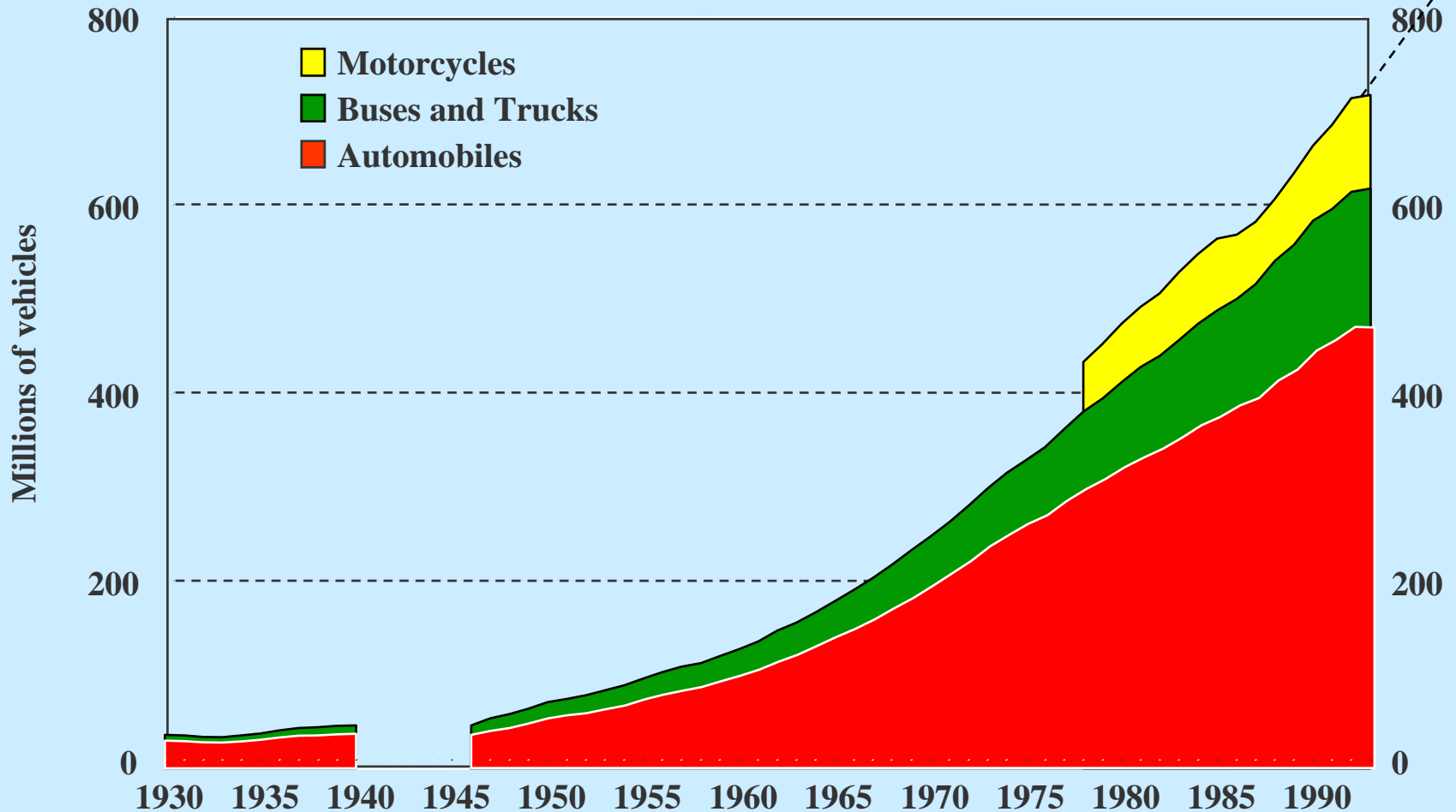
**SAFETY AUDIT PROCESSES
AND PROCEDURES**

What I will talk about

Recent Global trends and implications / Opportunities for Safety Engineers

- 1 Global trends over past decades in road safety ?**
- 2 Why should we worry ? –Particularly in India**
- 3 Recent International action ?**
- 4 Implications ,opportunities and role for safety professionals and safety engineering/safety audit ?**

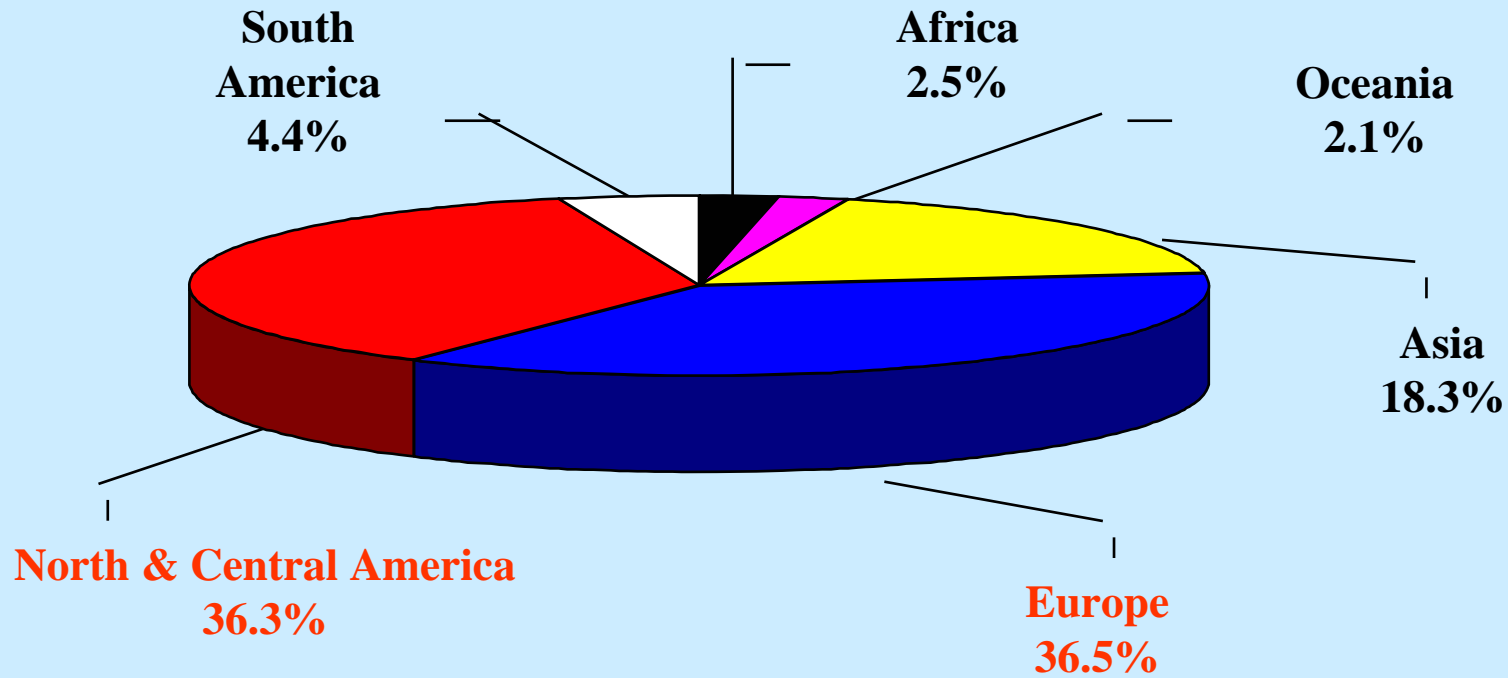
In 1950 There Were About **60 Million Motor Vehicles** World-wide.
By **1993** - - in Less than 45 Years - - the Number Had Grown Nearly Twelve
Fold to About **700 Million** (by **2007** there were over **1 billion vehicles**)



The Global Motor Vehicle Fleet by mid 1990s was concentrated in High Income countries (HICs)

Global Motor Vehicle Fleet (1993)

700 million

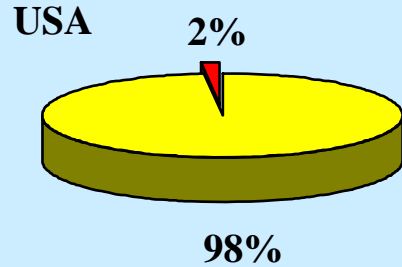


HICs had 73% of global vehicle fleet

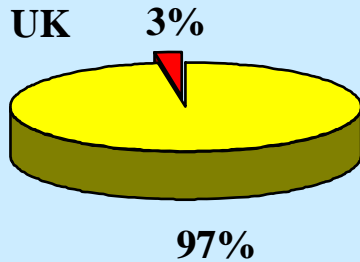
Traffic mix also varied markedly resulting in higher risk in LICs and more deaths and injuries

1995

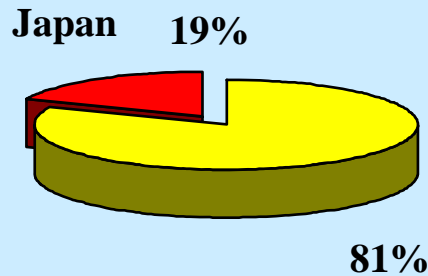
High Income



High Income



High Income

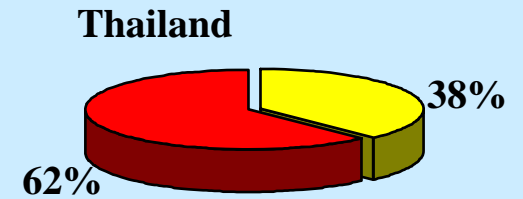


4+ Wheel Motor Vehicles

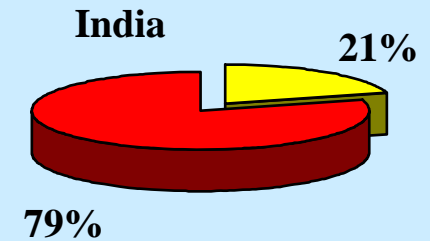
2 Wheel Motor Vehicles



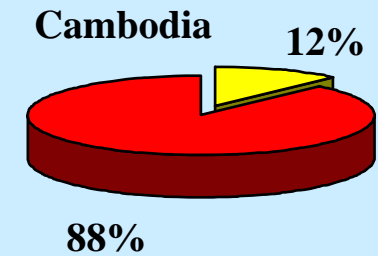
Middle Income



Low Income

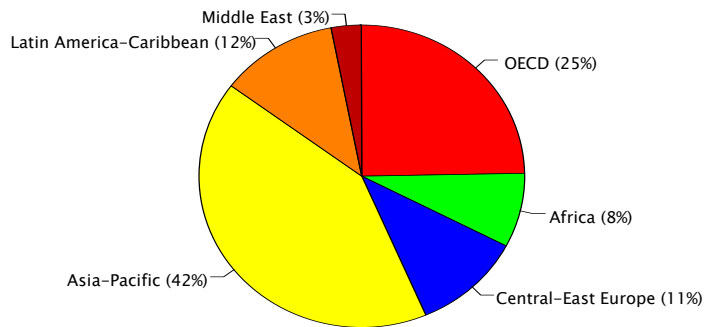


Low Income

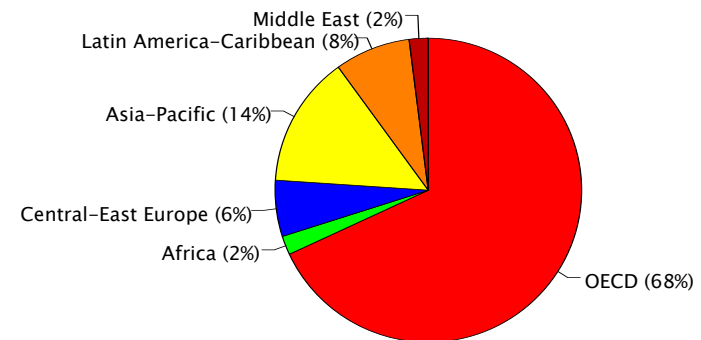


World Bank Safety Figures (based on *reported* annual statistics)

Deaths

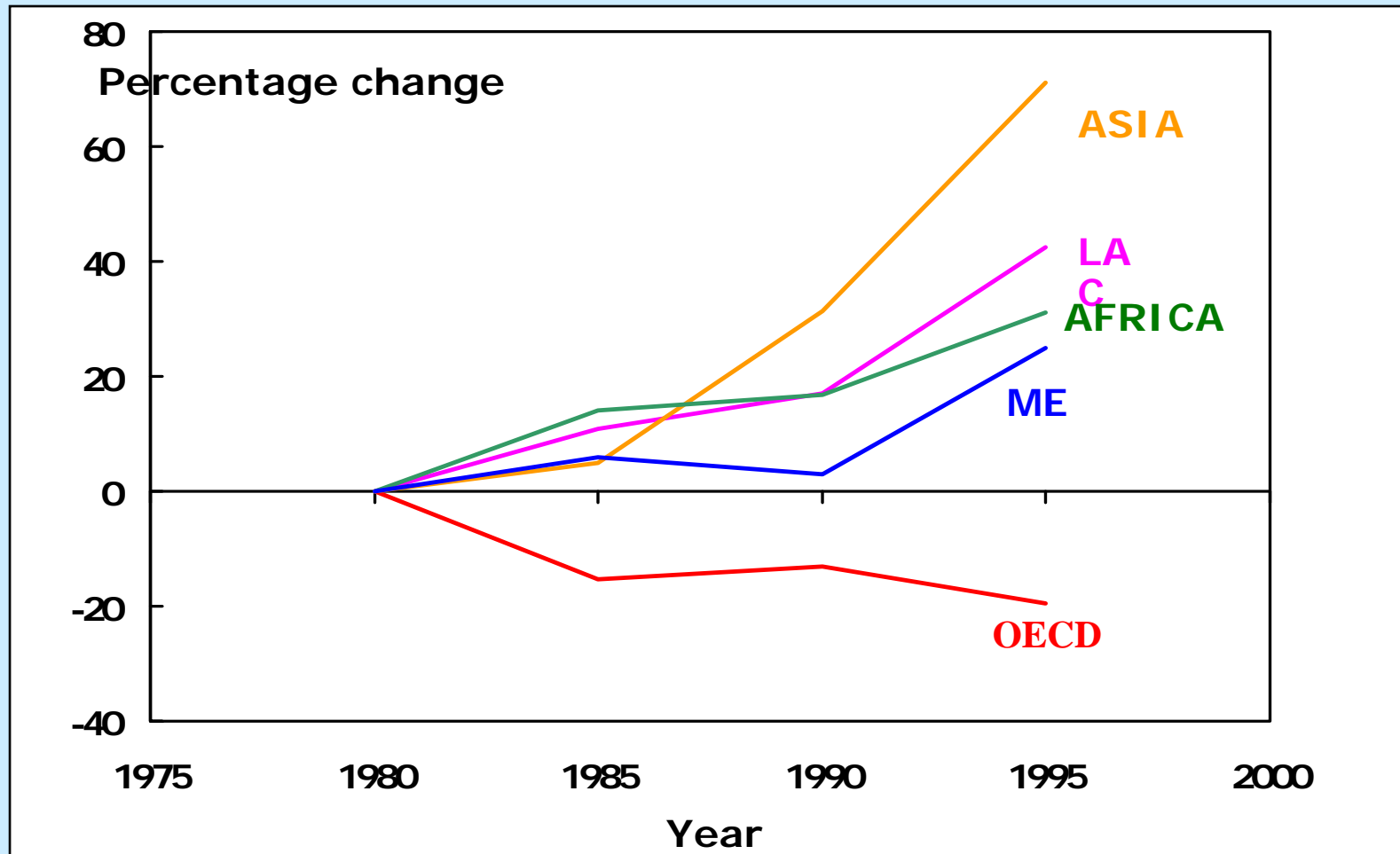


Motor Vehicles



***By late 1990s LICs had only 32% of Global vehicle fleet but contributed around 85% of global deaths .**

PERCENTAGE CHANGE IN FATALITIES 1980-1995



Problem by late 1990s

- * **Over 1 Million deaths and 50 million injured /year worldwide**
- * **Premature death -Males no 1 cause , Females no 5 worldwide**
- * **LICs had only 32% global vehicles but 85% of global deaths**
- * **LICs losing \$100 billions per year - more than total aid !**
- * **Risk of death or injury in Traffic much higher in LICs countries**

Why no outcry or action demanded ?

1 The Silent Epidemic

- One 747 crashes 400 killed **international media attention**
- 10 planes crash / wk 4000 dead **international outcry**
- 100 planes crash / mth 40,000 dead **panic**
- 1,000 planes crash / year 400,000 dead **boycott**
- 2500 planes worth (1,000,000) dead /year
from road accidents but no one seems to care **?**

- 3000 people (a twin towers tragedy) and
150,000 injured/crippled **each day** but no outcry

2 Wrongly seen as a “transport” problem

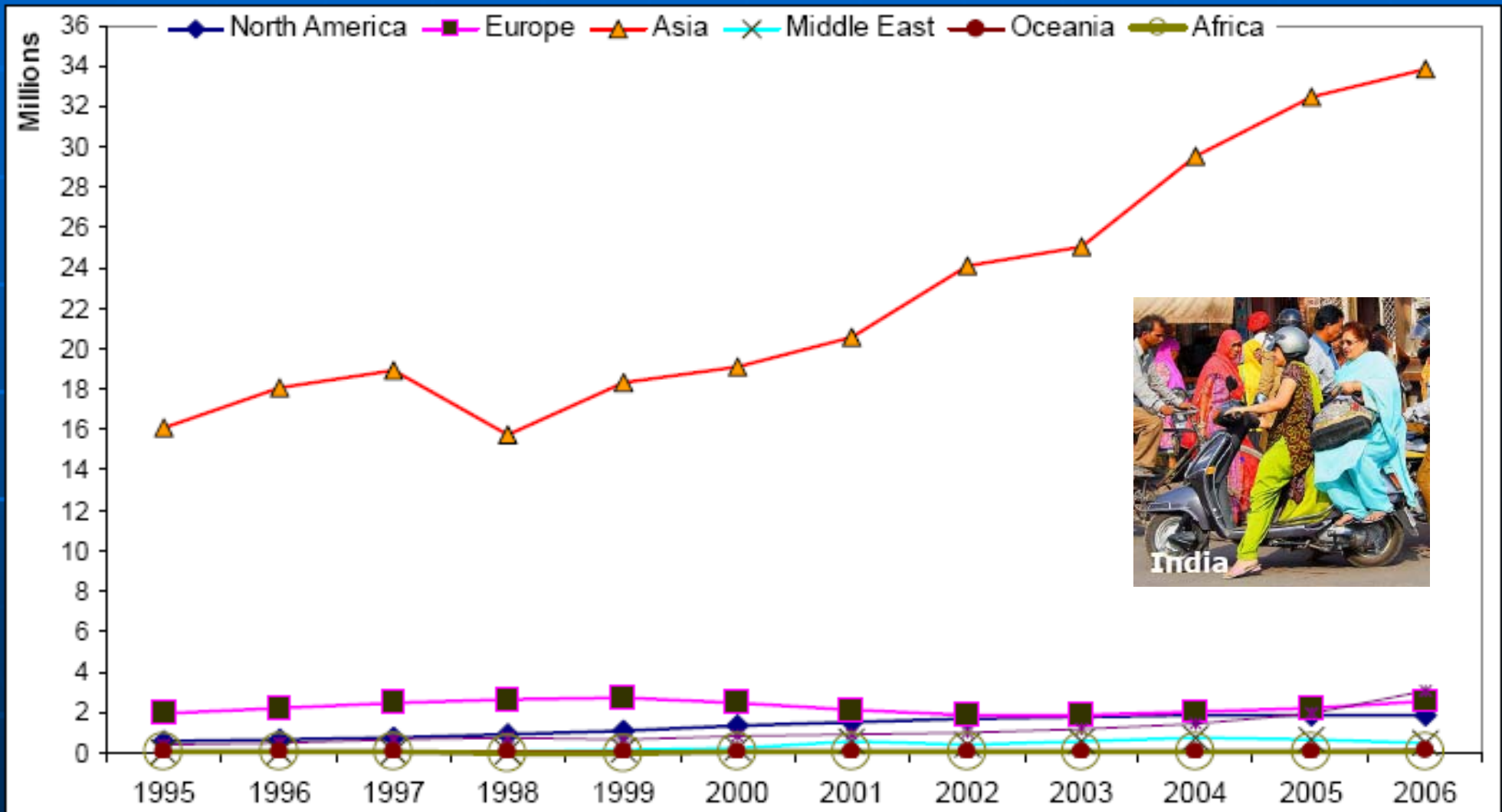
- ➡ Because it tends to manifest itself on road networks – especially when roads are improved /rehabilitated and speeds increase this was seen as a “transport” problem and largely ignored by the health community
- ➡ In reality it is a
- ➡ HEALTH PROBLEM
- ➡ ECONOMIC PROBLEM
- ➡ SOCIAL PROBLEM
- ➡ As well as a “transport” problem

Why should we worry ?

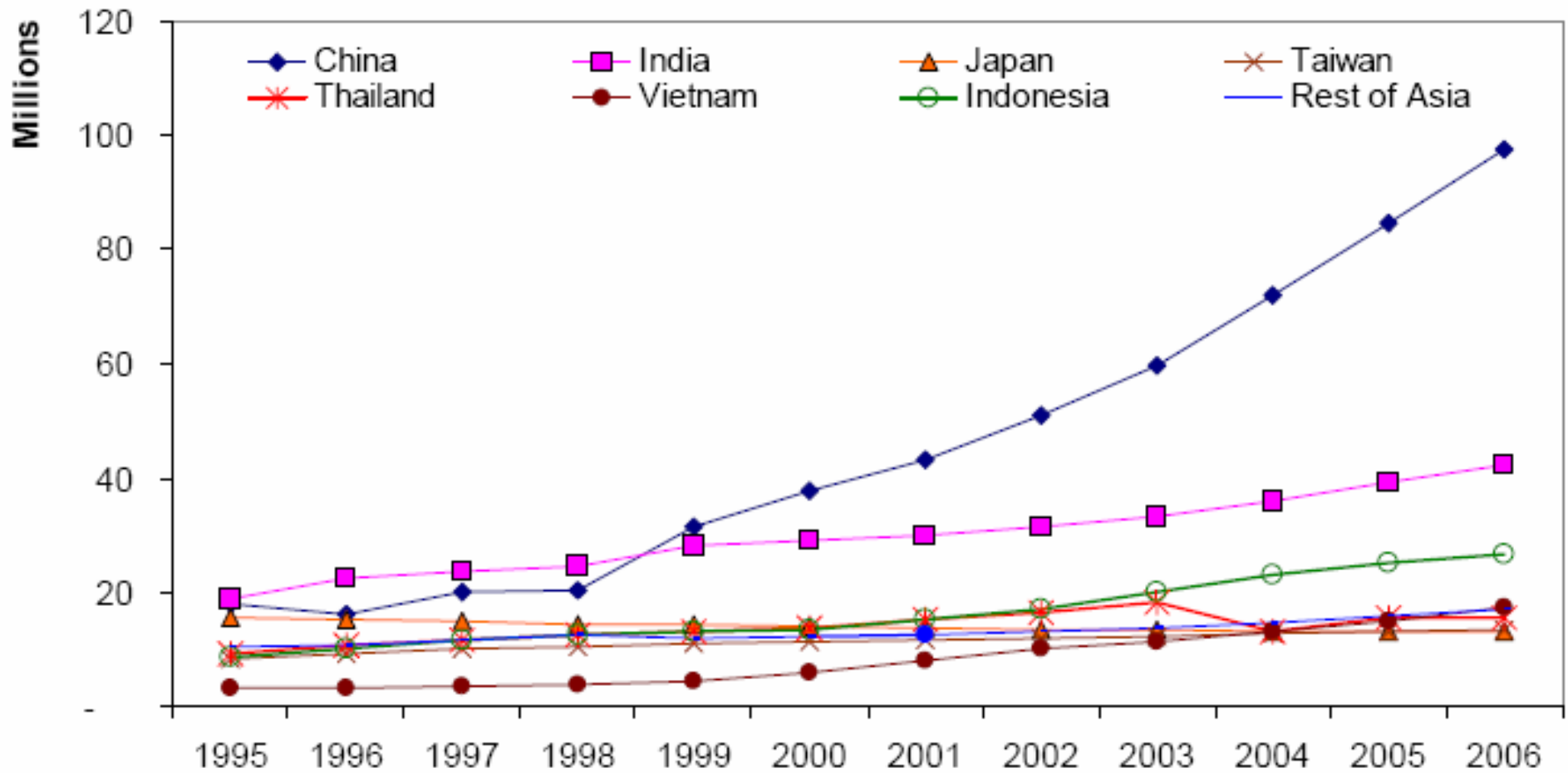
Future Prospects ?

- Demographic shift to Towns –Megacities
- Continuing rapid motorization –M/cycles
- Rapid growth in road casualties
- \$us Billions lost to LIC economies
- Huge investments in roads but opportunities not being taken to avoid future road safety problems

Sales: regional motorcycle trends



Fleet: motorcycle fleet in Asia



Source: Honda World Motorcycle Facts & Figures 2007 & SIAM Estimates

Road Safety Trends

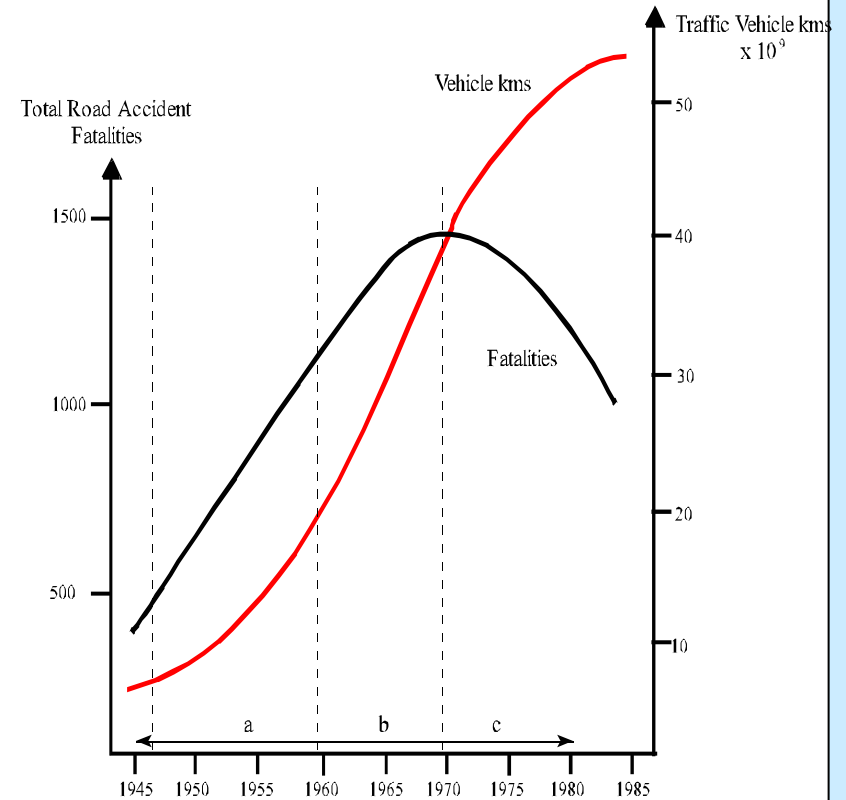
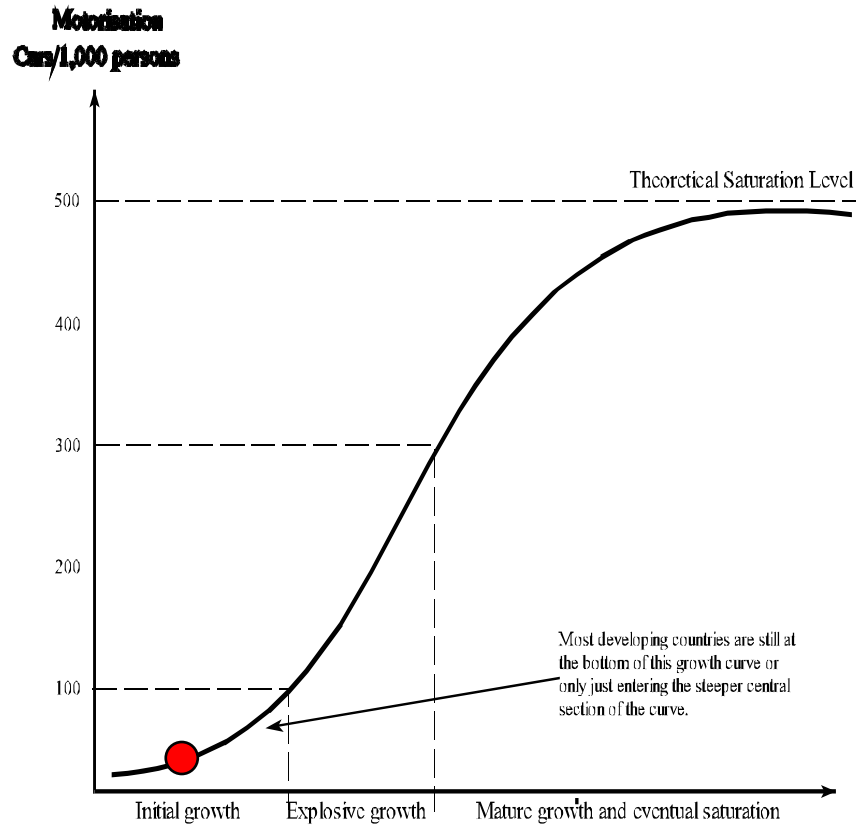
1. Road Accident Deaths Increased Substantially along with increasing motorization during 80s/90s

Malaysia	(83-93)	+30%
Thailand	(84-92)	+18%
India	(85-92)	+45%
Korea	(85-91)	+79%
Sri Lanka	(84-91)	+44%
Total Asia /Pacific	(81-93)	+ 95%

2. Vehicle Fleets still Growing Rapidly each year

India 17% Viet Nam 18% Malaysia 15%
People's Rep. of China 18% (doubling 5 yrs trebling 8 yrs)

Safety and Motorisation

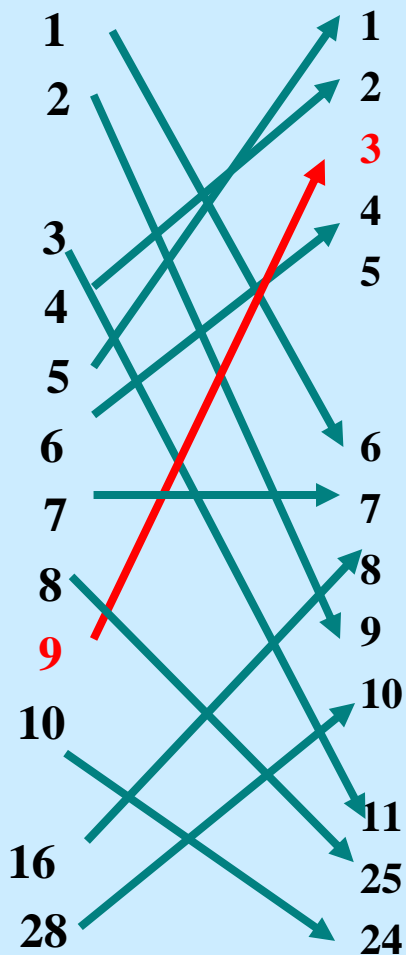


Global Burden of Disease

1990

2020

- 1 Lower respiratory infections
- 2 Diarrhoeal diseases
- 3 Conditions arising during the Perinatal period
- 4 Unipolar major depression
- 5 Ischaemic heart disease
- 6 Cerebrovascular disease
- 7 Tuberculosis
- 8 Measles
- 9 Road traffic accidents
- 10 Congenital anomalies



- 1 Ischaemic heart disease
- 2 Unipolar major depression
- 3 Road traffic accidents
- 4 Cerebrovascular disease
- 5 Chronic obstructive pulmonary disease
- 6 Lower respiratory infections
- 7 Tuberculosis
- 8 War
- 9 Diarrhoeal diseases
- 10 HIV

25% of health budgets will be spent on road casualties by 2020

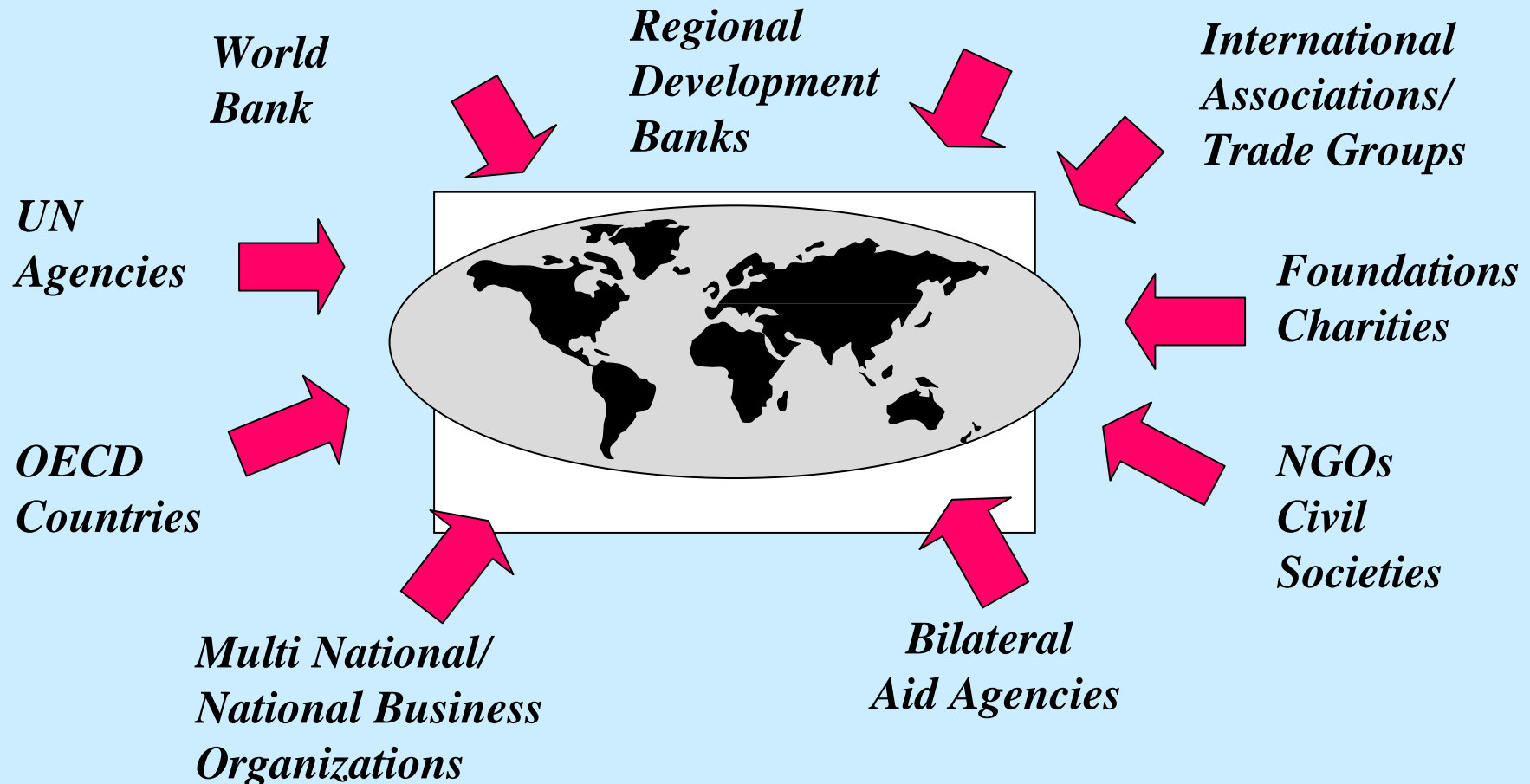
Future Prospects (1)

- ❑ **85% of deaths already occurring in developing world and this proportion will increase in future**
- ❑ **LICs lose as much in road accidents as they get in development aid each year**
- ❑ **Road crashes already the leading cause of death for 5-44 year olds globally and contribute more disabilities than all other accidents or injuries**
- ❑ **Motorised vehicle fleets increasing 16-18% annually in many developing countries (doubling in 5 years, trebling in 8 years) yet most LICs only just approaching rapid phase of motorisation S curve**

The Prospects (2)

- **Fatality rates 10-30 times higher in LICs than in developed countries**
- **Over 12 million will die and over 500 million will be crippled / injured worldwide during the next 10 years**
- **By year 2020: Road accident casualties will be 3rd most important health problem globally and 25% of health budgets will be spent on this**

A Global Response ?



International Action (1) ?

1996 Harvard study for WHO/World bank - Global Burden of Disease

1998 International Red Cross Disaster report - Rang Warning bell

1999 Global Road Safety Partnership (GRSP) established at Red Cross
to make try to make it a “health” issue

2001 WHO adopted a 5 year strategy on traffic injury Prevention

2002 Commission for Global Road Safety (with members drawn from
G8 countries) established by FIA Foundation and FIA pushing
for un debate

International Action (2) ?

2004 First WHO World Health Day on traffic accidents

2004 WHO /World bank World report on road traffic injury prevention

2004 UN Assembly first ever plenary debate on road safety gave WHO responsibility and mobilised UN Regional Commissions and agencies

BREAKTHROUGH !! Accepted as an urgent Global health issue and WHO mandated to coordinate response

UN Safety Collaboration established (WHO , FIA , World Bank GRSP + others) to develop good practice guides

Global Road Safety Initiative (7 private sector companies) \$10 millions over 5 years
-GRSP -ASEAN , China

International Action (3) ?

UN Regional Commissions active

Road traffic injuries research network collaborating - 150 individuals/institutions in 30 countries -good practice guides

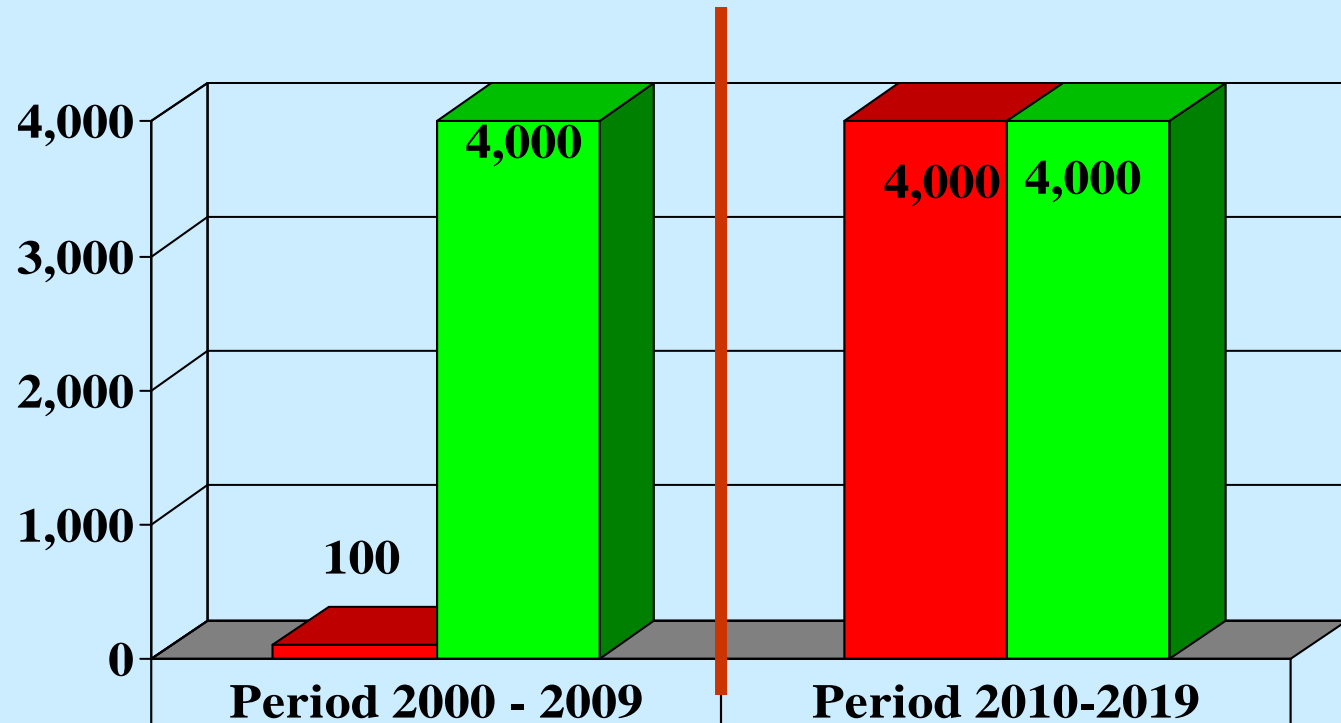
Global Road Safety Facility started at World Bank -\$10 millions (FIA , WB, Netherlands) to initiate safety activity



Make Roads Safe recommendations 10% of infrastructure spend (\$400million /yr) e + 10 year Global Action plan (\$300 millions) in Decade of Action target -50%,deaths

First Ministerial meeting in Moscow (Nov 09)will bring 100 + ministers together to discuss the global safety problem and a UN Decade of Safety

ISO quality assurance standard on traffic safety management being developed

Potential Global Expenditure (US\$ Millions) 2000-2019



 Road Accidents	100	4,000
 HIV/Aids	4,000	4,000

 Road Accidents  HIV/Aids

Implications of Current Trends (1)

- 1 **Vision Zero type approaches are adopted by more and more HICs .This will later migrate to LICs so prepare now**
- 2 **Effective Remedies /solutions are known and can be adapted/transferred for the LICs Numerous opportunities exist for transfer of techniques and knowledge by local safety specialists over next 10 -20 years**
- 3 **Huge shortfall in expertise in road safety in LICs so there will be huge demand for experienced safety professionals and urgent need for more training of many new safety professionals . Global road safety Studies being developed**
- 4 **ISO Quality assurance standard in Safety Management will mean virtually ALL businesses (especially bus , taxi , haulage , tourism and other companies will need to be “quality assured” in safety to remain competitive – Increases demand for more safety professionals world wide**

Implications (2)

- 5 **“Safety culture” approach will increasingly be applied to supply chains . Increases need for safety specialists and offers competitive advantage to safety assured companies**
- 6 **Increasing H+S requirements and potential liabilities will increase demand for safety professionals and assessors .**
- 7 **Safety now recognized as a “health” problem significantly increases funding and has mobilized international community to action**
- 8 **World Bank , ADB etc harmonizing approaches to infrastructure projects and this will almost certainly mean increased requirement for safety audits /safety engineering**
- 9 **The future is very bright for those interested in road safety and its improvement worldwide –massive commercial opportunities exist for those in position to recognize the coming opportunities and capitalize on such demand**
- 10 **There will be significantly increased opportunities for a very personally satisfying and potentially lucrative careers in road safety over the coming decades**
- 11 **India offers particular challenges and opportunities and if opportunity is not taken will face very severe safety problems in future**

A couple of slides on safety engineering
+ Safety Audit for those suffering
“withdrawal pains”

1. Safety Audit Guidance /Toolkits
2. Engineers responsibility to provide
Forgiving road networks
3. Appropriate standards not
necessarily highest standards

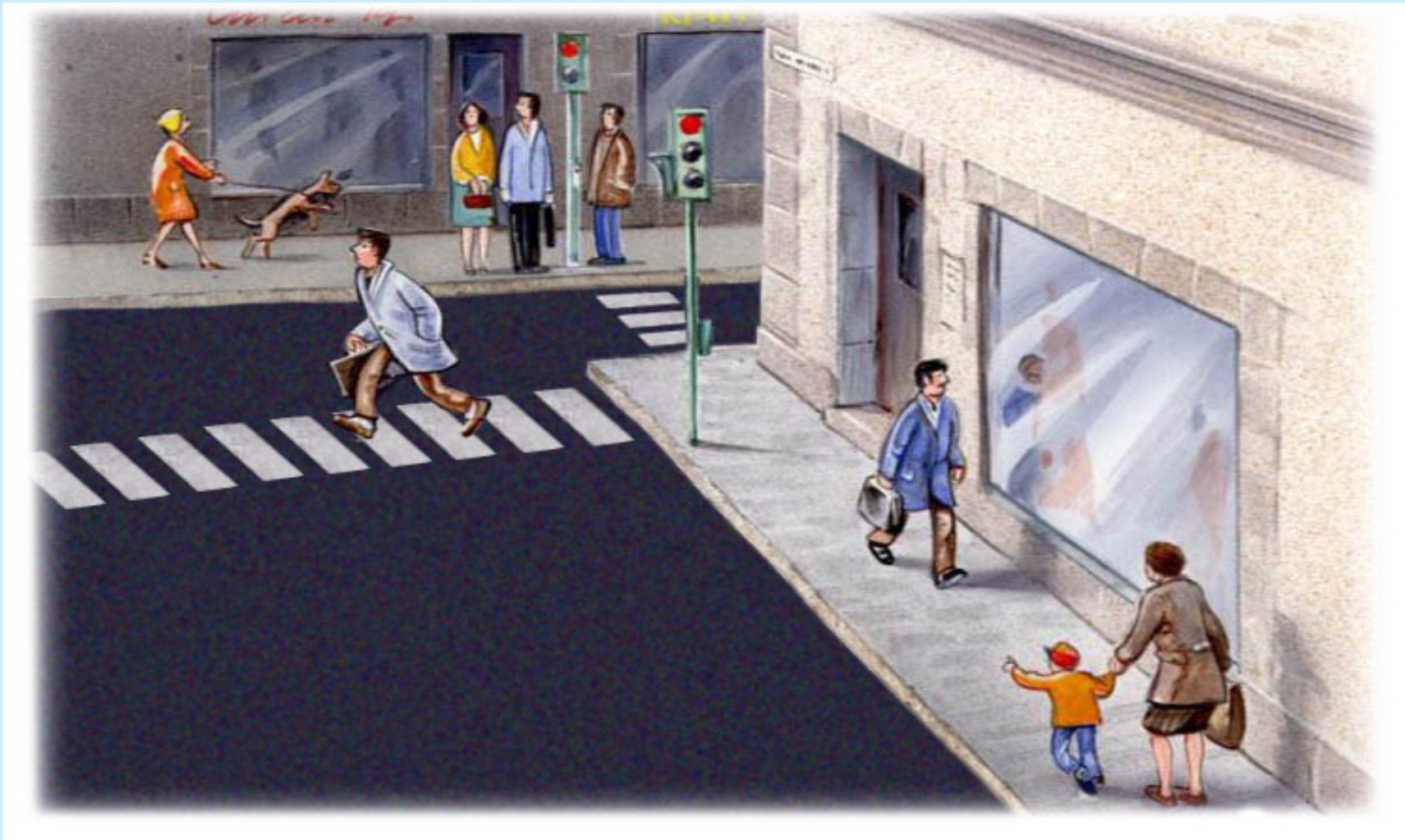
Safety Audit Reference

Downloadable from ADB Website

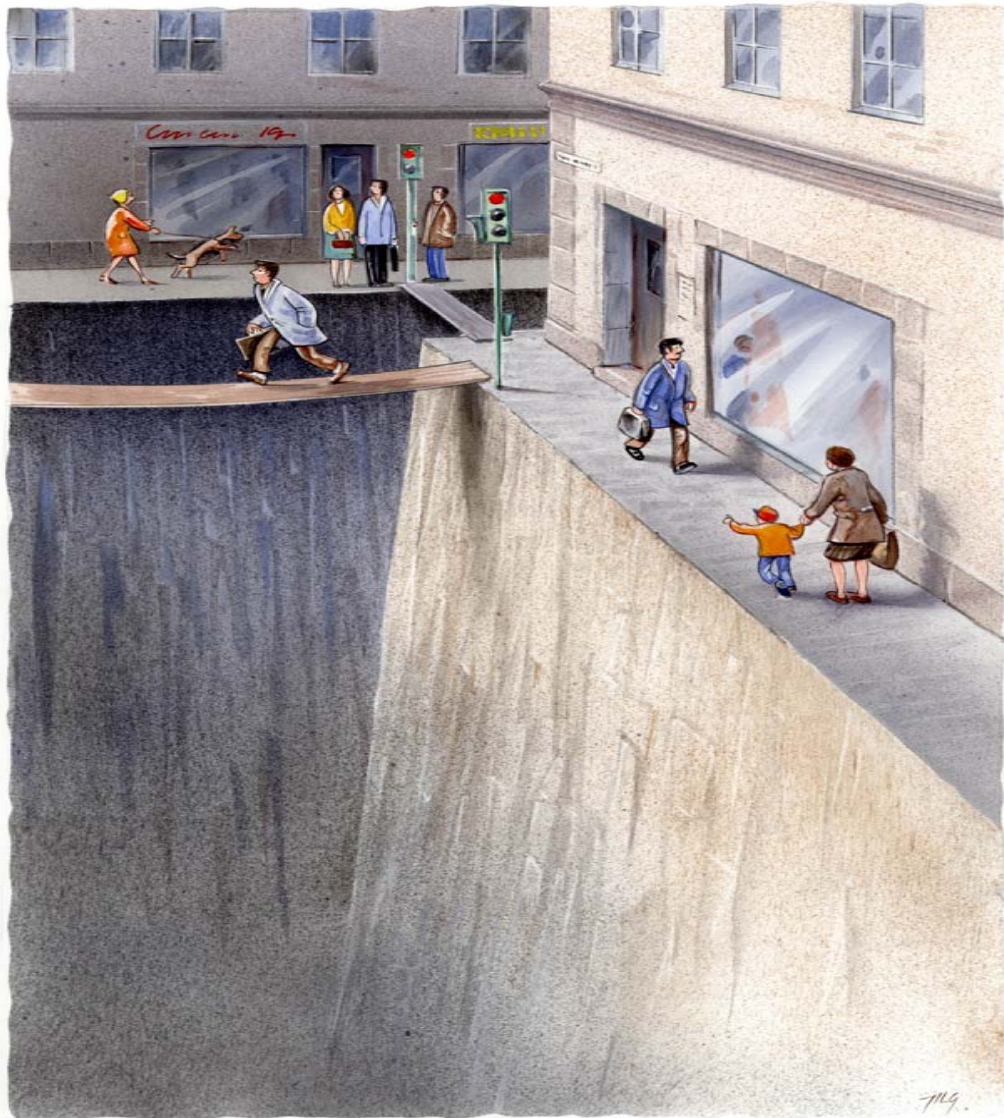
Road safety audit for road projects –an operational toolkit , ADB , June 2003

(Likely that more development banks will introduce similar simple guidance for their internal staff and their borrowing countries as they harmonize safety aspects of their Infrastructure operations **Consultants should at least be aware of this**)

Is this really as safe as we can make it ?



Perhaps not if we take a more self critical view ?



Would we take more care to protect users if this were the case?

Swedish approach is that designers must provide a safe environment so that even if a mistake is made, the road user is still protected.

Many countries adopting such approaches now and this will require more safety conscious design

Safety requires “appropriate” standards not necessarily the “highest ” standards

1. Why is safety audit still required when we have high quality engineers applying high design standards?
2. Surely if we use highest design standards safety is automatically guaranteed?
3. What can safety engineers doing safety audits add when we have experienced highway engineers doing design?

Thank You !

☞ For further information or continuing dialogue

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