

*The multiple dimensions of
promoting human powered mobility
Health, Safety and a Healthy
Environment .*

*Why Networks such as those here in
Velo Mondial are key to global policy
change*

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World Health Organization

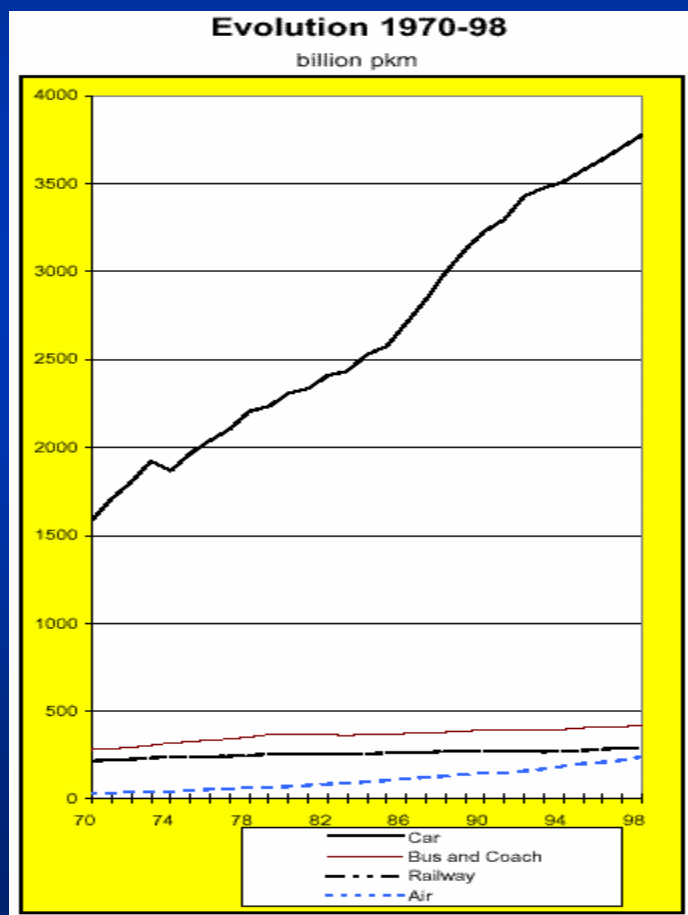
Geneva

Air Pollution leads to heart and lung disease and premature deaths



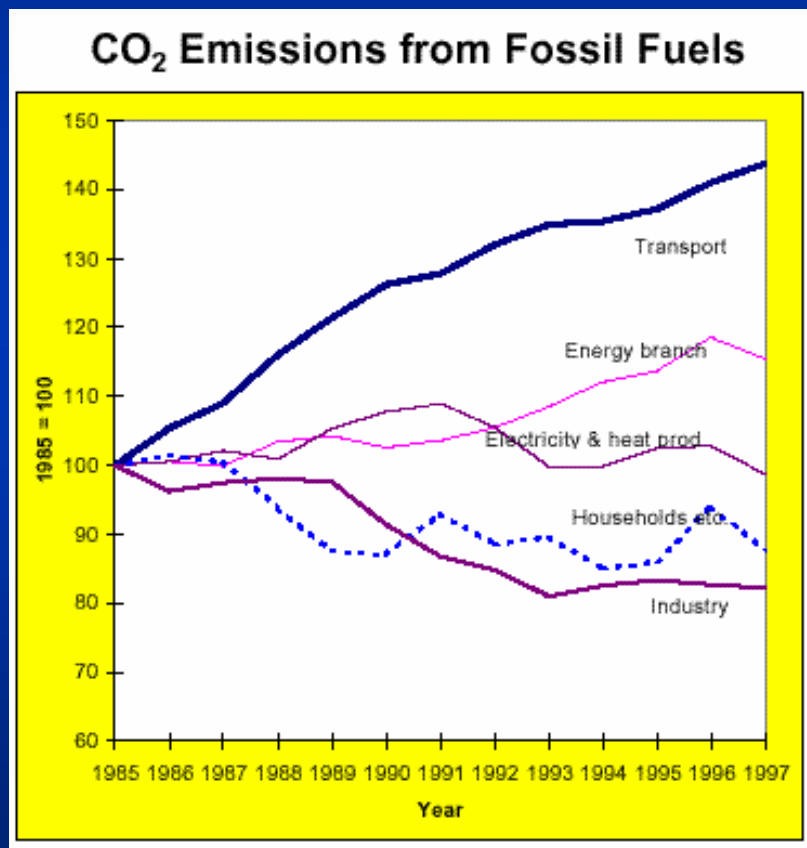
- ◆ And to increases in hospital admissions, and asthma attacks
- ◆ To loss of millions of working days
- ◆ Children living near busy roads with heavy/diesel vehicle traffic have higher risks of respiratory problems.
- ◆ No safe level of AP (Particulates)
- ◆ Every 10 $\mu\text{g}/\text{m}^3$ decrease in $\text{PM}_{2.5}$ leads to 3,4% decrease in mortality
- ◆ Health impacts are greater in lower socioeconomic groups (cumulative exposures)

Continuing Traffic Growth Has Cancelled Out Pollution Savings from Cleaner and More Efficient Vehicles



- ◆ Cars are becoming heavier and more powerful.
- ◆ Trips are becoming increasingly long.
- ◆ Total kilometers traveled by road continues to grow

Climate Change: Transport Is the Fastest Growing Source of CO₂ Emissions



- ◆ Transport accounts for about 30 % of total final energy consumption.
- ◆ Emissions increased by 30% between 1985 and 1996.
- ◆ Road transport accounts for 85% of all transport CO₂ emissions.
- ◆ Health impacts expected from extreme weather events – heat waves, floods, drought and changes in vectors bearing disease

Exposure to AP is no worse to cyclists than to vehicle users

- ◆ In urban areas much AP comes from transport (30 to 70%)
 - ◆ Concentration is higher in street canyons/ around major urban roads (up to 250 meters)
 - ◆ Levels inside vehicles – underground trains, cars and to lesser extent busses, are higher than in surrounding air used by cyclists
 - ◆ Journey time contributes a lot to total exposure to AP
 - ◆ Reductions in air pollution were quickly followed by reductions in mortality (e.g. Hong Kong, Dublin) – specific effect on cyclists?
-
- ◆ Cycle lanes built where ever possible, preferably in small roads



Noise Interferes With Memory, Attention and Ability to Deal With Analytical Problems

Children chronically exposed to loud noise show:

- ◆ impaired acquisition of reading skills,
- ◆ attention and problem-solving ability.
- ◆ Emerging and consistent evidence for impact on hypertension and cardiovascular disease
- ◆ Road traffic is the major source of exposure to noise.

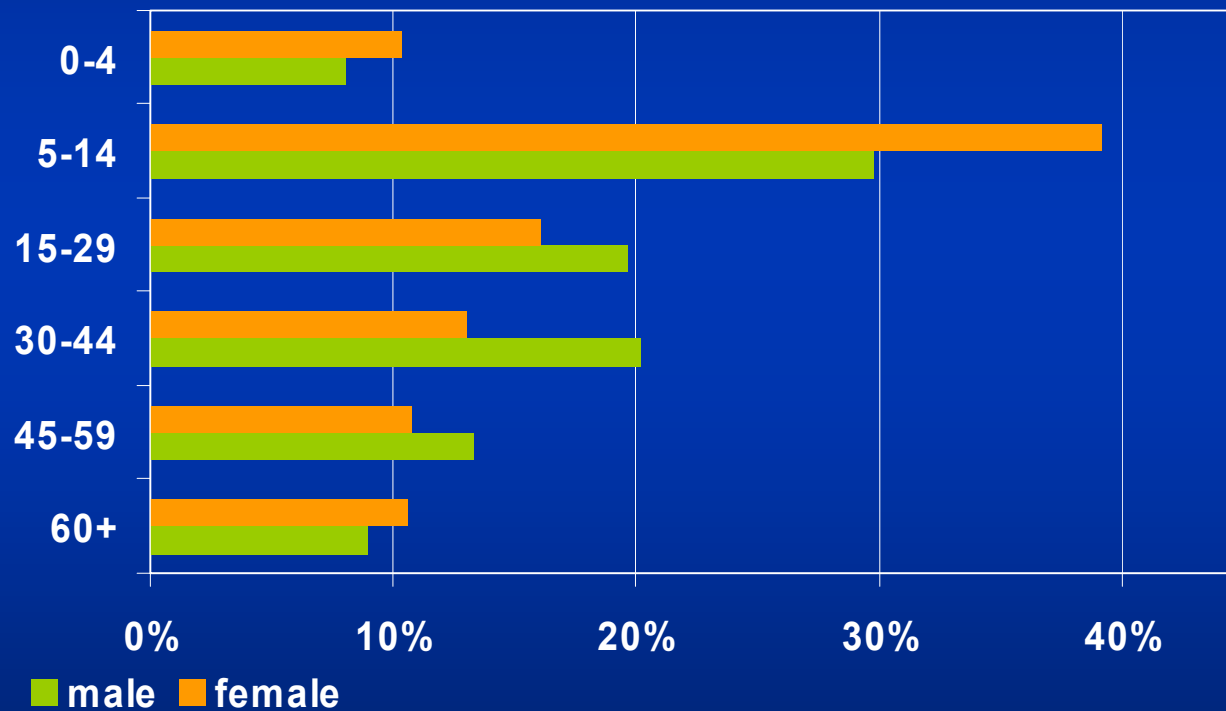


Traffic injuries

- ✓ Deaths: 1,2 million/year
- ✓ Injuries massively underestimated: more than 40 million/year ?
- ✓ A leading cause of death for children aged 5-14 and young people aged 15-29.
- ✓ Vast majority accidents happens in the urban environment
- ✓ Pedestrians and cyclists account for a great proportion of total deaths.
- ✓ Major Costs : 2.0 % GDP

Proportion of RTA deaths by age group in Africa

Share by age groups



Source: Peden et al (2004)

Physical Inactivity: a Global Public Health Threat

There is a major global increase in NCDs (heart disease, diabetes and cancer), including in developing countries leading to premature disability and death.

The high costs of prolonged treatment raise insurance premiums, affect productivity and pose a burden to families and society.

Physical inactivity is one of the main risk factors to NCDs, leading globally to:

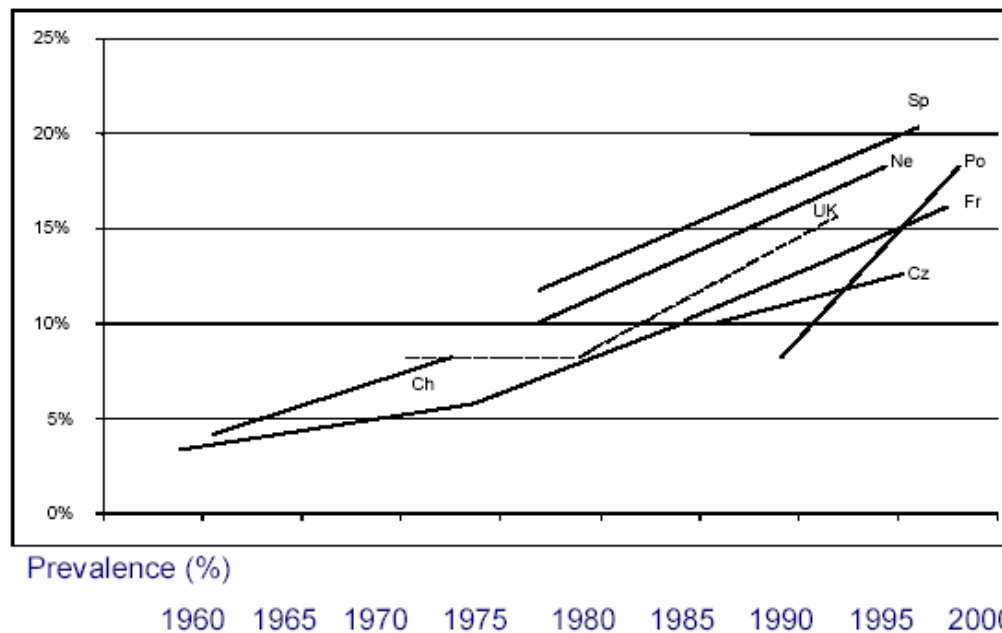
- 1.9 million deaths
- 19 million Disability Adjusted Life Years (DALYs)
DALYs are an indicator combining years of life lost due to premature mortality and years of life lived with disability
- 10-16% of cases of breast cancer, colon and rectal cancers, and diabetes mellitus
- 22% of ischaemic heart disease

Levels of physical activity are estimated to be decreasing world wide.

There is a parallel global increase in obesity, including among children.

(Source: International Obesity Task Force, 2002)

Rising trends in overweight children



Ch – Switzerland
Ne - Netherlands
Sp – Spain
Po – Poland
Fr – France
Cz – Czech Rep
UK – United Kingdom

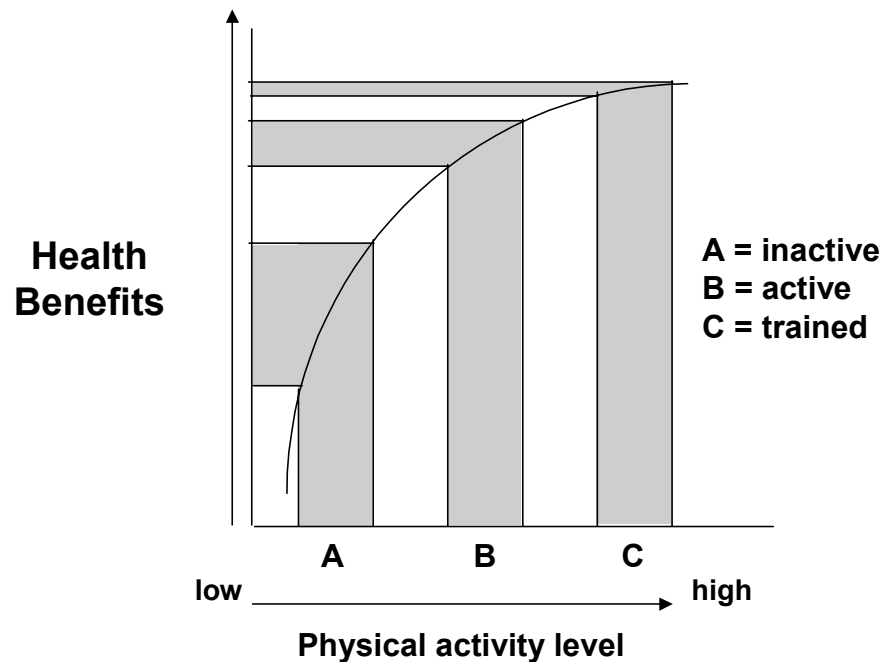
Source: IOTF (definitions may vary between countries)

30 minutes a day of Physical Activity is enough to reduce:



- ◆ By 50 % the risk of developing coronary heart disease,
- ◆ By 50% the risk of developing non-insulin-dependent diabetes and obesity.
- ◆ By 30 % the risk of developing hypertension.
- ◆ The risk of colon /breast cancer (e.g. Shanghai 50% reduction in colon cancer).
- ◆ Helping to maintain bone mass and protecting against osteoporosis.

Greater health benefits among least active



60% of world population does very little physical activity

Dose-response physical activity and health, in B Martin et al, 2004

Urban sprawl & obstacles for cycling and walking associated to obesity and low physical activity.

(Ewing et al. 2003)



Decades of uncontrolled suburban sprawl conceived around the motor car have left them unable to walk even if they wish to.

Many other direct benefits to health from cycling

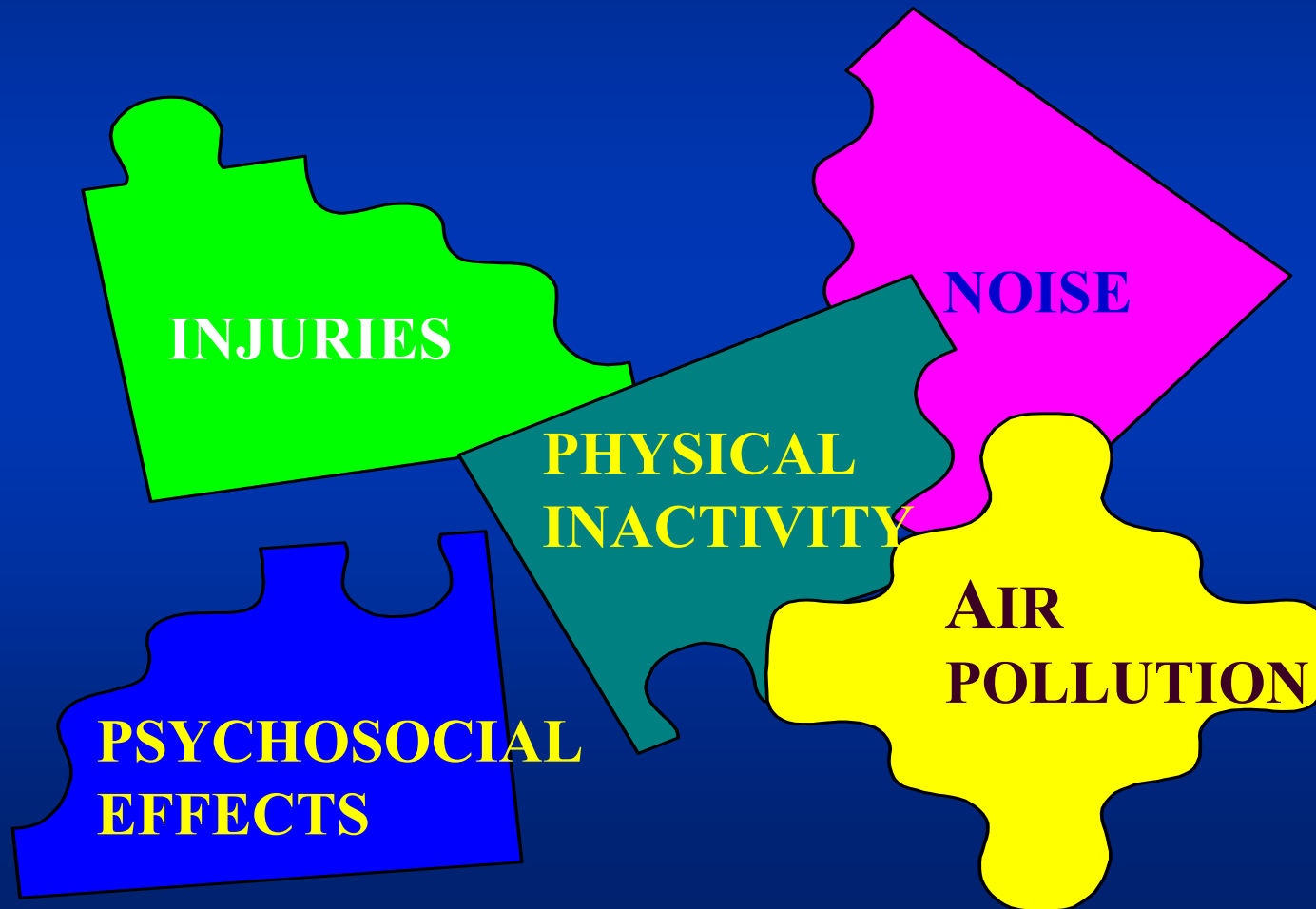
Access to education, health services and to markets to the poor

E.g. Bicycle ambulances



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Disconnect: the health impacts of transport policies are addressed separately, and cycling is invisible!



There is a need for integrated policies that address all health impacts, environment and development:



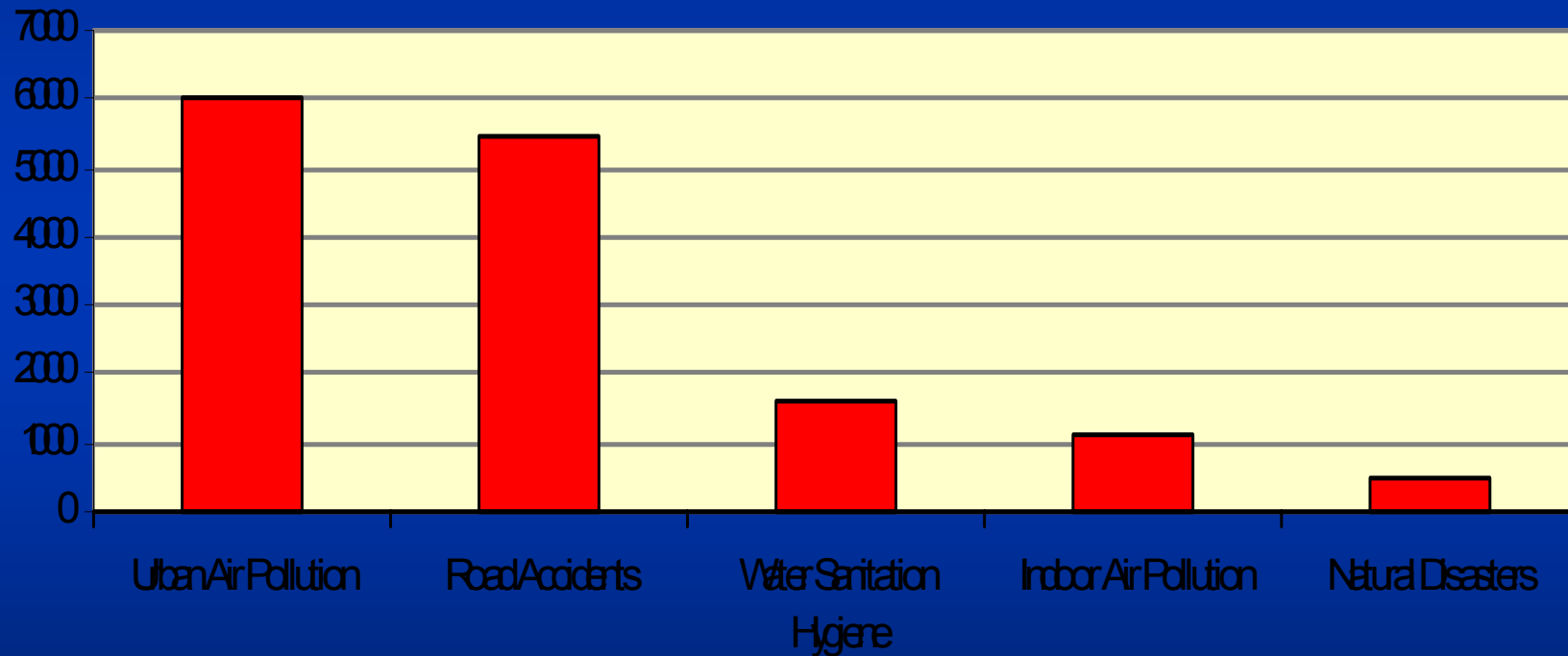
◆ Transport Demand Management via:

- Economic measures
- Changes in individual travel behaviours
- Compact land use to reduce need to travel

◆ Maintain high walking and cycling

◆ Support public transport

Transport accounts for largest share of environment related deaths in Colombia



Total number of deaths

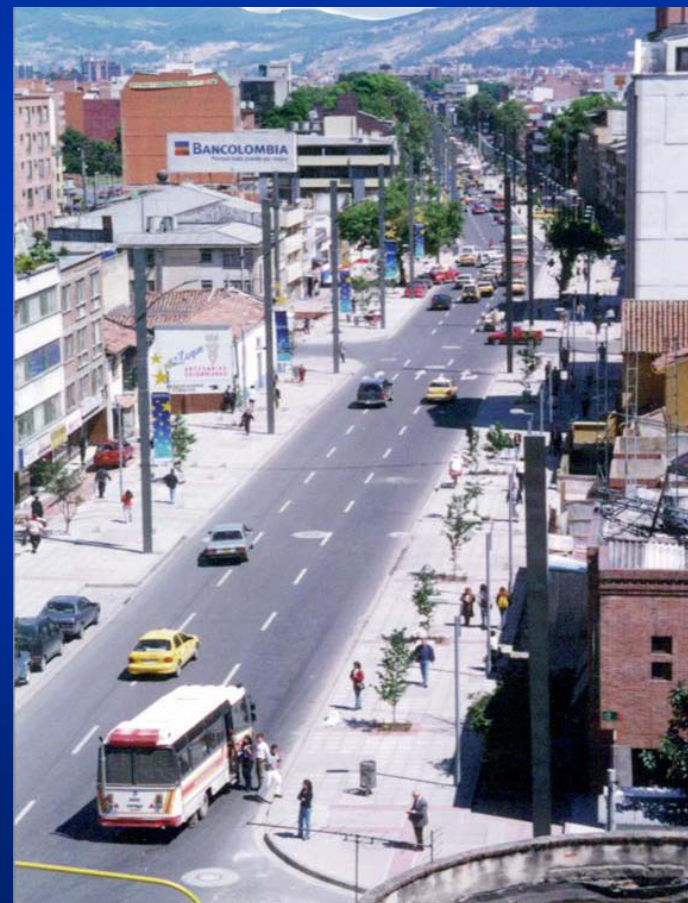
Larsen et al. 2004

Disconnect: the same country has good practice in cycling but that does not reach the statistics

before...



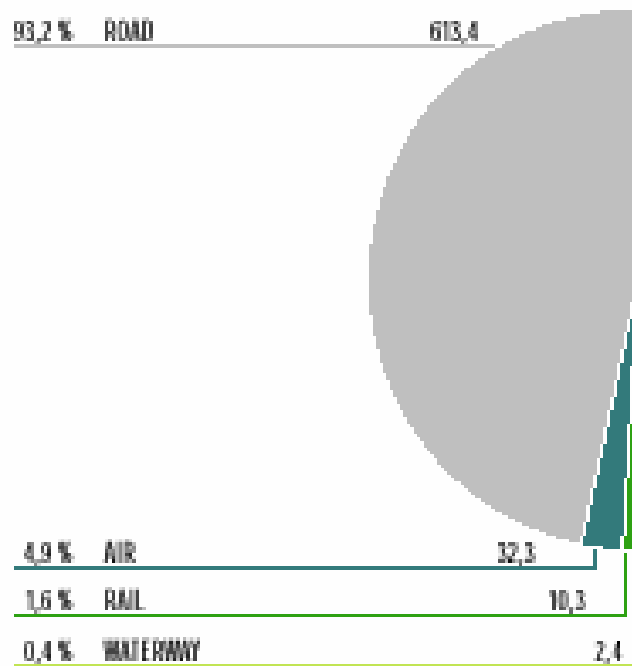
... after



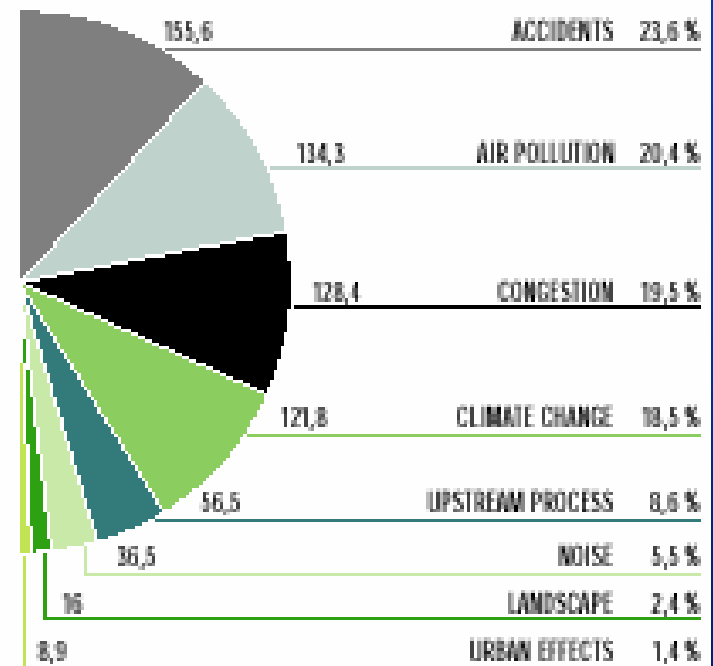
Benefits from PA and Cycling as a mode of transport are largely excluded from economic analyses

External Costs of Transport in Western Europe:
Euro 658 billion (1995) (INFRAS/IWW, 2000)

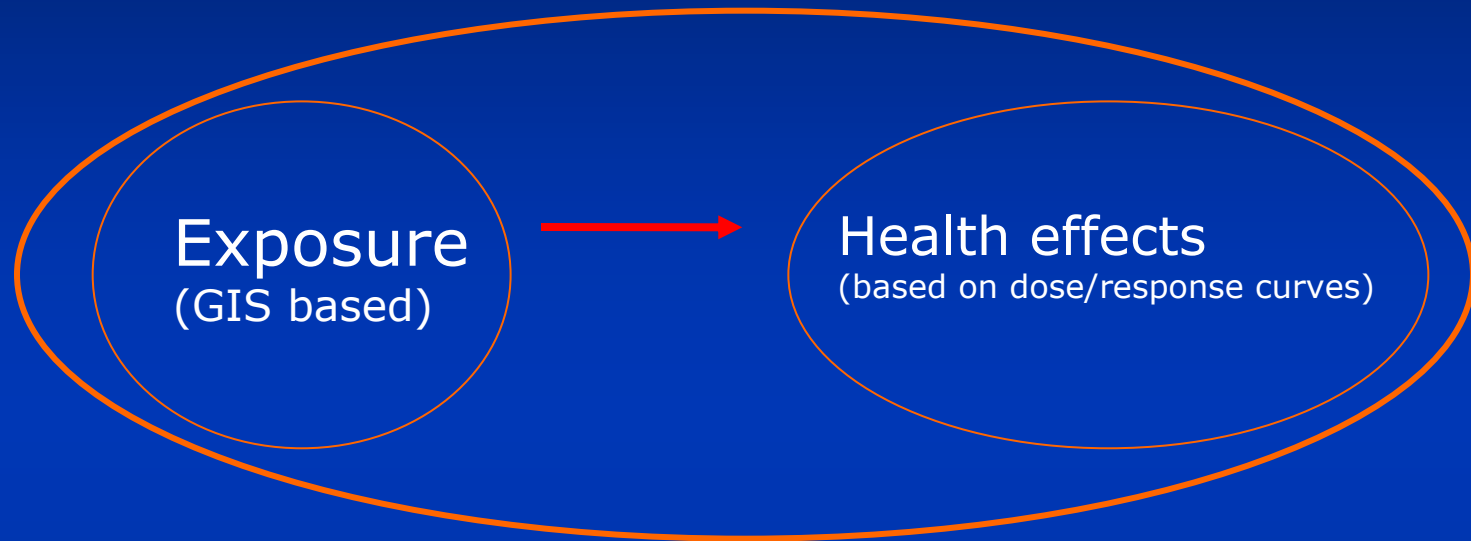
by transport mode



by category of cost



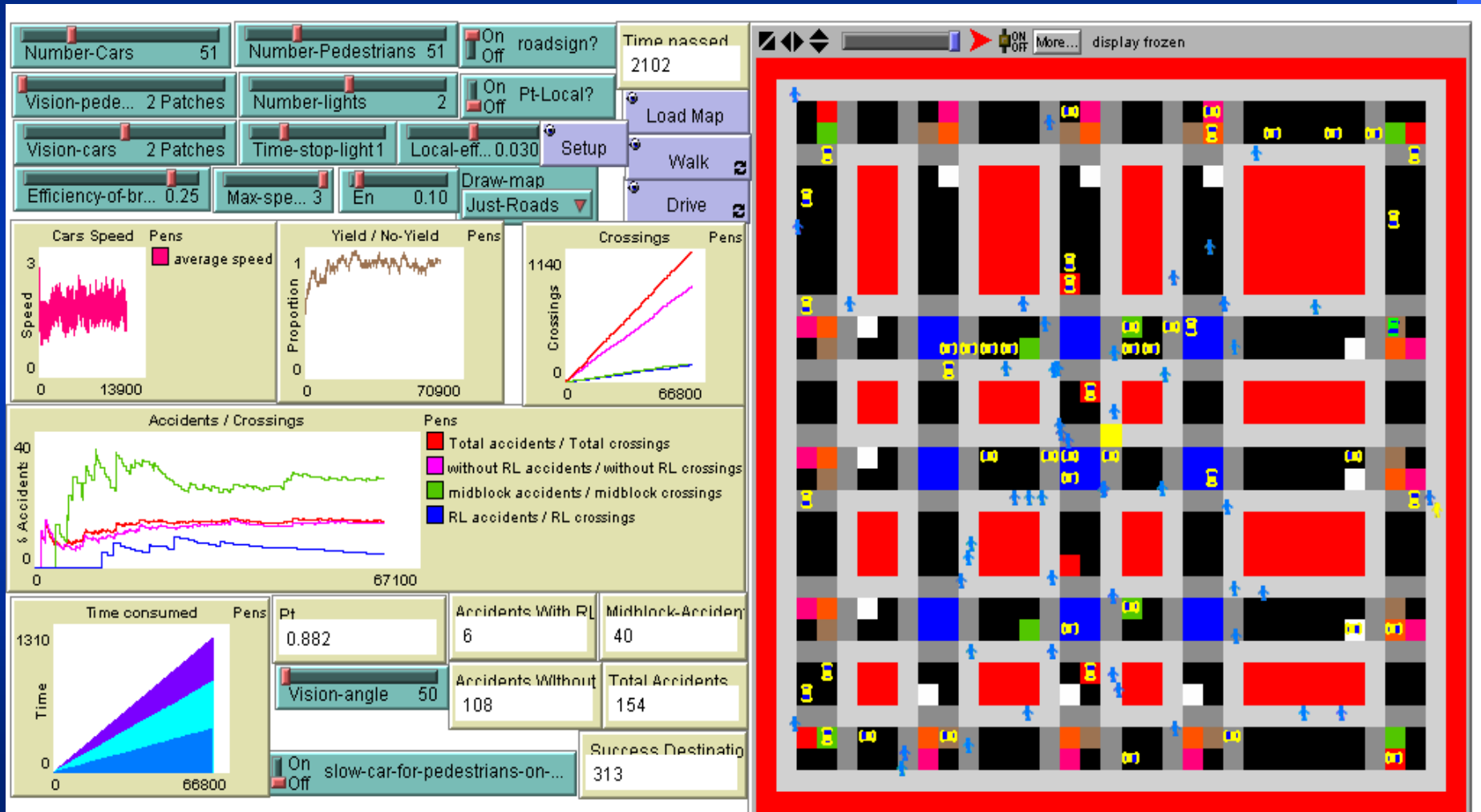
WHO HEARTS model: Exposure to health risks from transport and health impacts from AP, injuries and noise, but no PA



The tools developed consist of two modules (TEX & HIT) to provide two sets of health-related indicators:

- **exposure measurements:** TEX operates within ArcGIS and for population groups defined by the users according to different features. TEX calculates the exposure of predefined groups along the scenario duration (from 1 hour to 1 year) of considered case study.
- **health effects:** HIT calculates attributable mortality or morbidity, relative risk, disease-adjusted life-years, for different age / social groups related to air pollution; output for noise and crashes are also available.

SAMU : agent-based modelling of pedestrians/cars interactions and resulting accidents



Cost-benefit analysis shows walking and cycling infrastructure is sound investment

Benefit- and cost components	Hokksund	Hamar	Trondheim
Benefits of walking- and cycle tracks (present value)			
Accidents (assumed no change)	0	0	0
Travel time (assumed no change)	0	0	0
Reduced insecurity for today's pedestrians	4 191 324	2 711 764	107 638 228
Reduced insecurity for today's cyclists	9 464 281	6 123 338	398 225 323
Reduced insecurity for new future pedestrians	542 116	350 746	13 662 470
Reduced insecurity for new future cyclists	3 529 085	2 283 299	100 694 117
Reduced costs for school children transport	2 572 427	1 104 824	3 611 291
Reduced costs related to less severe diseases and short time absence	16 730 962	35 374 034	269 247 101
Reduced costs related to severe diseases	97 708 819	206 584 360	1 572 403 071
Reduced external costs of motorised road transport	9 445 569	19 970 631	124 449 172
Reduced parking costs for employers	9 484 654	34 553 324	433 356 016
TOTAL BENEFIT	153 669 236	309 056 320	3 023 286 790
Costs of walking- and cycle tracks (present value)			
Capital costs	23 625 000	15 750 000	600 000 000
Maintenance costs	1 553 857	1 035 905	39 463 045
Tax-cost factor, 20% of budget costs	5 035 771	3 357 181	127 892 609
TOTAL COSTS	30 214 629	20 143 086	767 355 654
Net benefit- cost ratio	4,09	14,34	2,94

Source: TOI-report 567/2002



Other examples of benefits from investing in cycling

Odense Municipality (Denmark) interventions to promote cycling led to:

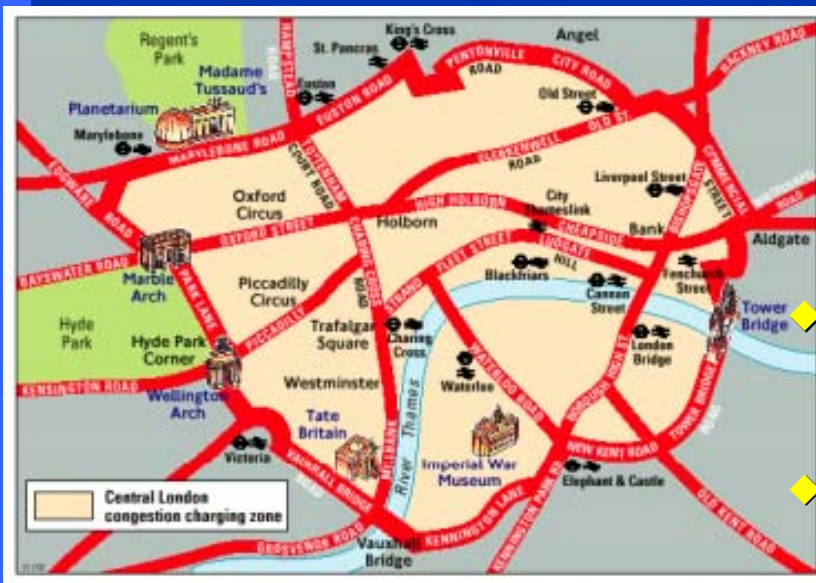
- savings in health care costs (4,5 m €)
- 20% reduction in Road Traffic Injuries
- 20% reduction in mortality among 15–49 year olds (Odense municipality, 2004)

Interventions to promote non-motorized and public transport in Bogota, Colombia, Morogoro, Tanzania, and Delhi, India have been estimated to yield benefits 5 to 20 times greater than the costs (I-CE, 2000)

London

The central London congestion charging scheme was introduced on 17 February 2003. The primary aim of the scheme is to reduce traffic congestion in and around the charging zone.

The central London congestion charging zone covers 22 square kilometres in the heart of London, including centres of government, law, business, finance and entertainment.



Source: Congestion Charging: Update on scheme impacts and operations. February 2004
(www.tfl.gov.uk/tfl/downloads/pdf/congestion-charging/cc-12monthson.pdf)

The congestion charge is a £5 daily charge for driving or parking a vehicle on public roads within the congestion charging zone between 07:00 and 18:30, Monday to Friday, excluding weekends and public holidays.

Results

- ◆ Traffic delays inside the charging zone average 30% lower than before charging was introduced.
 - Pedal cycle movements have increased by about 20 %
 - Bus and coach movements have increased by over 20 %
 - Van and lorry movements have reduced by about 10 %
 - Powered two-wheeler movements have increased by 10-15%
- ◆ 8% reduction in personal injury accidents in the charging zone during charging hours compared to the same period last year.
- ◆ 6% fewer pedestrians were involved in accidents, 4% fewer motorcycles and mopeds, 7% fewer cyclists and 28 percent fewer cars, compared to the same period last year.

(Based on the first 6 months of provisional data since charging began)

"**Passion** drives action."

" Information, raw data, does not have passion, until someone transforms it into intelligence, into judgements of comparative advantage, or raises a particular issue in the context of local socio-political trends.

...data needs to be translated into something that will move people, like politics or money, these are **passion** parameters"

key informant No 40

Public Health Action across sectors at the interface between science and policy

Modes of Scientific Enquiry competes and coexists other modes of speculation and reasoning, as may be reflected in traditional knowledge, values, religion, amidst conditions of change, economic need, deprivation and social unrest.

—

Tension between scientists trained in dispassionate enquiry and discussion and need to frame evidence in terms of passion parameters, of the public or politicians.

The passion of the scientist and of the politician continue to shape the development and the debates on Public Health

Context of Globalization

- ◆ Governments **do not control the determinants of health**: environment pollution, food, tobacco, exercise opportunities

“Although responsibilities for health remains primarily national, the determinants of health and means to fulfill that responsibility are increasingly global.”

(Jamison/Frenk and Knaul 1998)

Globalization and health (cont.)

- ◆ Despite significant successes a feeling of *systems failure* in international health:
- ◆ Effective interventions but many of the big questions unanswered
- ◆ No one “in charge” of the global determinants
- ◆ Need for leadership

Emerging Responses

- ◆ Nations pool internal sovereignty
- ◆ **Networks** of governments and NG actors, a "governance without government"
- ◆ Intensified cooperation
- ◆ Joint decision making by **Regime Formation** (e.g. Codex Alimentarius, IFCTC, environmental conventions)

Global action to address Global– Local Determinants of Health

- ◆ To develop global mechanisms for Increasing accountability for Health Impacts of activities from global – local actors outside the health arena
- ◆ To further strengthen Health Policy capacity at global – local level
- ◆ Need for global public health stewardship
- ◆ Need for concerted action, where each contributes with its own strengths to the common goal

A tribute to global actors in innovation

- ◆ A key role for think tanks, activists, researchers, government, international agencies
- ◆ Need to value complementary roles
- ◆ Each operate where they are strong and valued
- ◆ Areas of influence
- ◆ Produce innovation
- ◆ International networks a response to global issues if they can master the strategic role interactions and in support to a shared vision of the future