

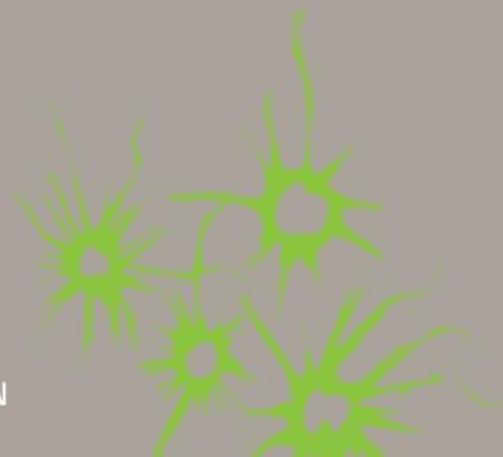
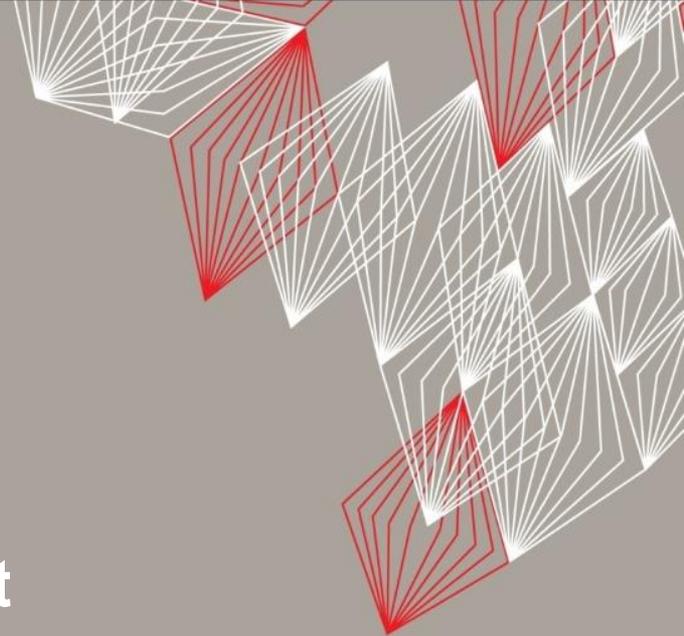


Cycling in an urban environment

Prof. dr. Martin van Maarseveen

Cycling Awareness Seminar

Cairo, 19 November 2015



PART 1

- The planning challenge
- The bicycle, a modern mode of urban transport
- Success factors in NL
- Basic design elements
- Supply of bicycle facilities



THE BICYCLE, A PIECE OF THE PUZZLE

- 🚲 Cycling is part of the transport system in highly motorized countries
- 🚲 Cycling contributes to livelihood, to urban quality and the economic vitality of cities
- 🚲 The economic and environmental benefits of cycling are high
- 🚲 Cycling can be an important feeder of public transport

- 🚲 To promote cycling, planning for cycling (conditions) needs to be an integral part of urban and transport planning



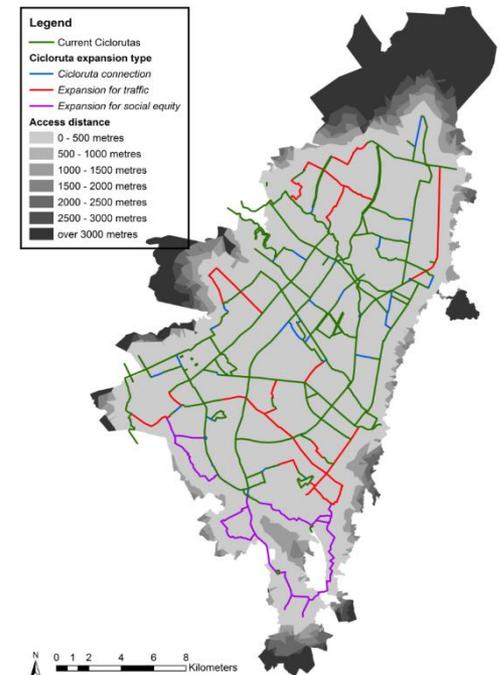
SUCCESS FACTORS OF DUTCH PLANNING FOR NMT

1. Cultural and political
2. Spatial development
3. A high (quality) level of bicycle infrastructure, also parking
4. Good integration with public transport
5. A strong and innovative industry
6. Effective traffic safety policies and legislation
7. Knowledge integration and societal involvement



BASIC DESIGN ELEMENTS

- Quality criteria
 - Coherence
 - Directness
 - Attractiveness
 - Safety
 - Comfort
- Road network principles
 - Social function versus traffic function
 - Variation versus uniformity
 - Segregation versus integration



SUPPLY OF BICYCLE FACILITIES

Integrated approach needed on network level and not fragmented in space

- ✓ Cycle paths
- ✓ Traffic signals
- ✓ Signage
- ✓ Bicycle parking
- ✓ Bridges / ramps
- ✓ Street lighting
- ✓ Modal integration



PART 2

- Education for NMT
- Awareness building for NMT
- Social marketing for NMT
- Advocacy for NMT

End cycle of vulnerability



CHANGE THOUGHT PROCESS In a city like Delhi, where people largely depend on private vehicles to travel short distances, cycle and

• In India, a bicycle is considered a poor man's commute, though it is extremely popular among the executive class in the West and even some Asian countries. ©2011 MENTANA PHOTO

MAKE CYCLE POPULAR TO END ROAD CONGESTION

COHERENCE



This part focuses on instruments that target the **active involvement of people**.

Education requires primarily teachers and instructors.

Awareness building and **social marketing** involves marketing and communications techniques,

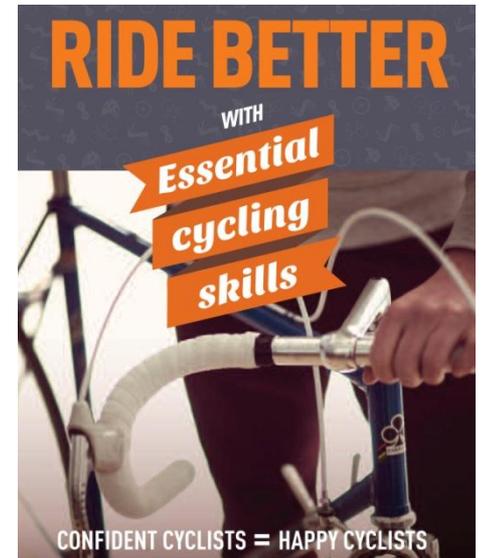
while **advocacy** is usually driven by user representatives, that is, civil society organizations.

Dividing lines are not always sharp. Advocacy and awareness building combine well. Often advocacy groups also drive awareness building processes or start up educational activities.

EDUCATION

Education refers to systems that teach people

- the skills to use vehicles
- how to use transport infrastructure
- how to behave in and to cope with traffic
- traffic regulations



Source: www.cyclingscotland.org



Source: samletstalkaboutlife.blogspot.com

EDUCATION FOR NMT



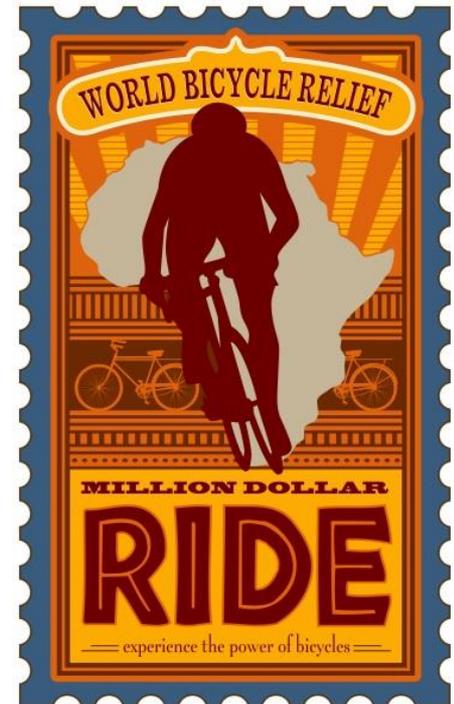
- Education's added value compared to planning and design is highly significant and, at the same time, relative.
- It is *significant* since it teaches people about safe, efficient and comfortable behaviour. Education also stimulates self-awareness, self-confidence and self-respect.
- It is *relative* in the sense that both road and vehicle design can have more influence when it comes to preventing serious accidents. Education and regulations alone cannot control traffic behaviour. For this, road and intersection designs are vital allies.

AWARENESS BUILDING

Awareness building for sustainable transport reflects to ways by which we teach people about the benefits and costs of transport choices from the perspective of the dimensions of sustainability.

When it comes to NMT it is important to teach people about benefits and costs of walking and cycling.

In 2009 an awareness building event for problems of mobility in rural Africa took place in Zambia and South Africa, organised by World Bicycle Relief and World Vision

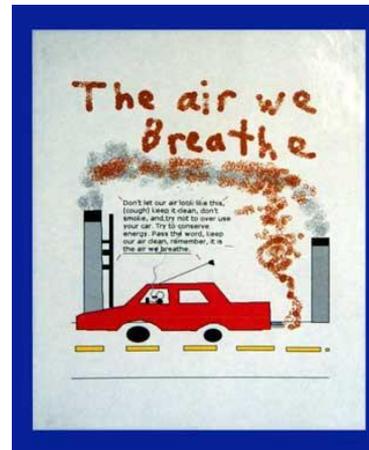


BENEFITS AND COSTS OF TRANSPORT CHOICES

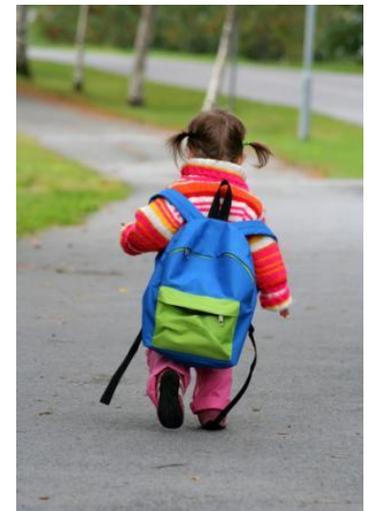
- travel times
- travel costs
- energy consumption
- pollution
- noise
- safety
- comfort
- health
- etc.



Cairo, Egypt, October 2012
© Martin van Maarseveen



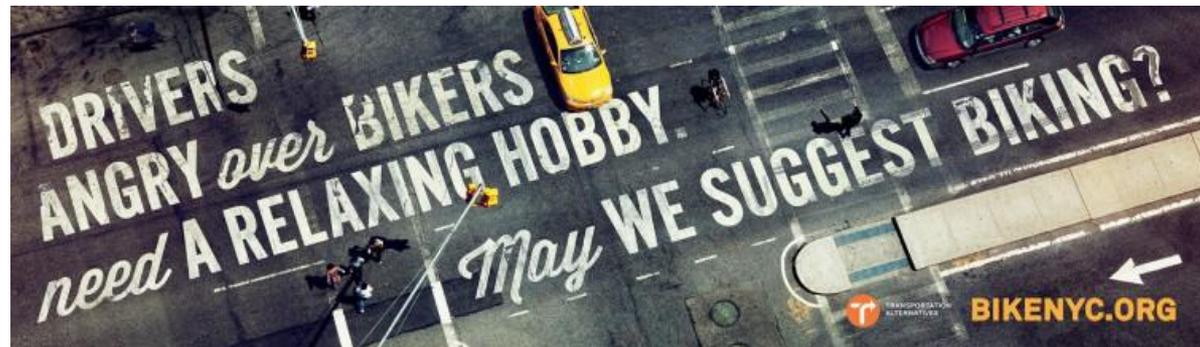
© Julia Galloway Matteson



SOCIAL MARKETING FOR NMT

Social marketing is the systematic application of marketing, along with other concepts and techniques, to achieve specific behavioural goals for a social good.

Examples of social marketing include the campaigns to encourage people not to smoke in public, use seat belts, follow speed limits, or to change travel habits.



SOCIAL MARKETING – MARKET SEGMENTATION

In marketing, demand orientation is key to selling a product. In social marketing, a social interest is at stake, but the demand orientation is equally important.

The quality of walking and cycling depends on different kinds of measures, which have to be fine-tuned to the skills, needs and perceptions of different categories of pedestrians and cyclists.



SOCIAL MARKETING

Identifying needs and preferences

Marketing is much more than a promotion strategy.

Promotion occurs late in the marketing process. It seeks to make products and services known and invite people to use them.

But prior to promotion, people's needs and preferences must be assessed and an inventory compiled to identify what will people make change their behaviour.



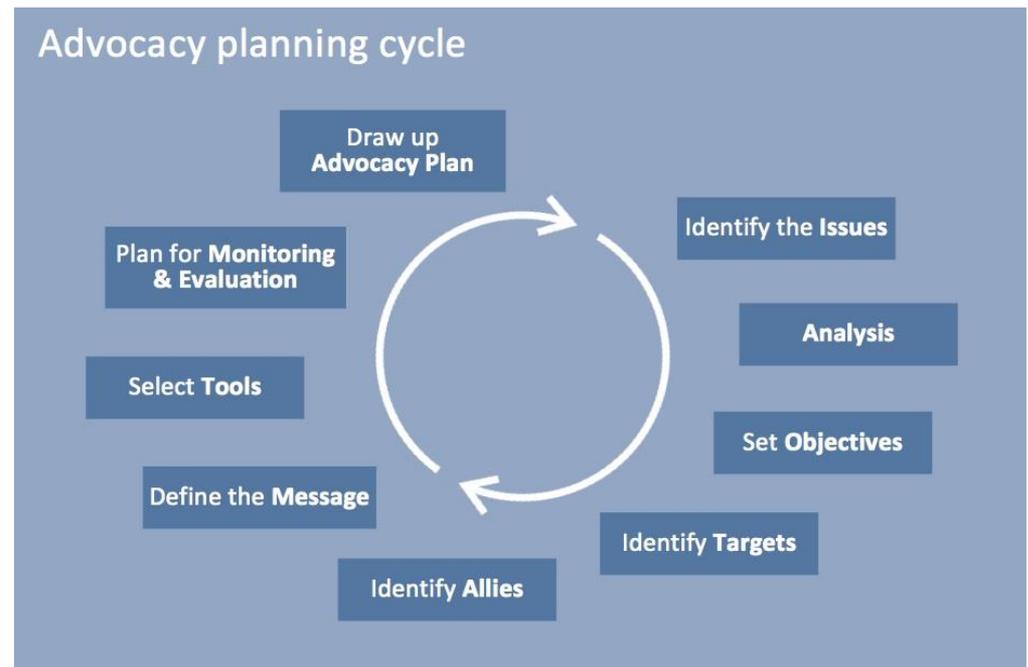
© Bradley Schroeder



ADVOCACY FOR NMT

Advocacy refers to the way individuals and particularly groups participate to promote non-motorised transport, and to move NMT up personal, private sector and governmental agendas

Advocacy involves arguing and campaigning in favour of something, such as a cause, idea, or policy.



ADVOCACY PLANNING CYCLE

Identify the issues: What do we want to change?

Analysis: What do we already know and what information can we use?

Setting objectives: these should be SMART (Specific, Measurable, Attainable, Realistic, and Timely)

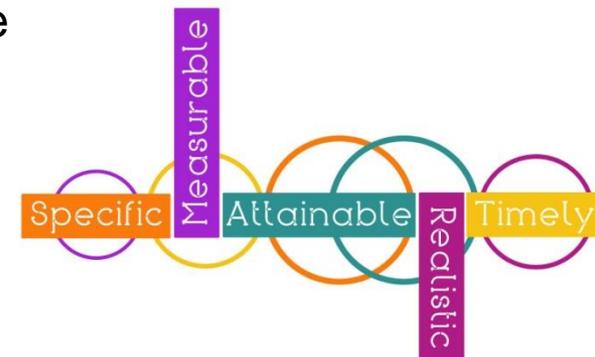
Identify targets: Whom do we want to influence?

Identify allies: With whom can we work?

Define the message: How do we formulate our message?

Select tools: How can we best communicate and reach our targets?

Monitoring and evaluation: How can we measure activities?



ADVOCACY EXAMPLES

- Car-free days
- Street play days
- Bike weeks or months
- Advocacy to claim cyclists' rights
- Inspection, checklists, community audits



Source: UWABA, Road Safety Week



Streetball Luanda, Angola



ADVOCACY EXAMPLE: Community audits



© Henk van Esch

Some 20 Dutch cities took part in the 2014 competition



In the Netherlands, the Fietsersbond (Dutch Cyclists Union) organizes a Bike City Competition regularly. The Union developed a benchmarking instrument to measure the cycling climate of a city based on 11 different indicators. In the audits this instrument plays an important role. Local governments appear to be quite eager to take part in this competition to challenge for the title “Bike City of the Year”. In preceding periods they become quite active in planning and implementing all kinds of bicycle-friendly measures to be able to show a good performance.

ADVOCACY EXAMPLE



**4th Annual
Orange Bike Day
2015**

INVITATION

The Embassy of the Netherlands in Egypt invites you to participate in this year's Orange Bike Day

Please register via <http://gbi-egypt.com/2015/OrangeDay.php>

Welcome from: 07:30hrs - Start Cycling Tour: 08:30hrs

Sponsored by

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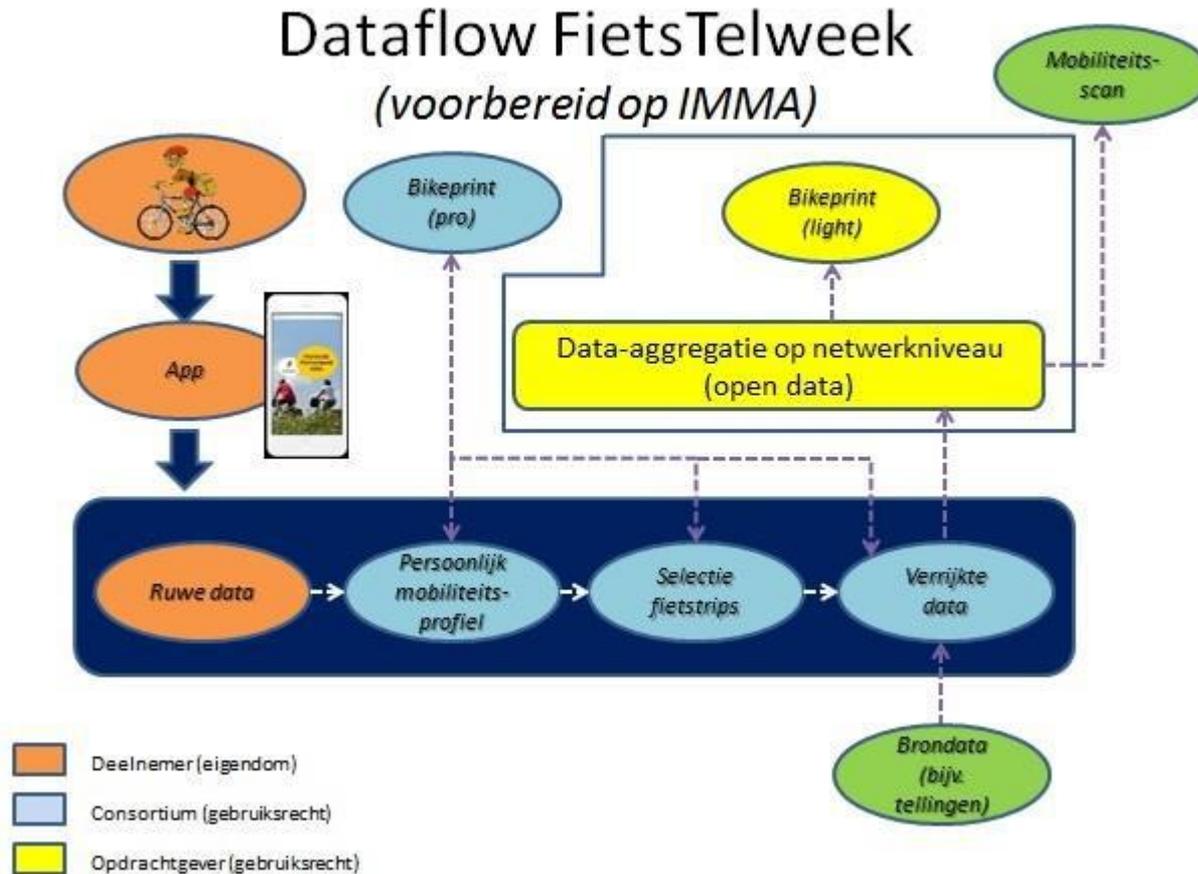
Organized by: The Embassy of the Netherlands in Egypt

Friday 20 November

Starting Point: 18 Hassan Sabri St, Zamalek, Embassy of the Netherlands

1ST BIKE SURVEY WEEK, THE NETHERLANDS

14-20 SEPTEMBER 2015



Source: Scheper et al, NVC 2015

1ST BIKE SURVEY WEEK, COMMUNICATION STRATEGY



Advocacy: Power of VGI:
56.000 participants
Ca. 2.000.000 bike km.



Importance of measuring & monitoring

PART 3

- Health benefits of cycling
- Cost benefit analyses of cycling



Source: www.beological.nl

THE BENEFITS OF CYCLING {HEALTH & COMMUNITY}

Cyclists are a diverse group. Some of us ride fat tires down rocky trails, some of us ride road bikes up burly hills, some of us ride for sport and some of us ride just for fun. Some ride for the adrenaline rush and some ride their bikes for basic transportation. Cycling, along with being the most efficient mode of human locomotion, is also one of the best all-around activities for improving our health and communities.

www.atlantabike.org • www.peoplepoweredmovement.org

ATLANTA BICYCLE COALITION

2 CYCLING IS THE SECOND MOST POPULAR OUTDOOR ACTIVITY IN THE U.S. *Source: Outdoor Foundation, 2010*

47% OF AMERICANS SAY THEY WOULD LIKE MORE BIKE FACILITIES IN THEIR COMMUNITIES. *Source: National Highway Traffic Safety Administration*

Studies have shown that homes closer to bike paths are more valuable. *Source: Bikas Being Foundation*

THE AVERAGE PERSON WILL LOSE 13 LBS IN THEIR FIRST YEAR OF RIDING TO WORK *Source: Outdoor Foundation, 2010*

ON A ROUND TRIP OF TEN MILES, CYCLISTS SAVE AROUND \$10.00 A DAY *Source: Commute Solutions, 2011*

More than three times as many new bicycles (14.9 million) are sold in the U.S. each year than cars (4.6 million) *Source: National Bicycle Dealers Association, 2010*

CYCLING/WALKING PROJECTS CREATE 11-14 JOBS PER \$1 MILLION SPENT COMPARED TO JUST 7 JOBS CREATED PER \$1 MILLION SPENT ON HIGHWAY PROJECTS *Source: The Alliance for Biking & Walking Benchmarking Project*

BALANCE
Cycling produces the balance between exertion and relaxation which is so important for the body's inner equilibrium.

HEART
All the risk factors that lead to a heart attack are reduced and regular cycling reduces the likelihood of heart attack by more than 50%.

COORDINATION
Moving both feet around in circles while steering with both your hands and your body's own weight is good practice for your coordination skills.

MUSCLES
A week of inactivity reduces the strength of the muscular system by up to 50% and can harm them long-term. During cycling, most of the body's muscles are activated.

MENTAL HEALTH
Cycling has a relaxing effect due to uniform movement which stabilizes physical and emotional functions. It reduces anxiety, depression and other psychological problems.

BACK PAIN
Cycling posture is optimum, and the cyclic movement of the legs stimulates muscles in the lower back.

WAISTLINE
Cycling is ideal for targeting problem areas. It enables people who can't move easily to exercise. It increases fitness and stimulates the body's fat metabolism.

JOINTS
The circular movement of cycling assists the transport of energy and other metabolic products to the cartilages, reducing the likelihood of arthritis.

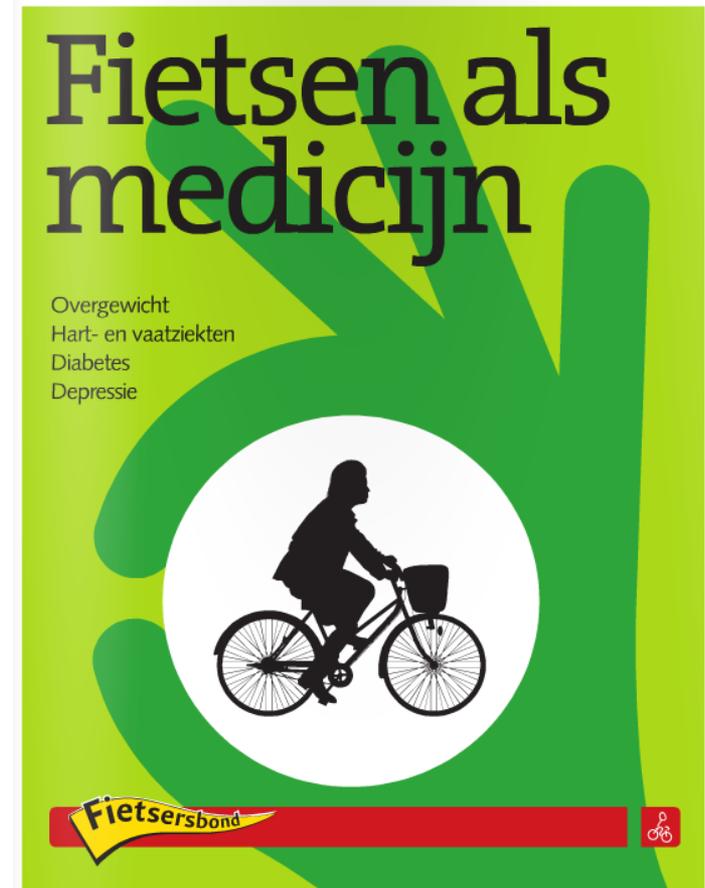
Source: Carlin, Daria A., 2007. "Cycling and Health: what's the evidence?" Cycling England

Source: www.myhandlebar.com

CYCLING IS HEALTHY

Walking is
man's best
medicine

Hippocrates



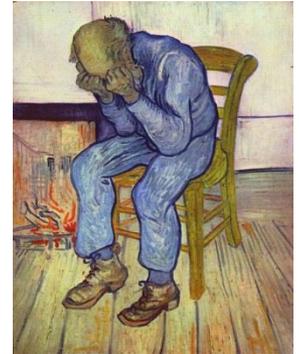
MORTALITY RISK IMPACTS

- Comprehensive medical research has resulted in the following mortality risk reductions depending on the amount of weekly physical activity:
 - 150 minutes moderate activity yields a reduction of 19%
 - 168 minutes of walking coincides with a reduction of 11%
 - 100 minutes of cycling results in a reduction of 10%

Applicable for ages between ca. 20 and 90 years
- These effects are processed within the Health Economic Assessment Tool (HEAT) of the WHO of 2014: heatwalkingcycling.org

LOWER DISEASE BURDEN

- Heart and vascular diseases
- Cancer
- Obesity
- Diabetes
- Clinical depression
- ...



Physical activity is a means to fight clinical depression and appears to be as effective as therapies and medication.

Source: Perraton et al, 2010. Exercise parameters in the treatment of clinical depression: a systematic review of randomized controlled trials. *Journal of Evaluation in Clinical Practice*, doi:10.1111/j.1365-2753.2009.01188.x

CRITERIA FOR HEALTH BENEFITS

- Disability Adjusted Life Years:
 - Years of Life Lost (YLL)
 - Years Lived with Disability (YLD)
- Monetary valuation:
 - Quality of life
 - Saved health care costs
 - Higher (labour)productivity
 - Costs of traffic accidents

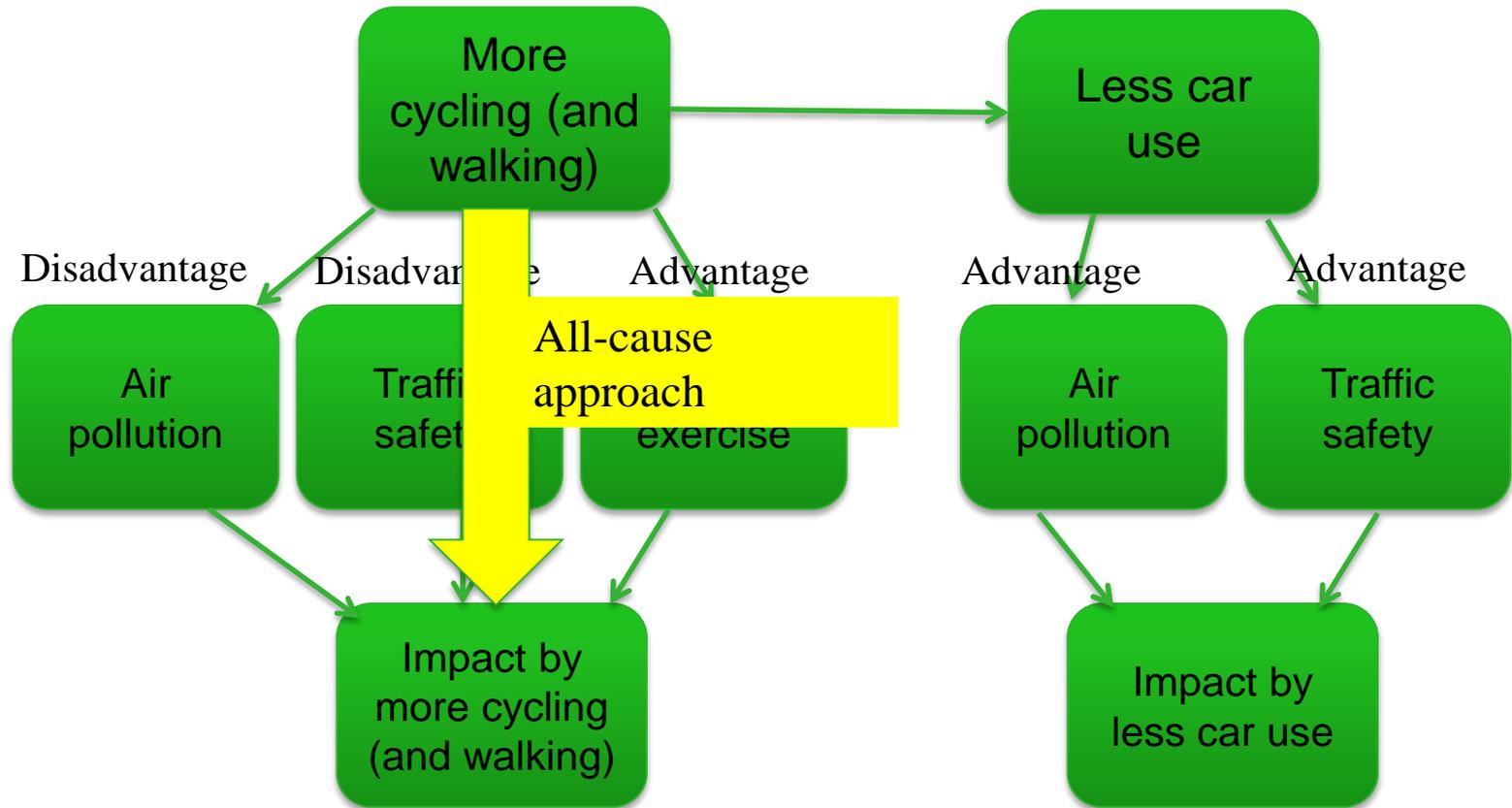


HEALTH BENEFITS OF CYCLING



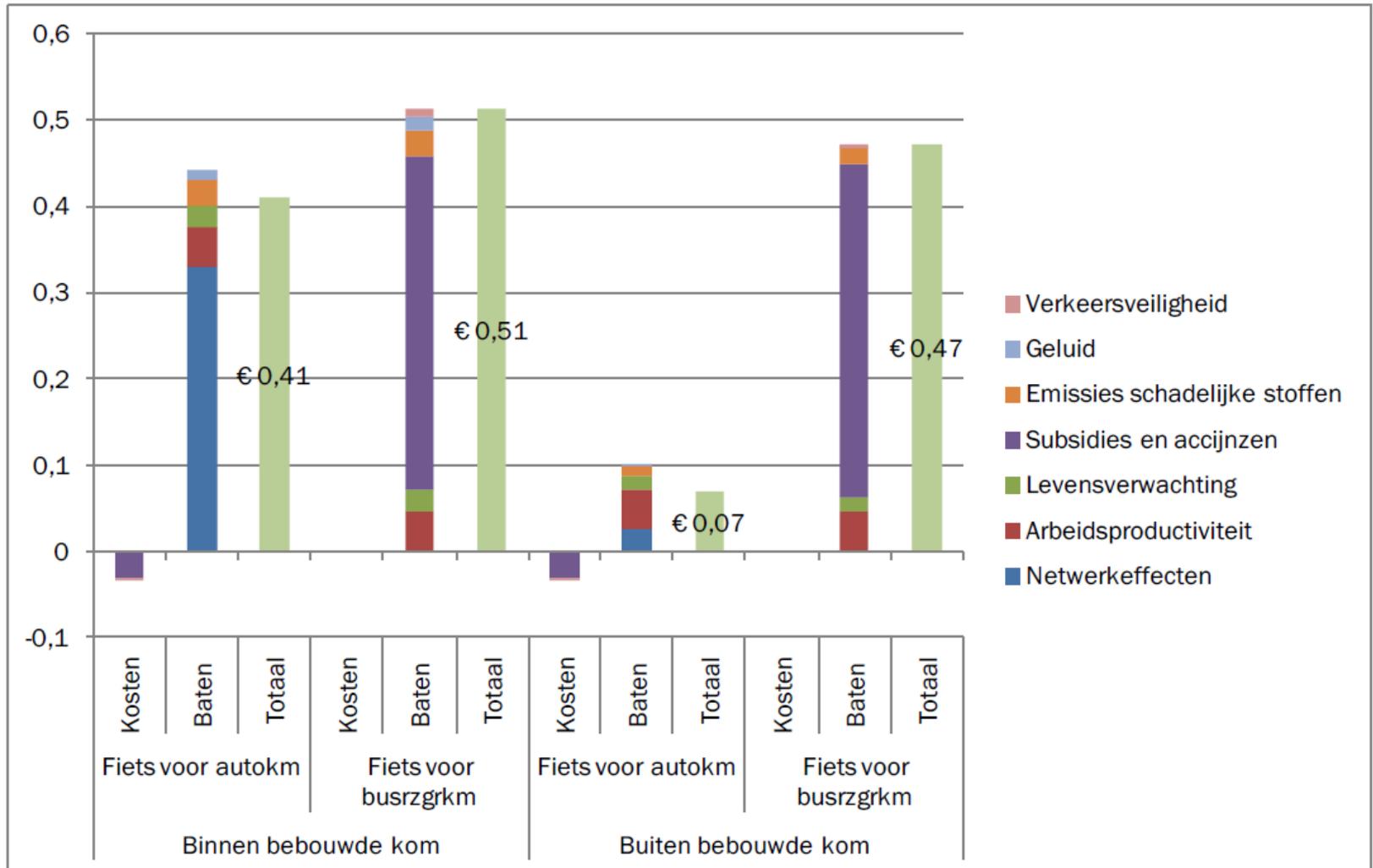
- Increasing interest for cost-benefit analysis methods in scientific literature
- Several methods are available.
- Results of application of disease burden method to the level of bike use in the Netherlands are (conservative estimates):
 - €4,1 to €6,8 million per year
 - €0,28 to €0,47 per bike km

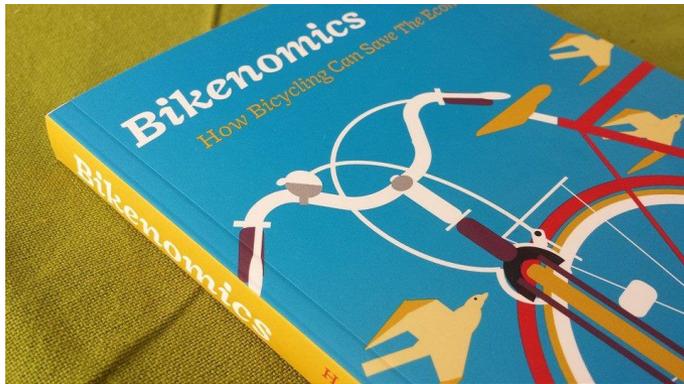
ARE THERE ALSO DISADVANTAGES?



SOCIAL BENEFITS MODAL SHIFT PER KM

CAR-BIKE AND BUS-BIKE, IN- AND OUTSIDE URBANIZED AREA (NL)





BIKENOMICS: HOW BICYCLING CAN SAVE THE ECONOMY? – ELLY BLUE

	ECONOMIC	SOCIAL	ENVIRONMENTAL
NATIONAL	Economic contribution Private sector support	Social conditions Cycling culture Image/Pride	Change in environmental conditions
CITY	Logistics Tourism Accessibility Public spending Improved capacity	Tourism Use of public space Quality of public space Image/cycling culture Partnerships	Noise level Cleaner air
COMPANY	Employee health Logistics Transport costs Entrepreneurship	Company image Energy on the workflow Innovation	Carbon footprint
INDIVIDUAL	Health Fun Mobility	Access to public space Pride in home image Personal wellness	Noise levels Safety

THANKS FOR YOUR ATTENTION

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