

Health benefits of urban green space, Assessment and Valuation, a case study in Flanders, Belgium



Introduction

Growing scientific evidence that exposure to (urban) green areas results into health benefits for physical and mental morbidity and mortality. Different mechanisms explain these impacts (stress release, exercise,...). Although the health benefits of green areas are widely recognized, there are barely methods and tools available to assess these benefits in the context of natural capital accounting. Quantification is challenging due to the wide variation in methods (indicators to define green areas and exposure to), scope (green areas, health outcomes) and contexts. In addition, assessment of health benefits requires region specific health data for a wide range of health outcomes. Economic valuation requires to account for a wide range of region specific data (costs of illness, labour productivity,...) and integration of different methods (market data, valuation studies for longer life expectancy,...)

Objectives and scope

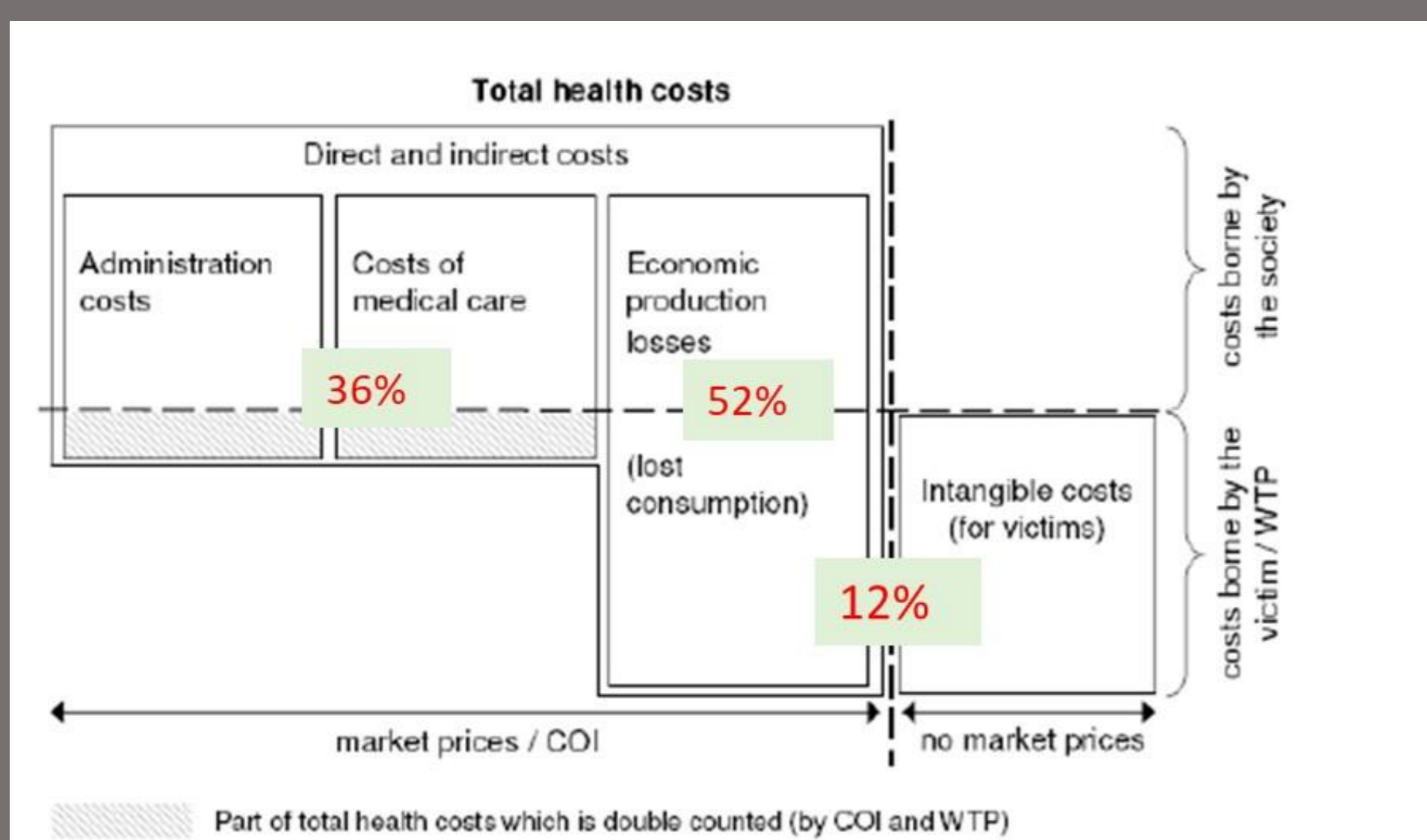
- Quantification and valuation of **Health Benefits of Exposure to Greenspace** in Flanders
- **Greenspace** (% green area 1-3 km around place of residence), green areas = all green land use, including parks, forests, agriculture, gardens (private and public), small informal green areas, surface waters.
- **Exposure** to = contact with = recreation + sport + view on green + ...
- **Health** = avoided physical and mental illness and + longer life expectancy
- **Benefits** = avoided health care costs (e.g. hospitalization) + productivity gains (less absenteeism) + welfare gains (life expectancy, suffering)

- 1 Green Space: Vito land use map 10m x10 m ; 22 landuse categories Example: city of Antwerp



Methods and results

4 Economic valuation health benefits



Benefits amount to:
 3 billion euro/year for Flanders 2016
 = 1,3 % of GDP Flanders
 = 464 euro/inhabitant/year
 Avoided health costs (36%) and Absenteeism (52%) are most important benefit categories

3 Health impacts

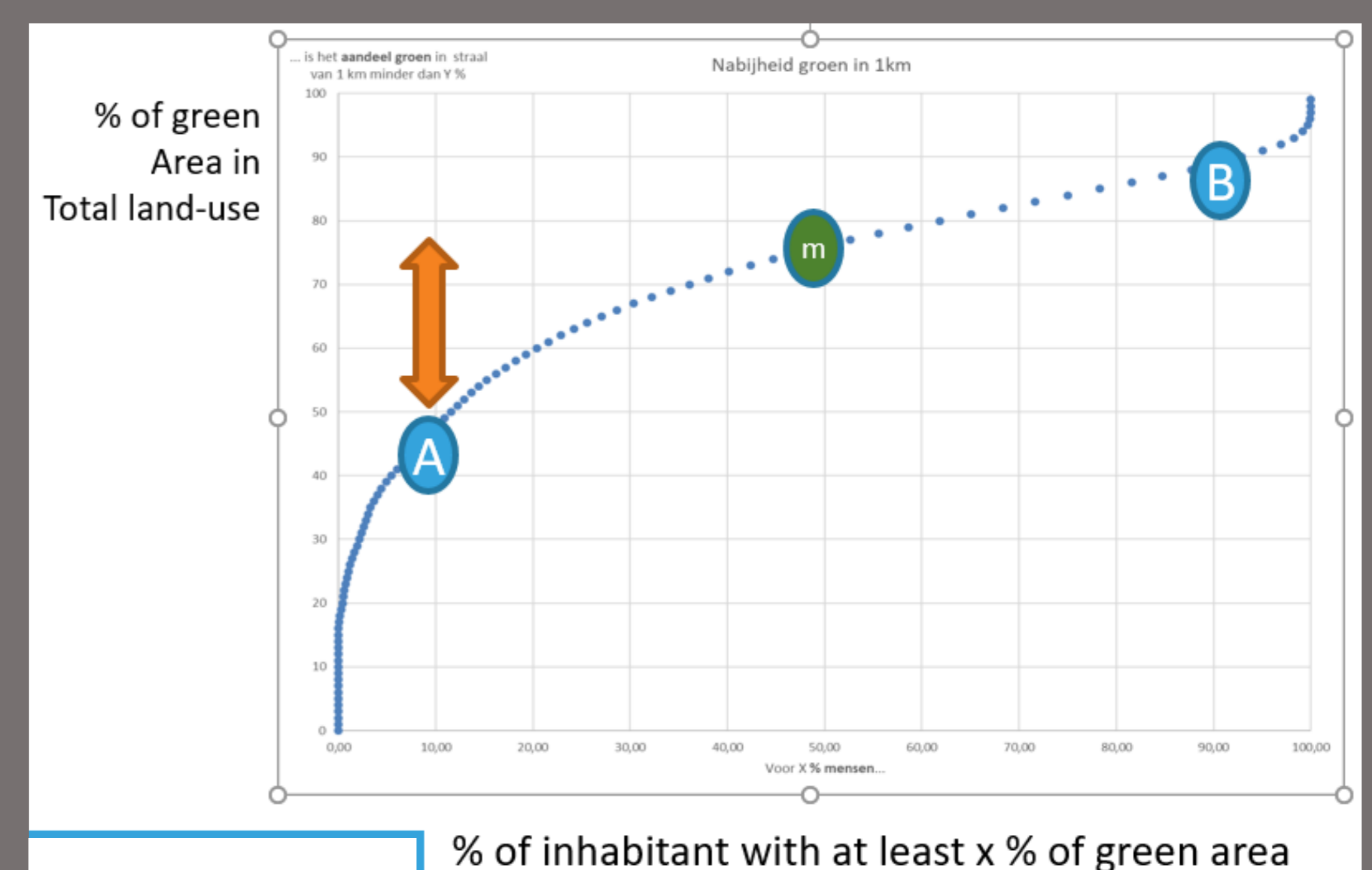
Selected Dose-effect relationships

Dosis-effect relation	Impact	95% interval
Morbidity		
<i>Mental health</i>		
Anxiety disorders	-5%	(-3% - -6%)
Depression	-4%	(-2% - -6%)
<i>Physical health</i>		
Coronary heart disease	-3%	(-1% - -5%)
Diabetes mellitus	-2%	(-1% - -3%)
Heart failure	-2%	(-1% - -3%)
Asthma	-3%	(-2% - -4%)
Mortality (3)		
cardio vascular	-4%	(-2% - -6%)
Importance DALY /1000 inhab.		
Mental health	-1,14	(-0,6 - -1,5)
Physical health	-0,95	(-0,5 - -1,8)
Total morbidity	-2,36	(-1,2 - -3,4)
Mortality		
Years life lost	-1.5	(-0,7 - -2,3)

Benefits: avoided health impacts
 85.000 DALY's (disability adjusted life years)
 = 27% of burden of disease for these diseases

2 Exposure to green space

Share of greenspace in total land use (1 km around place of residence)



Median: 73% (m), 10% has less than 48%

Analysis and conclusion

Strengths

Methods in line with health impact assessments and economic valuation.
 Results shows importance of urban and rural green areas for public health, and the related economic impacts, esp. for health care and economy.
 This is an important ecosystem service (average 3400 euro/ ha.year for Flanders).
 Unknown overlap with ecosystem services for recreation, tourism and real estate values.
 Results used to promote (urban) green infrastructure and preventive health care policy.

Limitations

Indicators to define exposure and green areas are too rough / uncertain for planning or management at local level or assessment of impacts of short term trends or policies.

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