Why We Need Trees!
Human Habitat in the city
from sanitary to sustainable to sacred

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Green Cities: Good Health
www.greenhealth.washington.edu

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research review & summaries
Local Economics

Trees in cities are not grown and managed for products that can be bought and sold on markets, but they do provide many intangible services and functions! This article serves two purposes. First, it introduces valuation methods that are used to convert intangible benefits to dollar sums. Then, it shows how nonmarket valuations can support local decision-making.

Fast Facts

- The presence of larger trees in yards and as street trees can add from 3% to 15% to home values throughout neighborhoods.
- Averaging the market effect of street trees on all house values across Portland, Oregon yields a total value of $1.35 billion, potentially increasing annual property tax revenues $15.3 million.
- A study found 7% higher rental rates for commercial offices having high quality landscapes.
- Shoppers claim that they will spend 9% to 12% more for goods and services in central business districts having high quality tree canopy.
- Shoppers indicate that they will travel greater distance and a longer time to visit a district having high quality trees, and spend more time there once they arrive.
in the background

support functions, needs, benefits, ecosystem services
Sanitary City

- urban forestry
- climate response
- urban agriculture
- green stormwater systems

increased ecological function/
green infrastructure

Sustainable City

- human wellness & public health
- equity
- civic stewardship

increased human connection &
engagement

Sacred City
sanitary city

efficient and hygienic
supply & removal
of materials and services
natural systems disconnect
Industrial Age – city squalor

credit: BlendSpace
credit: blogs.isb.bj.edu.cn
Baltimore: Public Works Museum
Environment = Toxin, Risk

Love Canal, Niagara Falls, Cuyahoga River, OH
NYC Central Park
improve health & character

credit: Central Park Medical Unit web page
sustainable city

decological function, green infrastructure, & ‘revealed’ processes

Pincetl, S. 2010. From the sanitary city to the sustainable city. Local Environment
measure the canopy of a city
Eco (UFORE)
Streets (STRATUM)
Hydro
Vue
tools provided by USDA
Forest Service

photo credits: Seattle i-Tree Training by Al Zelaya
Improving Air Quality

Shade on Paved Surfaces and Parked Cars Reduces Evaporative Hydrocarbon Emissions and Ozone Formation

Oxygen and Volatile Organic Compounds Released Through the Leaves

Gaseous Pollutants Absorbed Through Leaf Stomates and Lenticels

Small Particles Adhere to Surfaces

Trees Save Energy for Cooling and Heating, Thereby Reducing Pollutant Emissions from Power Plants

Image courtesy of the Center for Urban Forest Research
Reducing Stormwater Runoff

Image courtesy of the Center for Urban Forest Research
Thornton Creek Water Quality Channel (Seattle, SvR Design)
1 hectare, treats runoff from 275 hectares
Tanner Springs Park
Portland OR
linked to active living network
neighborhood social cohesion

environmental education & social learning
Beacon Food Forest (Seattle)
mimic woodland ecosystem – edible gardening

- arboretum
- berry patch
- nut grove
- community garden
- gathering plaza
- children’s area
- living gateway

complexity - productivity
sacred city

civic sacred

health & wellness

reflection, contemplation, & mindfulness, spirituality

giving back, stewardship, gratitude
Trees are the earth's endless effort to speak to the listening heaven.

Rabindranath Tagore, *Fireflies*, 1928
England’s Ancient Oaks
Gulfport, MS :: Katrina survivors
‘forest bathing’, Kyoto, Japan
the Chenoggye freeway in Seoul
~ 1970-2005
Chenoggyeon – 8.4 km, $900 M

initial public criticism!
Converting Gray to Green
High Line Railway - W Manhattan
- between 2003 and 2011
- nearby property values increased 103% (despite the deep recession)
- $2 billion was invested in nearby properties development
Mental Health - Mindfulness

contemplation – restoration – stress reduction
Mindfulness

Mind Full, or Mindful?
constant busyness

attempted multi-tasking

‘out of balance’

Anna and Elena Balbusso, NY Times
Nature and Mindfulness

focus
soft fascination
undirected attention
Attention Restoration Theory

Rachel & Stephen Kaplan
Mindfulness/Meditation Training

- meta analysis; clinical/non situations
- focus on moment-to-moment experience and mental awareness
- more veridical perception (reality check)
- reduce negative affect
- improve vitality and coping
- medical symptoms & sensory pain

Mindfulness/Meditation Training

- healthy workplace employees
- 8 week mindfulness training
- brain electrical activity – positive affect
- brain activation – reduce stress event response
- more antibodies after influenza vaccine = better immune function

Davidson et al. 2003. Alterations in Brain and Immune Function Produced by Mindfulness Meditation. Psychosomatic Medicine
TKF Foundation
Nature Sacred :: bench journals

> 10 years
> 100 gardens
> 10,000 journal entries
mindfulness :: journal analysis

TKF Foundation
Nature Sacred Program

Cornell Civic Ecology Lab
‘nearby nature’ experiences passive encounters for benefit
Nature and Creativity

http://www.jimkukral.com/
Give Your Ideas Some Legs

creative test – analogy generation

conditions: sit inside, treadmill walk, walk outside, wheelchair outside

walking outside produced most novel & highest quality analogies – walking opens up free flow of ideas

Oppezzo & Schwartz. 2014. Journal of Experimental Psychology
Nature & Creative Professionals

focused interviews in Denmark

nature:
makes us more curious
supports flexible thinking
recharges directed-attention

aids 2 phases of the creative process: Preparation phase and Incubation phase

sensory dimensions: space & serene

Plambech & Konijnendijk van den Bosch. 2015. Urban Forestry & Urban Greening
role of nature in creativity development

http://daycare.sulekha.com
Fiddleneck Forest School
Washington Park Arboretum (Seattle)

cognitive social & physical learning
Community Engagement

stewardship – health benefits – ecosystem function
Sacred Cities

engaging in stewardship across all landscapes and cultures

credit: EarthCorps, Seattle
urban forest restoration
riparian restoration
environmental education
nature recovery & schools

Parks & People Foundation, Baltimore
first phase - reading circle
nature recovery & schools

Parks & People Foundation, Baltimore
school asphalt recovery

Parks & People Foundation, Baltimore

planning skills & efficacy
Sanitary City

- urban forestry
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Sustainable City

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Sacred City

- human wellness & public health
- equity

increased human connection & engagement
Summary

+ sanitary city (hygiene for health)
+ sustainable city (socio-ecological systems)
+ (civic) sacred city (engagement & experience)
  aka biophilic city

= commitment & support of trees