



Quelle contribution du vivant à la métropole durable ?  
Bilan critique de la recherche scientifique et des politiques  
municipales. Chicago, New York, Montréal et Paris

Paris, 24 octobre 2012

# Services écologiques et adaptation urbaine au changement global

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normale sup<sup>6</sup>





Contribution of the living realm to a sustainable metropolis. A critical assessment of scientific research and public policies. Chicago, New York, Montréal and Paris

Paris, October 24, 2012

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# Ecosystem services and urban resilience in regard to global change

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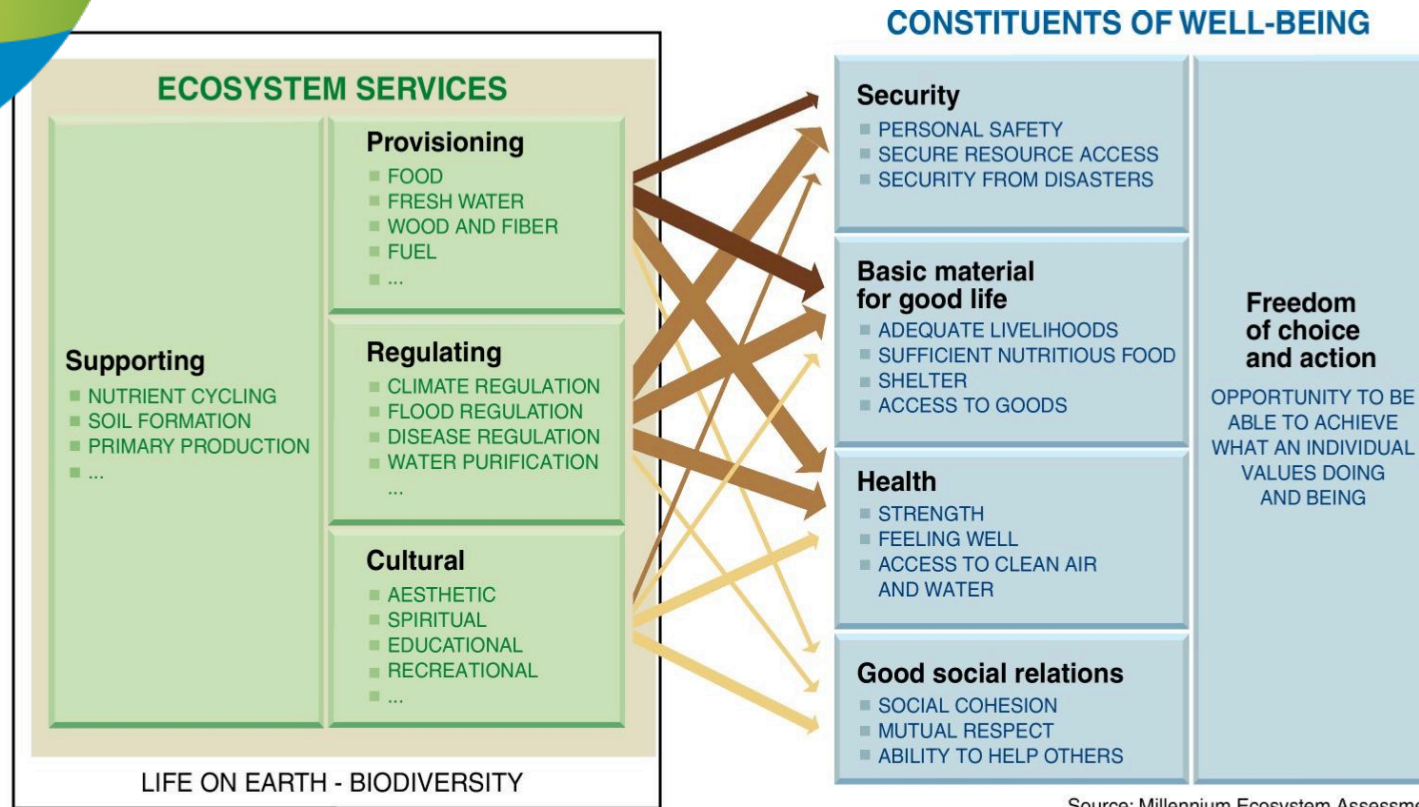
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# Ecosystems matter !



Source: Millennium Ecosystem Assessment

**ARROW'S COLOR**  
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

**ARROW'S WIDTH**  
Intensity of linkages between ecosystem services and human well-being

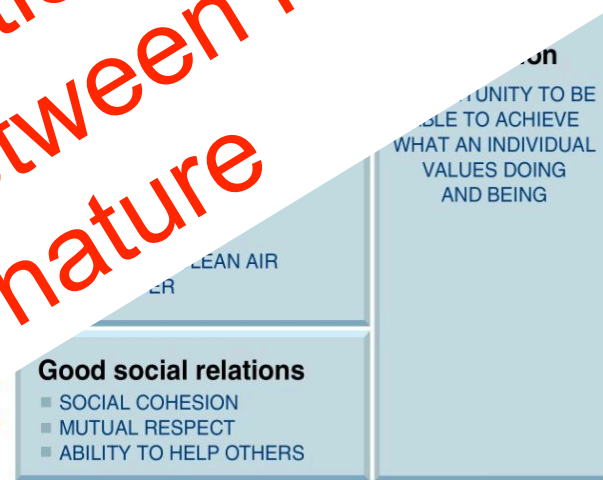
- Weak
- Medium
- Strong

*Millenium Ecosystem Assessment 2005.  
Ecosystem and human well-being  
synthesis. Island Press, Washington D.C.*

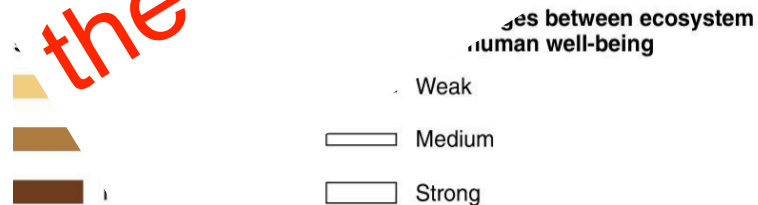


# Ecosystems matter

The ecosystem services, a new conceptual and practical tool to think the co-evolution between humankind and nature



Source: Millennium Ecosystem Assessment



Millennium Ecosystem Assessment 2005. *Ecosystem and human well-being synthesis.* Island Press, Washington D.C.

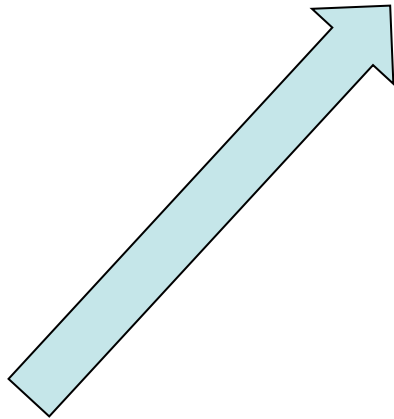


# The city, a growing new ecosystem

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## 2030

- 4.90 billion people in cities
- 59 % of world population
- $\pm 1\,900\,000\text{ km}^2$
- 1.3 % of the total land area



## Today

- 3.55 billion people in cities
- 51 % of world population
- $\pm 700\,000\text{ km}^2$
- 0.5 % of the total land area

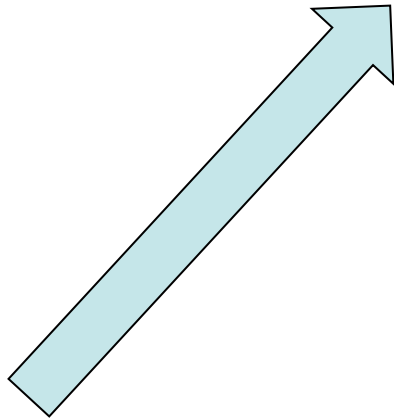


## The city, a growing new ecosystem (?????)

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### 2030

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# The city as an ecosystem... at local scale

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- The city is a system: social, economical, cultural...
- The city is an **ecosystem**: biodiversity, biogeochemical cycles, climate, soils...
- The city deliver many ecosystem services.
- Scientific questions:
  - What is the functioning of the urban ecosystems ?
  - What is the link between urban ecosystem functioning and potential urban services ? (the city as a socioecosytem).



# The city as an ecosystem... at local scale

- The city is a system: social, economic, cultural...
- The city is an ecosystem: biodiversity, biogeochemistry, climate, water, soils...
- The city provides ecosystem services.
- Social-ecological systems:

**Producing rather than consuming  
ecosystem services**

What is the link between the functioning of the urban systems ?

What is the link between urban ecosystem functioning and potential urban services ?





# The city as an ecosystem... at global scale

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- The city is an ecosystem within a larger ecosystem (from region to globe).
- Scientific questions:
  - Biodiversity dynamics: positive or negative impact ?
  - Efficiency of resource consumption: density, geometry of cities.
  - Impact of cities on regional and global climate.



# The city as an ecosystem... at global scale

- The city is an ecosystem
  - Scientific questions
    - Biodiversity: positive or negative impact?
    - Resource consumption: impact of cities on regional and global climate.
    - Geometry of cities.
- (Re)-connecting cities to biosphere and ecosphere**



**Thank you for  
your attention !**