Adaptation of the corporate Ecosystem Services Review to a territorial approach

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Contents

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- Ecosystem Services Review
- Why an adaptation to urban context?
- Methodological framework and first applications
- Contribution of mapping tools
- Discussion – outlook
The rise of the ES concept

1. Research
2. Public authorities
   - Policies
   - Laws
3. Associations
4. Companies
5. Finance sector
   - Banks
   - Financial backers
   - Agences de Notation

Stakeholders and ES
A milestone towards a better integration of impacts and dependencies on ES

- Developed by WRI, WBCSD and Meridian Institute in 2008
- Applied by more than 300 companies
- A voluntary, qualitative and adaptable methodology
  > Positive and negative impacts on ES
  > Dependencies on ES

What is the interest of the ESR?

- Assessment and prioritization of environmental issues as a complement to environmental resource management
- Development of an integrated management of these issues
- Innovation and support to CSR
Cities also fundamentally depend and impact on ES
> Air quality regulation, food provision, micro-climate regulation, recreation…
> Contribution to city-dwellers well being

Growing urbanization
> More than 50 % of the global population lives in cities
> Cities account for 3 % of global land area…
> …and consume 75 % of the global resources

TEEB for Cities: maintaining functioning ecosystems as the most cost-effective solution to meeting human needs

ES approaches lack from practical implementation in urban context (Delgado and Marín, 2015), (Haase, Larondelle et al. 2014)

Why an adaptation to urban context? (1)
Why an adaptation to urban context? (2)

- Analysis of French urban planning documents:
  > Growing integration of biodiversity issues but very few ES-based approaches
  > Progressive shift in local policies from biodiversity preservation to enhancement of well-functioning ecosystems

- Analysis of planning and environmental documents for 5 European cities
  > Implicit presence of the ES concept
  > Identification of key ES, mostly regulating and cultural ES

<table>
<thead>
<tr>
<th></th>
<th>Stockholm</th>
<th>Berlin</th>
<th>Stuttgart</th>
<th>Montpellier</th>
<th>Lyon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>830,000</td>
<td>3.4 million</td>
<td>580,000</td>
<td>250,000</td>
<td>480,000</td>
</tr>
<tr>
<td>Green areas</td>
<td>40%</td>
<td>41%</td>
<td>55%</td>
<td>33%</td>
<td>24%</td>
</tr>
<tr>
<td>Examples of key ES</td>
<td>Noise and air quality regulations</td>
<td>Rainwater runoff regulation</td>
<td>Micro-climate and air quality regulations</td>
<td>Rainwater runoff, noise, and air quality reg.</td>
<td>Air quality and noise regulations, cultural ES</td>
</tr>
</tbody>
</table>

**Need for a framework to better integrate ES into territorial and actions plans**
Why?
Help local economic stakeholders to make their actions more relevant to the local context and to be better coordinated.

Objective of the presentation
Propose a broader methodological framework adapted to:
- urban and peri-urban contexts
- a combination of private and public stakeholders

Proposition of a framework

1. Select the scope
2. Identify priority ecosystem services
3. Analyse trends in shared priority ecosystem services
4. Identify conflicts, common interests, risks and opportunities
5. Develop strategies and actions
First application
Selection of the scope

- Spatio-temporal scopes must be interconnected
  - Same temporal scope
  - Spatial scopes should largely overlap or the scope of the cESR should be included in the scope of the uESR

Sources: BD Carthage, version 3.0, IGN (March 2006);
BD Carto®, version 3.1, IGN (October 2010, révision February 2013);
Design: S. Michel, 22.05.2015
First application
Identification of priority ES

- Review of Strasbourg plans to identify underlying ES
- Selection of 7 priority ES

<table>
<thead>
<tr>
<th>Priority ES</th>
<th>Example of measures (plan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water provisioning</td>
<td>Reduce impacts of quarries on groundwater (SDAGE)</td>
</tr>
<tr>
<td>Flood regulation</td>
<td>Protection of floodplains (SDAGE, SAGE, SCOT)</td>
</tr>
<tr>
<td>Water quality regulation</td>
<td>Agricultural pollution control (SDAGE, SAGE)</td>
</tr>
<tr>
<td>Climate regulation</td>
<td>Reduce greenhouse gases emissions (SRCAE)</td>
</tr>
<tr>
<td>Maintaining habitat and populations</td>
<td>Enhance wildlife corridors (SRCE, SDAGE, SAGE, SCOT, PLU)</td>
</tr>
<tr>
<td>Air quality regulation</td>
<td>Reduce air pollution (SRCAE)</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>Protect landscape quality (SCOT)</td>
</tr>
</tbody>
</table>
### Comparison of lists

<table>
<thead>
<tr>
<th></th>
<th>Priority ES for the territory</th>
<th>Priority ES for a company</th>
<th>Common list of priority ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisheries</td>
<td>✗</td>
<td>✓</td>
<td>✓ / ✗</td>
</tr>
<tr>
<td>Water provisioning</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Flood regulation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>Water quality regulation</td>
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<td>✓ / ✗</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>✓</td>
<td>✗</td>
<td>✓ / ✗</td>
</tr>
<tr>
<td>Recreation</td>
<td>✗</td>
<td>✓</td>
<td>✓ / ✗</td>
</tr>
</tbody>
</table>
Next steps

1. **Condition and trends in the ES**
   - Supply and demand
   - Quantity and quality
   - Present and future

2. **Direct drivers**
   - Changes in land use and land cover
   - Overconsumption
   - Climate change
   - Pollution
   - Invasive, non-native species

3. **Company activities**
   - How
   - Where
   - To what degree

4. **Activities of others**
   - Who
   - How
   - Where
   - To what degree

5. **Indirect drivers**
   - Governmental
   - Demographic
   - Economic
   - Technological
   - Cultural and religious
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- Governmental
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Why mapping ES?

- ES are spatially distributed
- European Strategy for Biodiversity
- Maps are good support for communication and decision-making

Which possible contributions to the ESR?

- To enhance the analysis of trends in priority services
  > Offer and supply, threats, change, scenarios
- To support identification of risks, opportunities
- To localize actions to be implemented
Difficulties

- Large panorama of available tools: how to select?

- Heterogeneity of results (Seppelt et al., 2011), (Martínez-Harms et Balvanera, 2012), (Egoh et al., 2012), (Crossman et al., 2013), (Schägner et al., 2013)

- Models do not necessarily provide the expected results
Discussion – Outlooks

- Proposition of a framework to deal with the lack of integration of ES-based strategies in action plans

- The work conducted so far relies mainly on methodological reflections and developments
  - Need for implementation
    - Test of the whole methodology
    - Dialogue with stakeholders
    - Explore other GIS-based models for ES assessment
  - Further objective: assess the potential ability of an ES-based approach to improve dialogues, relationships and partnerships
Thank you...

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