Linking wellbeing priorities at the local scale and ecosystem services management at regional scale: The case of the Orotoy river basin (Colombia)

Luis Guillermo Castro & Olga Lucía Hernández
The Orotoy river basin
¿What happens at the Orotoy river?
OPERATIVE IVBES MODEL FOR LANDSCAPE MANAGEMENT

- Preparation
- Assessment
- Planning
- Management

- Empowered
- Informed
- Involved
- Resilient
- In transition
- Vulnerable
- State of socio-ecological system

- Characterization of the socio-ecological system
- Preparation
- Valuation
- Reaching agreement about scenarios
- ES management strategy

Adaptive management

State of socio-ecological system

Vulnerable

In transition

Resilient

Informed

Empowered

Preparation of the actors
The Orotoy river basin in 3 decades

1986: 27 Ha
2000: 1,135 Ha
2014: 4,440 Ha
Oil extraction

Figura 10. Áreas de exploración y producción de hidrocarburos con relación a la cuenca del río Orotoy. Fuente: ANH

170 Oil wells
Social ecological systems
Livelihood conditions

Actores
- Others
- Oil extraction workers
- Farmers
- Urban inhabitants
OPERATIVE IVBES MODEL FOR LANDSCAPE MANAGEMENT

PREPARATION

ASSESSMENT

PLANNING

MANAGEMENT

PREPARATION

EMPOWERED

INFORMED

INVOLVED

STATE OF SOCIOECOLOGICAL SYSTEM

RESILIENT

IN TRANSITION

VULNERABLE

CHARACTERIZATION OF THE SOCIO-ECOLOGICAL SYSTEM

REACHING AGREEMENT ABOUT SCENARIOS

VALUATION

ES MANAGEMENT STRATEGY

ADAPTIVE MANAGEMENT

PACKAGE
Social valuation – Local priorities

- **14 ecosystem services identified by local people**

- **Local priorities for the future:**
  - Water supply
  - Food security
  - Cultural values
## Economic valuation - Reality

Benefits received during a full year (2014).

<table>
<thead>
<tr>
<th>Products</th>
<th>Price (U$S)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palm oil</td>
<td>$846,507</td>
<td>15,2%</td>
</tr>
<tr>
<td>Rice</td>
<td>$268,370</td>
<td>4,8%</td>
</tr>
<tr>
<td>Cattle raising</td>
<td>$50,786</td>
<td>0,9%</td>
</tr>
<tr>
<td>Milk production</td>
<td>$58,509</td>
<td>1,0%</td>
</tr>
<tr>
<td>Citrics</td>
<td>$70,260</td>
<td>1,3%</td>
</tr>
<tr>
<td>Fishing</td>
<td>$99,688</td>
<td>1,8%</td>
</tr>
<tr>
<td>Mining</td>
<td>$688</td>
<td>12,3%</td>
</tr>
<tr>
<td>Irrigation districts</td>
<td>$1,672</td>
<td>0,0%</td>
</tr>
<tr>
<td>Aqueducts</td>
<td>$33,972</td>
<td>0,6%</td>
</tr>
<tr>
<td>Oil industry</td>
<td>$3,456,640</td>
<td>62,0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 5,574,126</strong></td>
<td></td>
</tr>
</tbody>
</table>
Water footprint indicator - Externalities

When comparing the direct use value with the water use valuation from the water footprint indicator, based on the average cost of water cubic meters…

for every $1 perceived by breeders in the Orotoy river basin, $0.26 corresponds to a direct contribution from the ecosystem services of water supply
Ecological valuation
Regional landscape

35% natural areas
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¿What do we conclude?

- prioritize local wellbeing instead of national development.
- Include water, food and culture as a basis for landscape planning.
- Planning with long-term vision.
- Ensure compliance of environmental norms.
- Promote local monitoring systems.
- Improve the communication with environmental authority.
Thank you!

VIVO OROTOY
HISTORIAS DE UN RÍO, MÁS ALLÁ DEL AGUA

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