Financial and economic values of bushmeat in rural and urban livelihoods in Central Africa: Inputs to the development of public policy

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Hunting in the Congo basin

- 60% of the hunted species are overexploited (Fa et al. 2002)
- Increasing pressure on game: rural and urban demographic growth, development of road network, improved hunting techniques
- A complex activity: multiplicity of animal species (with much differentiated connotations) and multiplicity of uses (from raw material to luxury item)
- Attention of the international community but with a conservation-oriented approach (Brown & Williams, 2003)
- Attention of researchers, but with a focus on rural practices and on urban consumption
Hunting in the Congo basin

- Little information on the financial and economic benefits from the full value chain:
  - Requirement to design sustainable harvesting of bushmeat
  - Argument to convince decision makers on the importance of the chain
  - Need to improve national statistics

Numbers in brackets = Gross economic benefit (incl. self-consumption)
A simplified commodity chain

- Local hunters
- Dealers
- Urban markets
- Restaurant / cafeteria
- Rural consumers
- Urban consumers
- Foreign consumers
Methods used

- 3 foci of analysis: rural, urban, exports
- Financial benefit (revenue streams) ≠ economic benefit (contribution to livelihoods = streams + self-consumption)
- Net benefit = gross benefit − cost

<table>
<thead>
<tr>
<th></th>
<th>Rural</th>
<th>Urban</th>
<th>Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial analysis</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Economic analysis</td>
<td>X</td>
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- Based on secondary data collected from scientific and technical publications to set average values
Financial benefits in rural areas

- **Key assumptions:**
  - Regions with humid forest (60% of adult men, 552,000 individuals)
  - Two types of hunters: regular versus occasional

- **Gross financial benefit:**
  - Annual income of €80 per hunter
  - Annual turnover of €44.2 million for 19,200 tons of bushmeat

- **Operating costs:**
  - Free access
  - Equipment (cartridges and wire): €54/yr/hunter
  - Remuneration of carriers: 0.3€/kg

- **Net financial benefit:**
  - €18.16/yr/hunter, around €10 million at national scale
  - Profit margin of 22%
Financial benefits in urban areas

- **Key assumptions:**
  - Inflows of 6 tons a day in Yaoundé
  - Average consumption: 4g/pers/day
  - Average price of bushmeat (slightly processed): € 4.6/kg

- **Gross financial benefit:**
  - Annual turnover of € 50 million for 10 950 tons of bushmeat sold in urban markets

- **Operating costs:**
  - Bushmeat price in rural areas: € 2.3/kg
  - Middlemen travel once a week with public and local transport to meet hunters
  - Waste of game: 10%

- **Net financial benefit:**
  - € 12.7 million per year
Financial benefits from exports
(from Chaber et al. 2010)

Key assumptions:
• 3.67 tons of bushmeat arrive in Paris per week
• Selling price in Paris: € 16/kg

Gross financial benefit:
• Annual turnover around € 3 million for Paris, for 190 tons
• Similar flows in London and in the USA

Operating costs:
• Purchase of game in urban markets of Cameroon
• Payment of the conveyor: € 9/kg
• 10% of exported bushmeat is seized

Net financial benefit:
• Net financial benefit: € 6/kg, i.e. € 1.13 million for France
Economic benefits in rural areas

- **Key assumptions:**
  - Individual consumption of bushmeat in Cameroon: 20kg/yr for the rural areas of the forested regions (3.43 million adults)
  - Reduction by 22% to account for the lower consumption levels of children and the elderly
  - Total consumption of 68,600 tons/year

- **Gross economic benefit:**
  - Average selling price of bushmeat: €2.3/kg
  - Gross economic benefit: €142.7 million/yr

- **Operating costs:**
  - Same operating costs as of the financial analysis
  - Time spent in hunting (with a daily remuneration of €1.5)

- **Net economic benefit:**
  - €24 million/year
### Financial and economic appraisals of the bushmeat sector in Cameroon

<table>
<thead>
<tr>
<th>€/yr</th>
<th>Rural areas</th>
<th>Urban areas</th>
<th>Export</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross financial benefits</td>
<td>44 160 000</td>
<td>50 152 672</td>
<td>3 053 440</td>
<td>97 366 112</td>
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<tr>
<td>Net financial benefits</td>
<td>10 023 206</td>
<td>12 761 069</td>
<td>1 130 472</td>
<td>23 914 747</td>
</tr>
<tr>
<td>Profit margin</td>
<td>23%</td>
<td>25%</td>
<td>37%</td>
<td></td>
</tr>
<tr>
<td>Gross economic benefits</td>
<td>142 671 756</td>
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<td></td>
<td>142 671 756</td>
</tr>
<tr>
<td>Net economic benefits</td>
<td>23 982 290</td>
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<td>23 982 290</td>
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</tbody>
</table>

- The production and the consumption of bushmeat are poorly integrated in the public accounting system, 36% under our appraisal.
- The final consumption of bushmeat was estimated at €44.3 million in the public accounts in 2010, 69% below our assessment.
Bushmeat contribution to national Economies: a few examples

- DRC: 5% of the GDP
- Republic of Congo: 2% of the GDP (not including oil products)
- Cameroon: 0.17% to the GDP
Insights for public policy

**Food security in rural areas:**
- Difficult to reduce the dependence of rural populations on bushmeat due to a lack of alternatives sources of proteins.
- Major challenge: improve local management of the wildlife resource, for instance by setting out some principles for sustainable hunting and then allow communities to establish and enforce their own rules of access and use.

**Poverty alleviation in rural areas:**
- Hunting is a significant source of cash for rural populations, but it remains a secondary source of income in rural areas.
- Farming constitutes a financially attractive activity for the rural poor that might deter young individuals from commercial hunting.

**Nutrition of urban populations:**
- Where food security may be ensured through access to other sources of proteins, the policy goal should be to limit the consumption of vulnerable species by the upper class, while guaranteeing that bushmeat provides irreplaceable nutrients to consumers of the middle and lower classes.
Insights for public policy

- **Dissociate poaching and species extinction with wildlife extractions for nushmeat?**
  - Studies in Kisangani show that 2/3 of the species hunt for bushmeat are rodents and ungulates
  - Rodents and small antelopes (Kumpel et al., 2010), persist sustainably even in agricultural landscapes around cities, where there is high hunting pressure.
  - Of the 18 species hunted one was an endangered species
  - Current legal framework almost criminalize all forms of hunting
Thank you for your attention