Wood energy, livelihoods, and private sector involvement

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Expert Exchange Workshop:
Promotion of Sustainable Wood Energy Value Chains in Development Cooperation

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Introductory Remarks
The Role of Data

Without Data, there is no information, there is no analysis and knowledge

Limited data ~ anecdotal “evidence”

Improved and sound data of wood energy sector as a foundation for sector reforms and investments.

Better data and improved analyses are needed, for example:

- **Demand side modeling:** Household decision making on energy choices: what, when, where, how often, for what purpose

- **Supply side modeling:** measuring deforestation is not enough, but assessing all forest and tree biomass, incl. wood resources outside forests in landscapes

Wood energy is multi-sectoral and requires interdisciplinary analytical approaches

- Urban, Energy, Finance & Governance
- Apply “Big Data” technologies (ITC)
## Fuels, Use, Sources

<table>
<thead>
<tr>
<th>Woodfuels</th>
<th>Wood Energy Uses</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuelwood / Firewood</td>
<td>Households</td>
<td>Cooking and heating</td>
</tr>
<tr>
<td>Charcoal</td>
<td>Commercial</td>
<td>Restaurants, bakeries, dry cleaning, etc.</td>
</tr>
<tr>
<td>Wood Chips</td>
<td>Industrial</td>
<td>Cement and chemical industry, food processing, pig iron, tobacco, coffee, tea, etc.</td>
</tr>
<tr>
<td>Wood Pellets</td>
<td>Utilities</td>
<td>Power and heat generation (e.g. district heating; combined heat and power (CHP))</td>
</tr>
<tr>
<td>Torrefied Pellets</td>
<td></td>
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</tr>
</tbody>
</table>

### Principal Wood Energy Sources:

- **Natural Forests**
- **Plantations**
- **Agroforestry**
- **Trees Outside Forests**
Drivers of Future Demand

Household Use:
- Population growth and urbanization
- Increasing prices of alternatives

Commercial Use:
- Urbanization leads to increase in commercial demand (restaurants, bakeries, dry cleaning, etc.)
  - 1% increase urbanization leads to 14% increase of charcoal consumption (Hosier et al. 1993 for Dar-es-Salaam)

Industrial Use:
- Fossil fuel price increase and price volatility make fossil fuels unattractive
- Increasing use of woodfuel as renewable energy sources for low-carbon industrial production

Utility Use:
- Fuel for off-grid / mini-grid development, especially in rural areas
- Increasing the renewable energy mix (power and heat generation)

Population growth and urbanization in Sub-Saharan Africa
Wood Energy and Livelihoods
Livelihood – What is that again?

A person's **livelihood** refers to their "means of securing the basic necessities - food, water, shelter and clothing - of life".

*Source: Wikipedia*

A way of earning money in order to live.

*Source: Merriam-Webster*

A livelihood is a means of making a living. It encompasses people’s capabilities, assets, income and activities required to secure the necessities of life.

*Source: The International Federation of Red Cross and Red Crescent Societies (IFRC)*
Wood Energy and Livelihoods – Absolute Perspective

**Employment**

- Per unit of energy, charcoal generates about 2.5 times as much employment as electricity, fuelwood about 1.5 times.
  - Sub-Saharan Africa charcoal sector is estimated to employ 7 million Africans, with aggregate employment expected to reach 12 million people by 2030.
- Many women employed in wood energy sector (charcoal sector Ghana 65% women).

**Economic Value**

- Wood energy is a sector with high economic potential, and its value is often exceeding that of sectors commonly focused on as development priorities.
  - Sub-Saharan Africa charcoal sector equaled USD 8 billion in 2007 with estimates reaching to USD 12 billion in 2030.

**Tax Revenues**

- In a formal and legal sector, many opportunities to establish smart revenue collection systems.
- Potential for tax revenues is high to be reinvested in sustainable natural resource management and other development objectives.
Africa’s labor market:
Demographics: Rapidly growing labor force
Job growth: Lower than labor force growth
Formal sector: Lower than demand for jobs

Result: Most income opportunities are informal

- Rural areas → subsistence work
- Urban areas → wage labor
- Public jobs high share of formal employment
- Wage labor mostly men, even though women have increased
- Growth based on oil, gas, and mining creates few domestic jobs

Factoid:
In Kenya, wage salary employment increased by half a million from 1982 to 1996. At the same time, the labor force grew by the same amount every year.
Wood Energy and the Private Sector
Who is the private sector?

→ No wood energy is publicly supplied (i.e. through governments).
→ Existing value chains are entirely privately organized by a multitude of entrepreneurs.

The African Wood Energy Private Sector:
Terms of Trade of this Private Sector

All of these entrepreneurs:
- Borrow resources
- Lend resources
- Invest resources
- Save resources
- Employ and sub-contract
- Establish business connections
- Pay “fees” and “taxes”
... and many more

At the same time:
- Operating in an illegal / “grey” legal framework
- Have little rights to mean of production
- Sustainable management incentives negligible
- Especially important in relation to forest and tree management
Wood Energy, Livelihoods, and the Private Sector

Future Opportunities
Modernized and Formalized Wood Energy Value Chains

(a) Forest and Tree Management
- Modernized wood energy value chains as drivers for locally controlled forest and tree management systems (community forestry, participatory forest management, individual tree and forest ownership, etc.)
- Vibrant wood energy markets can make forests competitive to other land uses and stimulate investments in SFM

(b) Forest Landscape Restoration
- Modernized wood energy value chains to incentivize establishment planted forests and tree resources
- Re- and afforestation enhance adaptation to climate change, especially on degraded and marginal lands

(c) Create Income and Economic Opportunities
- Formalization and modernization of wood energy value chains can accelerate income and livelihood opportunities
Modern & Holistic Approach

Woodfuels deserve to be treated as any other commodity – and the actors as true private actors:

- Unnecessary degree of reservation and discomfort – especially in developing country context
- Modernize policy framework
- Facilitate supply chain management enhancements
- Catalyze also large private sector investments, but no crowding out
- Large private sector role: industrial markets through outgrower schemes
Let’s Learn from other Sectors

Comparing basic need challenges and responses in two related sectors (for African context):

<table>
<thead>
<tr>
<th>Food Security</th>
<th>(Biomass) Energy Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitate trade</td>
<td>Impose bans</td>
</tr>
<tr>
<td>Provide extension service</td>
<td>Implement command and control forest governance</td>
</tr>
<tr>
<td>Educate farmers</td>
<td>Charge bribes</td>
</tr>
<tr>
<td>Award best practices</td>
<td>Throw people into jail</td>
</tr>
<tr>
<td>Engage in research</td>
<td>Still don’t have a clue</td>
</tr>
<tr>
<td>Provide seeds</td>
<td>Buy law enforcement equipment</td>
</tr>
<tr>
<td>Decentralize responsibilities to the field</td>
<td>Recentralize control in capitals and line ministries</td>
</tr>
</tbody>
</table>

... to be continued
## Today’s Forest Ownership Structure in Europe

<table>
<thead>
<tr>
<th>Country</th>
<th>Public Ownership</th>
<th>Private Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>18%</td>
<td>82%</td>
</tr>
<tr>
<td>Belgium</td>
<td>43%</td>
<td>57%</td>
</tr>
<tr>
<td>Denmark</td>
<td>28%</td>
<td>72%</td>
</tr>
<tr>
<td>Finland</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>France</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td>Germany</td>
<td>54%</td>
<td>46%</td>
</tr>
<tr>
<td>Greece</td>
<td>82%</td>
<td>18%</td>
</tr>
<tr>
<td>Ireland</td>
<td>66%</td>
<td>34%</td>
</tr>
<tr>
<td>Italy</td>
<td>34%</td>
<td>66%</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>47%</td>
<td>53%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>51%</td>
<td>49%</td>
</tr>
<tr>
<td>Norway</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td>Portugal</td>
<td>8%</td>
<td>92%</td>
</tr>
<tr>
<td>Spain</td>
<td>22%</td>
<td>78%</td>
</tr>
<tr>
<td>Sweden</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>69%</td>
<td>31%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>43%</td>
<td>57%</td>
</tr>
</tbody>
</table>
Private Forest Ownership Structure – Europe

1. Size structure by the ratio of private holdings to the total number of holdings (in %)

2. Share of holdings by size class to total area of holdings (in %)
Today’s Forest Ownership Structure in Africa

<table>
<thead>
<tr>
<th>Ownership Type</th>
<th>2002</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Administered</td>
<td>448.31</td>
<td>372.11</td>
</tr>
<tr>
<td>Designated for IPS and Local Communities</td>
<td>18.12</td>
<td>22.89</td>
</tr>
<tr>
<td>Owned by IPS and Local Communities</td>
<td>N.D.</td>
<td>N.D.</td>
</tr>
<tr>
<td>Owned by Individuals and Firms</td>
<td>1.29</td>
<td>1.36</td>
</tr>
</tbody>
</table>
Thank You For Your Kind Attention!