Sustainable Land Use: Global Studies and Scenarios

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Transforming the Biosphere...

The effects of human intervention are now apparent on more than half of Earth’s ice-free land mass.

Source: Jones (2011), from WBGU (2011)
Transforming Landscapes...

Foley et al. (2005)
Global Agricultural Land 1980-2050

- FAO/IMAGE
- IAASTD
- MEA scenarios
- Outlook Baseline
Global “Trend” Outlook

• FAO (2011): "Global and national policies will need to be aligned and institutions transformed to become genuine collaborators in applying knowledge and in responsible regulation of the use of natural resources (...) BAU will not be enough."

• OECD (2012): “The current growth model and the mismanagement of natural assets could ultimately undermine human development (...) The costs of inaction could be colossal, both in economic and human terms.”
Food, Feed, Fuel?

dominant in the medium-term: pasture land for meat/dairy production

Source: EEA 2010; FAO 2011
Population as a “Driver”
PBL: Growing within Limits
Prevention, mitigation and rehabilitation of land degradation less than half a kilometer apart
Degraded Land for Bioenergy?

Country studies in Brazil, China and South Africa

see "Bio global“ final report (2010)

<table>
<thead>
<tr>
<th>Land type</th>
<th>Area</th>
<th>energy</th>
<th>reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>degraded land</td>
<td>0.4-0.6 billion ha</td>
<td>8 - 110 EJ/a</td>
<td>Hoogwijk et al. (2003)</td>
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<tr>
<td></td>
<td>2.50 billion ha (19% of land area)</td>
<td>~ 500 EJ/a</td>
<td>Metzger/ Hüttmann (2009)</td>
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<tr>
<td>abandoned land</td>
<td>0.4 billion ha</td>
<td>27 EJ/a</td>
<td>Field et al. (2008)</td>
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<tr>
<td>marginal and degraded land</td>
<td>1.1 – 1.4 billion ha</td>
<td>150-200 EJ/a</td>
<td>Cai, Zhang, Wang (2011)</td>
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<td></td>
<td></td>
<td>90 EJ/a</td>
<td>Wicke (2011)</td>
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<tr>
<td>water-scarce, marginal + degraded lands</td>
<td>70 EJ/a</td>
<td></td>
<td>ECN et al. (2009)</td>
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Global primary energy demand in 2010 ca. 530 EJ

Top-down global data without ground truthing – country studies show:
more conservative estimates needed
→ up to 5% of global energy demand
Global Bioenergy

Primary energy in exajoules (EJ)

- All others
- Transport

IEA Energy Technology Perspectives, 2°C Scenario

Source: IEA (2012a), IPCC (2011), Fritsche u.a. 2010; own presentation
African land grabs hinder sustainable development
Sales of forest land to corporations are dispossessing inhabitants and harming ecosystems.

Anjali Nayar
01 February 2012

A scramble to buy African land is threatening the continent’s sustainable development, according to reports launched today at the Royal Society in London.

Of the 203 million hectares of land deals reported worldwide between 2000 and 2010, two-thirds were in Africa. The acquisitions are dispossessing millions of Africans of their land, to make way for expansive forestry and mineral projects and plantations, say a series of briefs and a report published by the Rights and Resources Initiative (RRI), an international coalition of groups working to increase community ownership of forests, based in Washington DC.

“The global report shows the scale of the issue as never before: three-quarters of Africa’s population and two-thirds of the landscape are at risk,” says Andy White, who coordinates the RRI.

The land deals stretch across the continent. In Liberia President Ellen Johnson Sirleaf — co-winner of the 2011 Nobel Peace Prize — handed over one-third of the country’s land to private investors during her 2006–11 term. That included around 650,000 hectares granted to two palm-oil giants; the move will affect the land and lives of more than one million Liberians.

And soon after South Sudan gained its independence last year, investors acquired around 9% of the country’s lands, including one-quarter of the most productive land around the capital, says David Deng, research director of the South Sudan Law Society in Juba.
Are Guidelines Enough?

Land
Our most valuable resource

“Land is our most valuable resource... it is the means of life without which we could never have existed and on which our continued existence and progress depend”

FAO LAND TENURE STUDIES 1

Preparing Voluntary guidelines

Land and natural resources provide a platform for livelihoods and a basis for social, cultural and religious practices. Pressure on these resources is increasing as new areas are cultivated, occupied by urban extension and abandoned because of degradation, climate change and violent conflicts.

In response, FAO is preparing Voluntary Guidelines to enhance governance of tenure of land and other natural resources. The Voluntary Guidelines intend to provide practical guidance on responsible governance of tenure as a means of alleviating hunger and poverty, enhancing the environment, supporting national and local economic development, and reforming public administration.

Voluntary Guidelines on Responsible Governance of Tenure of Land and other Natural Resources

Process to develop the Voluntary Guidelines

Consultative process. The Voluntary Guidelines will be prepared jointly with governments, civil society, private sector and academia. They will draw on multistakeholder thematic and regional consultation meetings that assess issues and actions to be included in the guidelines. The guidelines will adopt an interdisciplinary approach recognizing rural and urban linkages and considering a variety of natural resources (land, forests, fisheries and water).

Consideration by FAO governing bodies. After the initial consultation meetings, the following step will be the drafting of the Voluntary Guidelines, and their review and assessment by FAO member countries and other stakeholders. The FAO will then turn to the implementation.

Links to other initiatives. The work on Voluntary Guidelines is a part of FAO’s broader mandate. The guidelines on responsible governance of tenure will be a further elaboration of the Right to Food Guidelines. They will also build on FAO’s long-term work in improving secure access to land and other natural resources, including the 2006 International Conference on Agrarian Reform and Rural Development (ICARDO). In addition, the guidelines will be drafted in consideration of regional initiatives such as the Land Policy Initiative of AU, UNECA and ADB.

2012-

IMPLEMENTATION OF THE VOLUNTARY GUIDELINES
Preparation of country and regional policies and action plans

FAO VOLUNTARY GUIDELINES

• Fire Management: Voluntary Guidelines - Principles and Strategic Actions, 2006.
• Responsible management of planted forests Voluntary guidelines, 2006.
• Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security, 2004.
• Code of Conduct for Responsible Fisheries, 1996.

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Perspectives

- **range** of global scenarios = corridor for **action**
- **drivers**: agro/food/feed (dominant) >> population & GDP >> bioenergy/biomaterials
- **limited** land vs. abandoned, underused, degraded...
- but: bio“economy“ relevant **entry window** to regulate sustainability of land use
- open: how to mainstream sustainable land use – **beyond** voluntary guidelines...

- **website** [www.globalands.org](http://www.globalands.org) **contact**: uf@iinas.org
More Information