ValuES

www.aboutvalues.net

FACTSHEET

Raw Materials

In a nutshell

Ecosystems provide a wide diversity of materials for construction and fuel, including wood, biofuels and plant oils that are directly derived from both wild and cultivated plant species.

1. Role for human well-being

Ecosystems provide raw materials such as fibres and timber as well as non-timber forest products (NTFP), e.g. rubber, latex, rattan and plant oils which are very important for commercial activities and subsistence in rural communities. In 2002 a study estimated the annual global trade in such products to amount to US$ 11 billion. In the last few decades plants have increasingly been used for the production of renewable energy such as biofuels and biogas.

2. Typical threats

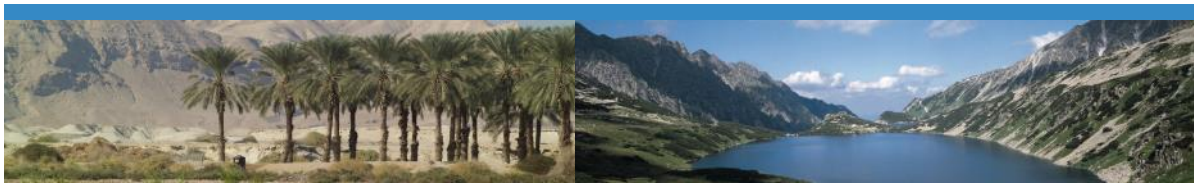
The threats here are similar to those described more detailed for the ecosystem service food provision. Local people's ability to harvest raw materials in forests or wetlands is adversely affected by land use changes caused by agricultural or infrastructure development. In many cases over-harvesting or a lack of integrated and balanced resource management may have a powerful negative influence. Furthermore, socio-economic changes such as the loss of traditional land use practices and site-specific knowledge can be a critical issue. Conservation measures can also prevent the extraction of plants and animals for use as raw materials.

3. Example indicators

- Statistical bureaus often provide indicators such as the total amount of useful substances (trees, plants) in m^2/ha or kg/ha or economic value in $/ha or $/t.
- The economic value of timber is typically measured in terms of sawn timber in $ and can often be measured based on available data. For further information see CBD TCS No. 58, p. 99.
- The time required to collect and transport raw materials (e.g. fuel wood) can be measured (time/household).
- Measuring total annual wood production (tonnes/km^2/year) and comparing it with fuel wood demand enables gaps to be identified; see CBD TCS No. 58, p. 91.
- For evidence on the long term availability of this service, useful indicators are the maximum sustainable harvest (kg/ha/year) or the stock of species used (population density/ha/year).

Global sources available for national data:

- FAOSTAT provides data on the production and trade of raw materials such as relevant crop, timber or fuel wood production.



4. Example methods

For **assessing the value** of this ecosystem service:

- Direct market price
- Production approach
- Factor income
- Surveys or questionnaires focusing on the importance of plants and animals as raw materials, such as the protocol for social valuation of ecosystem services.

For **assessing the condition** of this ecosystem service:

- Changes in land use or land cover can be measured on the basis of available land use maps or other remote sensing data, e.g. orthophotos. With both methods, GIS software and mapping are crucial for a spatially explicit calculation.
- To predict future trends based on spatially explicit data, models such as InVEST timber production can be used.
- The webpage Global Forest Trends offers a global map of forest cover change, and satellite data per area can be downloaded. The Global Forest Observation Initiative is developing a similar map and database for selected countries.

5. Managing this service

Very often land use decisions involving the production of food and raw materials (especially intensive forms of production for commercial products) involve trade-offs with the provision of other ecosystem services. In most cases regulating and cultural services are affected. Intensive production of, e.g. coffee or jatropha can also diminish local raw material production. For a comparative example, see the video on jatropha cultivation in Mozambique and Malawi. Management tools should make trade-offs explicit and include them in land use and management decisions. Typical instruments for managing this service include:

Sustainable forest management and certification

- In Burkina Faso an economic valuation study altered development policy approaches from harnessing only agricultural output to ensuring sustainable forest management for timber, fuel wood and non-timber forest products.
- On the Solomon Islands sustainable forest management and forest certification have been used as instruments to minimise the negative environmental and social impacts of logging and to maintain ecosystem services.

Spatial planning, subsidies and innovative protected area systems

- A new zoning framework for sugarcane and palm production in Brazil has improved socio-economic benefits and minimised environmental impacts.
- The Chico Mendes Law in the State of Acre (Brazil) promotes sustainable traditional extractive activities and has been contributing towards halting the destruction of forest ecosystems.
- Extractive reserves in the Brazilian Amazon and Cerrado ecosystems constitute an innovative approach to match conservation and development objectives. Many attempts are underway to apply the concept to different tropical regions.

ValuES

www.aboutvalues.net

For further guidance for the sustainable use of raw materials in forests and beyond, see e.g.:

- The World Agroforestry Centre offers science-based knowledge about the diverse roles that trees play in agricultural landscapes. Available are case studies, toolkits and guidance on how to advance policies, land-use practices, and their implementation, to improve benefits for the poor and the environment.
- See the CBD Good Practice Guide on sustainable forest management, biodiversity and livelihoods and the CBD-TS-No 39: Cross-sectorial toolkit for the conservation and sustainable use of forest biodiversity.
- See the FAO publications on forestry management and conservation.

On behalf of:
Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
of the Federal Republic of Germany

HELMHOLTZ ZENTRUM FÜR UMWELTFORSCHUNG UFZ

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Factsheet compiled by: Florian Manns. UFZ. 2014.
Contact: info@aboutvalues.net

ValuES is coordinated by the Gesellschaft für Internationale Zusammenarbeit (GIZ) and implemented in partnership with the Helmholtz Centre for Environmental Research (UFZ) and the Conservation Strategy Fund (CSF). ValuES is a project with a global focus. We work in close collaboration with partner countries in the integration of ecosystem services into policy, planning and practice. ValuES is funded by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) through its International Climate Initiative (IKI).