

Linkages Between Land Use Methods, Biodiversity Conservation and Increased (Agricultural) Productivity



by

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Presentation Outline

- ❖ Background
- ❖ Land use and land use change
- ❖ Land management practices
- ❖ Biodiversity conservation in Productive landscapes
- ❖ Carbon sequestration and biodiversity
- ❖ Increasing agricultural productivity in productive landscapes while conserving the natural environment
- ❖ Concluding remarks

Background



- ❖ Nearly 1/3 of the World's landmass has agricultural crops or land pasture as land use.
- ❖ Another quarter of land is under extensive livestock grazing and
- ❖ 1-5% of food is produced in natural forests.
- ❖ About 1.1 billion people live within the World's 25 biodiversity hotspots – most threatened species rich regions.
- ❖ Agricultural systems have profound effects on biodiversity and ecosystem services.

Background continued

- ❖ Half of the World's rivers are seriously depleted and polluted..
- ❖ Natural resource degradation has reduced supply and increased costs of agricultural production
- ❖ As populations and economies grow, we need approaches that will ensure a sustainable supply of both agricultural products and ecosystem services.
- ❖ Big investment will be required to rehabilitate degraded resources and ecosystems upon which food supplies especially for the rural poor depend.

The trends

- ❖ Millions of hectares of forests have been cleared for agric.
- ❖ Half the world wetlands have been converted for production;
- ❖ Overuse and mismanagement of pesticides poison water and soil;
- ❖ Some introduced crops, livestock, trees and fish have become invasive;
- ❖ Agriculture fragments the landscape – breaking formerly continuous wild species populations into smaller non-viable units.
- ❖ When farmers eliminate wild species from their lands – pests, predators and weeds; they harm beneficial wild species like pollinators, insect eating birds and others that prey on agricultural pests

Issues at National Level

❖ **Uncontrolled expansion of agricultural land leading to the erosion of soils and a decline in their fertility**

- Agriculture is the backbone of the Uganda's economy and will continue to be for the foreseeable future
- A study by Slade & Weitz in 1991 estimated that soil erosion alone accounted for over 80% of the annual cost of environmental degradation , equating to \$300 million per year

❖ **Reduced quality and availability of water**

- Statistics: 39 cu km of renewable water sources (NEMA, 2005)
 - 60% used for farming
 - 8% used for industrial activity

Issues at National Level

❖ **Encroachment and degradation of wetlands**

- Draining wetlands for agriculture
- Excavation for sand mining and extraction of clay for brick making
- Dumping of solid wastes especially in urban areas
- Rampant swamp fires

❖ **Encroachment of forest reserves, Deforestation and the overgrazing of rangelands**

- Forests and woodlands were reduced by two-thirds between 1962 and 1977.
- By 1985, 193 square miles of forests were eliminated .
- From 1971 to 1987; Uganda lost 50 percent of its forests, including virtually all of its primary forests.

Issues at National Level

❖ **Encroachment of forest reserves, deforestation and the overgrazing of rangelands**

- Between 1983 and 1993 alone, 7.7% of forest and woodland were lost. Uganda's annual deforestation rate has climbed to 21 percent since the end of the 1990s.
- 86,400 hectares of forest or 2.1% forest cover per year between 2000 and 2005, mostly due to subsistence farming, cutting for fuel wood and settlement by a rapidly increasing population.
- Uganda lost 26.3 % of its forest cover (1.3 million hectares) between 1990 and 2005

Focus on Hoima District

- ❖ Total area is 5,735.3 sq. km,
- ❖ 27% of area is forest land
- ❖ Hoima is one of the districts with the highest acreage of tropical high forests.
- ❖ These are however being degraded at a record change rate from 75,143.95 ha in 1990, to 58,889.27 ha in 2005. A loss of 16,254.68 ha or an equivalent of 21.6%, with much of this loss occurring on private and community land.

Focus on Hoima District

- ❖ Clearance of forests for crop cultivation,
- ❖ over harvesting of wood products
- ❖ and the need to clear habitat to rid of wild animals that raid crops
- ❖ implications to biodiversity conservation, carbon sequestration, watershed protection services as well as community livelihoods.

What is at stake?

- ❖ We rely on harvesting wild species – greens, medicines, fruits, root crops, insects ...
- ❖ Bushmeat and fisheries provide sources of cheap protein.
- ❖ Inputs for farming – fencing, ropes, poles, grass for thatch, ...
- ❖ Water for production – livestock, dry planting.
- ❖ Agricultural landscapes provide critical habitat – corridors helping link protected areas; Budongo-Bugoma corridor.
- ❖ Ecosystem services – Watershed protection, pollinators, carbon sequestration; flood control
- ❖ Climate change Adaptation – microclimate, irrigation.

Improved land management practices

❖ Protection of river banks - Atleast 30 meters



❖ Nature based enterprises.



❖ Create alternatives to habitat degradation

Land management practices

❖ Soil and water conservation measures.



❖ Agroforestry – Fruits, fodder, fuelwood, poles, timber ...



Land management practices



❖ Conserve riverline vegetation –
Bugambe Tea, Kinyara Sugar.

❖ Conservation of wetlands

❖ Conserve natural forests –
Incentives,

The land management practices help store carbon dioxide – Carbon sequestration

- ❖ Reduced emissions from Deforestation and Forest Degradation and enhancement of carbon stocks – REDD+
- ❖ Afforestation/Reforestation
- ❖ Carbon storage in farmlands (agricultural Carbon) – agroforestry, management of crop residues, use of renewable energy (biogas? Solar, HEP).
- ❖ Where there is carbon; there is biodiversity!



Actions by Stakeholders

- ❖ Private Sector/Civil Society conservation partnerships [e.g. British American Tobacco Biodiversity Partnership](#) where a number of conservation agencies are working with the business to develop and implement measures to minimize impacts of agricultural activities on the natural environment.
- ❖ [Need to develop a shared vision among stakeholders](#)

The Road is rough, winding but it is possible to sustain agricultural productivity while maintaining the ability of landscapes to supply quality goods and environmental services if we are far sighted!



HOW FAR IS FAR!

Mwebare Muno!

Thank you!



About NAHI

- ❖ Nature Harness Initiatives is a Ugandan not-for profit organisation that promotes market based mechanisms for improved natural resources management.
- ❖ Wealth creation for environmental stewards is the driver behind NAHI.
- ❖ NAHI works with private businesses and communities to improve management of the natural environment upon which their businesses and livelihoods depend.

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