

Development of strategies for the optimal use of biogenic industrial raw materials:

**Sustainability Standards and Indicators for the
Certification of internationally traded Biomass**

**Beyond the German BSO:
Scope of Further Work on Land-use
Related GHG**

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Biodiversity and Biofuels

Land-use not only relevant for GHG, but also biodiversity impacts:

- Pressure on areas of high biological diversity
- Direct impacts on rare, threatened or endangered species and ecosystems
- Indirect impacts through impaired / reduced ecosystem functions

Approach to be researched (with FAO, and potentially UNEP):

- Define relevant areas (based on criteria)
- Map relevant areas (using GIS databases)
- Screen land cover & land-use for relevant areas
- Identify “no-go” areas (GIS-based)
- “Register” bioenergy land-use areas (coordinates)
- Monitor compliance (remote sensing via satellites)

Biodiversity in the BSO

§ 3 – Protection of natural habitats

Addressed are protected areas (PA) and areas of high natural conservation value (HNV)

→ Areas of high biological diversity

→ Areas of rare, threatened or endangered species/ ecosystems

→ Fundamental protective functions

**Biological
Diversity**

§ 2 – Sustainable cultivation of agricultural land

Addressed are standards for biomass production (good practice)

...

→ No significant decline of species/ ecosystem diversity

**Agricultural
Biodiversity**

...

Biodiversity in the BSO

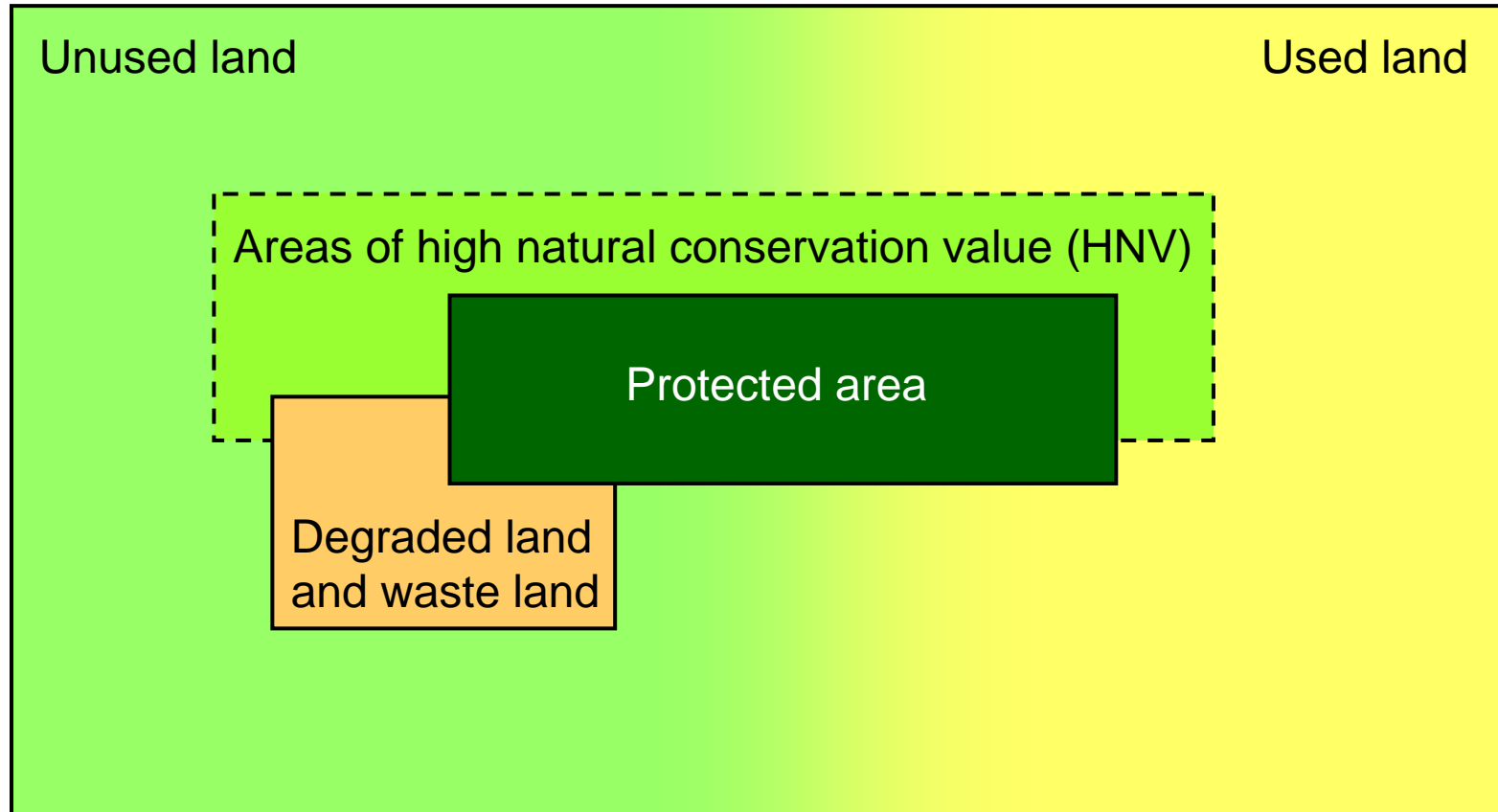
Biological diversity (=biodiversity) (CBD, article 2)

- **variability among living organisms from all sources**
- including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part
- this includes diversity within **species, between species and of ecosystems.**

Agricultural biodiversity (=agrobiodiversity) (FAO/CBD Workshop 1998)

- variety and variability of animals, plants and micro-organisms which are necessary to **sustain key functions of the agro-ecosystem** its structure and processes for, and in support of, food production and food security.
- The term agricultural biodiversity encompasses **within-species, species and ecosystem diversity.**

Definitions



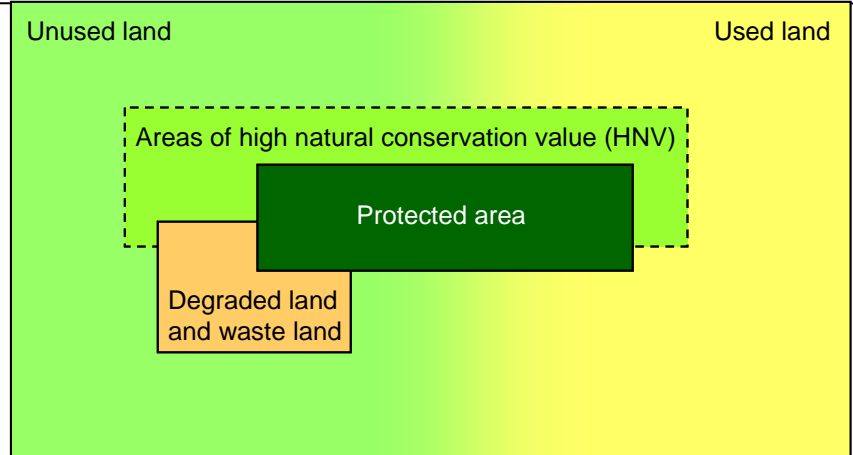
Global Land Categories

Protected Areas

- Instrument to protect natural resources including biodiversity (IUCN, WCMC, CBD)
- **Cornerstones** of regional conservation strategies
- Represent the **biodiversity of each region**
- **Separate** this biodiversity from processes that threaten its persistence
- International **Databases**: World Database on Protected Areas (WDPA), UN List of Protected Areas

BUT:

- Strategies for **managing whole landscapes** (production + protection) are needed for the protection of biodiversity.
- Large number of these species, ecosystems and ecological processes are **not yet adequately protected (gap analysis)**



Definition of Protected Areas

IUCN:

Protected Areas are areas “of land and/or sea especially dedicated to the protection and maintenance of biodiversity, and of natural and associated cultural resources, and managed through legal or other effective means”.

CBD:

Protected Area as “a geographically defined area that is designated or regulated and managed to achieve specific conservation objectives”.

Global Land Categories

Areas of high natural conservation value (HNV)

- May **fill the gap** of Protected Area Network
- Necessary to **raise the significance of HNV** on the national scale (clear conservation targets + indicators)
- **Global databases** on areas important for the conservation of biodiversity may be useful to identify HNV.

BUT:

- Internationally **accepted definition** of the term HNV is **absent**
- Many global data are to **course in resolution**
- **Specification necessary** on a regional, national or even sub-national scale within ecological meaningful units

§ 3 Biofuels Sustainability Ordinance (BioNachV)

...globally or nationally significant accumulation of...biological diversity
...rare, threatened or endangered ecosystems...
...fundamental protective functions.

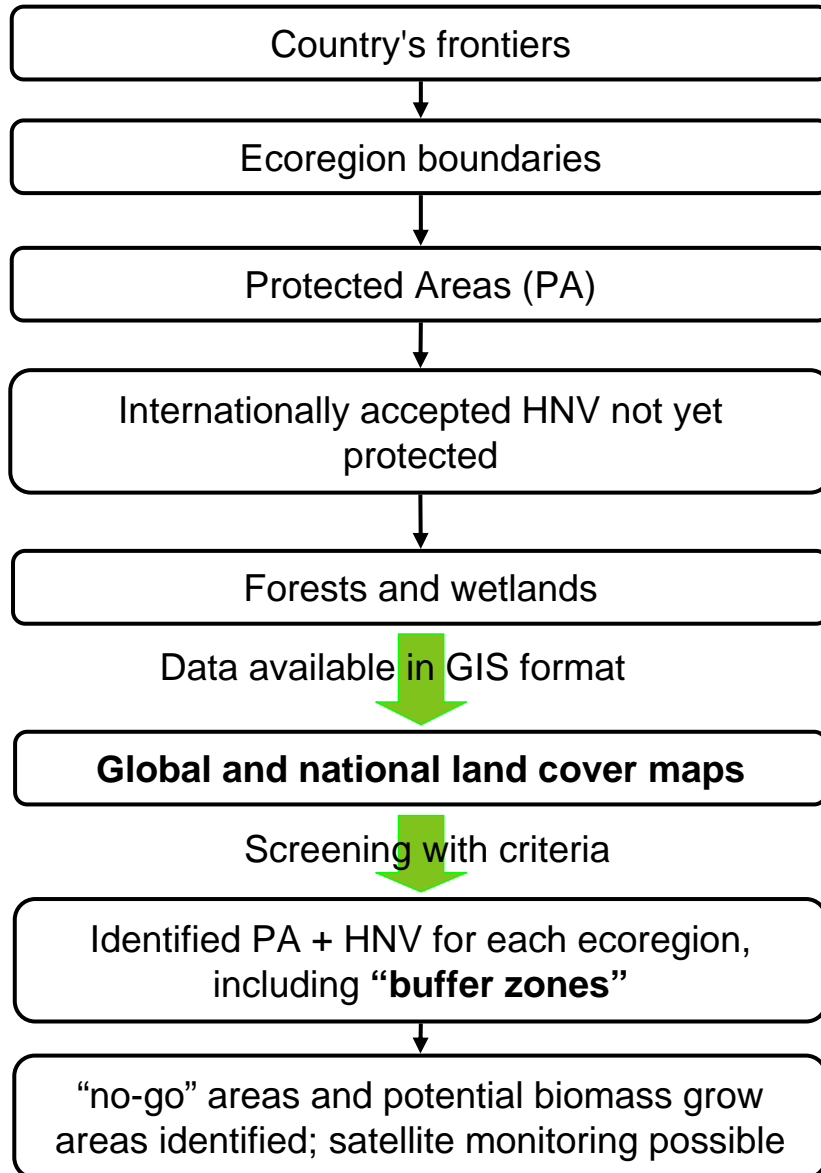
High nature value farmland:

...comprises the core areas of biological diversity in agricultural landscapes (extensive farming practices... high species and habitat diversity...species of conservation concern) (EEA 2005).

High Conservation Value Forests (HCVF):

(1)...significant concentrations of biodiversity values... (2)...viable populations of...naturally occurring species... (3)...rare, threatened or endangered ecosystems. (4)...basic services... (5)...basic needs of local communities... (6)...traditional cultural identity... (FSC 2000)

Identify “key” biodiversity



Nations are a well defined political unit

Ecoregions are international accepted unites (Olson et al. 2001, WWF-database)

Location of Protected Areas is – at least – nationally known (WDPA, UN List of PA)

Data basis of unprotected HNV available (e.g. Biodiversity Hot spots, Important Bird Areas, Important Plant Areas, etc.)

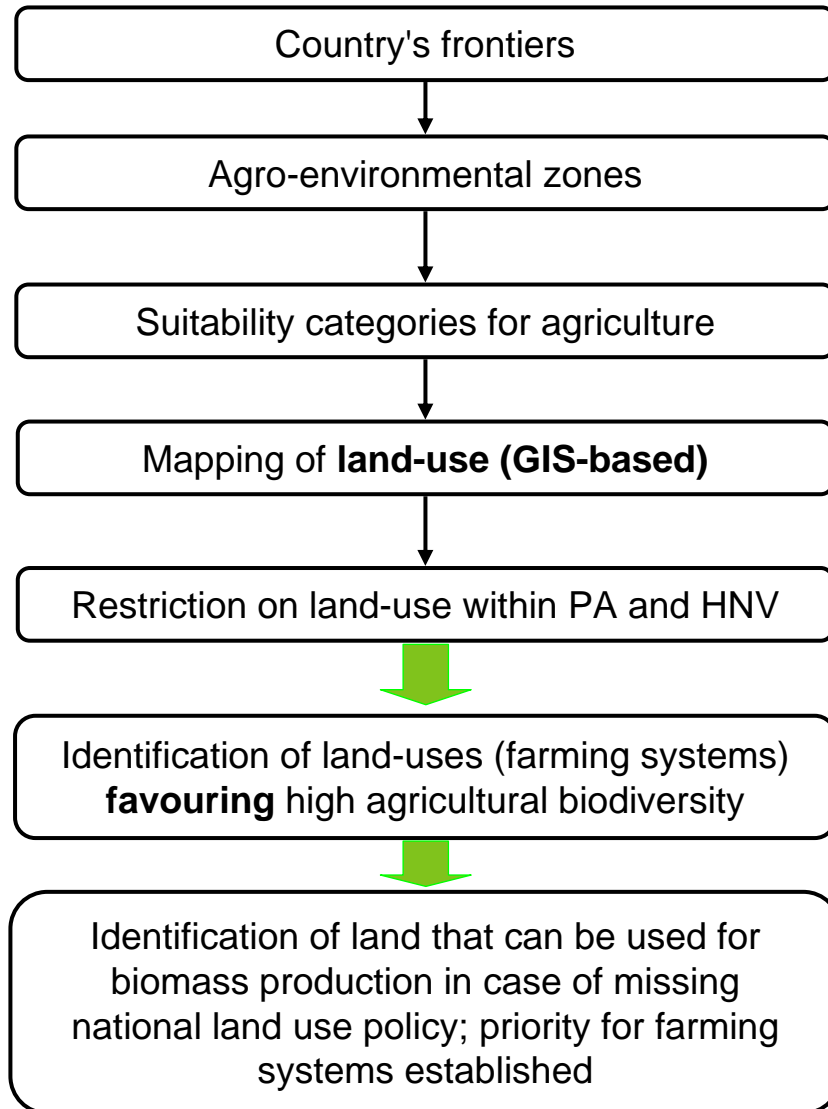
Data basis on forests (e.g. FAO) and wetlands (e.g. GLWD, Lehner & Döll 2004)

- GLC 2000 based on LCCS, update available in March 2008 (FAO, 300 m resolution)
- National land cover mapping (high resolution)
- **Change detection possible for monitoring**

...identification of HNV must use clearly defined international criteria; buffer zones around areas

PA+HNV areas are “no-go” → other areas **might** be suitable for biomass development, depending of further qualification (water, social issues...)

Addressing Agrobiodiversity...



Nations are a well defined political unit

AEZ are meaningful and international accepted unites (Fischer et al. 2000, FAO 2005)

Biophysical database from FAO and IIASA 2007, project report available in March 2008

Worldwide data exist (e.g. Agro-MAPS, Land Use System LUS), but with low resolution

...based on existing PA, identified HNV and criteria for sustainable resource uses...

...identification of land-use forms including landscape structuring must follow clearly defined international criteria...

...production has to be strictly limited to areas (degraded land, idle land) which are not in use and do not shelter HNV...

Questions...

For the protection of biodiversity, key questions arise:

- What is an internationally acceptable and applicable **definition of HNV**?
- Which **reliable** institutions/mechanisms to **identify HNV** in countries and ecoregions?
- Which institutions can define **land-use compatible** with PA and HNV?
- Which institutions defines **farming systems** favouring high agricultural biodiversity, and what are criteria for this?
- How to incorporate **small-scale farming** in a monitoring scheme, i.e. on a scale below mapping resolution of remote sensing?
- How to identify land that can be used for biomass production in **case of missing national land use policy**?

Further Process

- **Identify relevant GIS-based data sets (ongoing)**
 - **Research coverage, resolution, access (costs...)**
 - **Pilot project(s) on mapping and screening (GIS-supported)**
 - **Develop monitoring schemes (remote sensing via satellites)**
 - **Discussion process on adequate criteria for PA + HNV**
 - **Agreement on “compatible” farming systems**
- **Partnering with other initiatives and securing of adequate funding; collaboration with (pilot) certification, and private sector**