

Insights of the German research project “Implementing the SDGs on soil in Germany”

Input for the workshop

Implementing SDG target 15.3 in the EU and in the Member States:
Exchange of approaches to implement “Land Degradation Neutrality”

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Overview

- 1. Aim of the project**
- 2. Current state of LDN implementation (plans) in Germany**
 - ▶ Policy process/ German Sustainability Strategy**
 - ▶ Preliminary project results**
- 3. Suggestion for a stepwise approach to implement LDN in national context**

Aim of the project

- ▶ analyze options for the implementation of target 15.3 in Germany
- ▶ carried out by the Ecologic Institute, on behalf of the German Environment Agency (BMUB) and the German Federal Environment Ministry (UBA)
- ▶ runs until spring 2017

- ▶ Provides conceptual considerations (Approach and indicators)
- ▶ Involves expert opinion through interviews and workshops

Activities in Germany to implement the SDGs/LDN

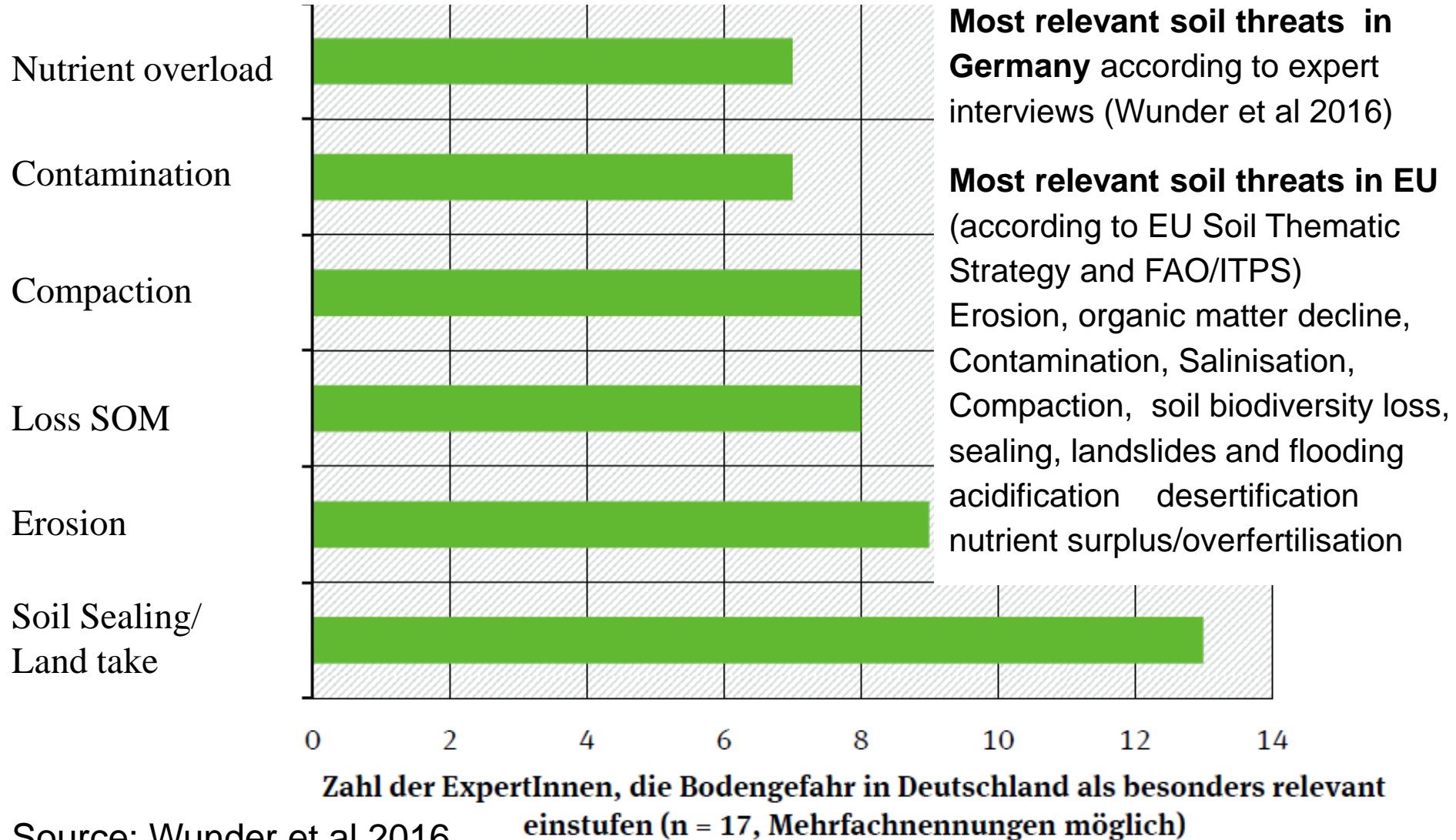
- ▶ Germany committed to **ambitious implementation of the SDGs**
- ▶ **key framework** for achieving SDGs in Germany: **National Sustainable Development Strategy**
- ▶ Strategy in place **since 2002** including some relevant indicators for land and soil
 - “Built-up area and transport infrastructure expansion” (30 ha/d by 2020), nitrogen surplus, organic farming area, species diversity
- ▶ **Currently: Revision** of Strategy to adapt to Agenda 2030’s ambition and goal structure (to be completed in 2016)
- ▶ Explicit mentioning **need for new indicator** particularly to implement SDG target 15.3 on **Land Degradation Neutrality**

First steps in the project

Background: 2030 Agenda as “aspirational and global”, with each government tailoring its own national targets and indicators “guided by the global level of ambition but taking into account national circumstances”

1. Is it possible to prioritize the most relevant **soil threats** in Germany?
2. Is it possible to prioritize the most relevant **soil functions** in Germany?
3. What would be appropriate **indicators**?
 - ▶ Methods: literature review, >40 interviews, workshop

Most relevant soil threats in DE according to interviews



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Ecosystem services of soils/ soil functions

→ Supporting services

→ Regulating

→ Provisioning

→ Cultural

Source: Wunder et al 2016, adapted from FAO/ITPS 2015

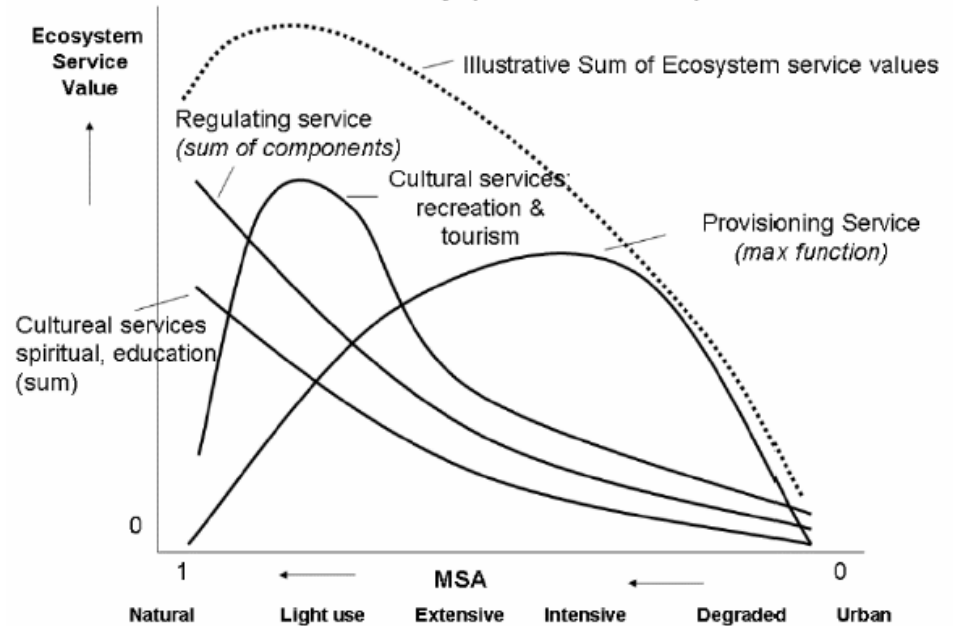
Ecosystem service	Soil function
<i>Supporting services (necessary for the production of all other ecosystem services; only indirect impacts on people)</i>	
Soil formation	<ul style="list-style-type: none">• Weathering of primary minerals and release of nutrients; modification of soil texture• Transformation and accumulation of organic matter• Creation of structures (aggregates, horizons) for gas and water flow and root growth• Creation of charged surfaces for ion retention and exchange
Primary production	<ul style="list-style-type: none">• Medium for seed germination and root growth• Retention and supply of nutrients and water for plants
Nutrient cycling	<ul style="list-style-type: none">• Transformation and mineralization of organic materials by soil organisms• Retention and release of nutrients on charged surfaces
<i>Regulating services: benefits obtained from the regulation of ecosystem processes</i>	
Water quality regulation	<ul style="list-style-type: none">• Filtering and buffering of substances in soil water• Transformation of contaminants
Water supply regulation	<ul style="list-style-type: none">• Regulation of water infiltration into soil and water flow within the soil• Drainage of excess water out of soil and into groundwater and surface water
Climate regulation	<ul style="list-style-type: none">• Regulation of CO₂, N₂O, and CH₄ emissions• Carbon sequestration
Erosion regulation	<ul style="list-style-type: none">• Retention of soil on the land surface
<i>Provisioning Services: products ("goods") obtained from ecosystems of direct benefit to people.</i>	
Food supply	<ul style="list-style-type: none">• Providing water, nutrients, and physical support for growth of plants for human and animal consumption
Water supply	<ul style="list-style-type: none">• Retention and purification of water
Fibre and fuel supply	<ul style="list-style-type: none">• Providing water, nutrients, and physical support for plant development for bioenergy and fibre
Refugia	<ul style="list-style-type: none">• Providing habitat for soil animals, birds etc.
Genetic resources	<ul style="list-style-type: none">• Source of unique biological materials
<i>Cultural services: nonmaterial benefits people obtain from ecosystems through spiritual enrichment, aesthetic experiences, and heritage preservation, and recreation.</i>	
Aesthetic and spiritual	<ul style="list-style-type: none">• Preservation of natural and cultural landscape diversity

Source: adapted from FAO and ITPS (2015a)

Most relevant soil functions

- ▶ No priorities
- ▶ soil functions mutually influence one another (synergies and trade offs)

Relation of Ecosystem Services, land use types and biodiversity (MSA indicator)



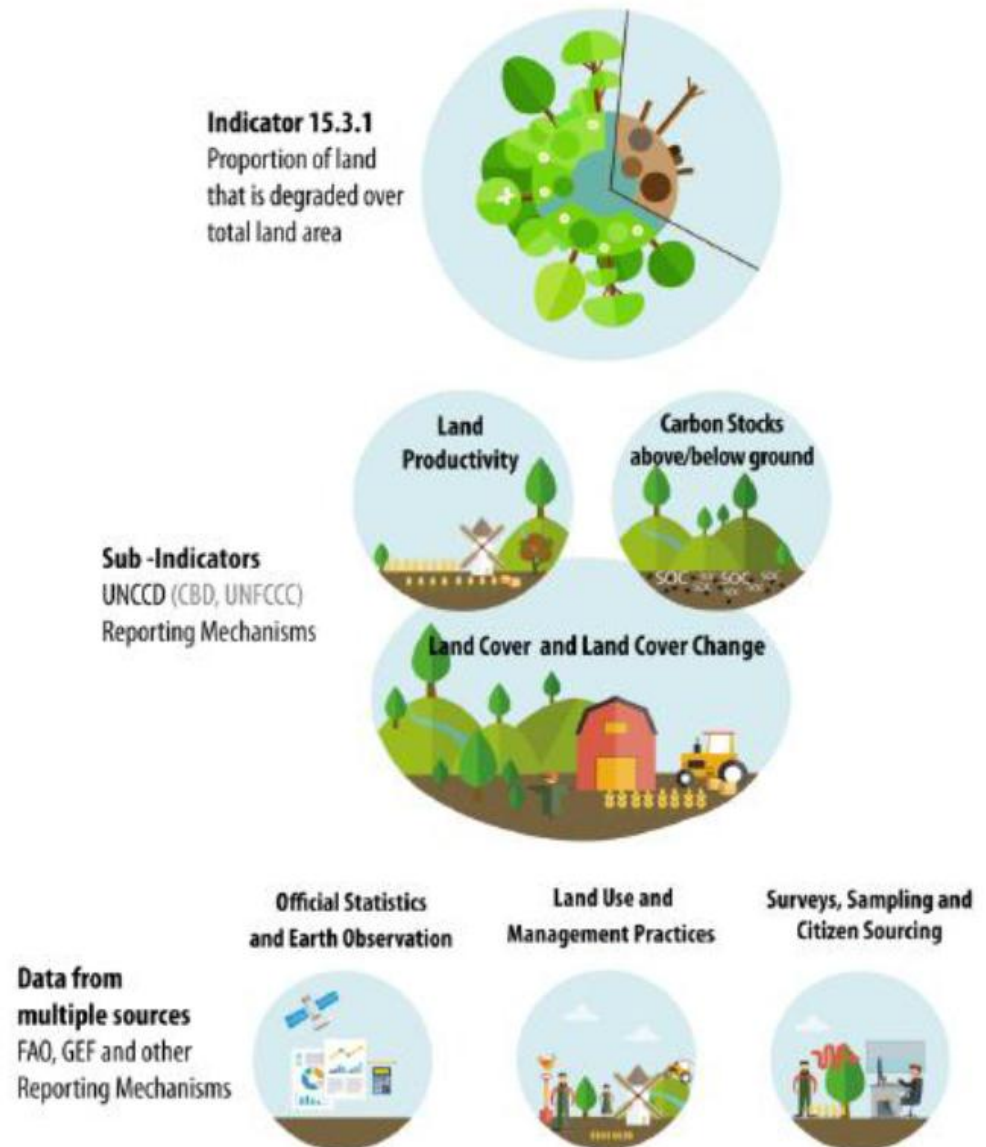
Source: Braat and ten Brink (2008)

Indicators

Three agreed SDG indicators

- Land productivity
- Carbon Stocks above/below ground
- Land Cover and Land Cover Change

Framework for Monitoring and Reporting on SDG Target 15.3

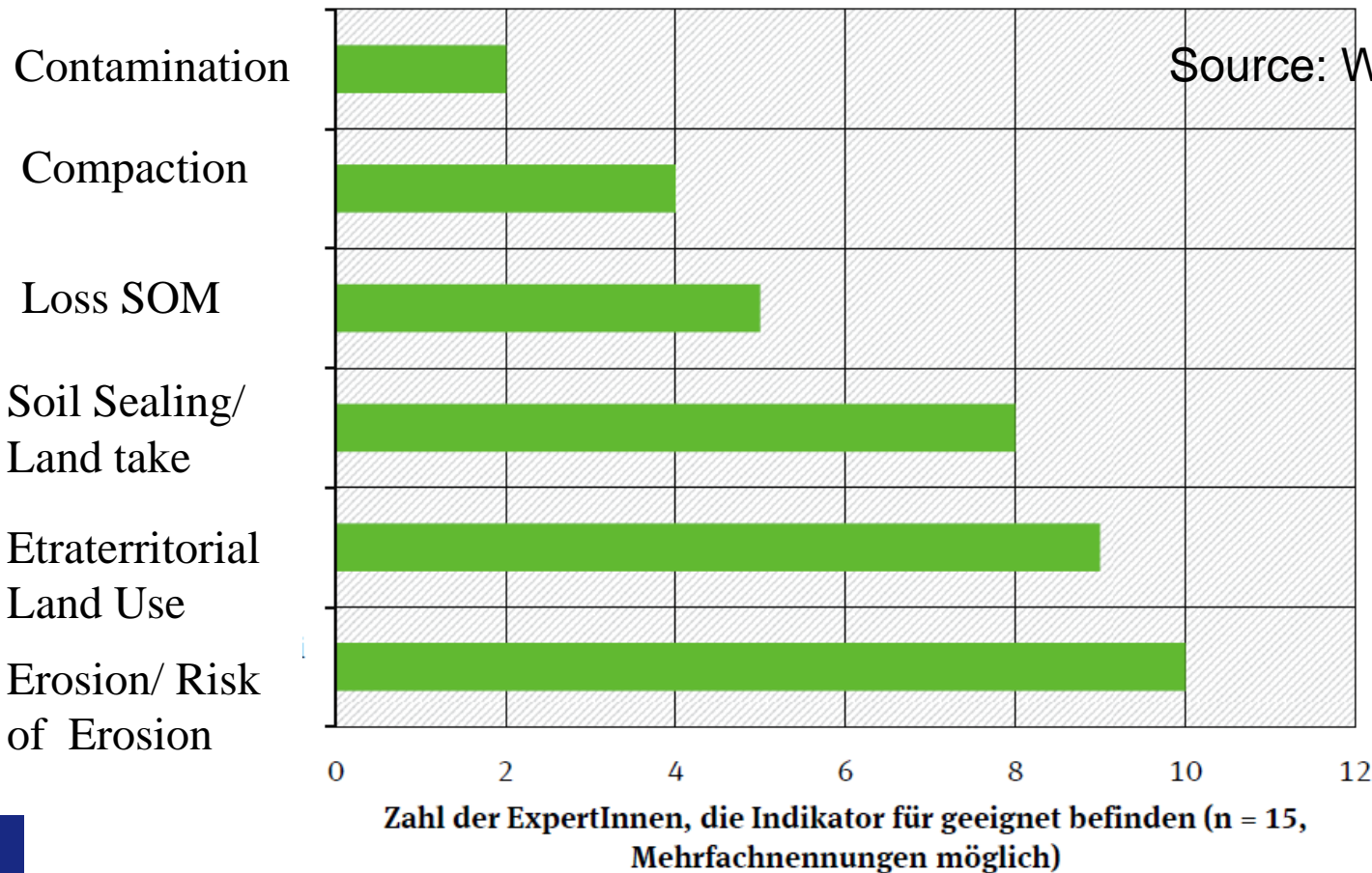


Suitable indicators? (Germany)

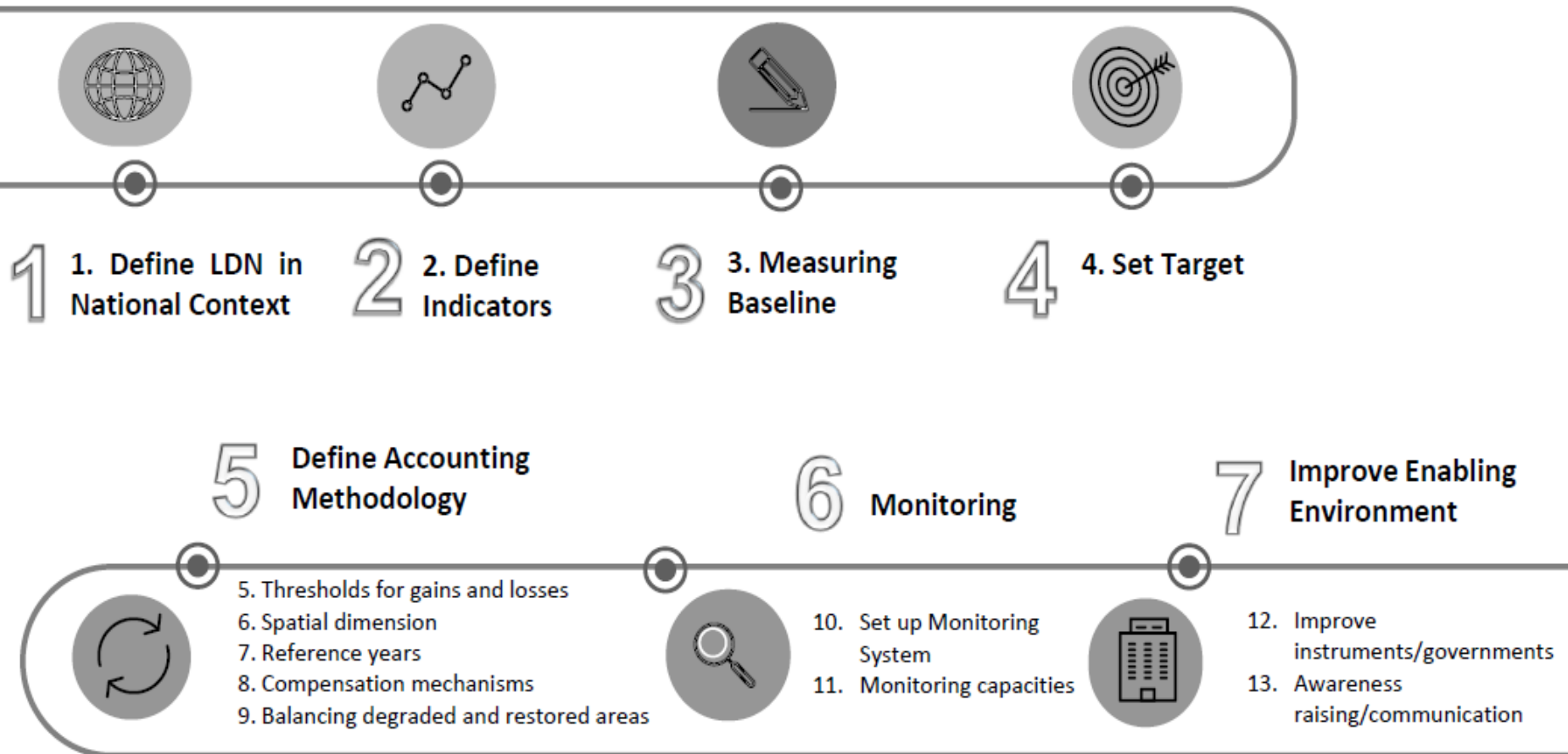
- ▶ **soil sealing/land take** of particular relevance for Germany (covered already by one indicator in Sustainability Strategy)
 - ▶ Interviews and workshop: **no agreement** yet achieved on (additional) indicators
 - ▶ Most discussed: **soil organic carbon, erosion, compaction, contamination, nutrient overload, land use change, extraterritorial land use?**
- High interest to analyse how **land use change** can be used as an indicator: Will be last step in the project: **Developing categories** and first ideas to evaluate changes between different land use categories and changes within different land use categories (Building on IPCC, Corine Land Cover etc.)

Suitable indicators (according to DE expert interviews)

Abbildung 7: Laut Expertenmeinung (Telefoninterviews) geeignete Indikatoren zum Monitoring des LDN
Zieles in Deutschland



Implementing LDN – 13 steps in 7 clusters





1 1. Define LDN in National Context

2 2. Define Indicators

3 3. Measuring Baseline

4 4. Set Target

1. Tailor concept to national concept

Analysis of biophysical environment, soil threats, socio-economic aspects
→ ex post assessment of trends, compile scenarios, forecast gains and losses (and drivers) → decide on national focus

2. Define suitable indicators


based on data availability, representation of all sectors, suitability of the three suggested UNCCD indicators

3. Define baseline

Analyse current state (baseline = minimum target horizon)

4. Set target/ ambition

What to leverage? Stable or improvement of situation? Reference date/ target date? Financial feasibility of measures? Get top level political commitment

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- 5. Thresholds for gains and losses
 - 6. Spatial dimension
 - 7. Reference years
 - 8. Compensation mechanisms
 - 9. Balancing degraded and restored area

Accounting methodology 1

5. Define thresholds for gains and losses: what counts as degraded or restored? What are „significant“ changes?

6. Specify spatial dimension: balance to be achieved at regional/ landscape/ national level?, counterbalance „like for like“ (within same land type)? Consider „extraterritorial effects/“virtual net import of land“?

7. Reference years/time dimension: when does something count as degraded/restored (consider trends instead of thresholds, take dynamics of changes into account)? Suitable intervalls of measures



5. Thresholds for gains and losses
6. Spatial dimension
7. Reference years
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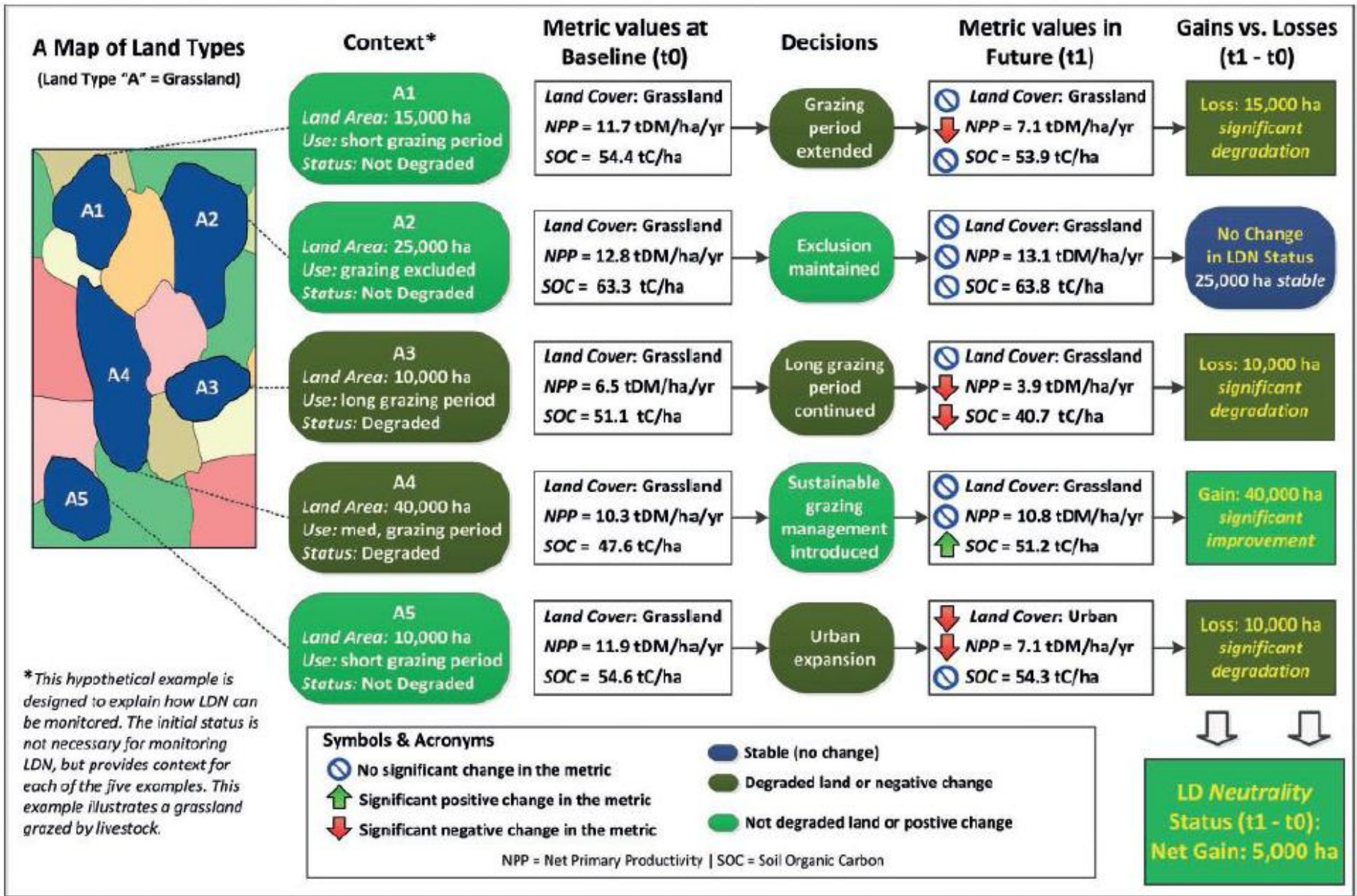
Accounting methodology 2

8. Determine compensation mechanisms:

- establish compensation hierarchy (avoid, reduce, compensate),
- choose measures (natural regeneration, SLM, restoration),
- establish compensation principle (apply in similar ecosystems, close to the area of degradation, restore more area than was degraded)


9. Establish aggregation method to balance degraded and restored areas: what aggregation methods are there to calculate the amount of degraded land (see all in- all out approach of the UNCCD/SPI) - eventual measures „*proportion of land that is degraded over total land*“


Figure 4 Monitoring LDN based on changes in value of metrics, using the one-out, all-out approach



6 Monitoring

7 Improve Enabling Environment

- 
10. Set up Monitoring System
 11. Monitoring capacities

- 
12. Improve instruments/governments
 13. Awareness raising/communication

Monitoring and Governance

10. Set up and maintain a monitoring system

based on existing monitoring, accessible to all relevant authorities etc.

11. Improve monitoring capacities

Improve databases and processing methodologies (accuracy, resolution, periodicity)

12. Further develop instruments, measures and institutions

ensure enabling environment and responsible governance of land resources (tenure, integrated land use planning, multistakeholder platforms to collaborate in planning, policies to incentivise sustainable land use)

13. Continuous awareness rising and communication

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Science and Policy
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Thank you!

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