Sustainable Land Management
Sustainable Land Management (SLM)

SLM is defined as the use of land and water resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions.
SLM strategies

- Local to regional scale
- Technical interventions
- Implementation approaches

Role of science:
- To produce evidence of the impacts
- To assess the implications these impacts have for society, the economy, and policy

- economically viable
- socially acceptable
- ecologically compatible
Monitoring and assessment of dryland restoration practices

Atriplex plantations to restore gully degradation of slopes in Sehoul, Morocco
Green Water Use Efficiency

Impacts considered:
- improved soil cover
- reduced soil evaporation
- increased soil moisture
- reduced surface runoff

Impact values:
1 = little (5–20%);
2 = medium (20–50%);
3 = high (>50%)

Schwilch G, Liniger HP, Hurni H. 2013. **Sustainable Land Management (SLM) practices in drylands: how do they address desertification threats?** Environmental Management
Cost-benefit over time

Short-term benefits in relation to establishment costs

- Agnostic: n=60
- Structural: n=115
- Vegetative/structural: n=27
- Vegetative: n=40
- Management: n=14
- Other combination: n=37
- n=44

Long-term benefits in relation to establishment costs

- Agnostic: n=60
- Structural: n=115
- Vegetative/structural: n=27
- Vegetative: n=40
- Management: n=14
- Other combination: n=37
- n=44

Short-term benefits in relation to maintenance costs

- Agnostic: n=60
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Long-term benefits in relation to maintenance costs

- Agnostic: n=60
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Legend:
- N/A
- Very neg. - neg.
- Slightly neg.
- Neutral - slightly
- Pos. - very pos.
Motivation
(from WOCAT SLM approaches database)

Main motivation of the land user to implement SLM (including double mentions)

- Production: n=31
- Increased profit(ability), improve cost-benefit-ratio: n=26
- Well-being and livelihoods improvement: n=25
- Environmental consciousness, moral, health: n=12
- Affiliation to movement/project/group/networks: n=11
- Payments/subsidies: n=9
- Reduced workload: n=6
- Rules and regulations (fines)/enforcement: n=5
- Prestige/social pressure: n=3

Total 128 mentions
Only first ranks were considered
Additional challenges: e.g. outmigration, climate change, disasters
Prevention

Mitigation

Rehabilitation / restoration

Time of intervention
Stage of SLM intervention

- Rehabilitation: 24% (n=73)
  - 2% (n=6)
  - 24% (n=73)
  - 4% (n=11)
- Prevention: 37% (n=110)
  - 7% (n=21)
- Mitigation: 37% (n=110)
  - Prevention and Rehabilitation
  - Prevention only
  - Prevention and Mitigation
  - Mitigation only
  - Mitigation and Rehabilitation
  - Rehabilitation only
  - Prevention/rehabilitation/mitigation

n=300
63 blanks
Only first ranks were considered
A common global platform for SLM

WOCAT is the primary recommended database for reporting on SLM Best Practices of UNCCD
Integration of methods and scales

Identify, evaluate and select SLM options

- **Part I – Identification:** Identify existing and potential strategies with a participatory learning approach (stakeholder workshop 1)

- **Part II – Assessment:** Evaluate, document and share strategies with **standardised questionnaires**

- **Part III – Selection:** Select the most promising strategies with a **decision support tool** (stakeholder workshop 2)
Current research: CASCADE: Catastrophic Shifts in drylands: how can we prevent ecosystem degradation?

EU FP7, 2012 – 2017
Evaluation of land use and management to prevent catastrophic shifts

a) How resilient is a SLM practice towards change?

b) How is SLM increasing the resilience of the ecosystem towards change?

Photos: G. Schwilch
SLM: not only for dryland restoration

EU-RECCARE 2014-2018

Operationalize the **Ecosystem Services** concept for practical application in Preventing and **Remediating degradation of soils** in Europe through Land Care
Conclusions and research gaps

**Investments in SLM** must be carefully assessed and planned

On the basis of:

- properly documented experiences
- evaluated impacts and benefits
- participatory evaluation and selection processes

-> **Commitment of research:**

- Standardised impact assessment incl. on ecosystem services
- Spatial analysis of SLM
- Knowledge-broker in transdisciplinary processes

*Thank you!*


WOCAT 2007: **where the land is greener** – case studies and analysis of soil and water conservation initiatives worldwide. Editors: HP. Liniger and W. Critchley. CTA, FAO, UNEP, CDE.