



Land Degradation Neutrality (LDN) concept  
UNCCD and the  
Biosphere Reserve concept  
Nature Reserve



Land Degradation Neutrality  
of  
Biosphere Reserves

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## Madrid Action Plan (3WBRC, 2008)

**BRs** upgraded to **internationally**-designated

- areas dedicated to **sustainable development**
- **learning sites** of translating **global** principals of sustainable development into **locally** relevant praxis

## Lima Action Plan (4WBRC, 2016)

**Strategic Action Area A.-**

The World Network of Biosphere Reserves consisting of effectively functioning

- **models for sustainable development**

# What is “sustainable development”?

World Commission on **Environment** & Development

(“Our Common Future, 1983)

UN Conference on **Environment** and Development  
(1992)

*“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”*

How?

How **environment** supports development?

- *“development that doesn’t harm environment” ?*
- *“development can not be sustained when it prevents environment to support it”*
- **SD is Development *supported* by Environment**

# Sustainable Development Goals

1. End **poverty**
2. End **hunger**
3. Ensure **healthy** life
4. Provide equitable & inclusive **education**
5. Achieve **gender** equality
6. Ensure **water** availability
7. Ensure access to affordable **energy**
8. Promote economic
9. Build resilient **infrastructure**
10. Reduce inequality
11. Make **cities** resilient and safe
12. Ensure sustainable **consumption and production**
13. Combat climate change
14. Conserve and use sustainably oceans
15. Protect and use sustainable ecosystems
16. Promote **peaceful** societies
17. Strengthen

**A4.4 Identify sustainable development practices  
Eliminate unsustainable practices**

Development supported by Environment  
Is “sustainable development”

**What is environment?**

-- ***Environment* ecosystem  
services**

Development supported by  
**ecosystem services**  
is “sustainable development”

**Madrid Action Plan - Ecosystem services** could be a  
useful conceptual framework to superimpose on the  
multiple functions of biosphere reserves, as  
**sustainable development sites.**

**A.7. BRs recognized as sources and stewards of  
ecosystem services**

# UN Conference on Environment and Development 1992

identified 3 major stumbling blocks on the road to global sustainable development:

Biodiversity loss    **CBD**

Climate change    **UNFCCC**

What is Desertification?    **UNCCD**

What is *Land degradation*?

*Persistent loss of land productivity*    Where?

What are drylands?

## Millennium Ecosystems Assessment, 2005

*Ecosystems whose **biological productivity**  
is limited by water*

## Millennium Ecosystems Assessment, 2005

Drylands - *ecosystems of biological productivity limited by water*

Which are these ecosystems?

Woodland ecosystems

Rangeland ecosystems

Cropland/cultivated/agricultural ecosystems

**Buffer zone of biosphere reserves**

What is Desertification & Land Degradation?

*Collapse of a bundle of **ecosystem services***

Are these buffer ecosystems affected by DLD?

If so, **the BR road to sustainability is blocked**

Striving to achieve Land Degradation Neutrality of the BR, LDN may be explored/experimented

# What is Land Degradation Neutrality?

**Rio+20 (2012) The future we want, 206.**

*We recognized the need for urgent action to **reverse** land degradation. In view of this, we will strive to achieve a **land-degradation neutral world** in the context of **sustainable development***

**UN General Assembly 2015, Sustainable Development Goals**

*SDG 15, target **15.3**: by 2030, combat desertification, and **restore degraded land ...** and **strive to achieve a land-degradation neutral world***



# Land Degradation Neutrality

**State**

**Process**

stands for two different ecosystem phases

**Already degraded**

abandoned or of persistently low productivity

productivity is being reduced with time

~~Being degraded~~

UNCCD in force since 1996

# Land Degradation Neutrality

**State**

**Process**

stands for two different ecosystem phases

**Already degraded**  
Invest in restoring already degraded land

abandoned or of persistently low productivity  
Often expensive

25%

33-227  
Euros/ha

UNCCD in force since 1996

**Process**

Offset what is still being degraded by

so far success low and insufficient

12 million/ha/year

Land Degradation Neutrality

# Land Degradation Neutrality

Amount of non-degraded land ~~decrease~~ stable

Demands for non-degraded land increase

Invest in restoring  
land  
**Already degraded**

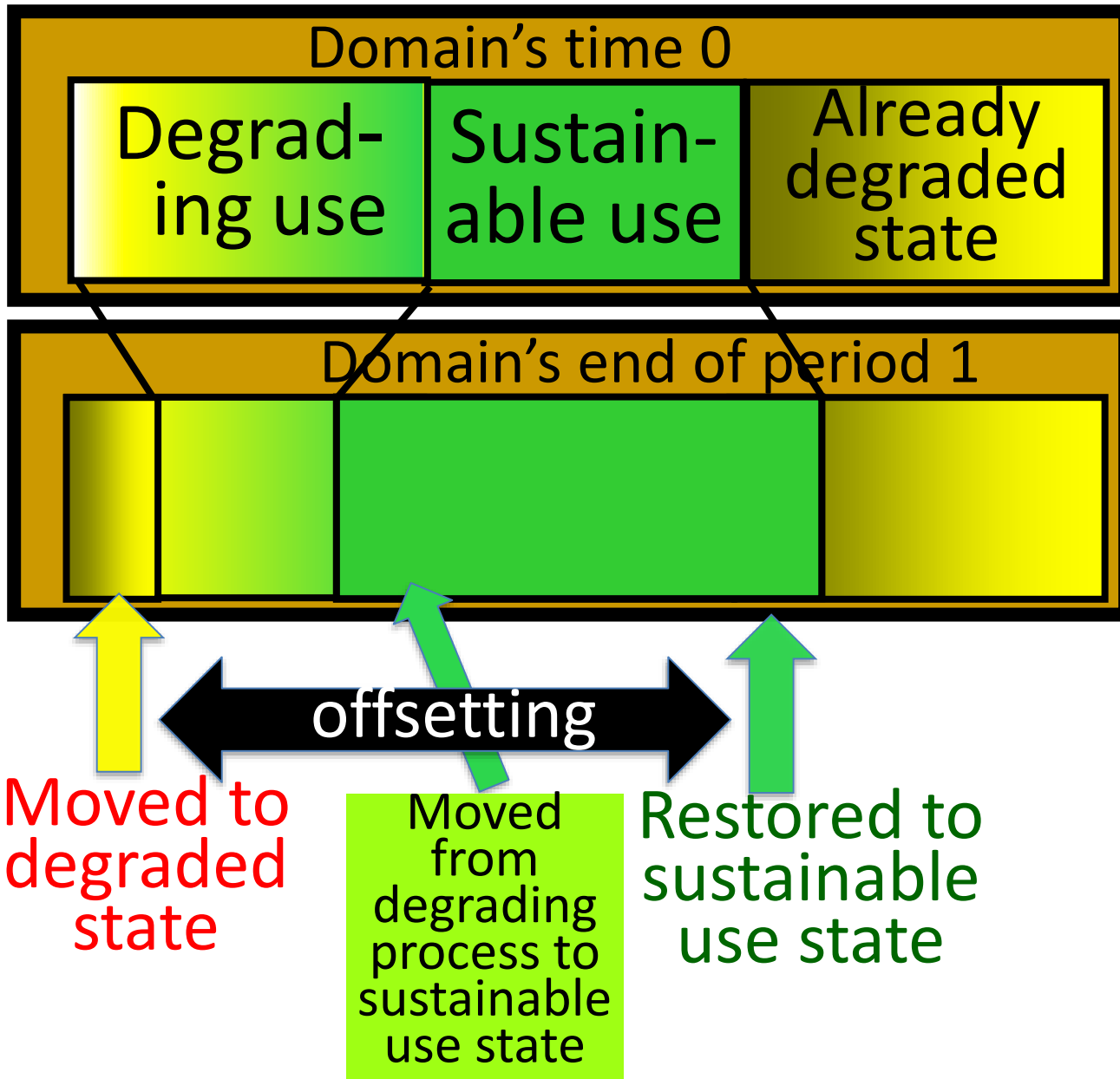
Invest in reducing  
rate of land  
**Being degraded**

**Being degraded**

**Offset what is still  
being degraded by**

Not giving up  
land of  
potential  
productivity

Land Degradation  
Neutrality





SDG 15.3: By 2030, achieve a  
land-degradation neutral

**world**

**Σ Regional**

**Σ Country**

**Σ District**

**Σ Community**

Abandon  
degrading  
use



Restore  
productivity of  
already  
degraded land

Stage 1 of LDN  
project: define  
the **domain**

**A biosphere reserve buffer zone**

- Classify three land states
- Set degradation indicators
- Assess degrees of degradation
- Prescribe and implement measures
- Set a monitoring scheme
- **Estimate distance of the BR from LDN**

Contribution of the core to the buffer LDN

Being degraded range

Already degraded range  
Not used

Used, not degraded

Evaluate  
restoration  
options

Being degraded  
Prescribe measures for  
non-degrading use

