



Federal Ministry
for Economic Cooperation
and Development

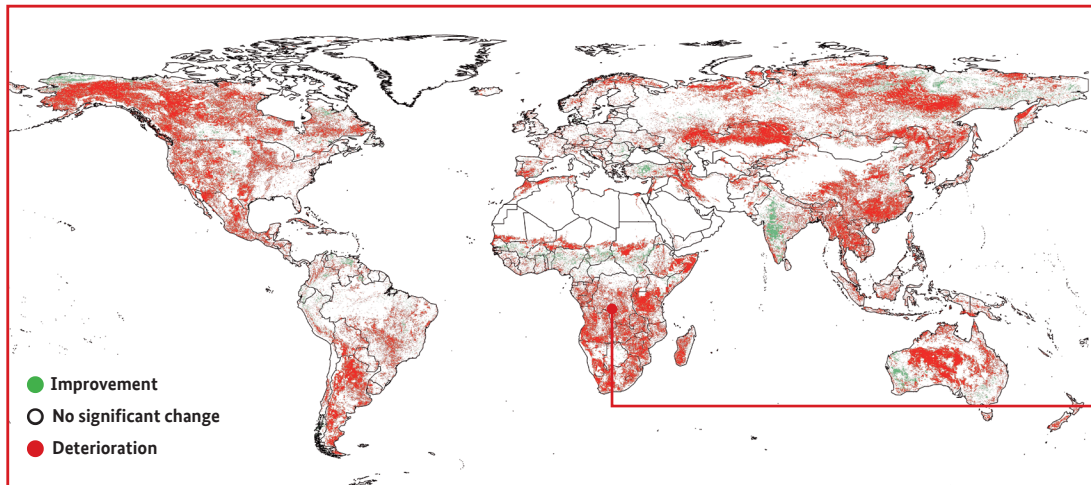
Soil conservation works

A selection of diagrams and photos based on facts and figures
from German development cooperation and international studies

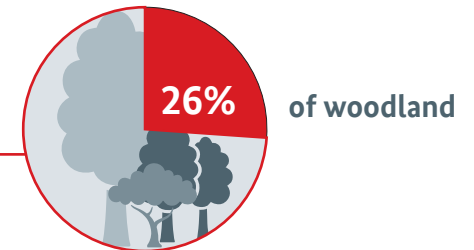
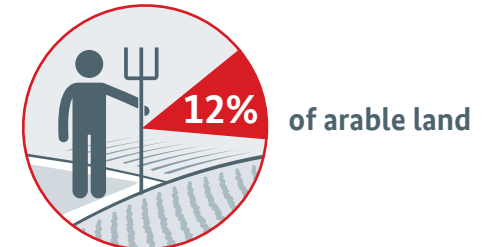
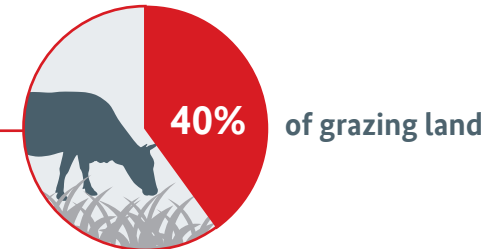


The loss of productive soil is a global problem (scale)

➔ Total area affected by declining soil productivity over the last 30 years (red)
... globally (around 30%)



...in sub-Saharan Africa



Over 10 million hectares of arable land worldwide are degraded every year – an area roughly 1/3 the size of Germany

17% of the world's degraded land can be found in sub-Saharan Africa

The loss of productive soil is a global problem (interrelation)

Annual costs of global land degradation
≈ **USD 300 billion**
of which 26% due to land
degradation in sub-Saharan Africa

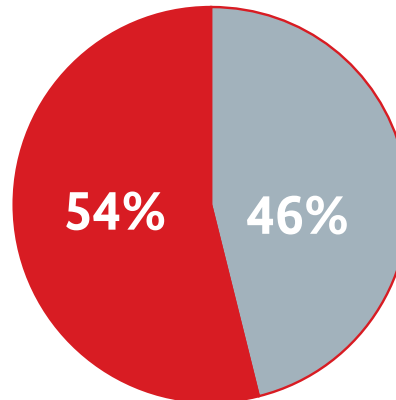


Equivalent to Germany's federal budget of
≈ **EUR 270 billion** (2017)

Who pays the price?

SOCIETY

- Damage caused by intensified climate change
- Water shortages
- Erosion
- Biodiversity loss



LAND USERS

- Lower yields
- Higher production costs



Soil conservation links environmental and development agendas



Soil conservation is food security

Programme „Soil protection and rehabilitation for food security“:
32% average increase in crop yields in five countries



Integrated soil fertility management system used for maize cultivation (left) next to a reference site (right).
Ethiopian Highlands 2017

Chad:
112% increase in local incomes from sale of surplus vegetables and grain



Expansion of vegetable production (red) between 2003 and 2010 (before and after the construction of water distribution weirs in Chad's Wadi Chock region)

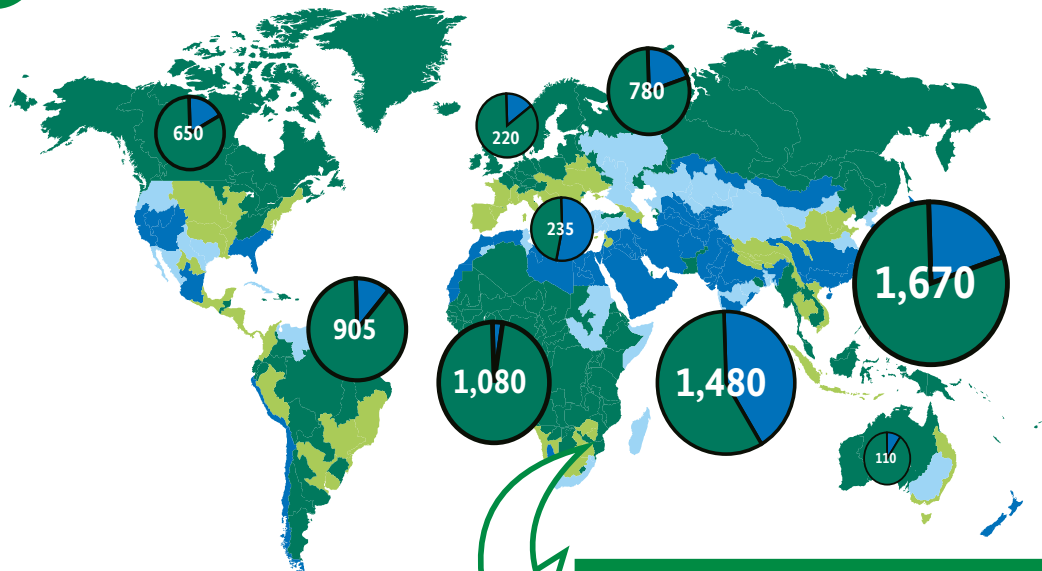
Soil conservation is climate change adaptation (especially in rainfed agriculture)

Burkina Faso:

Surface water and groundwater are available for up to **two months longer** during dry periods due to water spreading weirs, allowing farmers to grow and harvest an additional crop cycle.



→ Percentage of total production based on rainfed/irrigated agriculture



- > 75% rainfed agriculture
- > 50% rainfed agriculture
- > 50% irrigation
- > 75% irrigation

95% of arable land in sub-Saharan Africa is farmed using rainfed agricultural practices, i.e. not relying on irrigation.



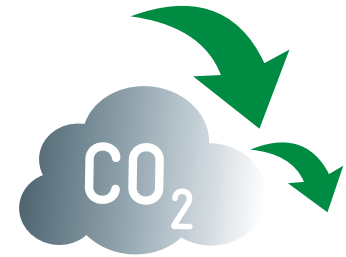
Volume of **green/blue** water used for cultivation by region (**green** = water stored by the soil and plants, **blue** = surface water or groundwater)

Soil conservation is climate protection

After the oceans, the soil acts as the biggest carbon sink in the biosphere (more than the atmosphere + the earth's vegetation combined)

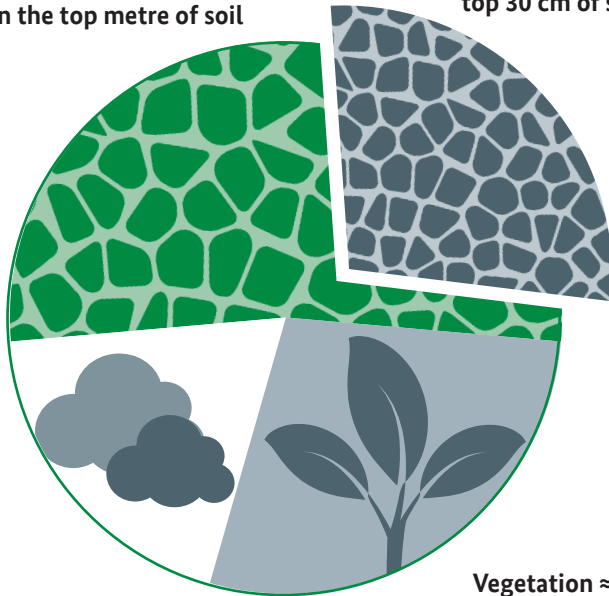


All the greenhouse gas emissions generated by human activity could be offset by an annual increase of 0.4% in the global amount of soil carbon.



Soil \approx 1500–2000 Gt C in the top metre of soil

\approx 800 Gt C in the top 30 cm of soil



Vegetation \approx 450–680 Gt C

Atmosphere \approx 830 Gt C

West Kenya:
After 50–70% of soil carbon was lost, soil conservation measures and an integrated soil fertility management system managed to stabilise the amount of soil carbon within 15–20 years.

Kenya:
On a single hectare of land, a farmer can offset between 0.25 and 0.7 tonnes of GHG emissions (depending on the amount of organic fertiliser used)



Soil conservation is sustainable water management

Ethiopia:
Erosion channel in
Gullina (Afar), May 2016...



Niger:
Water spreading weirs
have raised the groundwa-
ter level in various loca-
tions by between
4.5 and 22 metres



... and one year later
with water spreading
weirs



Soil conservation measures help protect biodiversity

→ Soil functions

Decomposition of organic material



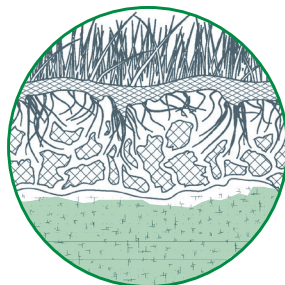
There are more organisms in a spoonful of healthy soil than there are humans on the entire planet



Plant growth control



Suppression of pests, parasites and diseases



Maintenance of soil structure




Soil detoxification



Symbiotic and asymbiotic relationships with plants and their roots

Soil conservation generates employment in rural areas



Burkina Faso:
60% of the users of rehabilitated land are between 20 and 30 years old. They are no longer forced to migrate during dry season

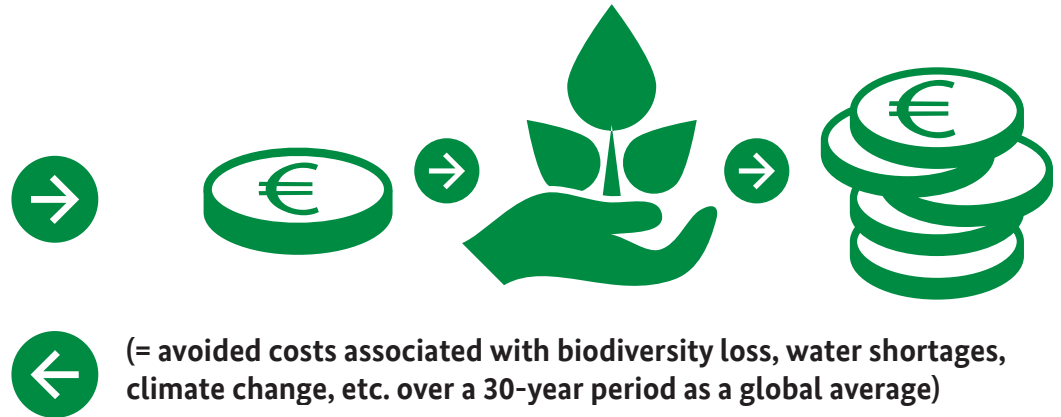
Sahel:
Additional jobs linked to the construction of water distribution weirs include trade in agricultural products, fisheries, maintaining drinking troughs for livestock, clay brick production

Chad:
Decline in temporary migration to Sudan and Libya as well as return of migrants after many years

Soil conservation measures provide a foundation for economic development

(especially in countries heavily dependent on agriculture)

Every euro invested in the rehabilitation of degraded land produces five euros of economic benefits

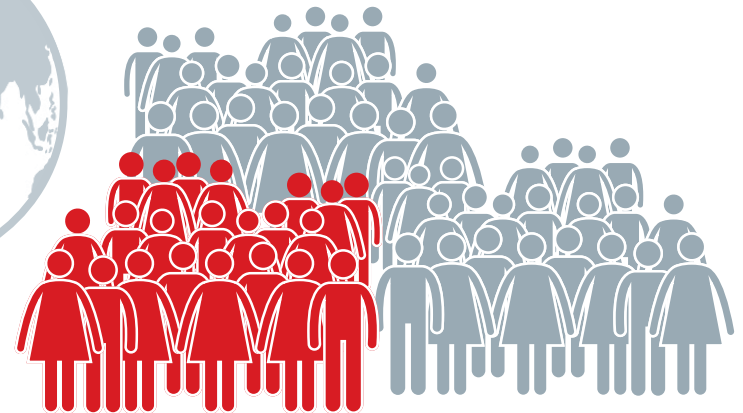


Potential economic growth per year in **42** African countries up to 2030 as a result of measures to prevent soil erosion

Soil conservation measures contribute to social welfare in rural areas

1/3 of all the world's rural population
≈ **1.4 billion people**
live in areas affected by land degradation

1/5 of the rural population in sub-Saharan Africa
≈ **150 million people**
live in areas affected by land degradation



40% increase between 2000 and 2010

Soil conservation is landscape rehabilitation

Typical gully erosion caused by a large volume of water run-off and minimal infiltration



Stages in the rehabilitation of an erosion gully in Ethiopia's Tigray region between 2006 and 2007

Restructuring and planting during the dry season. The work was planned and carried out together with local people

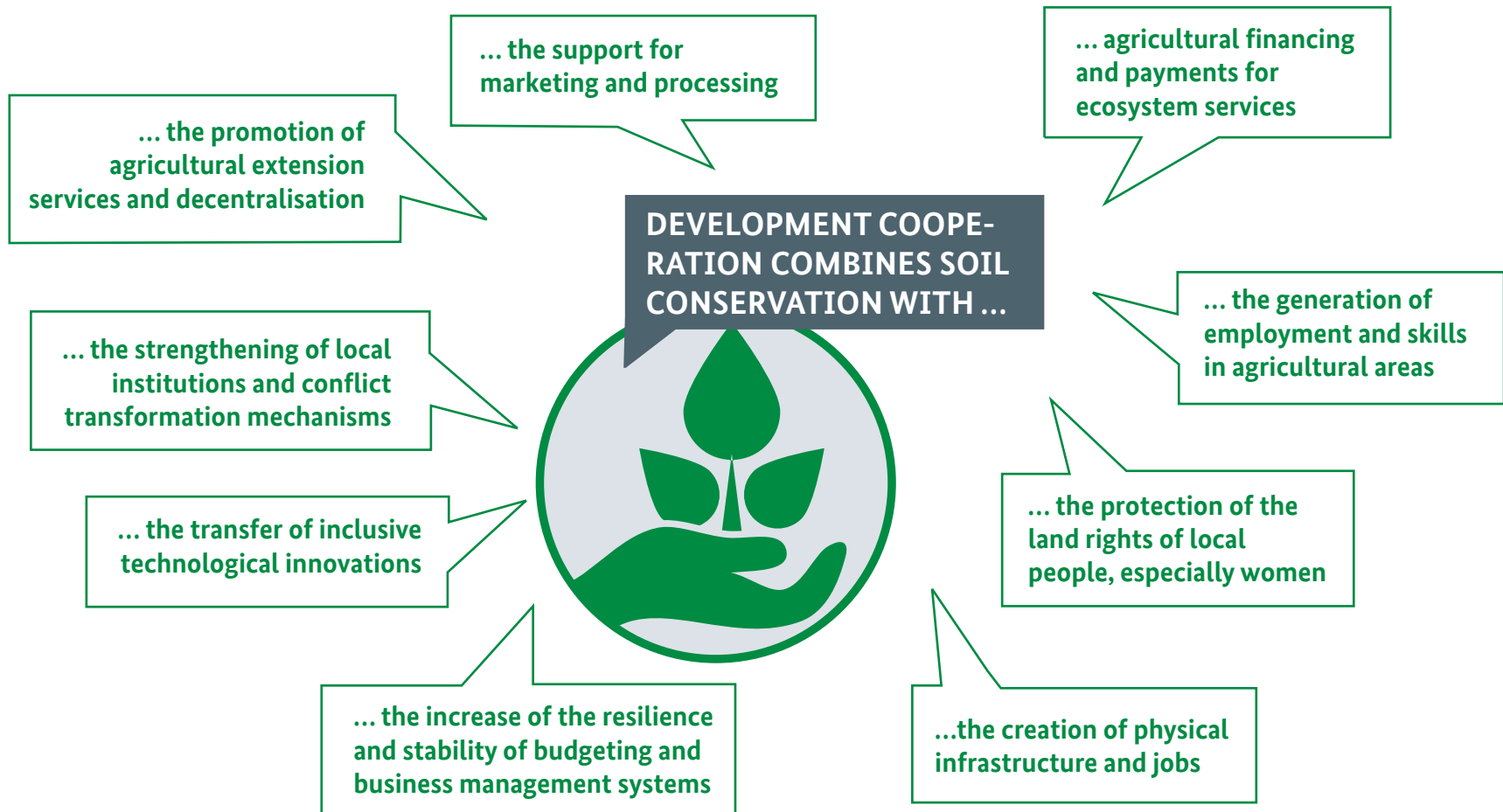


The gully now retains more water thanks to its improved structure and vegetation

Rehabilitated erosion gully in the following dry season



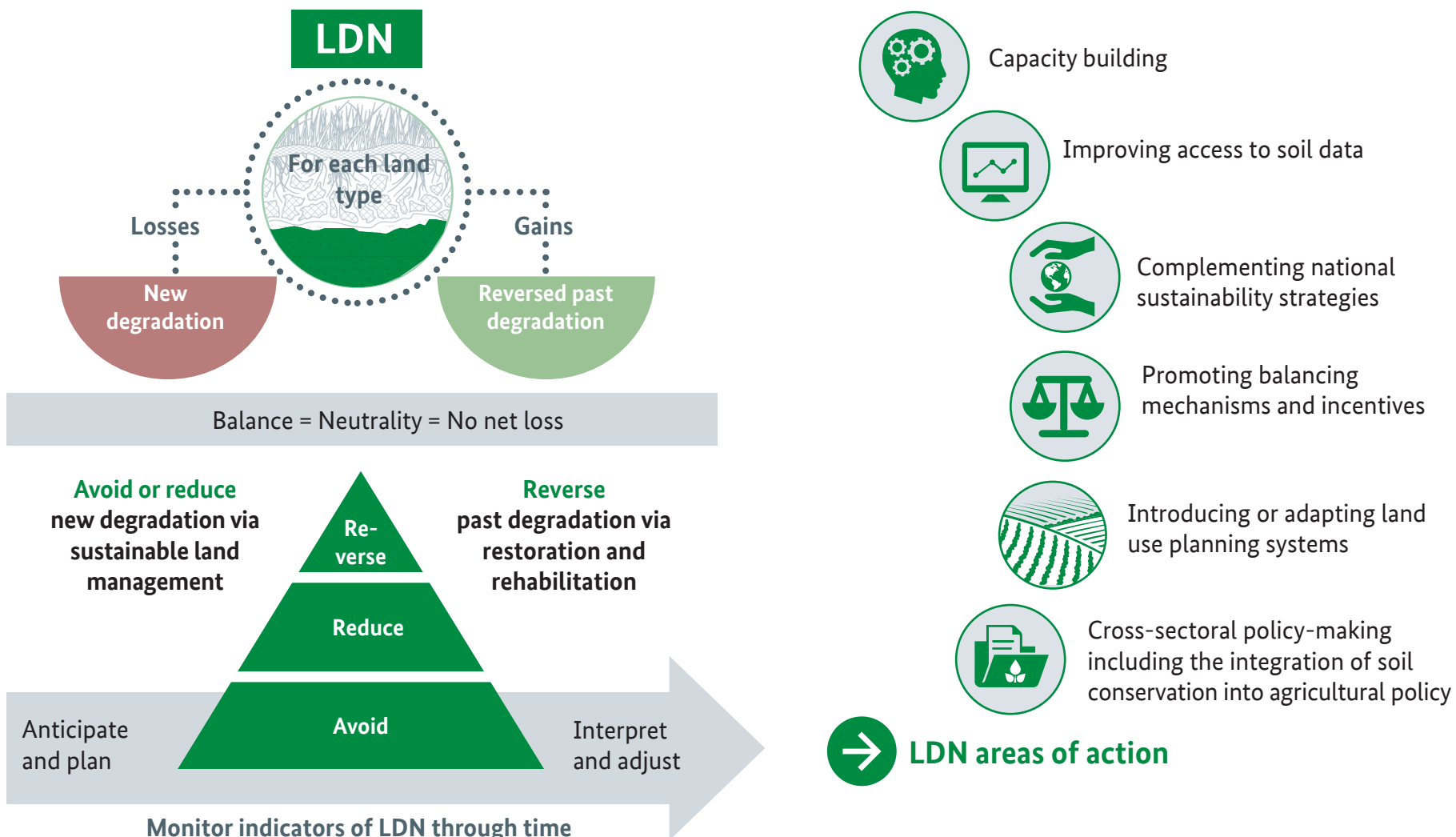
Soil conservation takes effect when it is part of an integrated, long-term approach



Soil conservation requires cross-sectoral policy-making

Framework strategy for SDG 15.3

Land degradation neutrality (LDN) and entry points for development cooperation



International initiatives promote soil conservation

SDG 15.3:
Strive to achieve
a land degradation –
neutral world
by 2030



● Countries signed
up to the LDN
Target Setting
Programme

Apply sustainable land
management to increase
soil carbon by 0.4%
per year



Global effort to restore
150 million hectares of the
world's deforested and
degraded land by 2020
(350 million hectares by 2030)

Initiative
20x20

As a contribution to the Bonn
Challenge target, 17 countries
in Latin America plan to restore
50 million hectares by 2020



afr100

As a contribution to the Bonn
Challenge target, 26 countries
in Africa plan to restore 85
million hectares by 2030

