



Federal Ministry
for Economic Cooperation
and Development

Soil conservation works

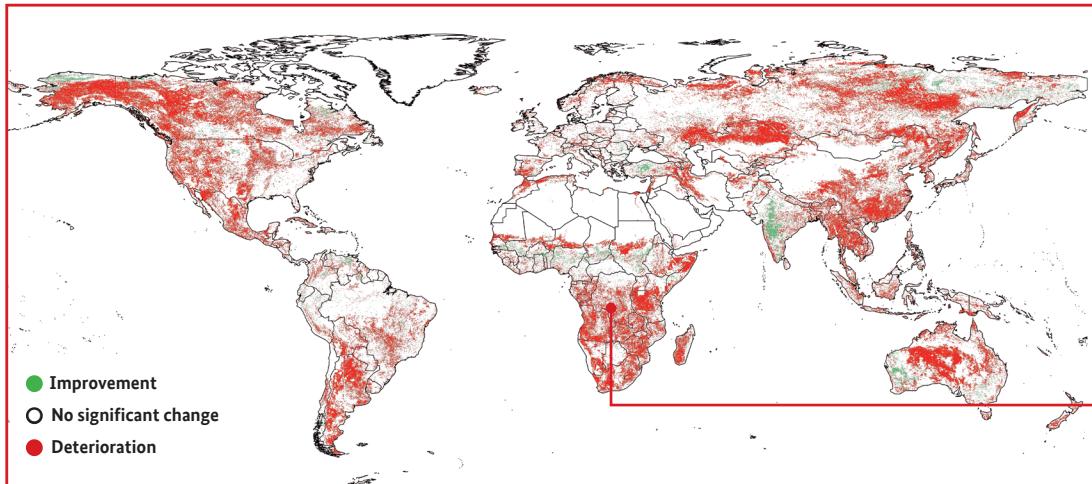
A selection of diagrams and photos based on facts and figures
from German development cooperation and international studies



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



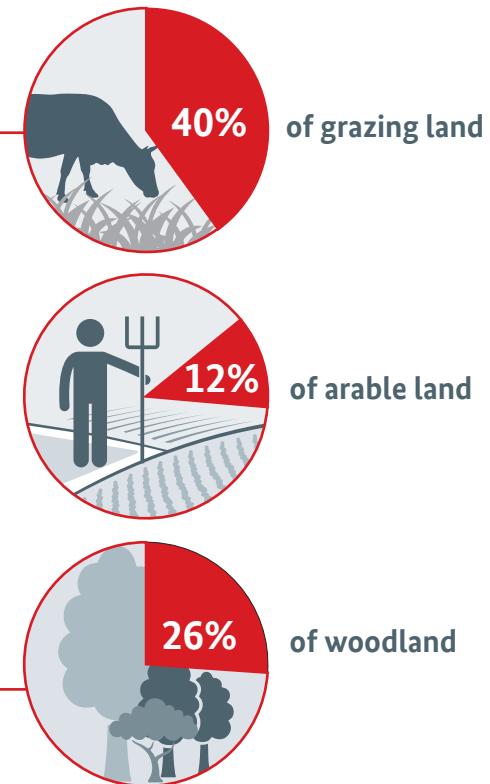
Total area affected by declining soil productivity
over the last 30 years (red)
...globally (around 30%)



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

...in sub-Saharan Africa

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



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

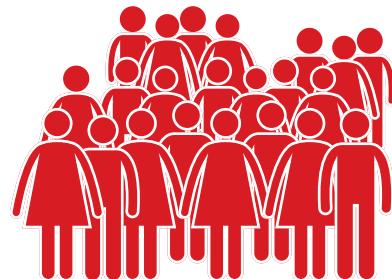
Annual costs of global land degradation
≈ **USD 300 billion**
of which 26% due to land
degradation in sub-Saharan Africa



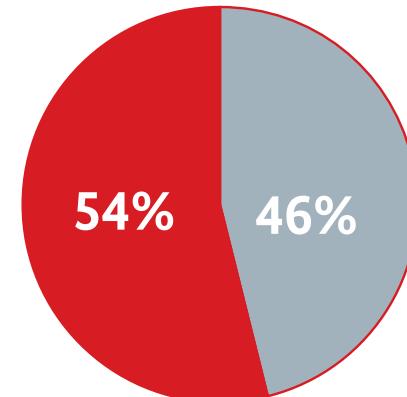
Equivalent to Germany's federal budget of
≈ **EUR 270 billion (2017)**

SOCIETY

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



Who pays the price?



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

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

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



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

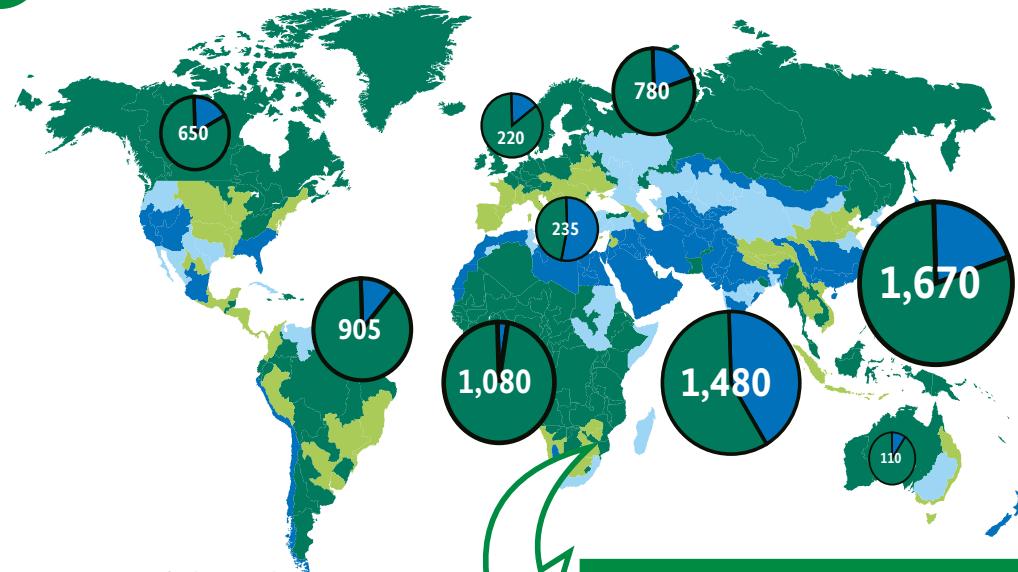
Soil conservation is climate change adaptation (especially in rainfed agriculture)

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



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



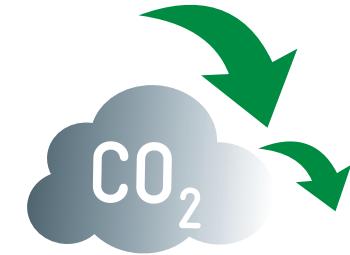
Volume of **green/blue** water used for cultivation by region (**green** = water stored by the soil and plants, **blue** = surface water or groundwater)

Soil conservation is climate protection

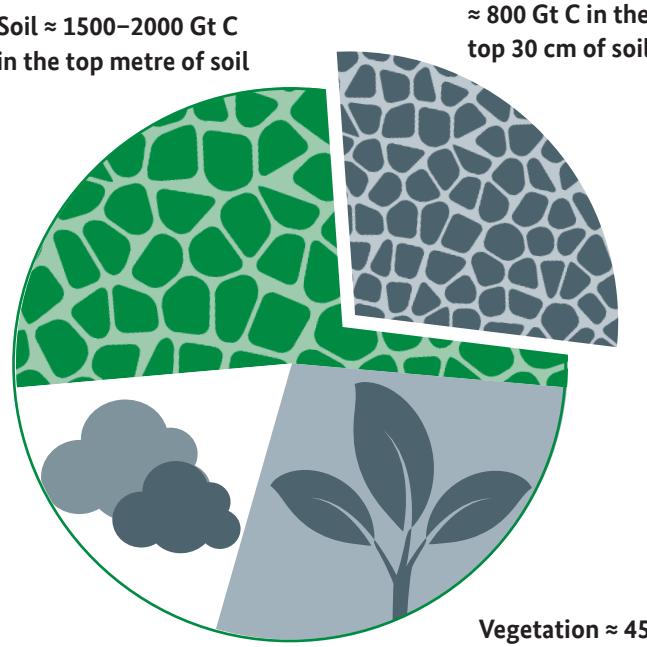
After the oceans, the soil acts as the biggest carbon sink in the biosphere (more than the atmosphere + the earth's vegetation combined)



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 ≈ 1500–2000 Gt C
in the top metre of soil



Atmosphere ≈ 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)

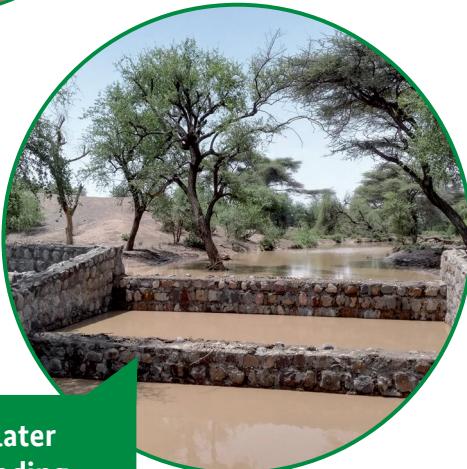


Soil conservation is sustainable water management



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



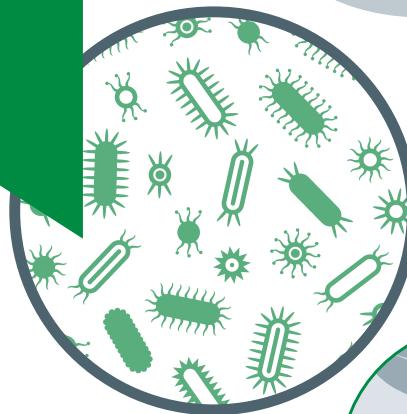
Soil conservation measures help protect biodiversity

→ Soil functions

Decomposition of organic material



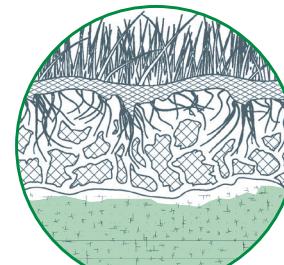
There are more organisms in a spoonful of healthy soil than there are humans on the entire planet



Plant growth control



Suppression of pests, parasites and diseases



Maintenance of soil structure



Soil detoxification



Symbiotic and asymptotic relationships with plants and their roots



Soil conservation generates employment in rural areas



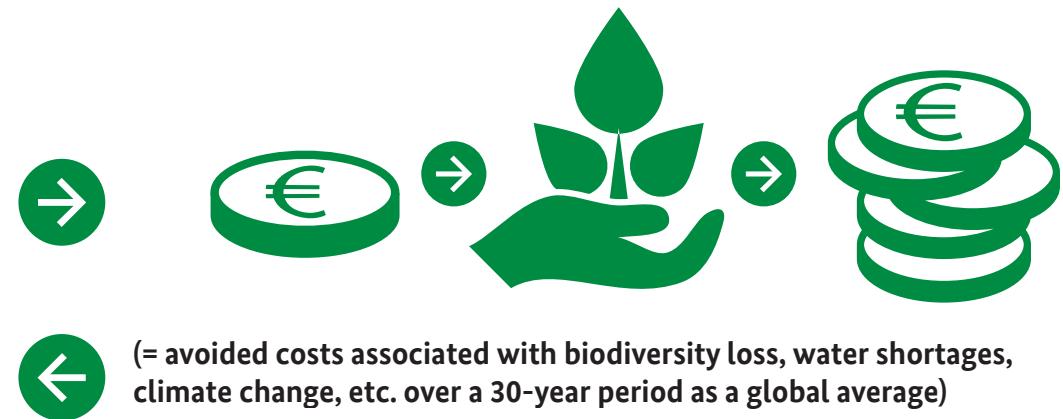
Sahel:
Additional jobs linked to the construction of water distribution weirs include trade in agricultural products, fisheries, maintaining drinking troughs for livestock, clay brick production

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

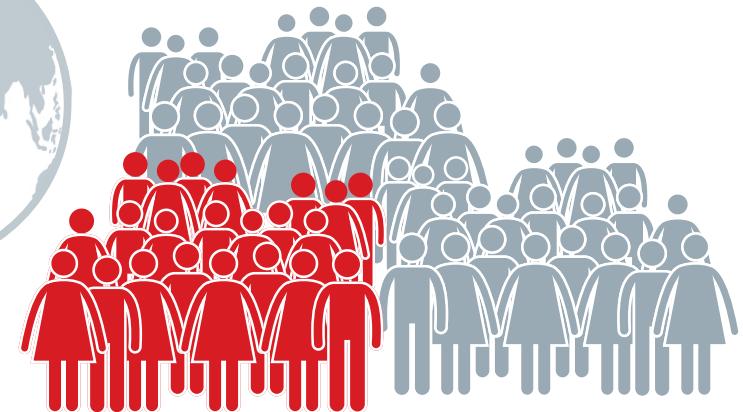


→ Potential economic growth per year in 42 African countries up to 2030 as a result of measures to prevent soil erosion

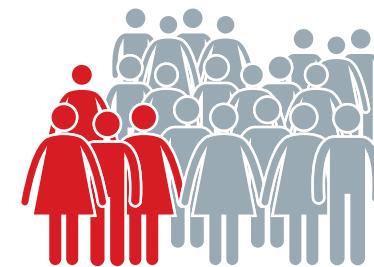


Soil conservation measures contribute to social welfare in rural areas

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

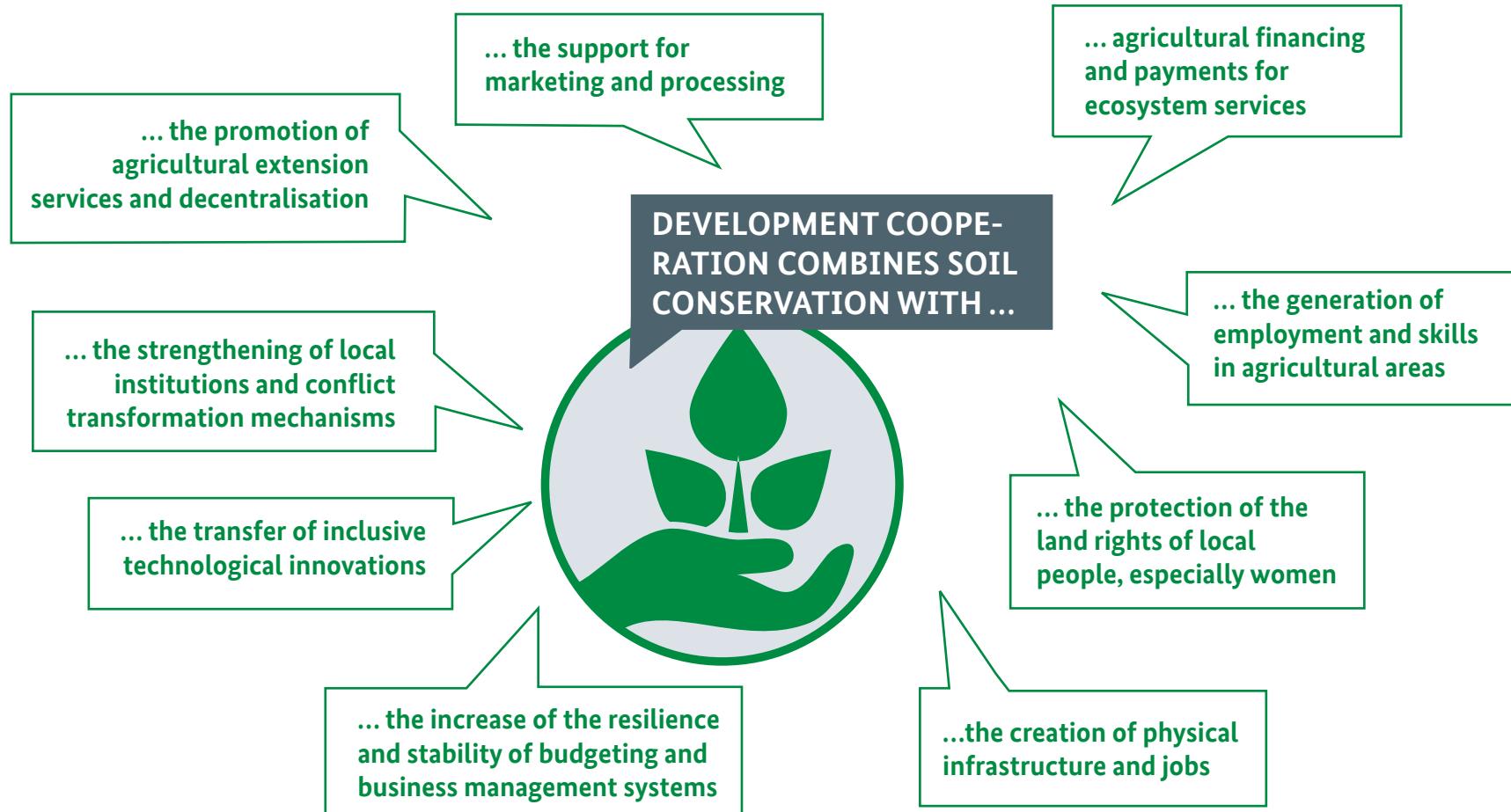


The gully now retains more water thanks to its improved structure and vegetation

Rehabilitated erosion gully in the following dry season



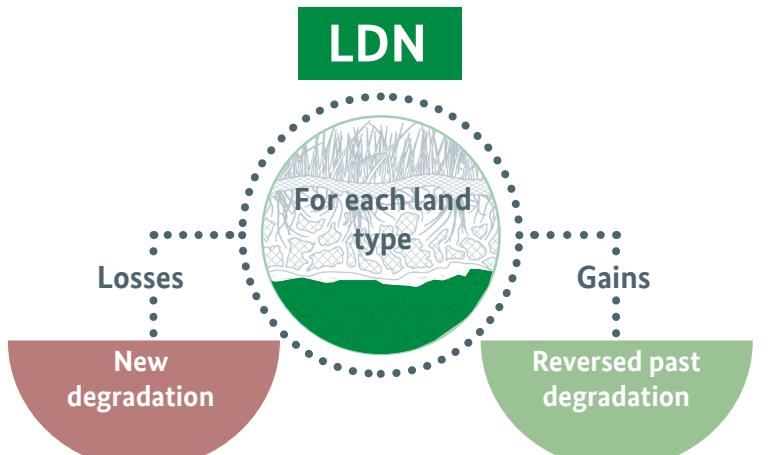
Soil conservation takes effect when it is part of an integrated, long-term approach



Soil conservation requires cross-sectoral policy-making

Framework strategy for SDG 15.3

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



Avoid or reduce
new degradation via
sustainable land
management

Reverse
past degradation via
restoration and
rehabilitation

Re-
verse

Reduce

Avoid

Anticipate
and plan

Interpret
and adjust

Monitor indicators of LDN through time



Capacity building



Improving access to soil data



Complementing national
sustainability strategies



Promoting balancing
mechanisms and incentives



Introducing or adapting land
use planning systems



Cross-sectoral policy-making
including the integration of soil
conservation into agricultural policy



LDN areas of action

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

Source: UNCCD 2017, WRI 2015