



**United Nations**  
Convention to Combat  
Desertification

# **Integrated land use planning contributing to LDN for food, water, energy and ecosystem services**

**Virtual international Symposium on Ecological restoration and management of  
Aral Sea  
24-25 Nov. 2020**

# Building back better from Covid-19

## Scientific understanding connection of healthy land and healthy people

**Land-use change** is a **globally significant driver** of pandemics and caused the emergence of more than 30% of new diseases reported since 1960.

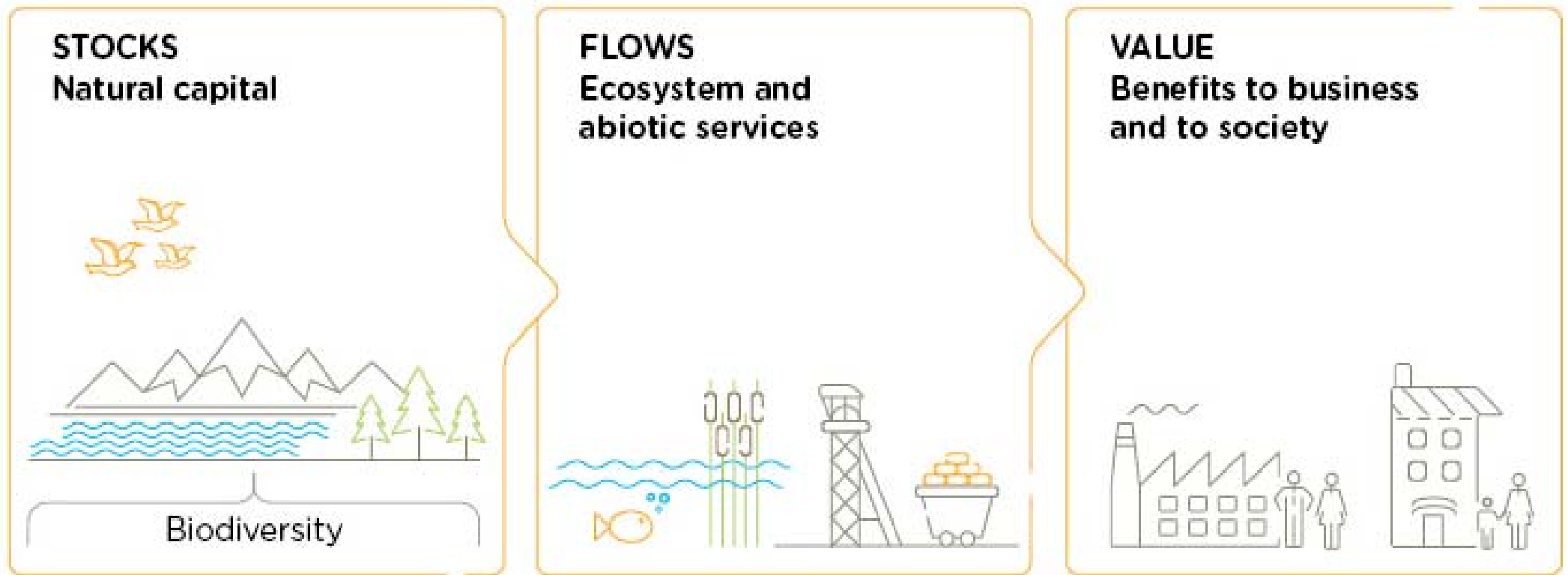
“There is no great mystery about the cause of the COVID-19 pandemic – or of any modern pandemic. The same human activities that drive climate change and biodiversity loss also drive pandemic risk through their impacts on our environment. Changes in the way we use land; the expansion and intensification of agriculture; and unsustainable trade, production and consumption disrupt nature and increase contact between wildlife, livestock, pathogens and people. This is the path to pandemics.”

*Dr. Peter Daszak, President of EcoHealth Alliance and Chair of the IPBES workshop*

**Bonn, 29 October 2020** – The [report of a workshop](#) on the links between the degradation of nature and increasing risk of pandemics has just been released.

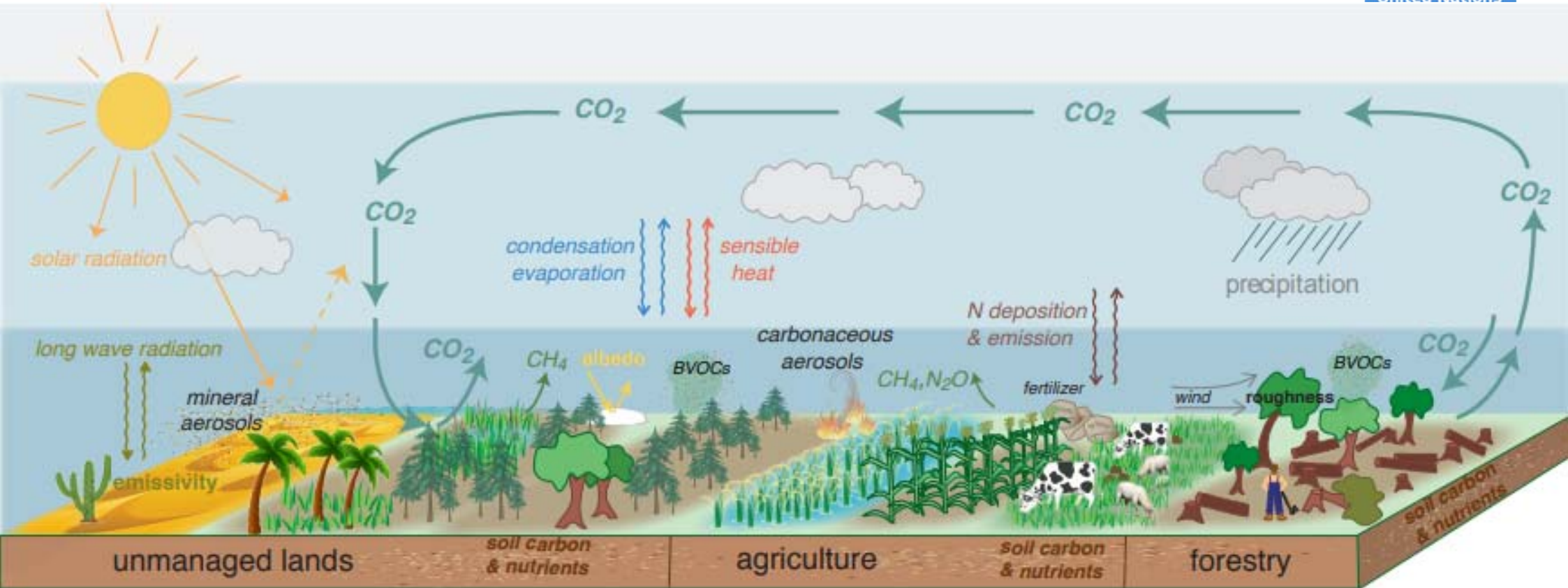
# Land is fundamental natural capital

- Land hosts the stock of renewable and non-renewable resources (e.g. plants, animals, air, water, soils, fossil fuels, minerals) that combine to yield a flow of benefits to people.



Text and Image Source: The Natural Capital Coalition <https://naturalcapitalcoalition.org/natural-capital-2/>

# Land produces carbon, energy, and water flows



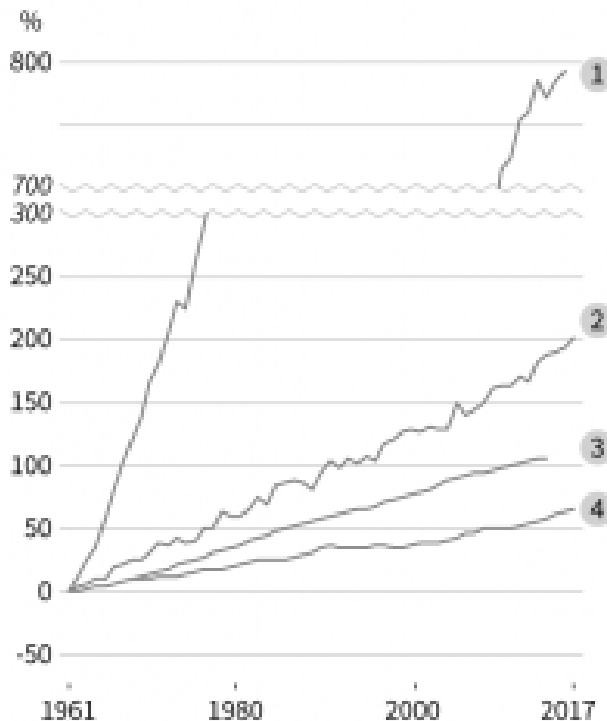
Land use and ecosystem services

Source: IPCC SRCCL Technical Summary (2019)

# Lands under unprecedently pressure

CHANGE in % rel. to 1961

- 1 Inorganic N fertiliser use
- 2 Cereal yields
- 3 Irrigation water volume
- 4 Total number of ruminant livestock

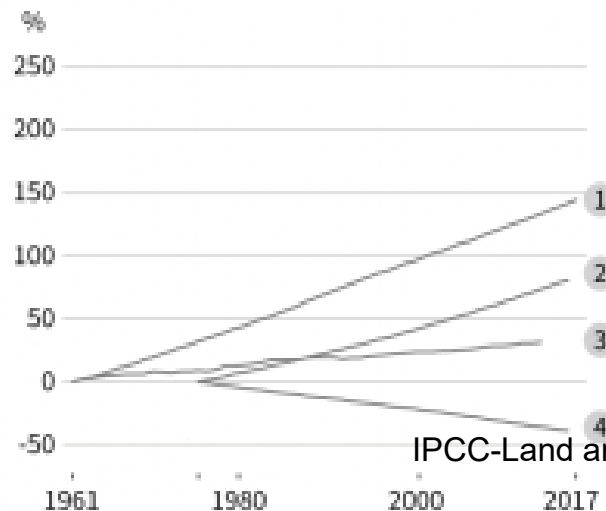


## E. Food demand

Increases in production are linked to consumption changes.

CHANGE in % rel. to 1961 and 1975

- 1 Population
- 2 Prevalence of overweight + obese
- 3 Total calories per capita
- 4 Prevalence of underweight

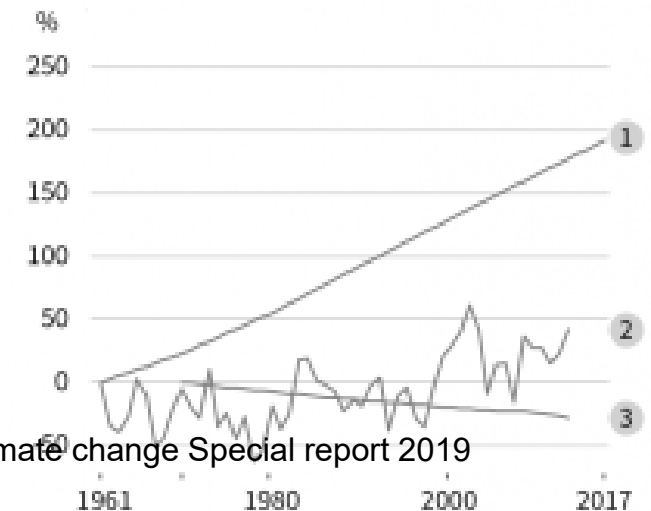


## F. Desertification and land degradation

Land-use change, land-use intensification and climate change have contributed to desertification and land degradation.

CHANGE in % rel. to 1961 and 1970

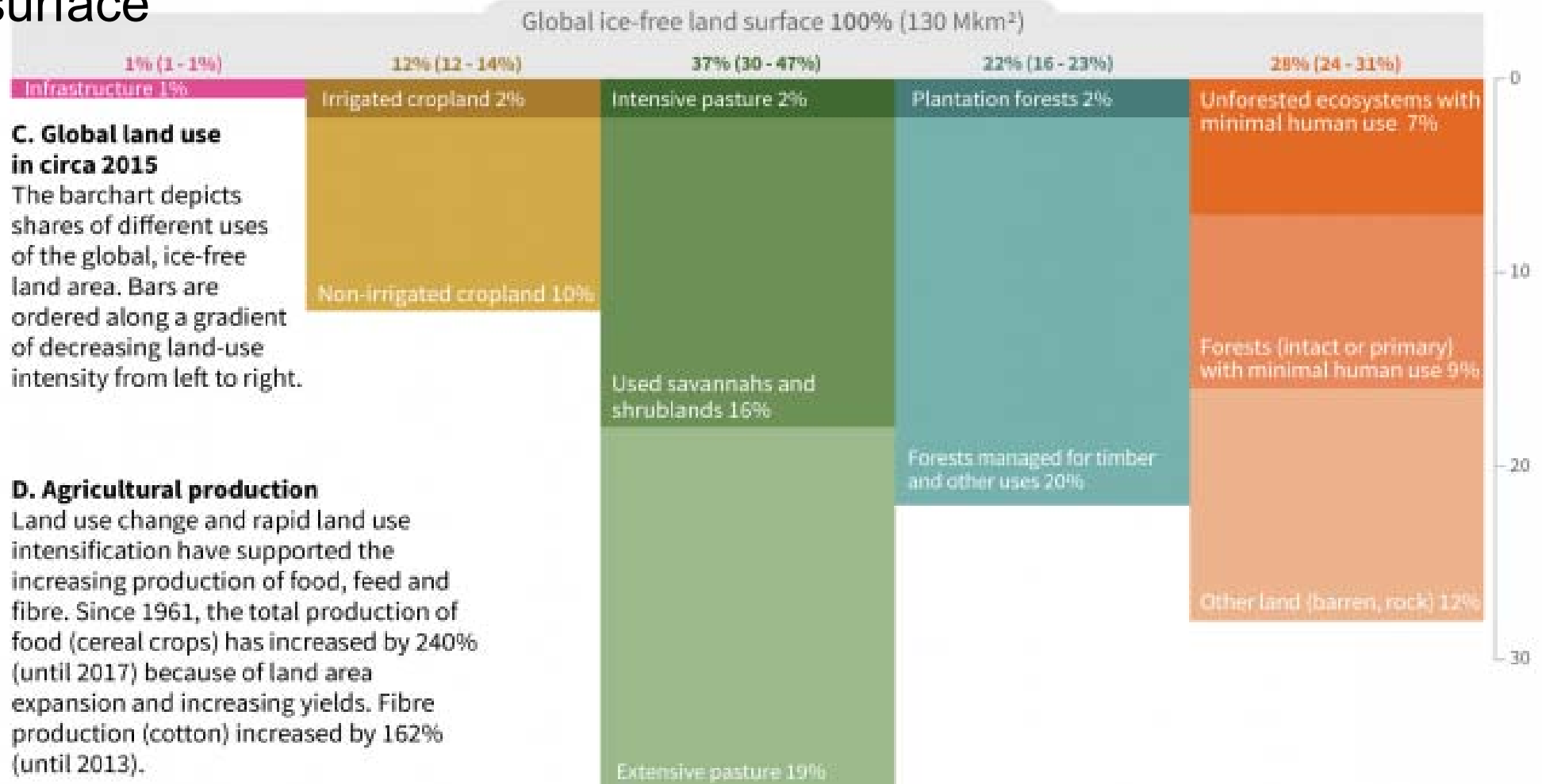
- 1 Population in areas experiencing desertification
- 2 Dryland areas in drought annually
- 3 Inland wetland extent



IPCC-Land and Climate change Special report 2019



# Human affects more than **70%** of the global, ice-free land surface





## Land in decline of quantity and productivity

- **20-30 %of vegetated land surface** showed persistent declining trends in productivity between 1998-2013: 20% of cropland, 16% forest land, 19% grassland, and 27% rangeland. (WAD-IRC2018)
- **land degradation could reduce 10% global crop yields** under Land degradation and climate change by 2050 (WAD-IRC 2018) **halve crop production** in India, China and sub-Saharan Africa(WAD-IRC2018)
- **Over 1.3 billion people trapped** on degrading agricultural land (GLO 2017) By 2050, up to 700 million people are estimated to have been displaced due to scarce land resources. (WAD-IRC2018)

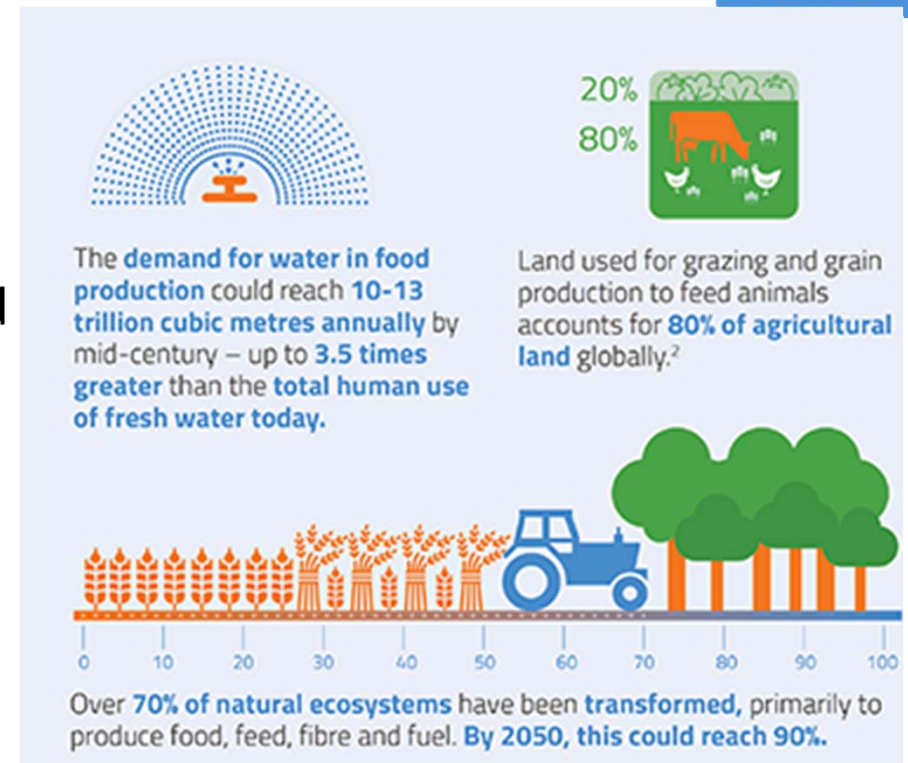
<https://www.unccd.int/actions/global-land-outlook-glo>



# Drivers of land degradation/desertification

- Agricultural expansion, deforestation , overgrazing, overuse of water resources, **non sustainable land management**
- **Population growth**- demands land for food, mobility, residential(urbanization), a projected **2% (30 million ha) of croplands globally would be urbanized by 2030** (WAD-IRC2018)

<https://wad.irc.ec.europa.eu/>



Indirect drivers: *Consumption and production*



# Climate change exacerbate land degradation

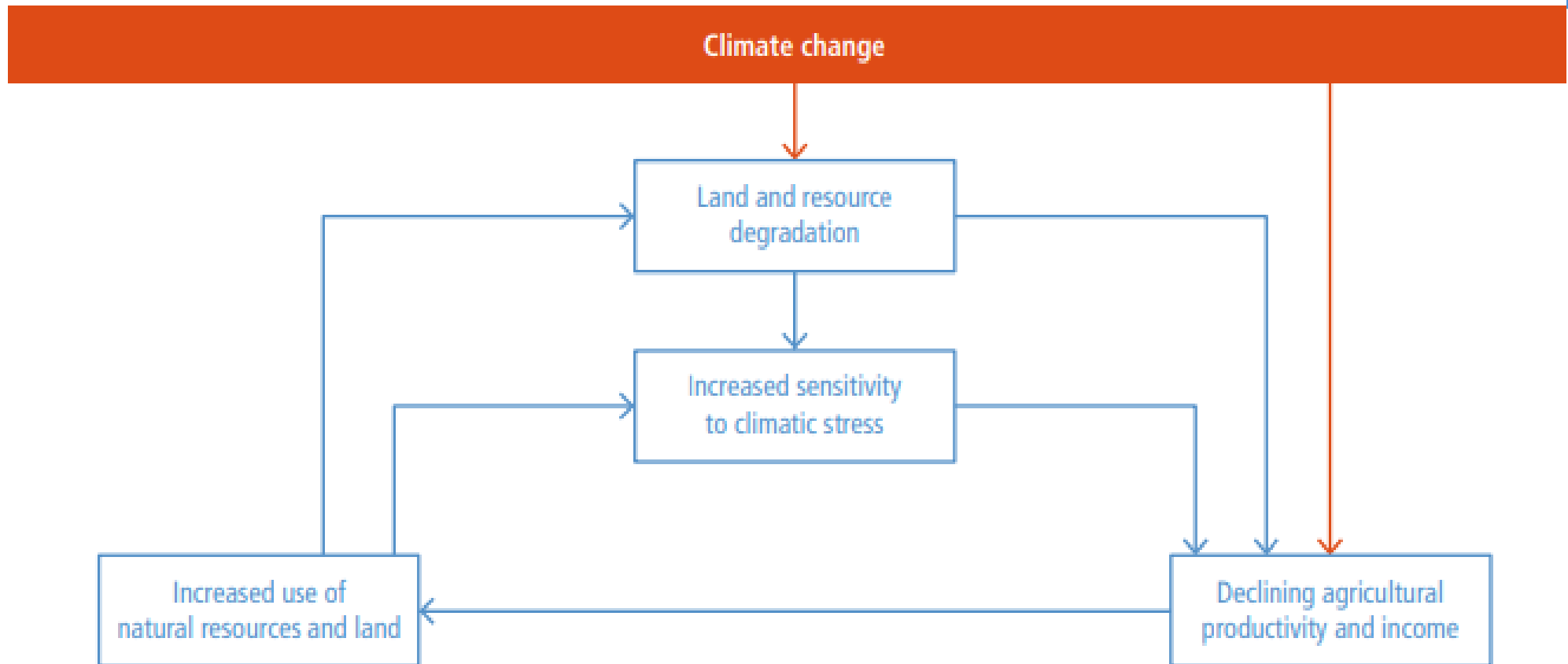
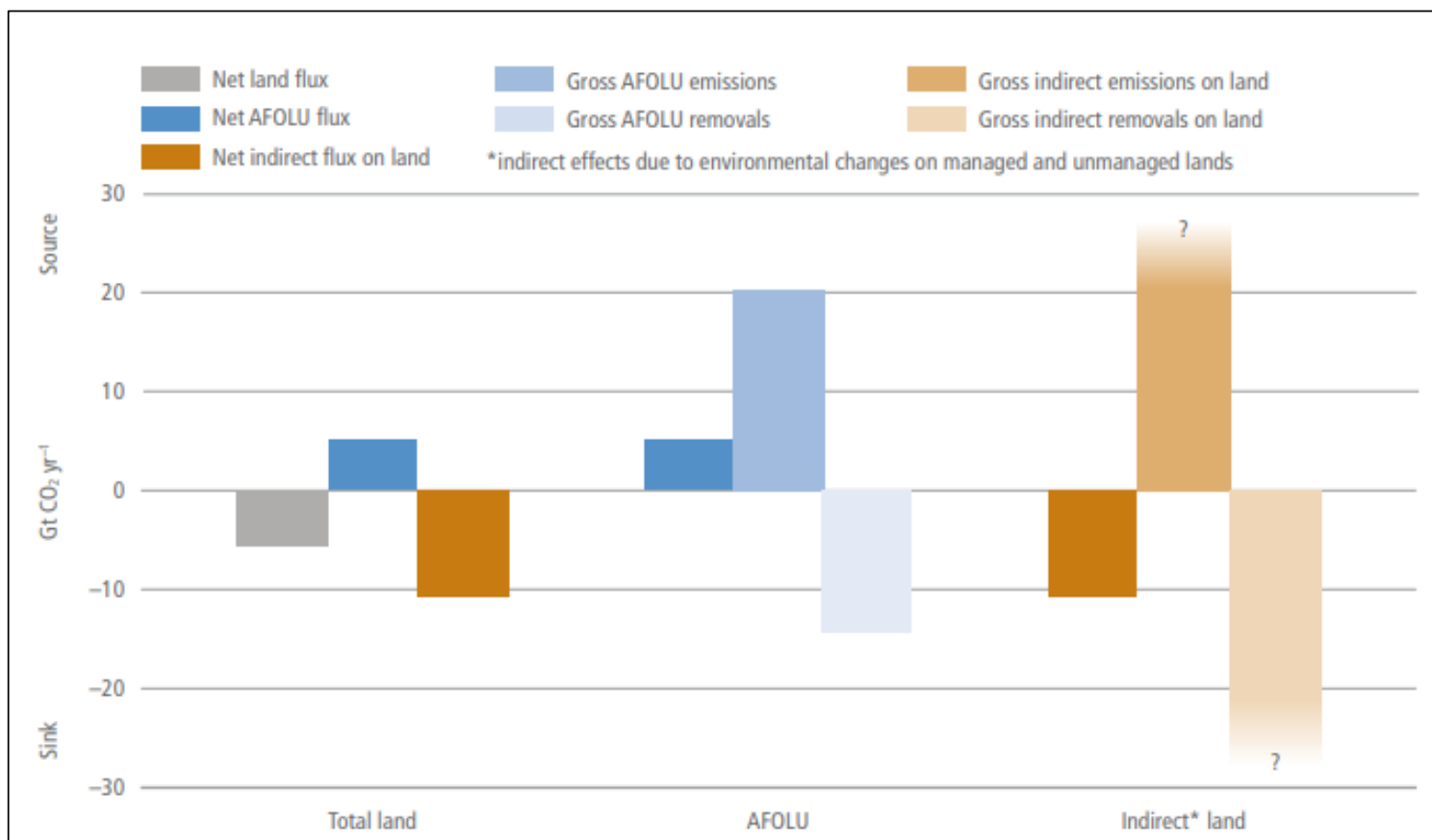


Figure 4.6 | Schematic representation of links between climate change, land management and socio-economic conditions.



# Land: Sink or source?



Land degradation **increases** emissions of GHGs and **reduces** carbon sequestration.

Gross emissions from AFOLU make up **1/3** of **total global emissions**.

Net and gross fluxes of CO<sub>2</sub> from land (annual averages for 2008–2017)



# It is the time to transfer our land use into sustainable

- Science-policy interfacing, science knowledge interfacing, application of the technologies to improve capacity in sustainable land mangemnt

## In a changing climate and increasing demand

- Transition of **land management to sustainable** by combination of advance technologies tools with manual tools and machinery **tools-Smart tool to deal with complexity**

## Response options

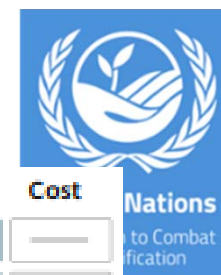
- Although most response options can be applied without **competing for available land**, some can increase demand for land conversion.
- **Sustainable land management is key.**
- Sustainable production, more diverse food systems, consumption of healthy and sustainable diets and reducing food loss and waste **are also key.**

<https://www.ipcc.ch/srccl/>



Key messages from  
B. Adaptation and mitigation  
response options

# There are many response options



Response options based on land management		Mitigation	Adaptation	Desertification	Land Degradation	Food Security	Cost
Agriculture	Increased food productivity	L	M	L	M	H	—
	Agro-forestry	M	M	M	M	L	●
	Improved cropland management	M	L	L	L	L	●●
	Improved livestock management	M	L	L	L	L	●●●
	Agricultural diversification	L	L	L	M	L	●
	Improved grazing land management	M	L	L	L	L	—
	Integrated water management	L	L	L	L	L	●●
	Reduced grassland conversion to cropland	L	—	L	L	L	●
Forests	Forest management	M	L	L	L	L	●●
	Reduced deforestation and forest degradation	H	L	L	L	L	●●
Soils	Increased soil organic carbon content	H	L	M	M	L	●●
	Reduced soil erosion	↔ L	L	M	M	L	●●
	Reduced soil salinization	—	L	L	L	L	●●
	Reduced soil compaction	—	L	—	L	L	●
Other ecosystems	Fire management	M	M	M	M	L	●
	Reduced landslides and natural hazards	L	L	L	L	L	—
	Reduced pollution including acidification	↔ M	M	L	L	L	—
	Restoration & reduced conversion of coastal wetlands	M	L	M	M	↔ L	—
	Restoration & reduced conversion of peatlands	M	—	na	M	L	●

# ...including value chains and risk management



## Response options based on value chain management

Demand	Reduced post-harvest losses	H	M	L	L	H	—
	Dietary change	H	—	L	H	H	—
	Reduced food waste (consumer or retailer)	H	—	L	M	M	—
Supply	Sustainable sourcing	—	L	—	L	L	—
	Improved food processing and retailing	L	L	—	—	L	—
	Improved energy use in food systems	L	L	—	—	L	—

## Response options based on risk management

Risk	Livelihood diversification	—	L	—	L	L	—
	Management of urban sprawl	—	L	L	M	L	—
	Risk sharing instruments	↔ L	L	—	↔ L	L	●●

Options shown are those for which data are available to assess global potential for three or more land challenges.  
The magnitudes are assessed independently for each option and are not additive.




<https://www.ipcc.ch/srccl/>



# Consider the criteria used for defining the magnitude of impacts

## Key for criteria used to define magnitude of impact of each integrated response option

		Mitigation <i>Gt CO<sub>2</sub>-eq yr<sup>-1</sup></i>	Adaptation <i>Million people</i>	Desertification <i>Million km<sup>2</sup></i>	Land Degradation <i>Million km<sup>2</sup></i>	Food Security <i>Million people</i>
Positive	Large	More than 3	Positive for more than 25	Positive for more than 3	Positive for more than 3	Positive for more than 100
	Moderate	0.3 to 3	1 to 25	0.5 to 3	0.5 to 3	1 to 100
	Small	Less than 0.3	Less than 1	Less than 0.5	Less than 0.5	Less than 1
	Negligible	No effect	No effect	No effect	No effect	No effect
Negative	Small	Less than -0.3	Less than 1	Less than 0.5	Less than 0.5	Less than 1
	Moderate	-0.3 to -3	1 to 25	0.5 to 3	0.5 to 3	1 to 100
	Large	More than -3	Negative for more than 25	Negative for more than 3	Negative for more than 3	Negative for more than 100

 **Variable:** Can be positive or negative    
  no data    
  not applicable

## Confidence level

Indicates confidence in the estimate of magnitude category.


*H* High confidence

*M* Medium confidence

*L* Low confidence

## Cost range

See technical caption for cost ranges in US\$ tCO<sub>2</sub>e<sup>-1</sup> or US\$ ha<sup>-1</sup>.

 High cost

 Medium cost

 Low cost

 no data

Courtesy, Dr. Jim Skea, IPCC)

# Land for food, water, energy and ecosystems

- **Freshwater:** 70 percent of total global withdrawals for agriculture, the largest water user,
- **Energy:** about 30 percent of total global consumption for food production and supply chain consumes
- **Energy** powers produce, transport and distribute food as well as to extract, pump, lift, collect, transport and treat water.
- **Increased demands from Land :** water, energy and food, feed, fiber and fuel, fashion, fitness .... **More land is needed: 70 per cent of agricultural land** is now used to grow **feed crops and livestock production (WAD-JRC)**
- **Consumption** of natural resources **doubled in 30 years, 3 planets to meet 2050 natural resource demands (GLO 2017)**

# Land Critical to Achieving all SDGs...



....but SDGs compete for same land resources

# LDN is central to SDG Target 15.3

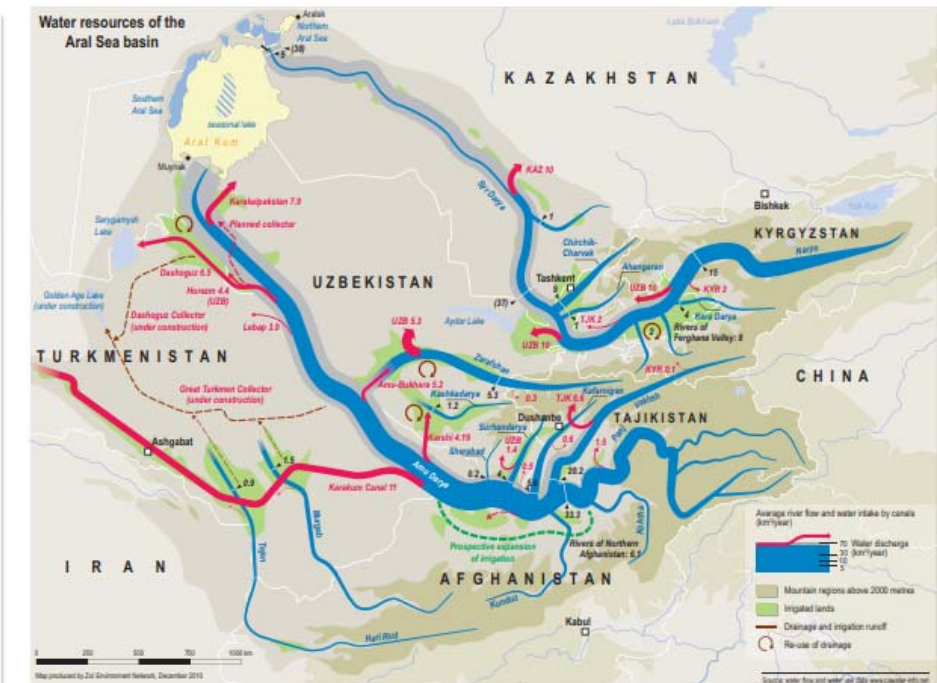
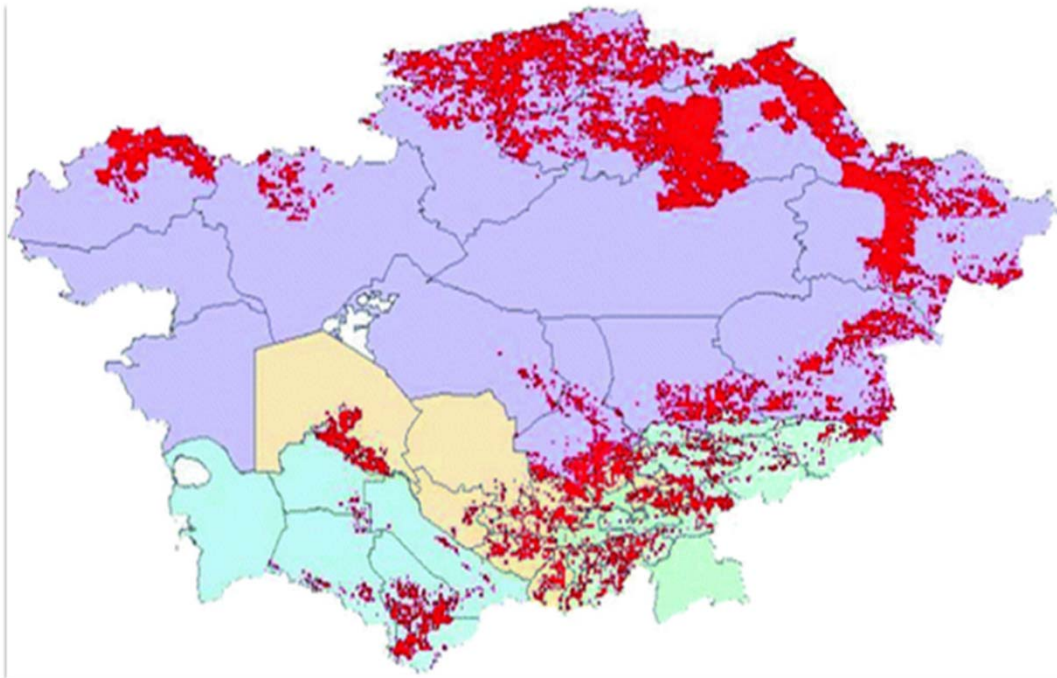


PROTECT, RESTORE AND PROMOTE  
SUSTAINABLE USE OF TERRESTRIAL  
ECOSYSTEMS, SUSTAINABLY MANAGE  
FORESTS, COMBAT DESERTIFICATION, AND  
HALT AND REVERSE LAND DEGRADATION  
AND HALT BIODIVERSITY LOSS

**SDG Target 15.3:**  
**By 2030, combat**  
**desertification, restore**  
**degraded land and soil,**  
**including land affected by**  
**desertification, drought and**  
**floods, and strive to achieve a**  
**land degradation neutral world.**



# Central Asia countries Aral sea water system and land degradation



Land degradation hotspots in Central Asia (in red), a negative change in NDVI between 1982 and 1984 and 2006. *Source* Adapted from Le et al. (2014)

# Water and land use in Aral Sea Basin

Basic indicators of water and land use in the Aral Sea basin

Indicator	Unit	1960	1970	1980	1990	2000	2004
Population	Million	14.6	20.3	26.8	33.6	41.8	43.8
Irrigated area	1 000 ha	4 510	5 150	6 920	7 600	7 896	8 120
Irrigated area per capita	ha	0.31	0.27	0.26	0.23	0.19	0.18
Total water diversion	km <sup>3</sup> /year	60.61	94.56	120.69	116.27	105.0	102.0
Incl. irrigation	km <sup>3</sup> /year	56.15	86.84	106.79	106.4	94.66	93.0
Specific diversion per ha	m <sup>3</sup> /ha	12 450	16 860	15 430	14 000	11 850	11 450
Specific diversion per capita	m <sup>3</sup> /capita	4 270	4 730	4 500	3 460	2 530	2 120
GNP	Bln. US\$	16.1	32.4	48.1	74.0	27.5	34.4
Including agricultural production	Bln. US\$	5.8	8.9	18.3	22.0	9.0	10.2

Source: [SIC ICWC](#)



# Aral Sea River Basin land cover change

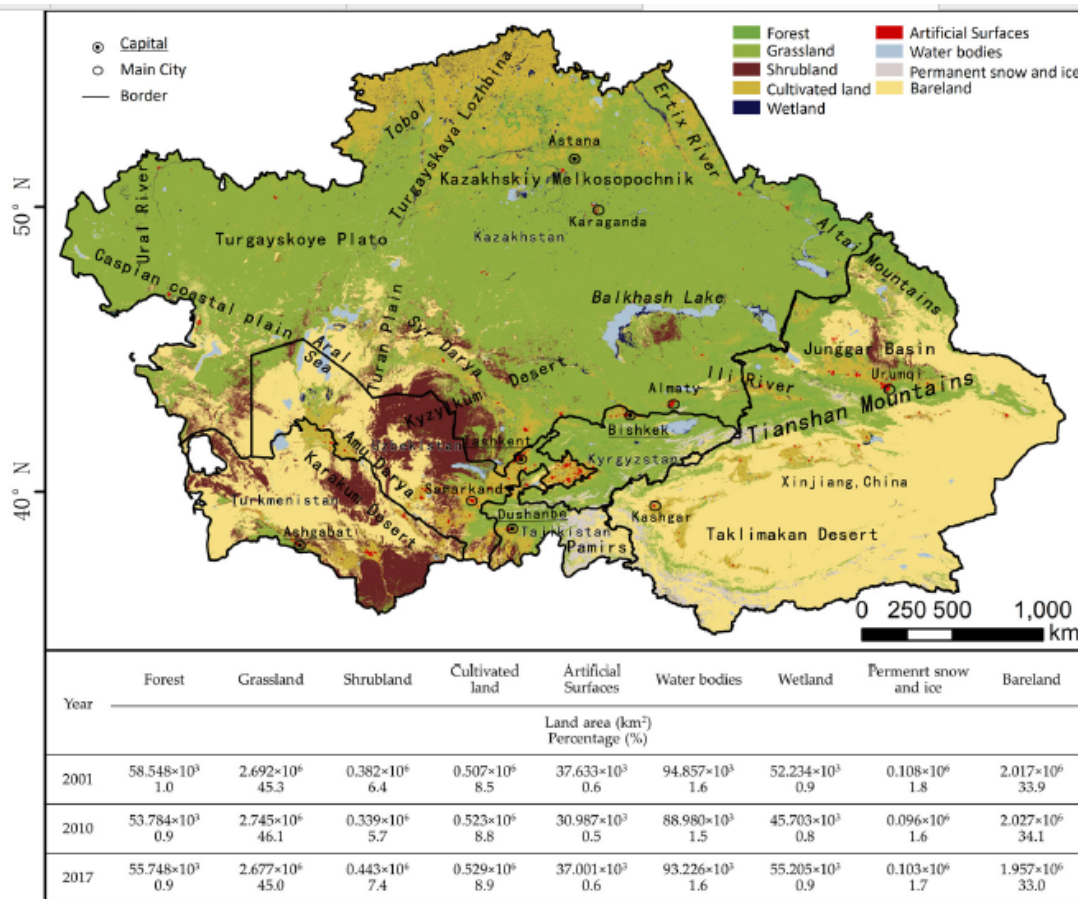


Figure 5. Land cover classification in 2017, with computed area (km<sup>2</sup> and %) for land cover classes 2001, 2010 and 2017.

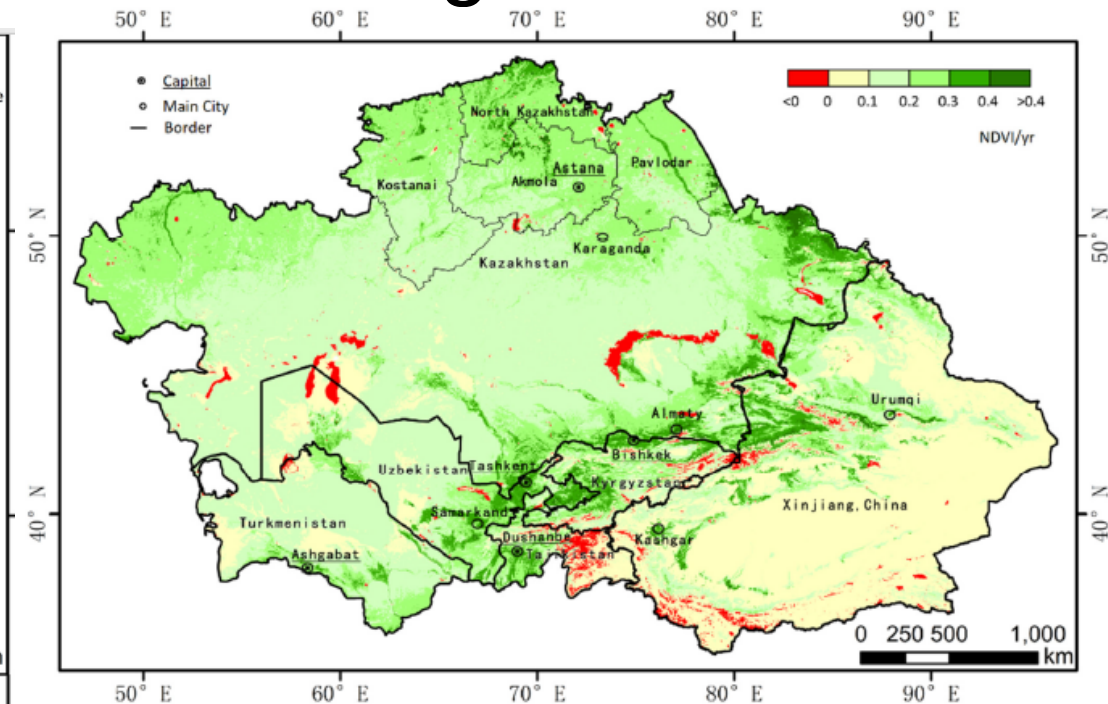
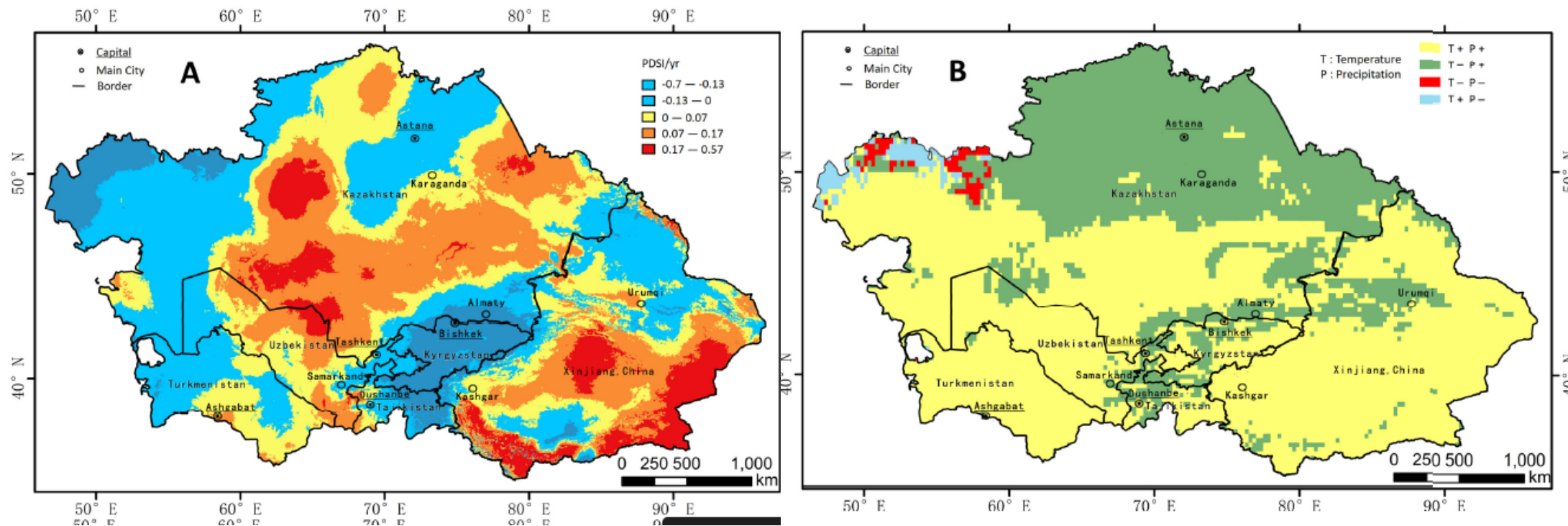


Figure 6. The NDVI trend in Central Asia from 2001 to 2017. NDVI/yr indicates the slope of the change of annual average of NDVI

# Climate Change 2001-2017



**Figure 10.** Spatial pattern of climate change in Central Asia from 2001 to 2017. (A) Change in the PDSI, PDSI/yr indicates the slope of the change in the annual average PDSI. (B) Temperature-precipitation change zoning map. +/- indicates that the slope of the change in the annual average temperature or annual precipitation is greater or less than 0.

Source: Yunfeng Hu and Yang Hu 2019 Land Cover Changes and Their Driving Mechanisms in Central Asia from 2001 to 2017 Supported by Google Earth Engine

# Land cover change

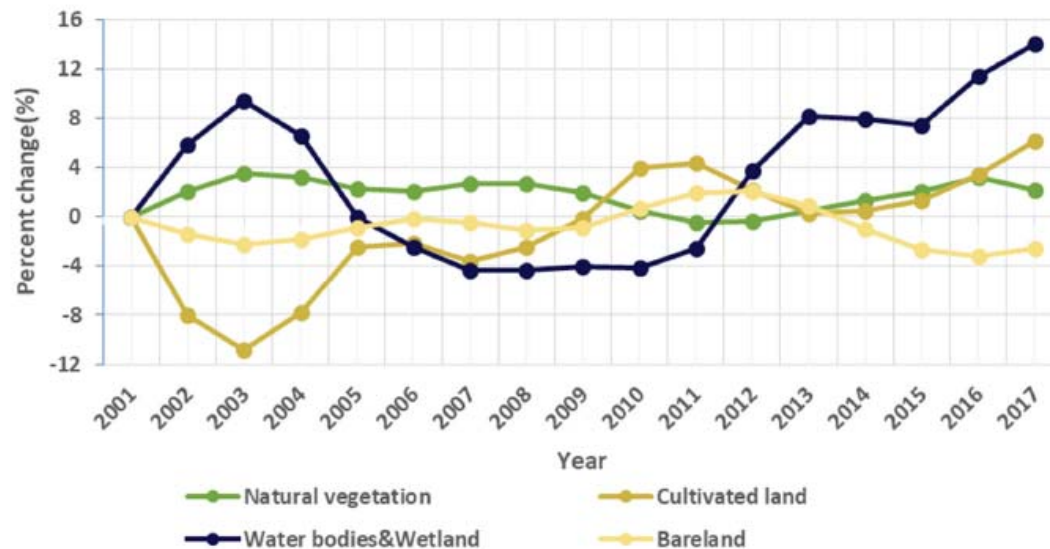


Figure 7. Rate of land area change for various land cover types in the study area from 2001 to 2017. The rates indicate the rate of change of area in a certain year relative to 2001.

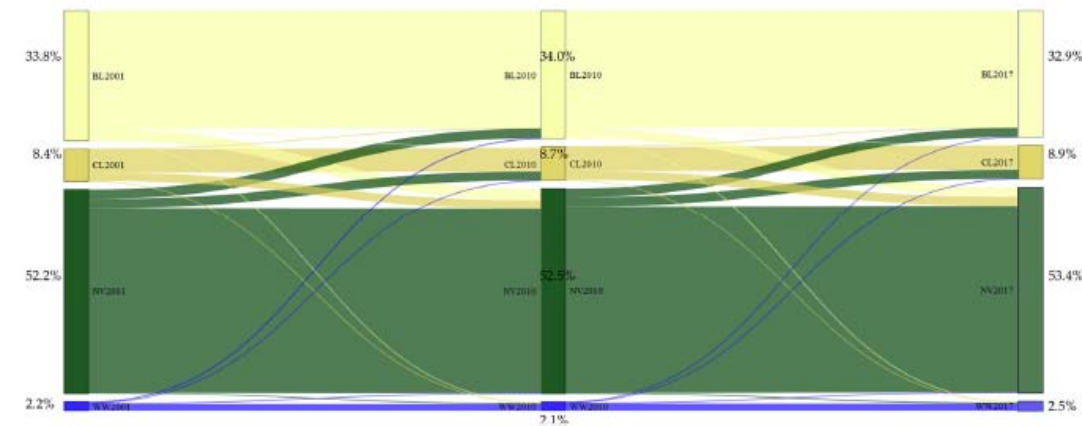
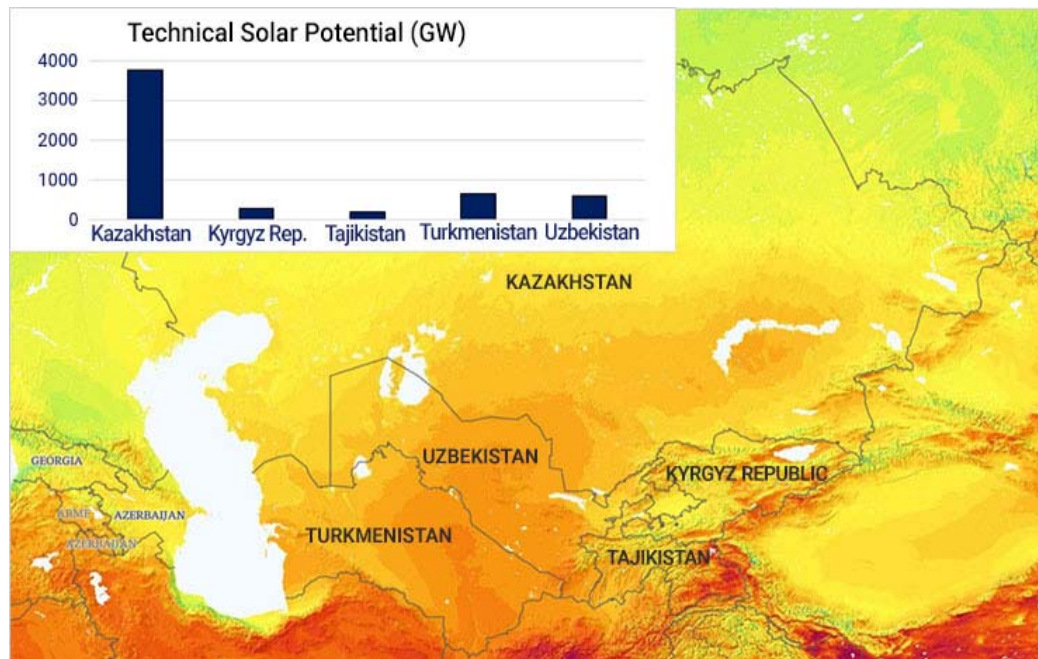


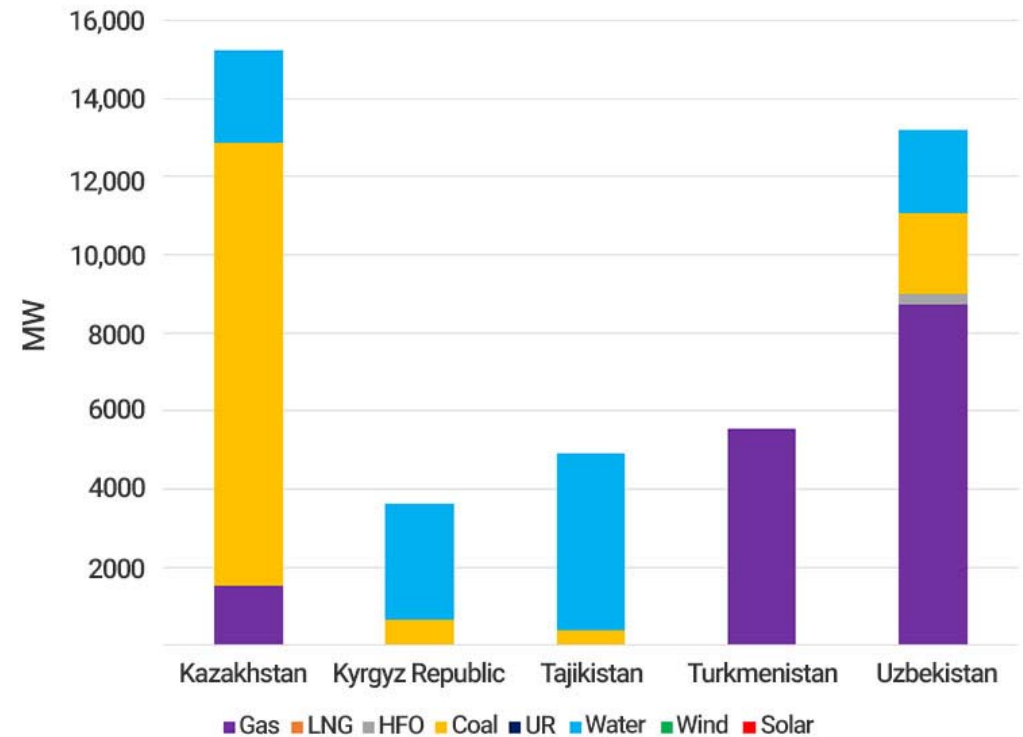
Figure 8. Sankey plot showing changes from one land use land cover class to another between 2001, 2010 and 2017. The numbers beside boxes indicate the percentage of the area of the land cover type based on the total study area. BL: Bareland, CL: Cropland, NV: Natural vegetable, WW: Water bodies&Wetland.



# Renewable Energy Potential in Central Asia



**Figure 1: Solar Potential in Central Asia.** Source: Global Solar Atlas; Central Asia Renewable Energy Snapshot (UNDP).

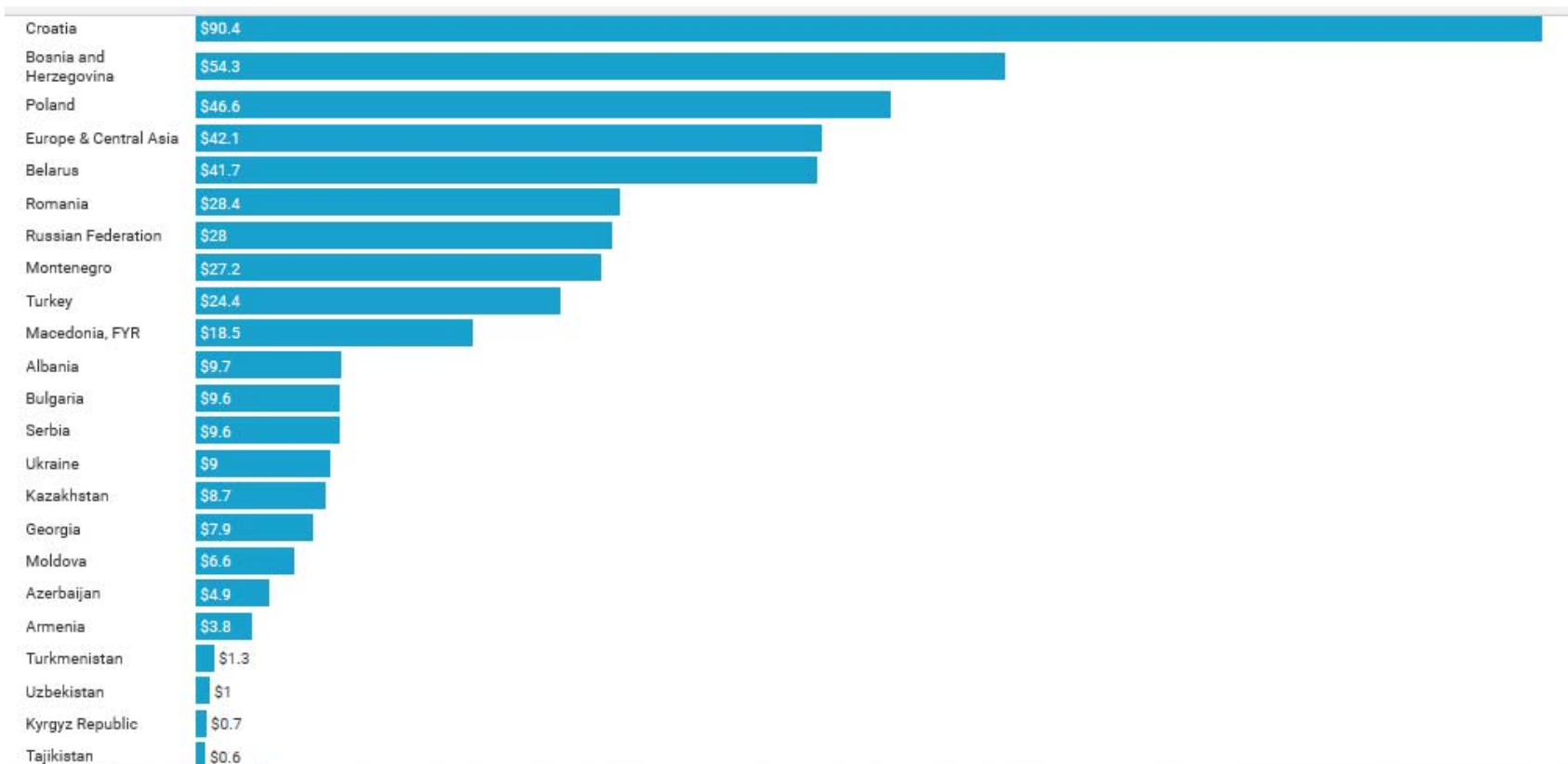


**Figure 2: Power Generation mix in Central Asia in 2018.** Source: World Bank Estimates.

# Water Productivity in Europe and central Asia

## Constant 2010 US\$ GDP per cubic meter of total freshwater withdrawal

### 2014



- *Water productivity is calculated as GDP in constant prices divided by annual total water withdrawal.*
- Source: [Food and Agriculture Organization, AQUASTAT data, and World Bank and OECD GDP estimates.](#) [Get the data](#)

# Challenges

- Growing demand due to population growth and socio-economic development
  - water 320 th. persons/year
- Climate change impacts- estimated reduction of flow (moderate warming scenarios) •
- Reduce water deficit in the Amu Darya Basin in average flow years.
- The glaciers in Central Asia are losing 60% more water than they can accumulate from new snowfall;
- The region is expected to lose 80% of its glaciers by 2100 as a result of climate change.



## Responses- sustainable water and land mangemnt

- Reduce river flow losses at interstate level
- - Improve accuracy of water accounting along main and inter-farm canals ;
- - Change flow regulation regimes ;
- - Adapt legal framework and make it flexible;
- -Revision of irrigation scheduling and norms potential saving of net consumptive water use or approx.700-800 m<sup>3</sup> /ha
- - Waste water treatment - Water saving platforms

# Response-sustainable management of SLM

## **Mix of policies to help us cope with land and climate challenges**

Regulation (eg land use zoning, land sparing and land sharing approaches)

Land tenure

Voluntary (change in diet, standards and certification, collective action)

Persuasive (eg payments for ecosystem services)

Early warning systems and advisories

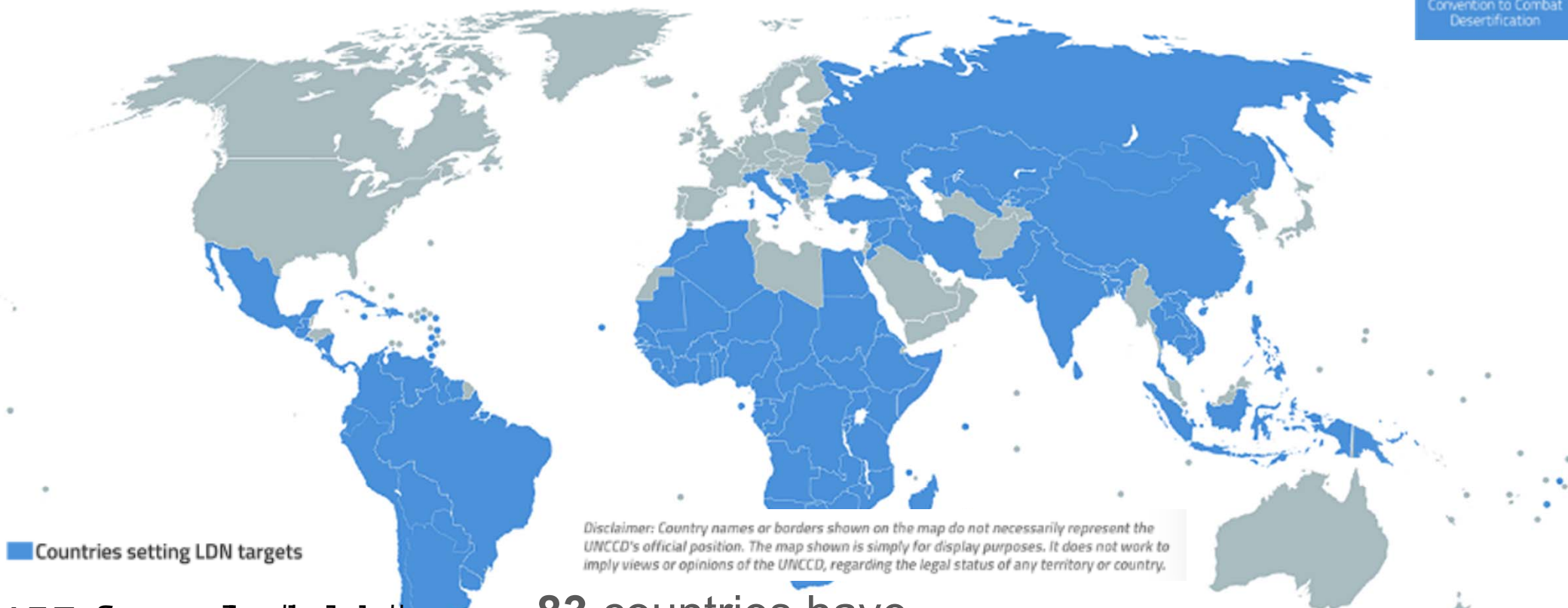
Risk sharing mechanisms (eg insurance)



# United Nations Convention to Combat Desertification (UNCCD)

- The UNCCD: international agreement caring about land, sustainable land management.
- The UNCCD is the custodian agency for **SDG indicator 15.3.1** , “Proportion of land that is degraded over total land area”.
- The UNCCD 2018-2030 strategic Framework Vision: Land degradation Neutrality ,
- monitors its progress. Regularly collects and analyses information on SDG indicator 15.3.1 through its **national reporting** and **review process** beginning in 2018, in four year **four years cycle, afterward**.

# Global LDN target setting programme



457 countries have  
officially validated  
their targets

83 countries have  
officially validated  
their targets

85 countries have  
officially validated  
their targets

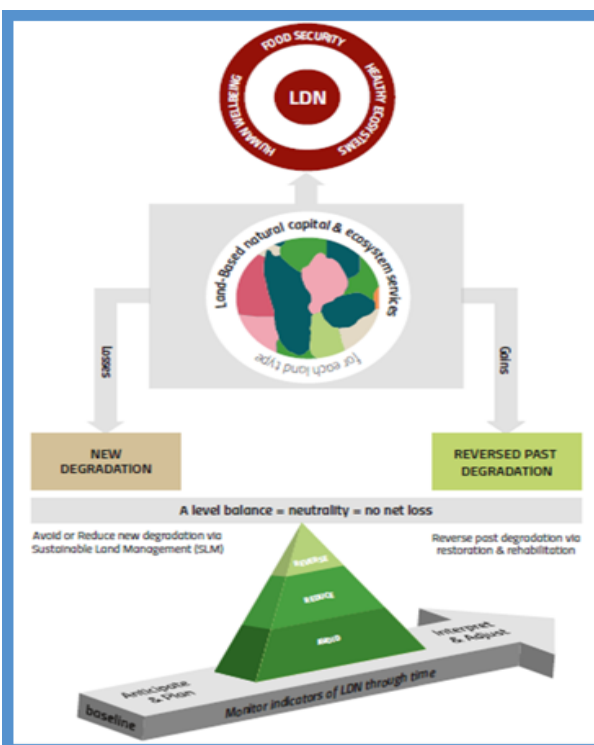
# Land Degradation Neutrality (LDN) provides a framework

## Definition

“A state whereby the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security remain stable or increase within specified temporal and spatial scales and ecosystems”

Source: UNCCD COP12 October 2015

## Conceptual Framework



## Objectives



No net loss of land as natural capital in quantity and quality



Maintain or improve the sustainable delivery of ecosystem services



Maintain or improve land productivity to maintain food security



Baseline relative, time reference - M&A , temporal planning

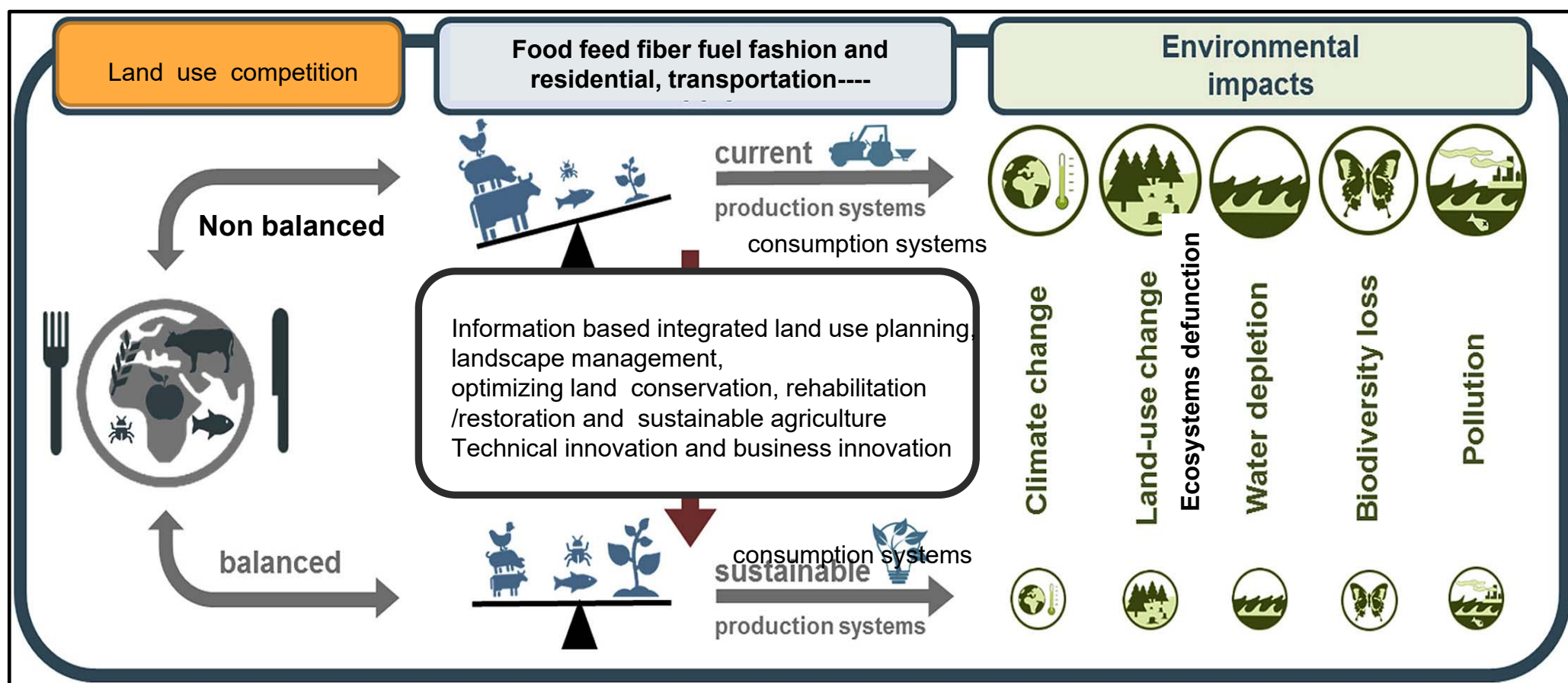


Geographical, administrative or eco-soil zones , Spatial planning



United Nations  
Convention to Combat  
Desertification

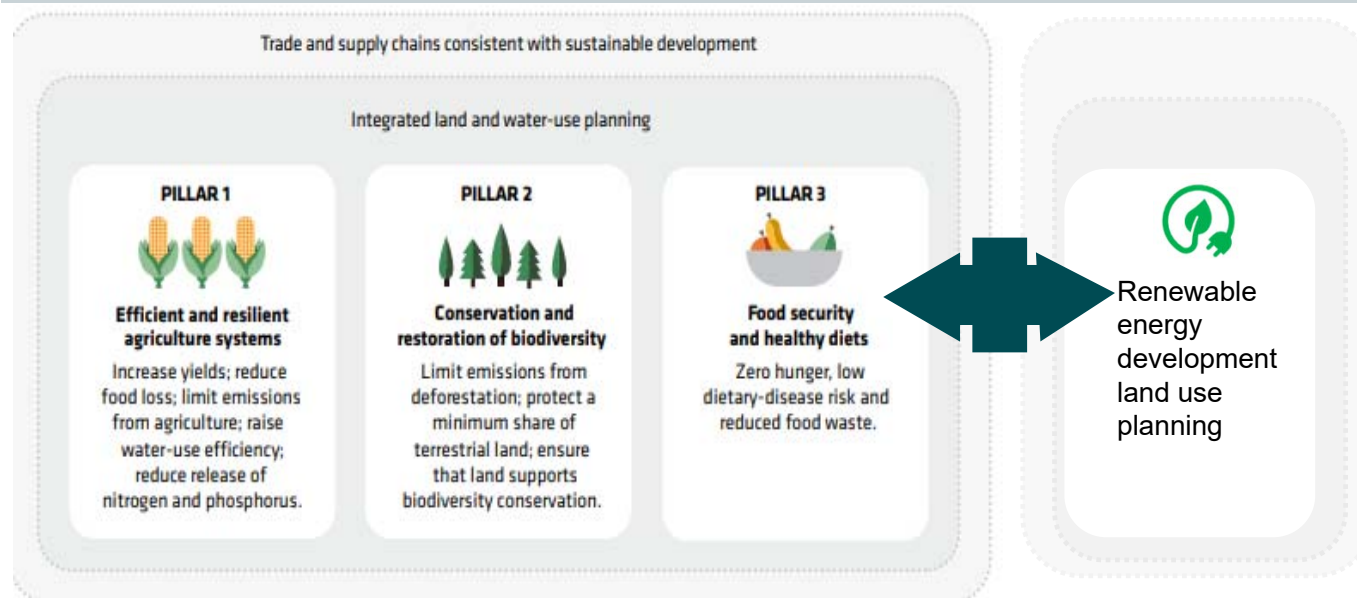
# Planning Land Use for Food, water, energy and ecosystem services





# Integrated land use planning to optimize land restoration, for food, water and energy and ecosystems services

Land use planning+ sustainable land management+ smart management tool

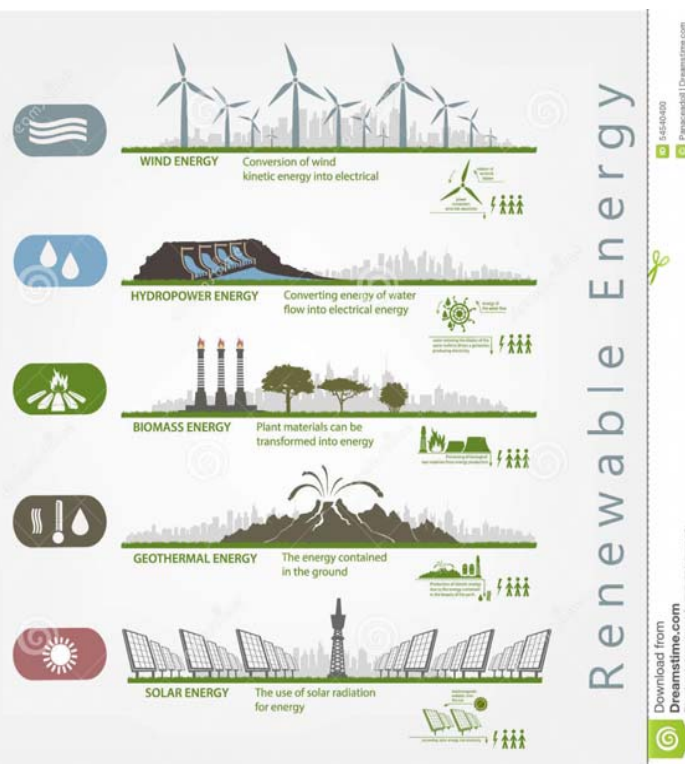


source: The Food, Agriculture, Biodiversity, Land-Use, and Energy (FABLE) Consortium is convened as part of the Food and Land-Use Coalition (FOLU). 2019 Report on Pathways to Sustainable Land-Use and Food Systems



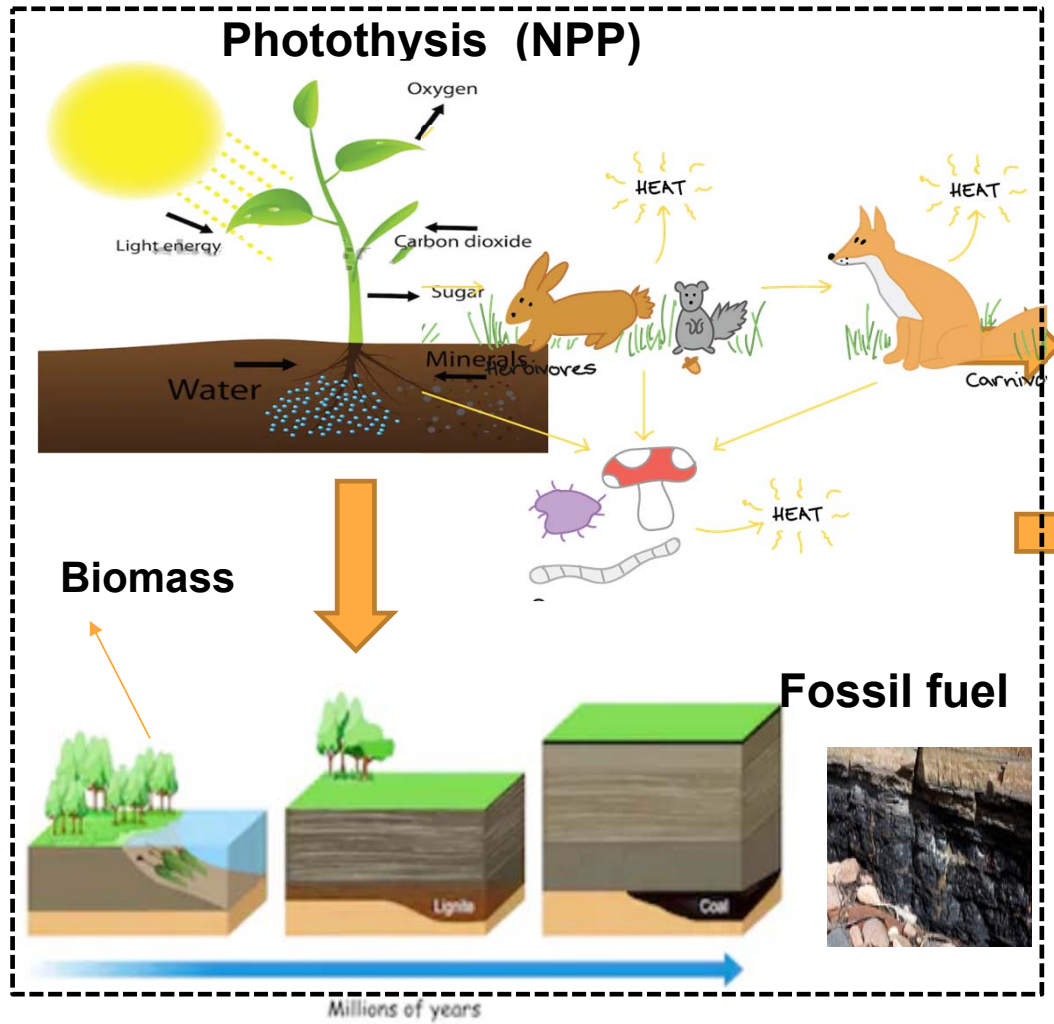
- Europe:
- 3% land for solar farm and 15% for wind plant to fulfill renewable energy demand of Europe.
- Only 1% of land transformation, the electricity needs can be met. (JRC 2020 Report)

# Land for renewable energy

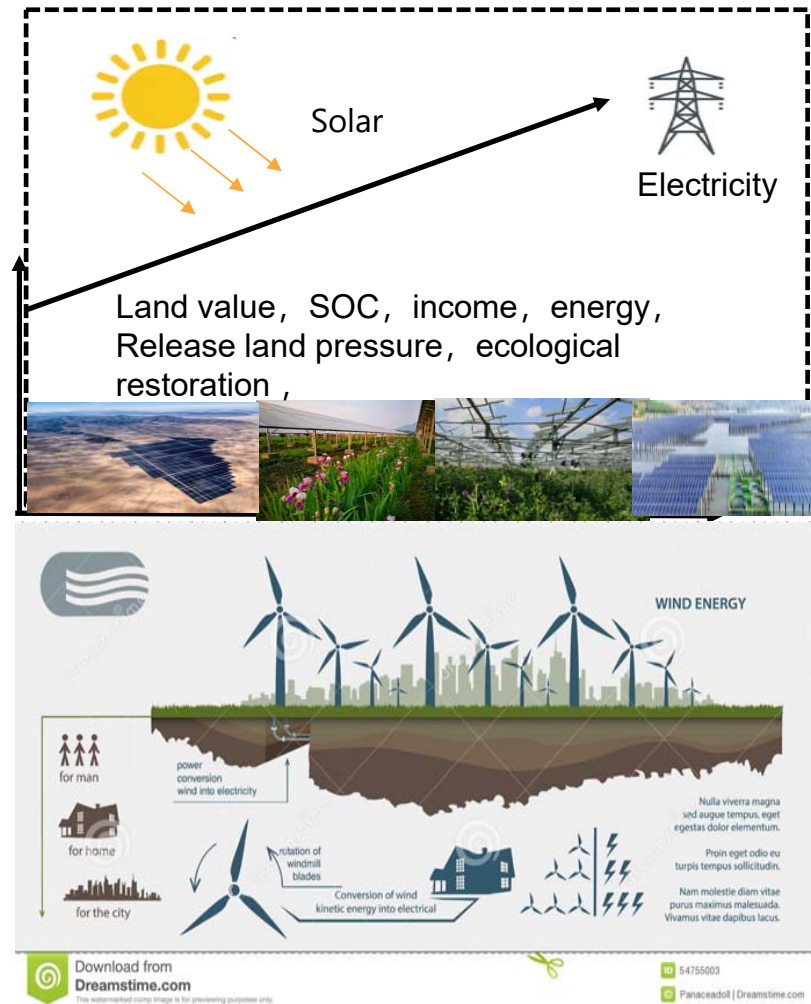


			Land use intensity [m²/MWh]				
Product	Primary energy source		US data (a)	US data (b)	EU data (c)	UNEP (d)	typical (e)
	Nuclear		0.1	0.1	1.0		0.1
	Natural gas		1.0	0.3	0.1	0.2	0.2
	Coal	Underground	0.6	0.2	0.2		0.2
		Surface ("open-cast")	8.2	0.2	0.4	15.0	5.0
Electricity	Renewables	Wind	1.3	1.0	0.7	0.3	1.0
		Geothermal	5.1		2.5	0.3	2.5
		Hydropower (large dams)	16.9	4.1	3.5	3.3	10
		Solar PV	15.0	0.3	8.7	13.0	10
		Solar CSP	19.3		7.8	14.0	15
		Biomass (from crops)	810	13	450		500
	Fossil oil		0.6		0.1		0.4
	Biofuels	Corn (maize)	237		220		230
		Sugarcane (from juice)	274		239		250
Liquid Fuel		Sugarcane (residues)					0.1
		Soybean	296		479		400
		Cellulose, SRC	565		410		500
		Cellulose, residues			0.10		0.1

## NPP-food-energy-ecosystem services



## Land use for food and renewable energy





# Sustainable managed land



solar farm



wind plant

Clean Power  
Substitution of Coal



Carbon  
sequestration

**Vegetation restoration**

**Biomass**



Grass



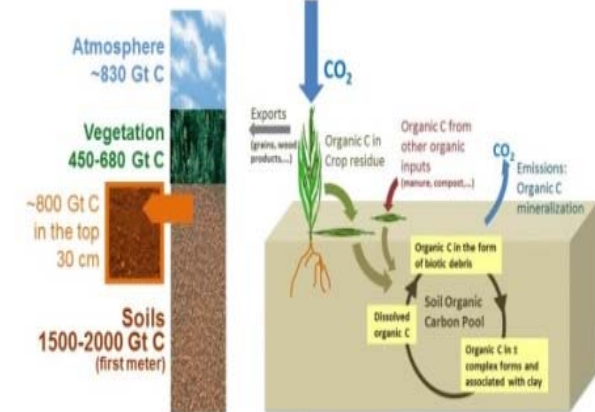
Shrubs



Biomass Plant



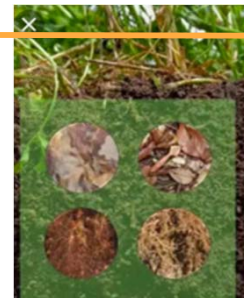
Fertilizing Algae



Soil represent the largest organic carbon pool of the biosphere

Sustainable land management (SLM) can both reduce emissions and help us Store More Carbon in future

**Soil Organic carbon**



Roots and tubers



**Tuber Biorefinery**



Bioethanol

# **Social gains: local capacity, income, and living conditions**

- Green job opportunities from value chains extension and
- upgrading mechanization and digitalization-food harvesting, processing to transportation, freezing storage and access to market, service industry.
- Access to clean water by solar powered water treatment), health services with supply of clean water and energy, and





## **Potential economic gains optimized land use and interventions : “use less land/water to produce more”**

- Improve land use efficiency by 60% more (ISE) through agrovoltaic dual harvesting electricity and agriculture production,
- Increase land productivity up to 4 times and diversify crops by introducing solar powered water and smart control irrigation (FAO),
- Facilitate natural or assisted restoration and increase cost-efficiency of land restoration
-

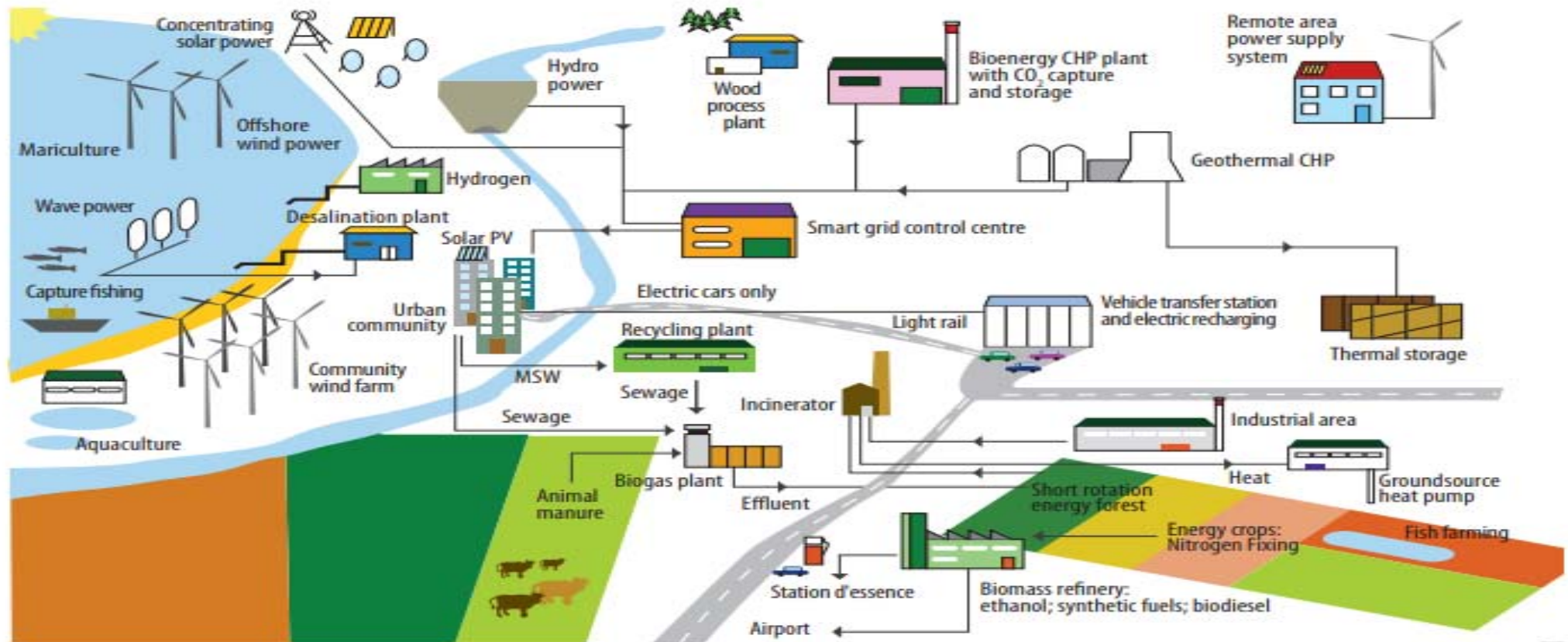
# Flows of ecosystem services and benefits

- Reduce deforestation and increase forests carbon sequestration, more organic matters back to soil,
- Reduced air pollution and Increase carbon emission reduction
- Maintain biodiversity and ecosystem function of low height natural vegetation.



# Integrated planning and smart management tools

Source: FAO 2011 "ENERGY-SMART" FOOD FOR PEOPLE AND CLIMATE ISSUE PAPER



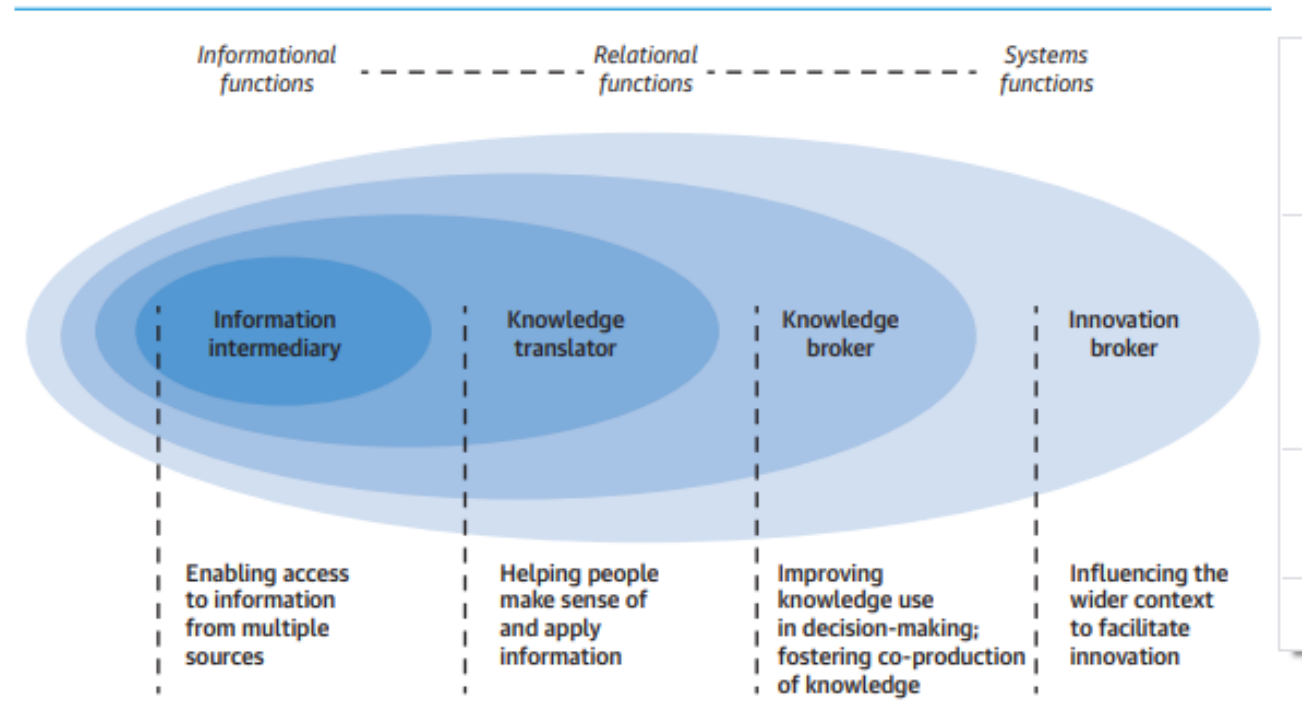
**Figure 13.** A conceptual IFES, shown in a landscape/seascape perspective that envisages a future sustainable and secure food supply system in both high-GDP and low-GDP countries (Based on IEA, 2009).

# Working with stakeholders: knowledge, capacity capital and incentives

Stakeholder involvement is key to success because the process:

- Provides a platform of engagement that leads to better definition of shared challenges;
- Ensures that people affected by decisions have a say over their lives;
- Provides for knowledge-exchange and the development of appropriate solutions;
- Increases the chance of implementation success.

**FIGURE A1.4. Knowledge Dissemination Continuum**



Source: Modified from Shaxson et al. 2012.

The role of 'information intermediary' is the simplest one, located at the left of the spectrum. The mediation task is to enable access to information from various sources. This, for example, could involve providing people with lists of websites, manuals and references.

# New technologies to support sustainable land use transition decision making



GIS/GPI, remote sensing



Earth observation

More capable to understand **land use (changes)** from space

More capable to **analyze data** and information **with complexity through** big data analysis, cloud computation and machine learning

More capable to **predict possible impacts** of decisions, by scenario-based simulation modellings,

More connected and networked for **group discussion, collective decision** sharing, exchange and interactive learning

More easily to learn from knowledge and experiences both of success and failure to **improve effectiveness and avoid failure**

More access to **market information** adjusting production to demand on a sustainable basis towards innovative rural advisory services

More capable to **trace effectiveness** and **policy compliance**

Cloud service



Big data,

AI, machine learning



Social media

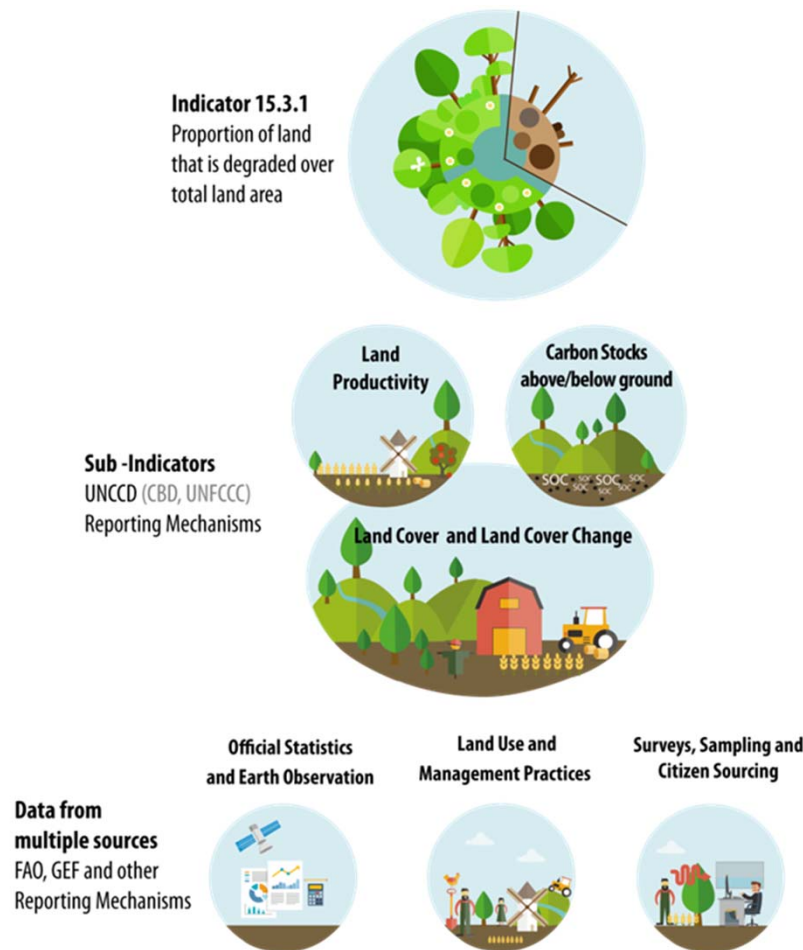
Digitalization



Block chain



# Strengthening data-base to support informative decision making



- **Indicators for reporting**
- Three sub-indicators:
  - Land Cover (land cover change)
  - Land Productivity (land productivity dynamics)
  - Carbon Stocks (soil organic carbon stocks)
- Quantifying the indicator is based on the evaluation of changes in the sub-indicators in order to determine the extent of land that is degraded over total land area.

<https://knowledge.unccd.int/topics/sustainable-development-goals-sdgs/sdg-indicator-1531>

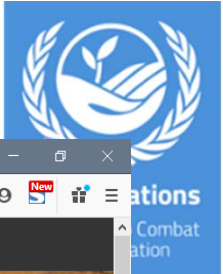


# Strengthen database from reporting

- Revision of the Good Practice Guidance (GPG) for Sustainable Development Goal (SDG) Indicator 15.3.1 and default data. Group on Earth Observation Land Degradation Neutrality (GEO-LDN) Initiative concluded an online consultation with data providers/specialists and users for the development of minimum data quality standards for the estimation of SDG Indicator 15.3.1 and its sub-indicators. The outputs of this work will feed into the GPG for SDG Indicator 15.3.1 v. 2.0.
- **Development of Good Practice Guidance for reporting on drought** hazard, exposure and vulnerability: will remand indicators, methodologies and default data.
- Tools4LDN project: The GEF project “Strengthening Land Degradation Neutrality data and decision-making through free and open access platforms” (“Tools4LDN”) will provide improved data and methods for assessing land degradation and understanding the socio-economic conditions of vulnerable communities in affected areas through the enhancement of Trends.Earth.
- Re-evaluation of the biodiversity indicator and associated metric for strategic objective 4 global environment benefits, improve biodiversity is on-going

# SPI thematic objective-to support LDN and drought resilience

- **Integrated Land use Planning** and land scop management : will include a globally and technically comprehensive typology of land use planning and landscape management tools and methodologies, with an emphasis on optimization, trade-offs and synergies. Members agreed on the structure and evaluation criteria that will be used to shape the typology.
- **Drought resilience:** Approaches for monitoring and assessment resilience of vulnerable ecosystem and populations”,-incorporating explicit recognition of the effects of, gender differentiation, and climate change, with a view to elucidating the contributions of sustainable land management. Rural-urban connections and relations between mentioned. health and drought resilience are also included.
- The report will introduce tiered approaches tailored to different capacities and needs at different scales (community, subnational and national) to support informative drought risk mitigation decision making, guided by decision trees.




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https://knowledge.unccd.int

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### The Drought Toolbox

The Drought Toolbox provides UNCCD stakeholders with easy access to tools, case studies, and other relevant resources to support action on drought preparedness with the aim of boosting the resilience of people and ecosystems to drought.

Read more

### Capacity Building Marketplace

The United Nations Convention to Combat Desertification (UNCCD) Capacity Building Marketplace is an exchange platform for those seeking and offering knowledge, training and opportunities related to the UNCCD's mandate regarding the issues of capacity building. These resources are helpful for anyone...

Read more

### UNCCD podcast series

Stories, news and conversations about land, desertification, climate change, SDG's and environmental issues, featuring scientists, policymakers, stakeholders and SLM practitioners. - UNCCD's podcast series on good land stewardship for present and future generations.

Read more

### SPI Technical Reports

Three SPI Technical Reports are now available, provide refined guidance for implementation of LDN, and guidance to support the adoption of land-based interventions for drought management and mitigation.

Read more

### Recent publications in the eLibrary

29-10-2020

How is life in your city? If there is one problem that most young urban West Africans agree about, it is a lack of jobs.

More than 4000 young people across 27 West African cities were

27-10-2020

Hot off the press: Multi-agency report highlights the current and future state of the climate in Africa

The State of the Climate in Africa 2019, report provides a snapshot of climate trends, observed high...

23-10-2020

New Article Published in "Frontiers in Ecology and Evolution" finds on-the-ground efforts that can support progress toward the SDGs and global targets seeking to achieve Land Degradation Neutrality

21-10-2020

Forests, Trees and the Eradication of Poverty : Potential and Limitations

A new and most comprehensive scientific assessment presented by the Global Forest Experts Panel...

46





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The  
Drought Toolbox



Capacity,  
Policy Support &  
Technology Tools



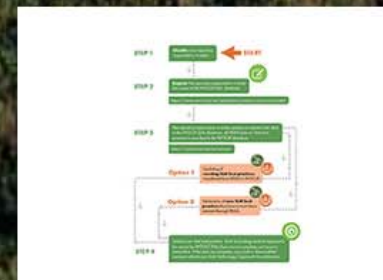
Country Information



Land  
Degradation Neutrality



Experts



Sustainable  
Land Management

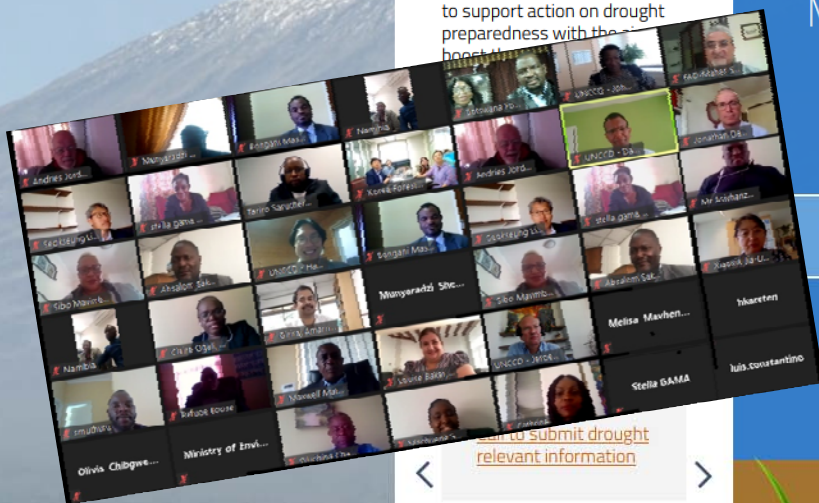
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Providing drought stakeholders with easy access to resources to support action on drought preparedness with the...



can to submit drought  
relevant information

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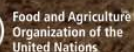


## The UNCCD Drought Toolbox

# DROUGHT Vulnerability and Risk Assessment

Explore tools  
and maps

# DROUGHT Risk Mitigation Measures



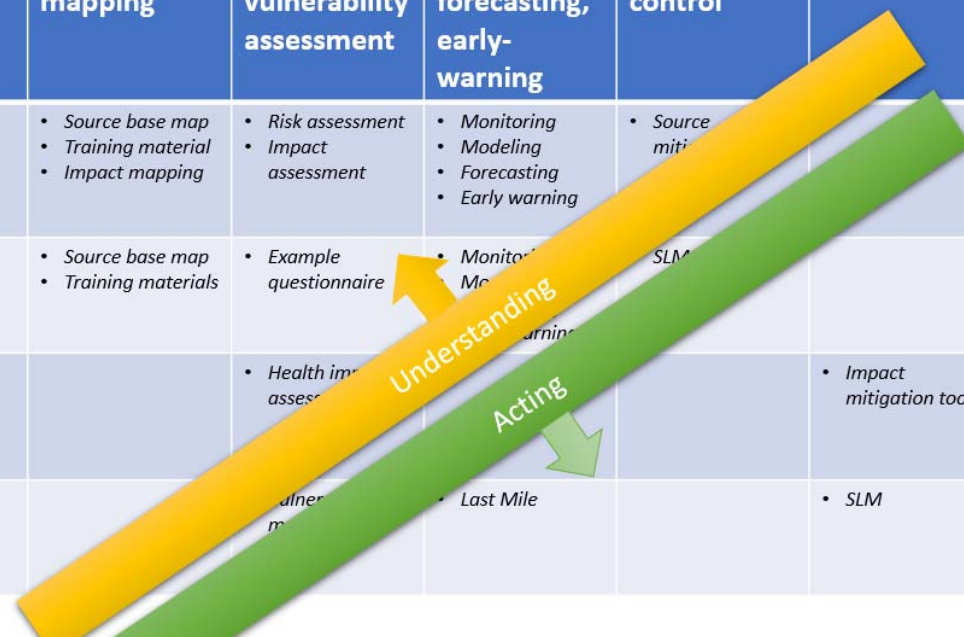


# Sharing knowledge and Knowledge Management

## SDS Toolbox – work in progress



	SDS source mapping	Risk and vulnerability assessment	Monitoring, forecasting, early-warning	Source control	Mitigation
Policy makers	<ul style="list-style-type: none"> <li>Source base map</li> <li>Training material</li> <li>Impact mapping</li> </ul>	<ul style="list-style-type: none"> <li>Risk assessment</li> <li>Impact assessment</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring</li> <li>Modeling</li> <li>Forecasting</li> <li>Early warning</li> </ul>	<ul style="list-style-type: none"> <li>Source mitigation</li> </ul>	
End users	<ul style="list-style-type: none"> <li>Source base map</li> <li>Training materials</li> </ul>	<ul style="list-style-type: none"> <li>Example questionnaire</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring</li> <li>Modeling</li> <li>Forecasting</li> <li>Early warning</li> </ul>	<ul style="list-style-type: none"> <li>SLM</li> </ul>	
Broad general public		<ul style="list-style-type: none"> <li>Health impact assessment</li> </ul>			<ul style="list-style-type: none"> <li>Impact mitigation tools</li> </ul>
People impacted		<ul style="list-style-type: none"> <li>Vulnerability mapping</li> </ul>	<ul style="list-style-type: none"> <li>Last Mile</li> </ul>		<ul style="list-style-type: none"> <li>SLM</li> </ul>





# Knowledge Sharing and Capacity Building



## LDN information

United Nations Convention to Combat Desertification Knowledge Hub


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Knowledge Products and Pillars / Land degradation neutrality [homepage draft] / LDN knowledge products

Global Land Outlook

### LDN knowledge products

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degradation and its impacts continues to be a challenge. Despite this, alternative options based on sustainable land-based approaches that promote LDN have been proven to have positive impacts on a number of sectors.

forest and landscape restoration  
mountain regions  
biodiversity  
water  
LDN and poverty  
LDN in SIDS

Land degradation neutrality [homepage draft]

## Land Degradation Neutrality

LDN  
Target Setting

LDN  
Transformative  
Projects and  
Programmes

LDN  
Monitoring

### About LDN

- Conceptual framework
- Principles

### LDN Knowledge Products

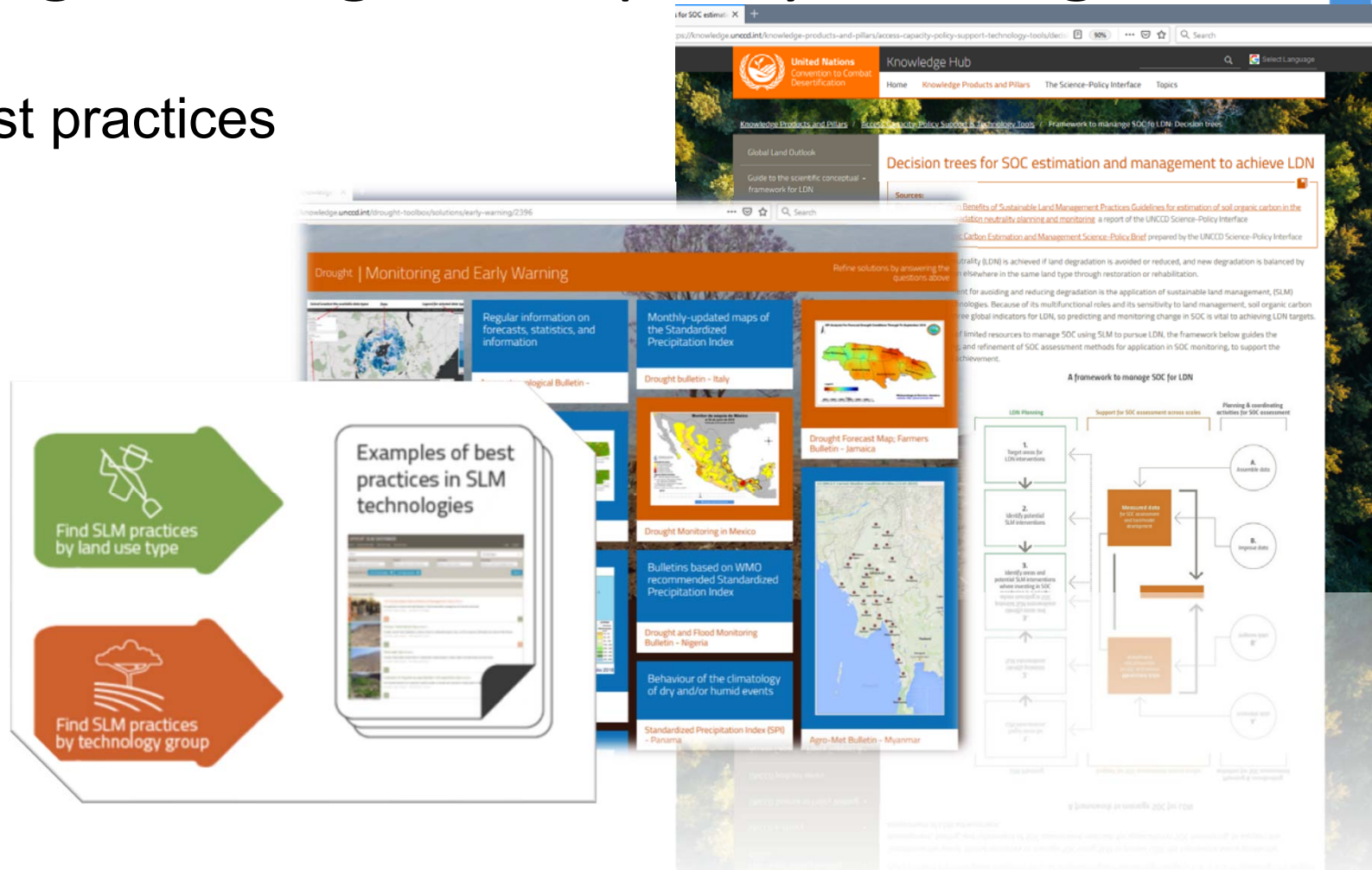
- Biodiversity
- Water
- Climate
- Poverty
- Etc.

### LDN Tools

- ELD
- LDRA
- Land in NDCs
- Nature based Solutions

# Knowledge sharing and Capacity Building

- SLM best practices



The collage illustrates various tools and resources for SLM knowledge sharing and capacity building. It features the UNCCD Knowledge Hub website, a drought monitoring dashboard, and a graphic showing examples of best practices in SLM technologies, including land use type and technology group-based searches.





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# Thank you!

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