

International Symposium on Ecological Restoration and Management of the Aral Sea



International Ecosystem Management Partnership
国际生态系统管理伙伴计划



Advancing nexus approaches to sustainable development in the Aral Sea basin

Linxiu Zhang

Director, UNEP-IEMP

24 November 2020

Content

1

Aral Sea desiccation: Environmental and economic impact

2

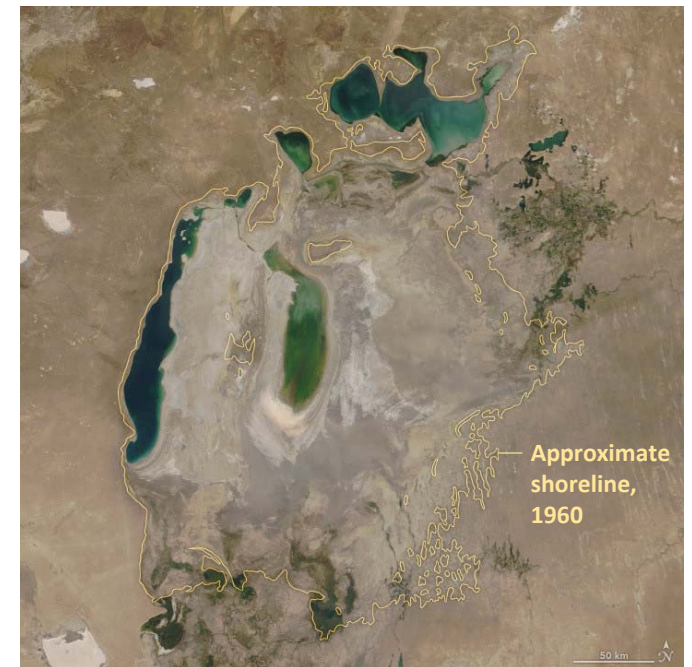
UNEP's Medium Term Strategy (MTS) and work on ecosystem restoration and management

3

The nexus approach of Climate, Ecosystems and Livelihoods (CEL)

Aral Sea desiccation

- The Aral Sea was once the world's fourth-largest lake, but an irrigation project drained nearly all the water and the **Aral Sea area decreased by 90%** over decades.
- The consequences include the loss of a fishing industry, salt-laden dust affecting crops and human health, and an altered climate (**drier, saltier, less productive**).



NASA Image: The Aral Sea in 2018

State of the Environment

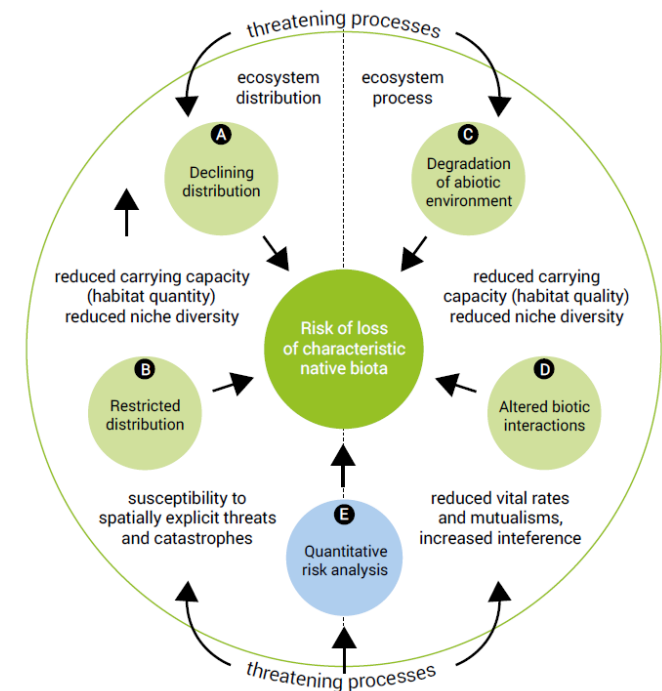


6.5.3 One **ecosystem**, the Aral Sea, has been assessed as ‘collapsed’.

6.6.5 Drylands The almost complete desiccation of the Ara Sea has led to the creation of the Aral Kum desert, which has caused degradation of riparian forests, pastures and other vegetation cover.

9.2.1 Climate change Global climate change interacts with weather and local-scale climate effects, as well as unsustainable water uses and diversions, leading to dramatic impacts such as shrinking freshwater bodies (e.g. the Aral Sea)

9.4.4 Water scarcity The desiccation of the Aral Sea in Central Asia remains one of the most dramatic water-related environmental disasters of the 20th century.



Mechanisms of ecosystem collapse, and symptoms of the risk of collapse (Keith et al., 2013)

Socio-economic changes in the Aral Sea basin

- The Aral Sea has gone through many changes over the past 60 years, including a significant increase in the population of the Aral Sea basin, doubled area of irrigated land and an unsustainable decline in water runoff to the sea.

Indicator	1960	2007-2012
Population*	14.1 million	60.4 million
Irrigated agricultural lands	4.5 million ha	8 million ha
Total water withdrawal	60.6 km ³ /yr	105 km ³ /yr
Total runoff to Aral Sea	55 km ³ /yr	10.6 km ³ /yr

Table 1. Changes in water and land resources in the Aral Sea Basin, 1960 - 2012 (*population within Aral Sea Basin; Source: EC-IFAS, 2013).



Abandoned boats rest on sand.

Some actions for saving the Aral Sea - restoring ecosystems



Content

1

Aral Sea desiccation: Environmental and economic impact

2

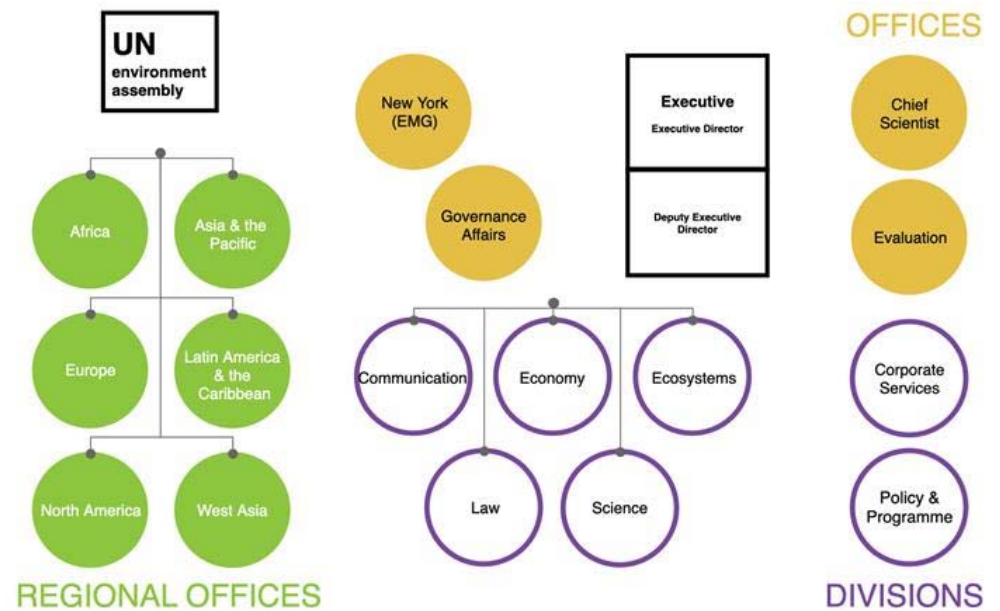
UNEP's Medium Term Strategy (MTS) and work on ecosystem restoration and management

3

The nexus approach of Climate, Ecosystems and Livelihoods (CEL)

UNEP's mandate

- The United Nations Environment Programme (the UN Environment Programme) is the **leading global authority on the environment**. Since 1972, we are a powerful advocate, setting the global environmental agenda, providing leadership and delivering scientific solutions on some of the most urgent challenges facing the planet and humankind.



Current structure of UN Environment Programme

UNEP is custodian agency for reporting 26 SDG indicators, of these 10 are tier I and tier II:



- 6.3.2 Proportion of bodies of water with good ambient water quality
- 6.5.1 Degree of integrated water resources management implementation (0-100)
- 6.6.1 Change in the extent of water-related ecosystems over time
- 8.4.2 Domestic material consumption (DMC) and DMC per capita, per GDP
- 12.1.1 Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or target into national policies
- 12.2.2 Domestic material consumption (DMC) and DMC per capita, per GDP
- 12.4.1 Number of Parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement
- 14.5.1 Coverage of protected areas in relation to marine areas
- 15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type
- 15.4.1 Coverage by protected areas of important sites for mountain biodiversity

UNEP's Priorities



CLIMATE CHANGE

Transitioning to low-emission economic development, enhancing adaptation and building resilience to climate change.



RESILIENCE TO DISASTERS AND CONFLICTS

Preventing and reducing the environmental impact of disasters and conflicts, while building resilience to future crises.



HEALTHY AND PRODUCTIVE ECOSYSTEMS

Managing ecosystems to protect and restore their long-term functioning and supply of goods and services.



ENVIRONMENTAL GOVERNANCE

Promoting effective and inclusive environmental governance, underpinned by policy and legislation, and informed and empowered institutions.



CHEMICALS, WASTE AND AIR QUALITY

Promoting the sound management of chemicals and waste, and improving air quality for a better environment and human health.



RESOURCE EFFICIENCY

Promoting sustainable consumption and production, and supporting the transition to inclusive green economies.

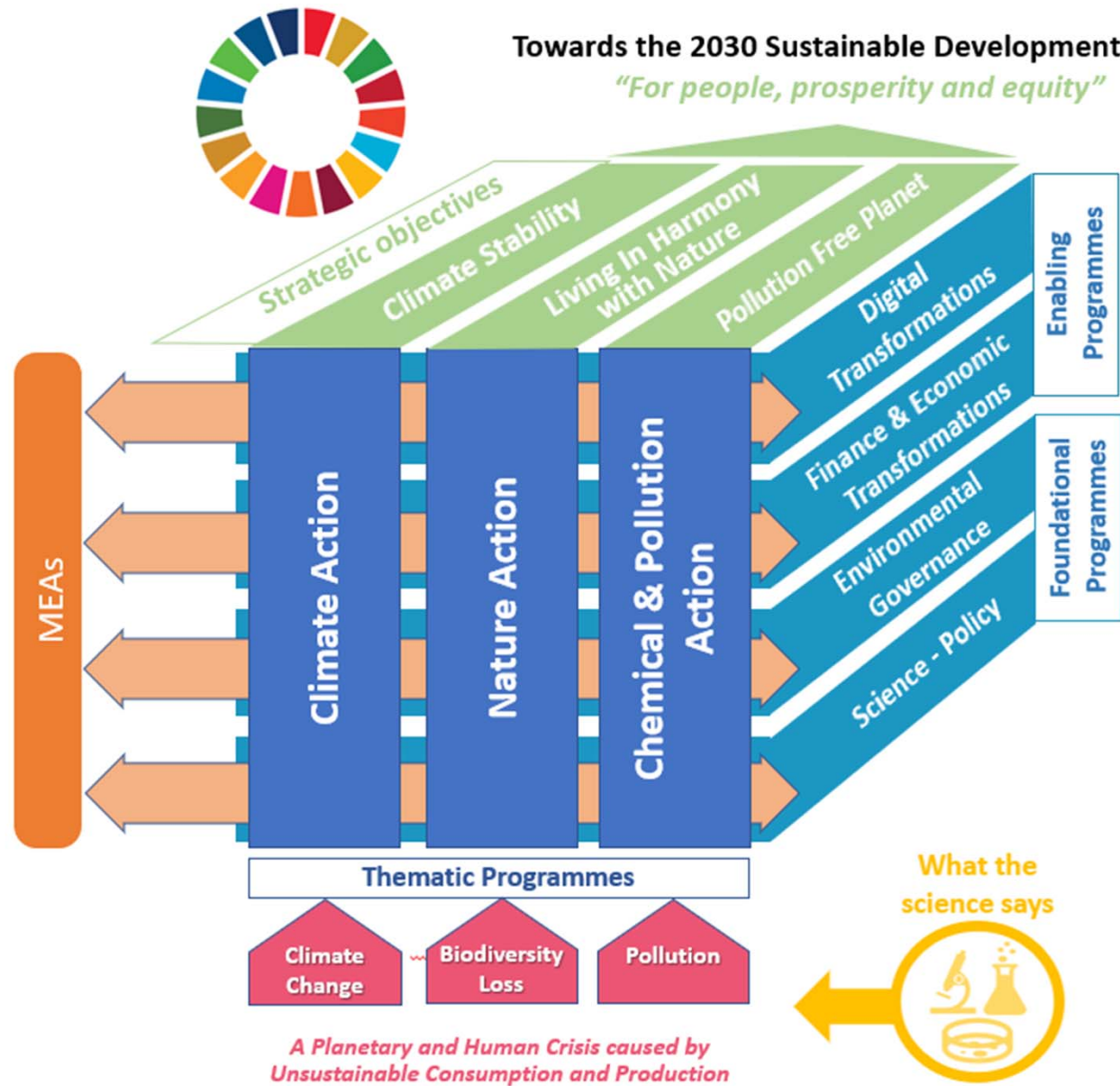


ENVIRONMENT UNDER REVIEW

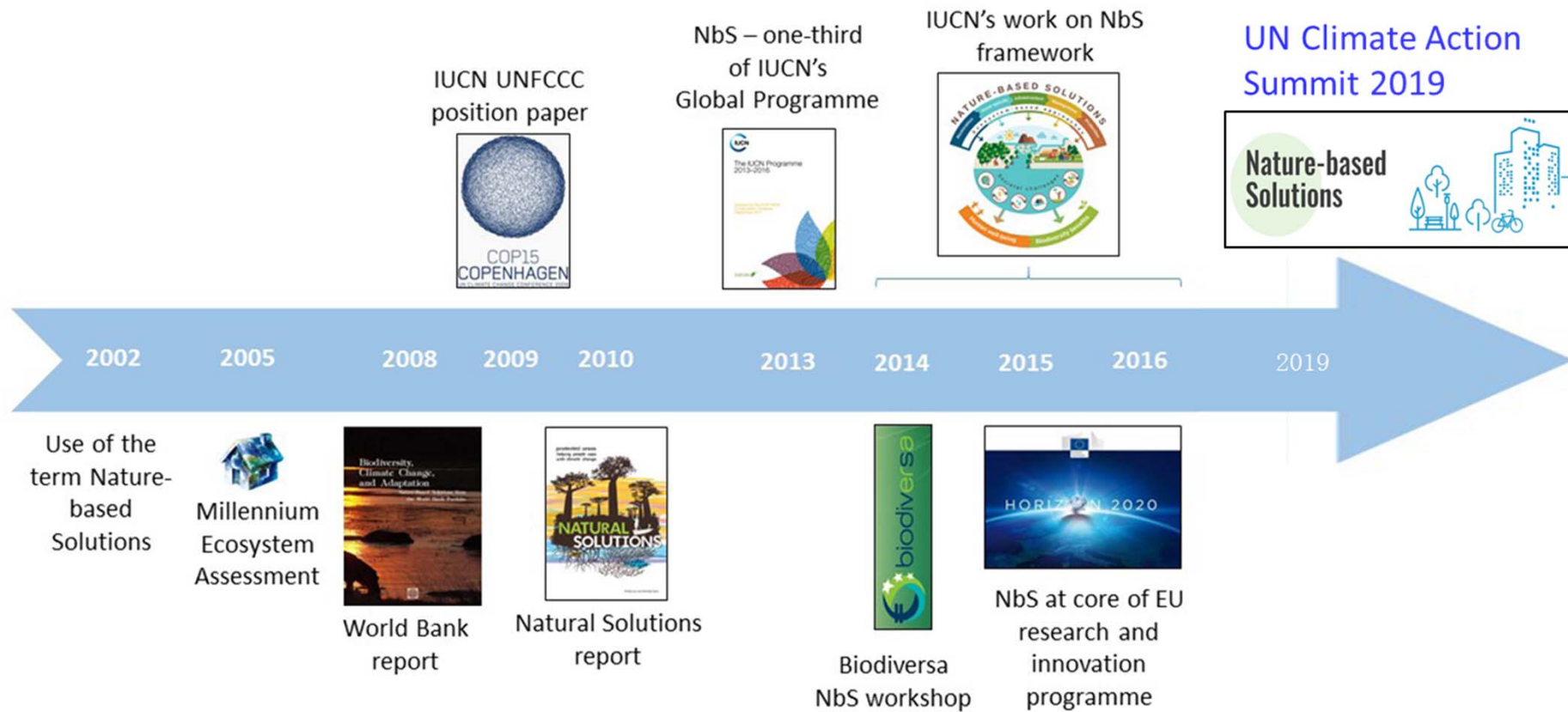
Monitoring the state of the planet's health to empower stakeholders to deliver the environmental dimension of sustainable development.

Supporting achievement of the Sustainable Development Goals underpins all that UN Environment does

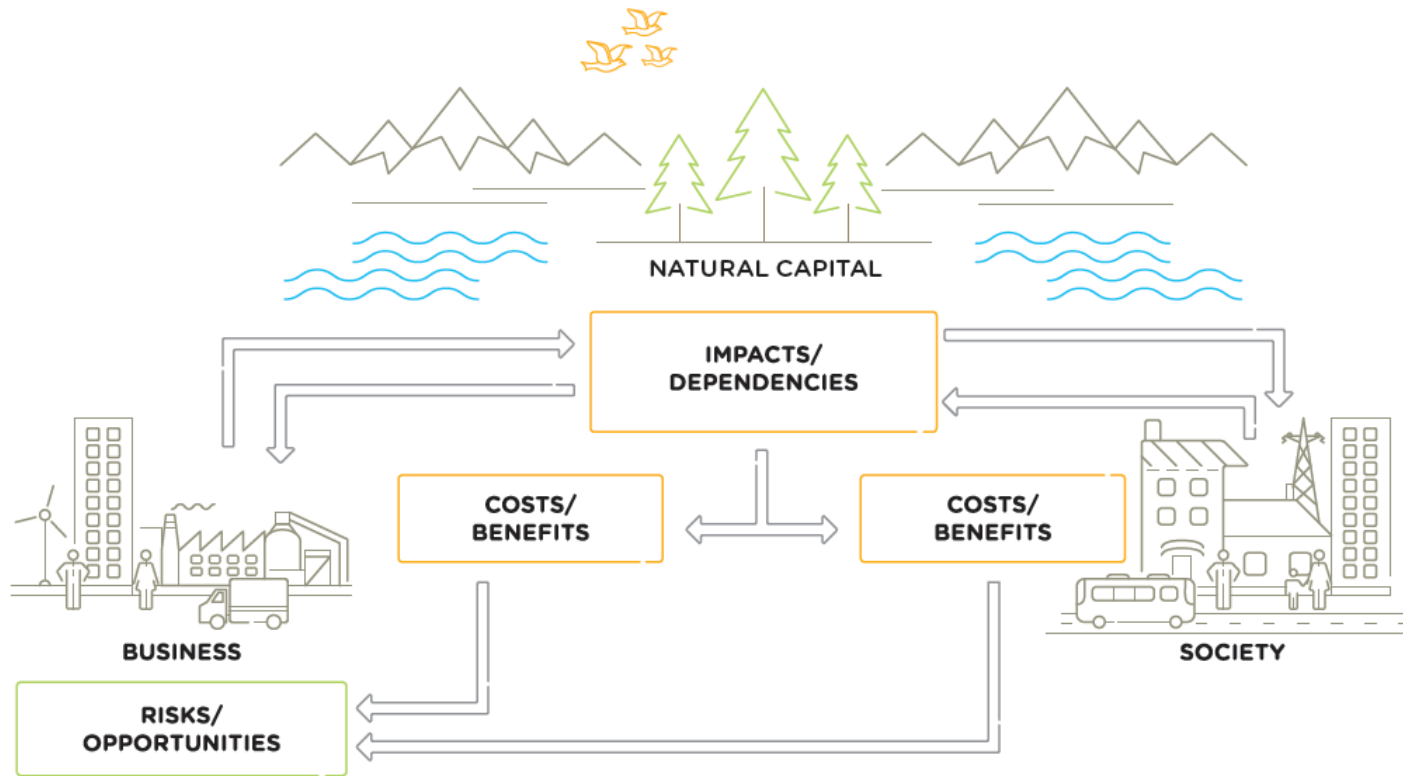
UNEP's Medium-term Strategy for 2022-2025 – on the road to 2030



Nature-based solutions



Innovative model for cooperation



Interactions between business, society and natural capital

- Evaluating natural capital
- Establishing interactions between business, society and natural capital
- Implementing biodiversity conservation and ecosystem restoration
- Developing green supply chains and technologies

UN Decade on Ecosystem Restoration 2021-2030

Adopted on 1 March 2019 as UNGA Resolution A/RES/73/284, UNEP and FAO are invited to lead implementation

Key facts:

- Land Degradation negatively affecting well-being of 3.2 billion people
- Loss of biodiversity and ecosystem services = 10% of global GDP



**Forests:
70 M ha lost
since 2000**



**Wetlands:
70% lost in
last century**



**Drastic decline
of coral reefs and
seagrass beds**

The problem

The objectives of the 2030 Agenda for Sustainable Development will not be achieved without large-scale restoration of degraded terrestrial & marine ecosystems globally.

The vision

We envision a world where we have restored the relationship between humans and nature: Where we increase the area of healthy ecosystems and put a stop to their loss and degradation – for the health and wellbeing of present and future generations.

Barriers



Limited awareness



Social & cultural norms



Economic systems



Insufficient public & private investment



Insufficient collaboration



Limited technical knowledge & capacity

To overcome these barriers, the Decade will work through three Pathways to achieve the following Outcomes:

Pathway 1: Global movement

Increased knowledge & action globally on ecosystem restoration opportunities

Opportunity for producing, shaping or affiliating restoration initiatives/projects

Societal norms & perceptions shifted with regards to best practices for restoring ecosystems globally

Ecosystem restoration mainstreamed into education systems globally

Investments into large-scale restoration catalysed

Pathway 2: Political will

Policy reforms that promote large-scale ecosystem restoration developed & implemented

Cross-governmental & cross-sectoral collaboration on ecosystem restoration increased

National ecosystem restoration opportunities championed by Heads of State, Ministers of Finance & Ministers of Planning & Development

Pathway 3: Capacity

Methods for designing, implementing & sustaining ecosystem restoration initiatives improved & disseminated to restoration practitioners globally

Capacity building and training

The Decade on Ecosystem Restoration will foster a global restoration culture in which restoration initiatives start & scale up across the planet.

Working in the context of COVID-19

- COVID-19 affecting all SDGs.
- A whole-of-society approach is needed.



Content

1

Aral Sea desiccation: Environmental and economic impact

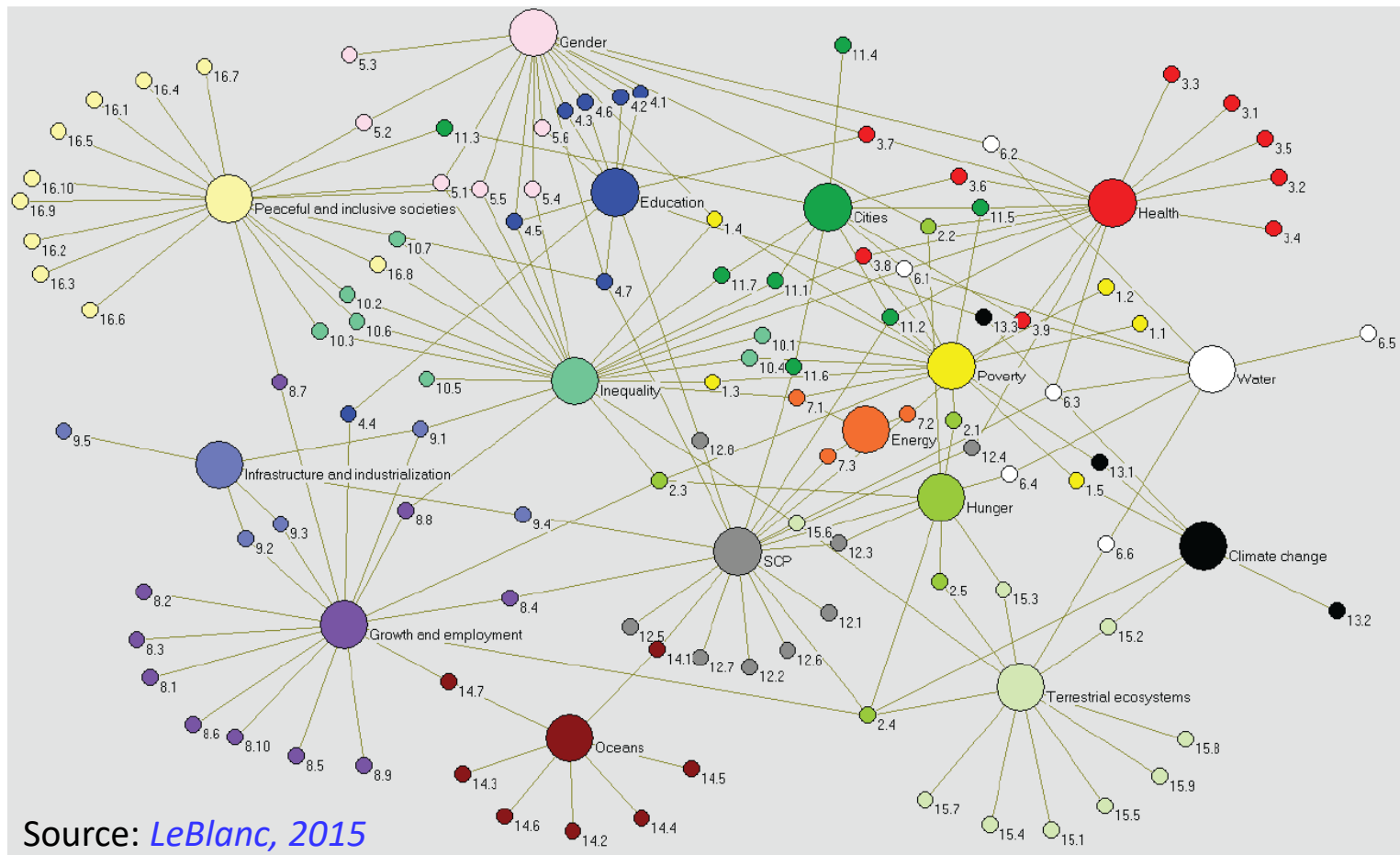
2

UNEP's Medium Term Strategy (MTS) and work on ecosystem restoration and management

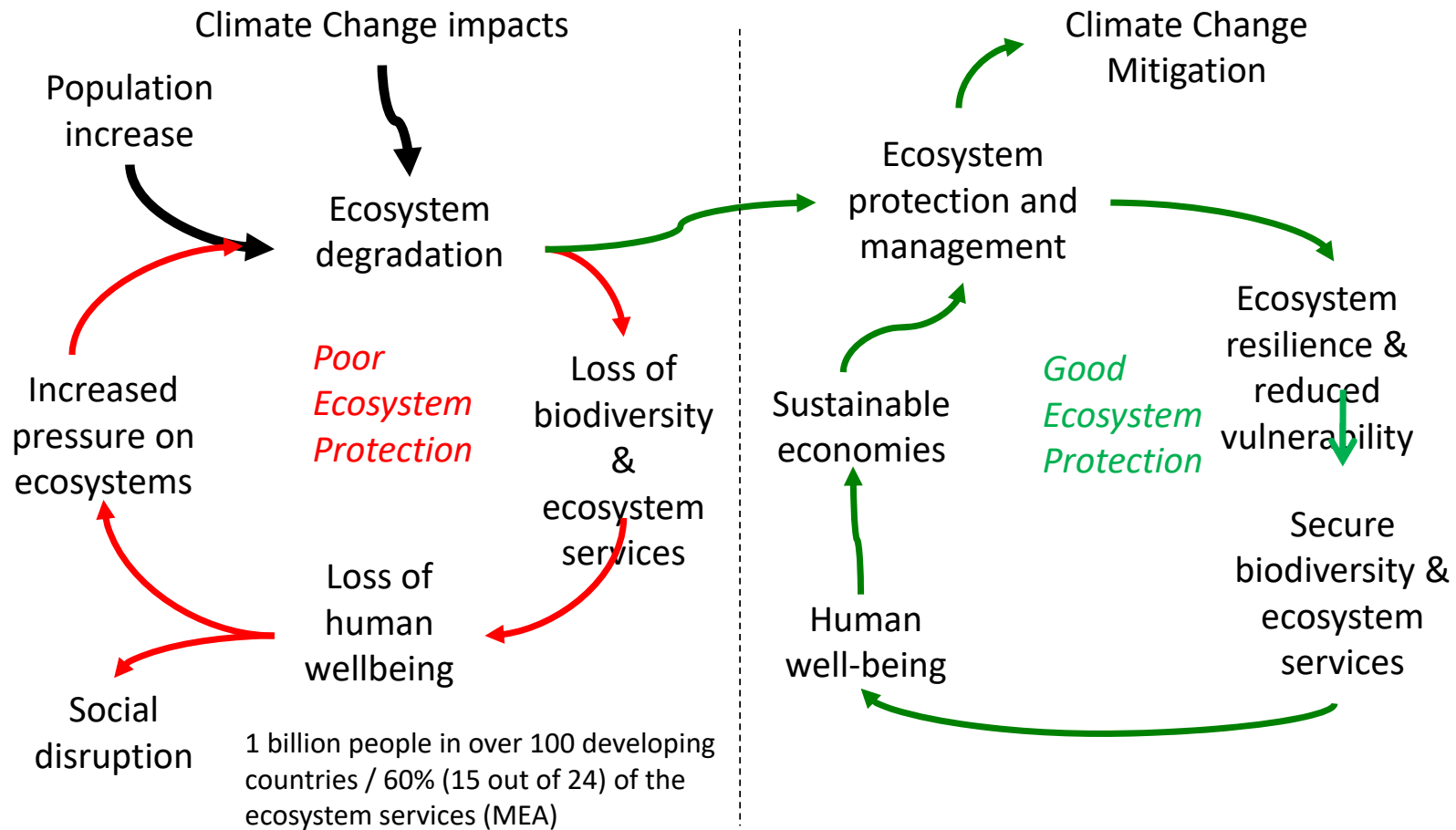
3

The nexus approach of Climate, Ecosystems and Livelihoods (CEL)

The SDGs as a network of targets



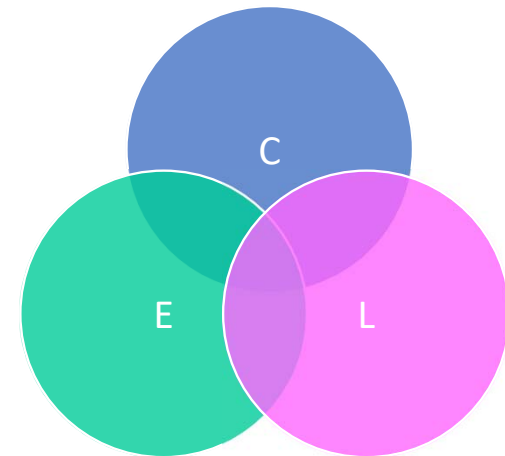
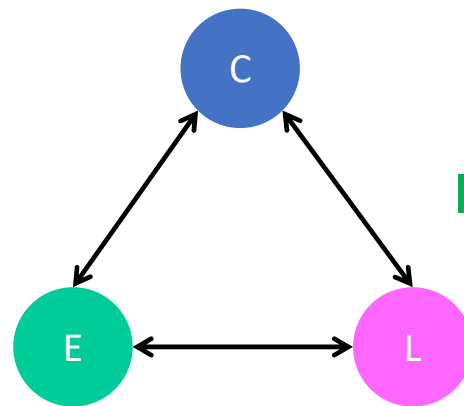
A vicious cycle of poverty, ecosystem degradation and climate change



Source: [Munang et al., 2013](#)

Solutions?

C - Climate change E - Ecosystem L - Livelihood

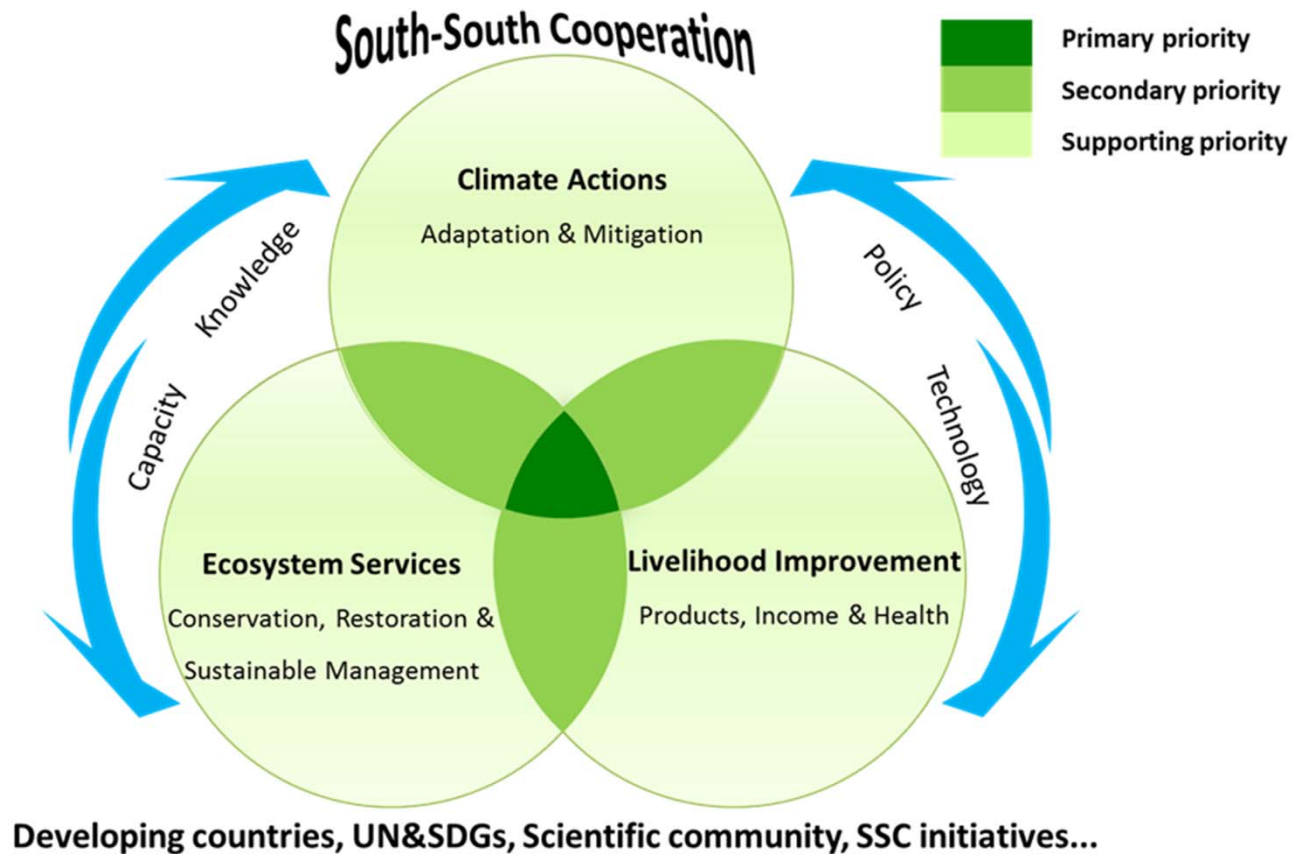


Sectoral approach

Nexus approach

Conceptual Framework: CEL

Improve **livelihoods** through **ecosystems** restoration and conservation for better ecosystem Services in a changing **climate**



Role of UNEP-IEMP



NICHE

- Promoting CEL nexus approaches
- Supporting South-South cooperation
- Enhancing science for policy

- Act as a **coordinating, facilitating and/or catalyzing** body, apart from project implementation
- Bridge **various understanding and interest** in international cooperation
- Engage with more **partners** for delivering SDGs

Environment change impact assessment (Pan-TPE)

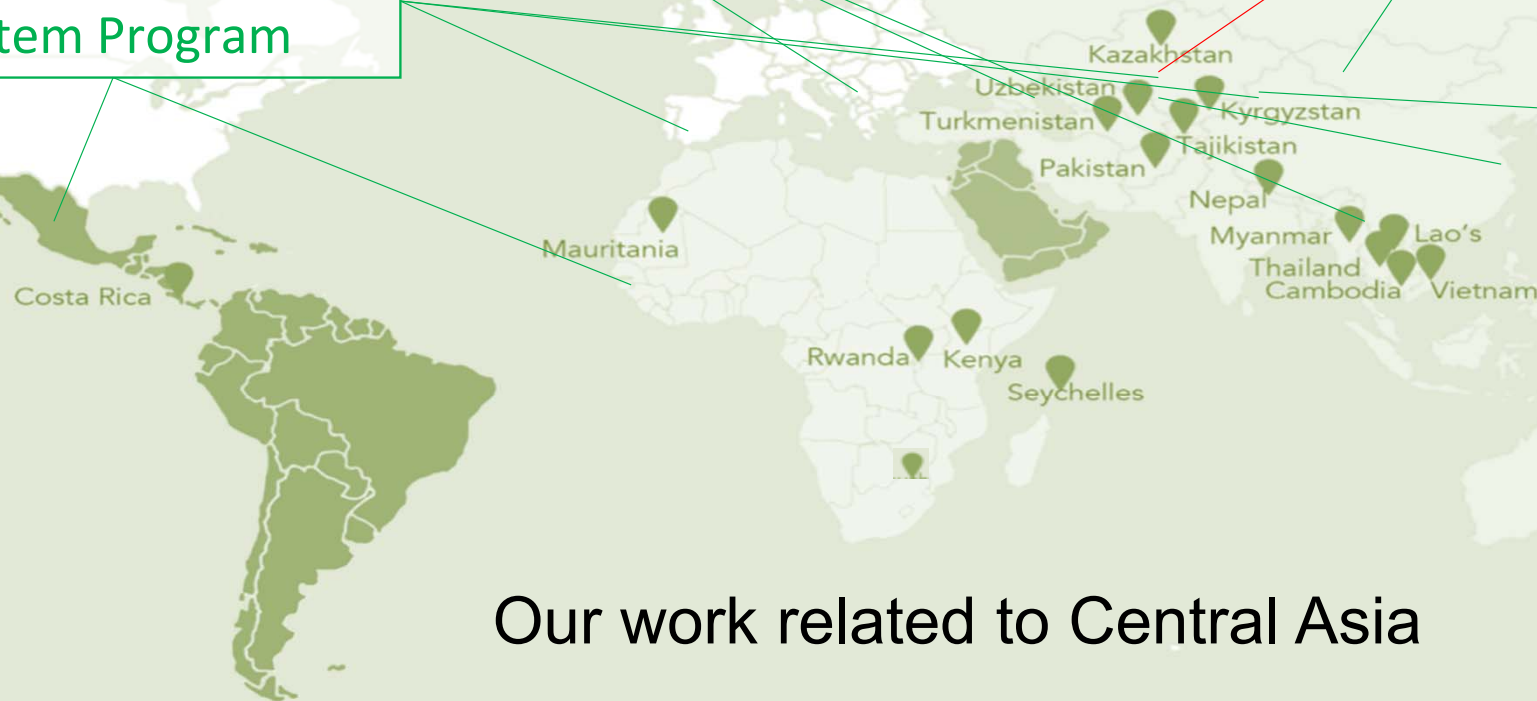
Utilization of agricultural resources (DBAR)
Biodiversity conservation in B&R countries

CC&LUCC in Central Asia

Grassland ecosystems in
Mongolian Plateau

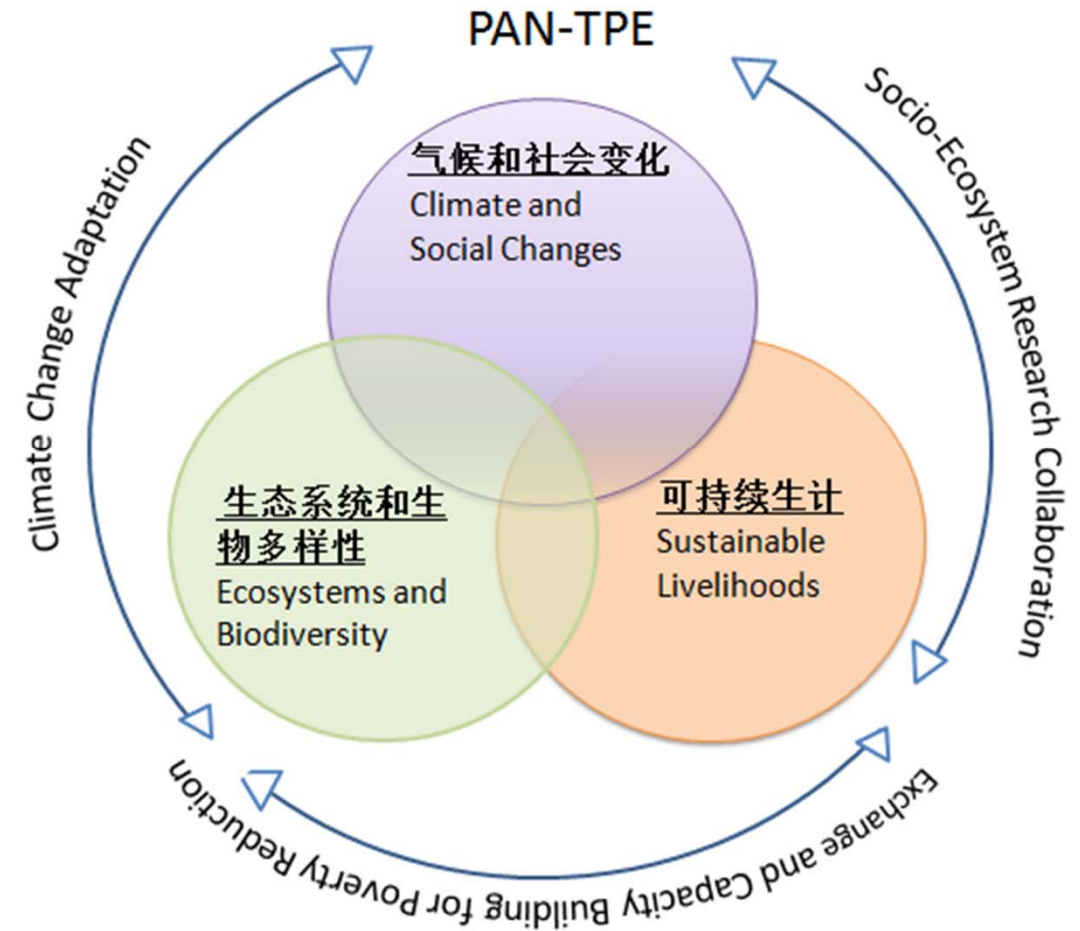
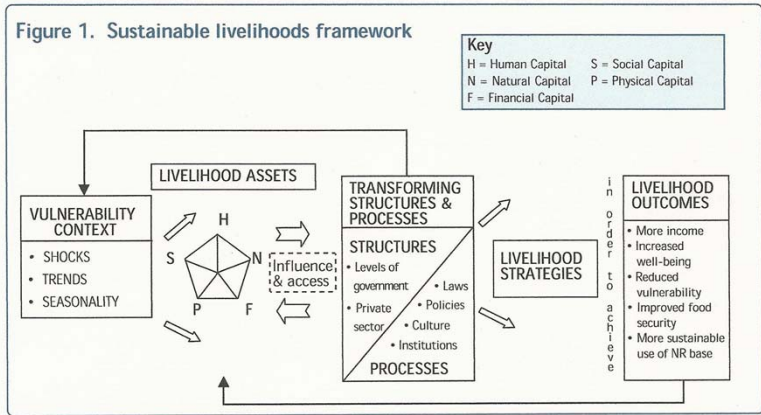
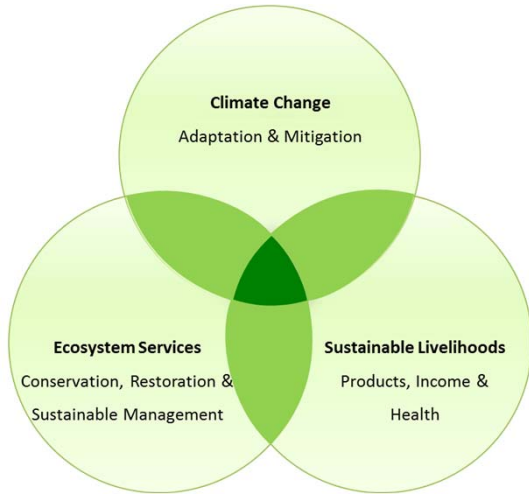
Global Dryland Ecosystem Program

CERN/CNERN
good practices
for international
cooperation

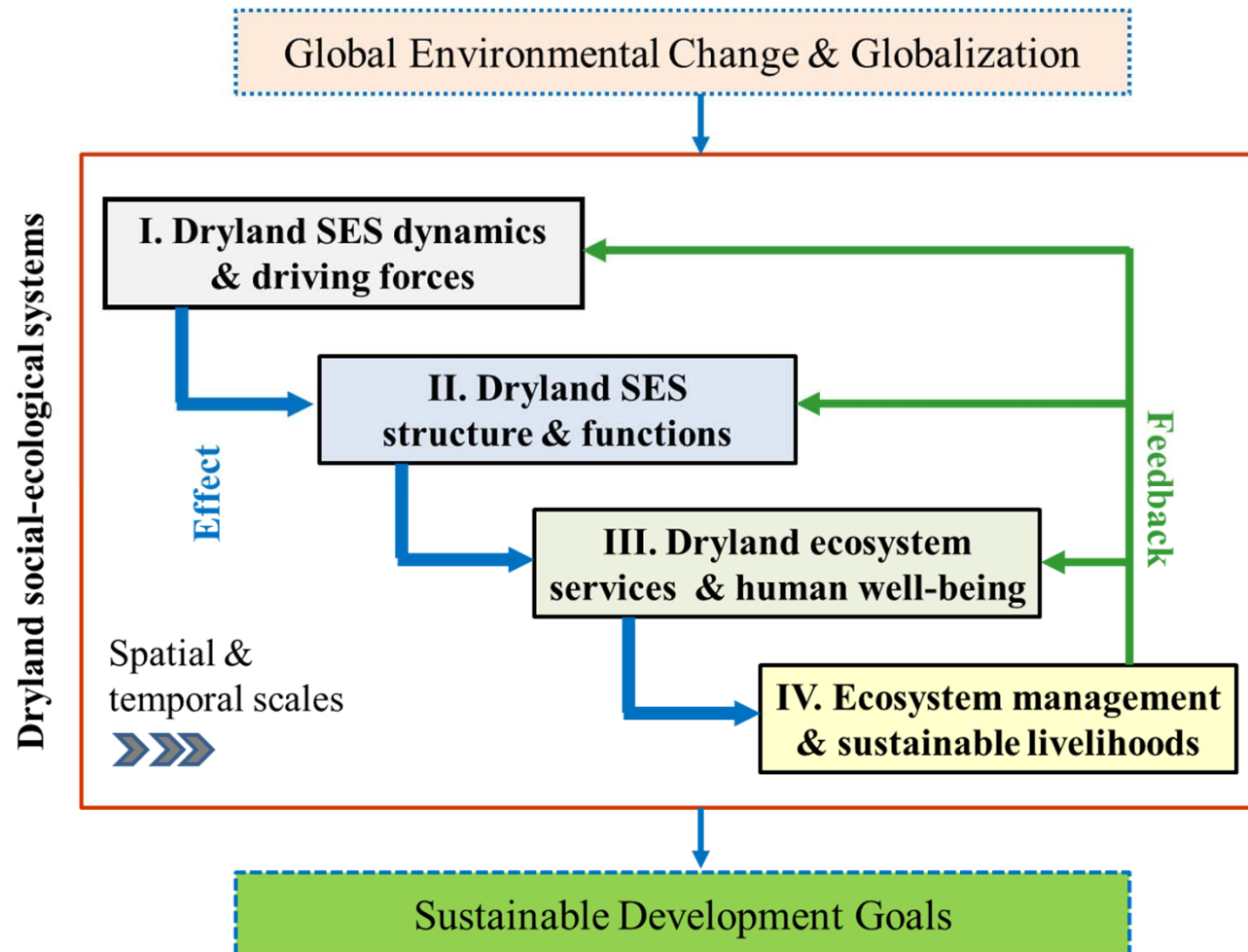


Our work related to Central Asia

Case 1: Socio-Ecosystem Based Adaptation (SEBA) in Mountains

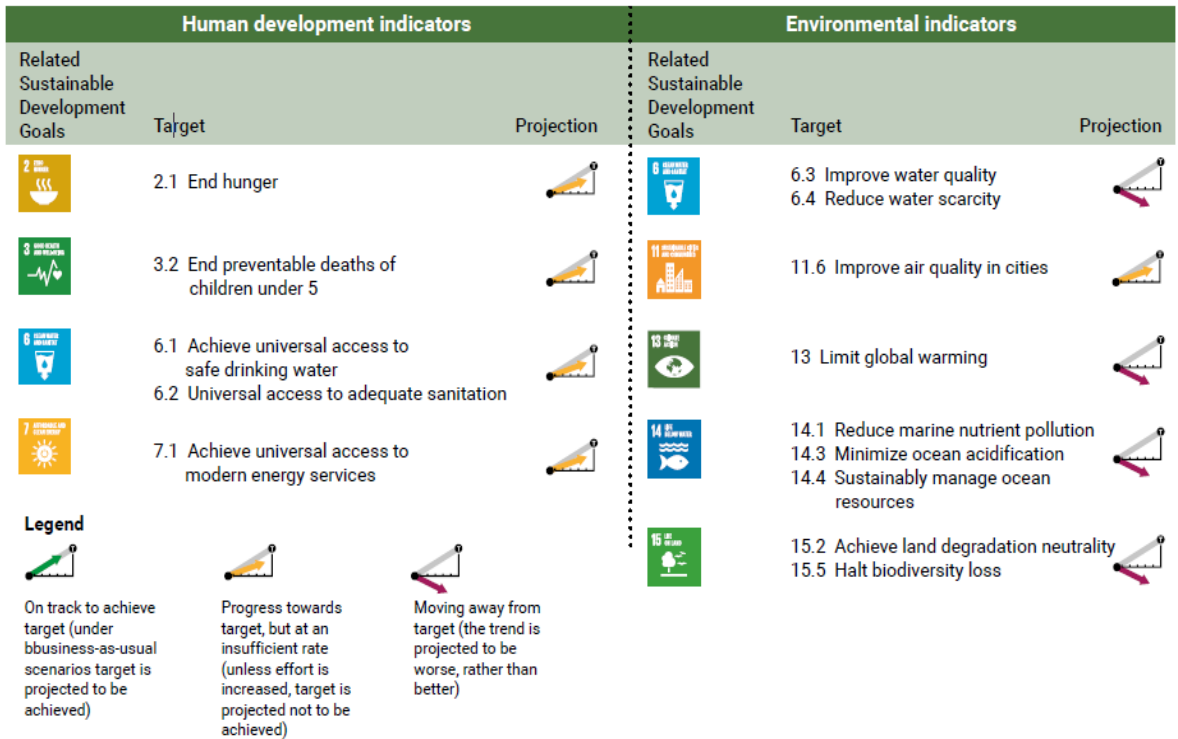


Case 2: Dryland Socio-Ecological Systems (DSES)



Nexus approaches, systemic innovation transformative change

Figure SPM.8. Projected global trends in target achievement for selected Sustainable Development Goals and internationally agreed environmental goals



Thank you!



International Ecosystem Management Partnership
国际生态系统管理伙伴计划



Thank you!

Linxiu Zhang
Director of UNEP-IEMP
linxiu.zhang@un.org

UN Environment Programme-International Ecosystem Management Partnership (UNEP-IEMP)
c/o: Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, 11A
Datun Road, Chaoyang District, Beijing 100101, china

<http://www.unep-iemp.org>