ERASMUS-EDU-2023-CBHE
Project number: 101129032

Duration: 36 months
(01/01/2024 – 31/12/2026)

LESLIE
LAND MANAGEMENT
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Climate Change of Sustainable Land Management in Central Asia

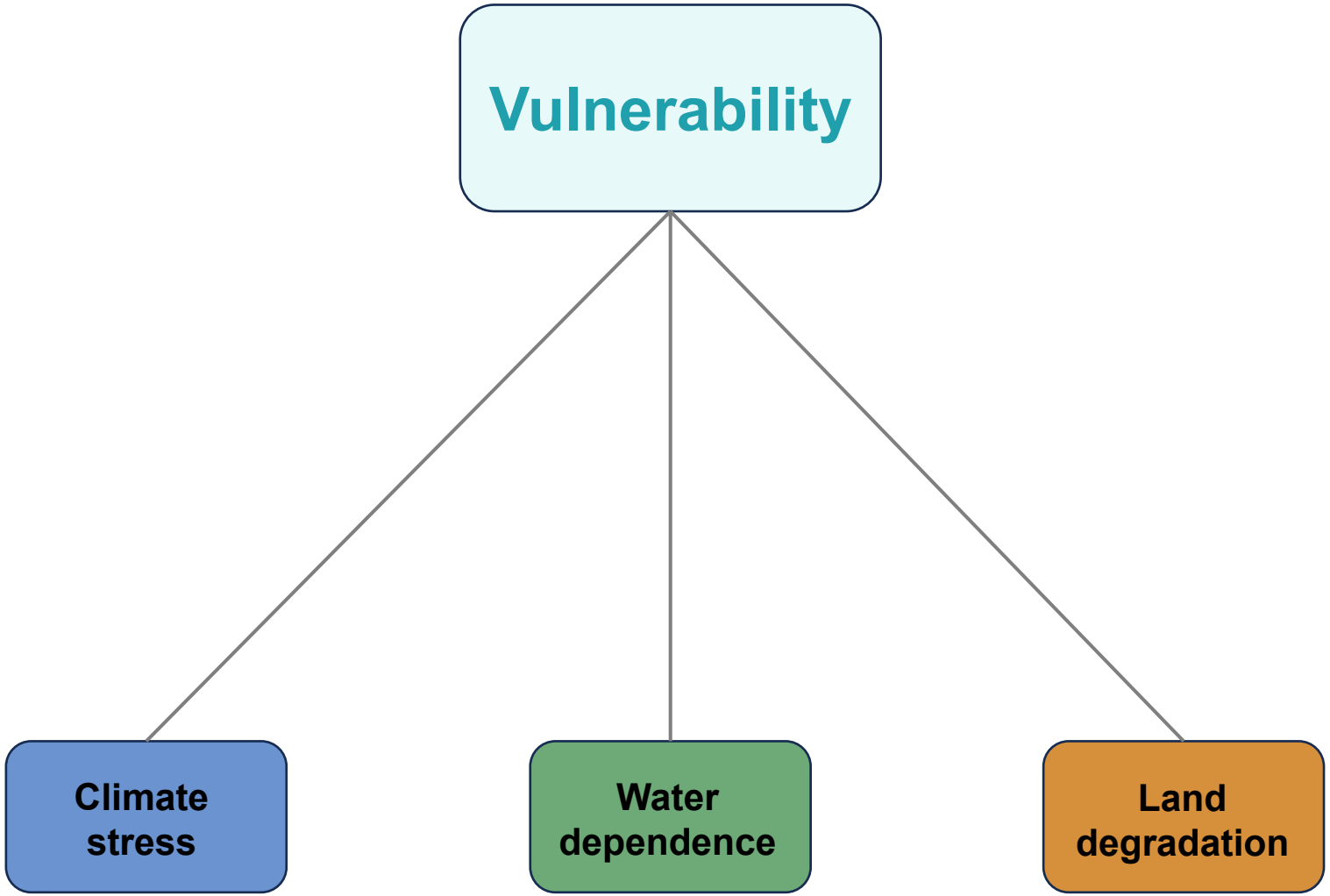
1- Climate vs Weather and Why Climate Change Matters

Climate Change and Sustainable Land Management in Central Asia

CC-W01-V04



Learning goals and regional focus



Source: Author's Creation



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Why Central Asia is climatically distinctive



Source: FreeWorldMaps.NET



Continenta

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Low rainfall

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Irrigation dependence

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High sensitivity

Source: Author's Creation

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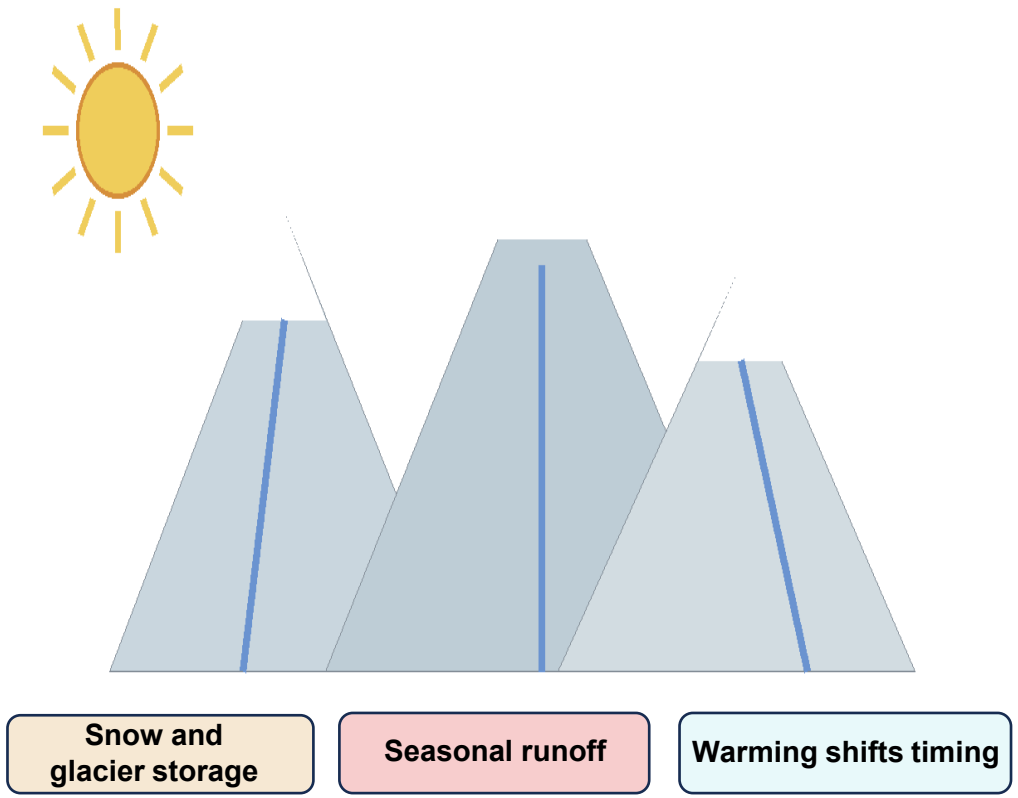
Mountain water towers under warming pressure



Source: Author's Creation

- The Tien Shan and Pamir mountains act as regional water towers.
- Snow and glacier storage release water seasonally to support irrigation, ecosystems, and hydropower.
- Rising temperatures increase glacier retreat and alter runoff timing.
- The risk is not only less water overall, but the wrong water at the wrong time.



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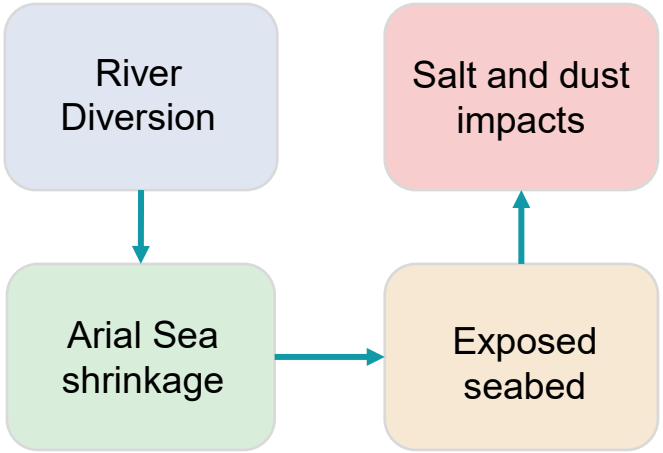
The Aral Sea crisis as a land and water warning

- Large-scale river diversion that fed the lake caused the Aral Sea to shrink drastically.
- The exposed seabed became the Aralkum Desert.
- Salt-laden dust storms now damage soils, agriculture, and health.



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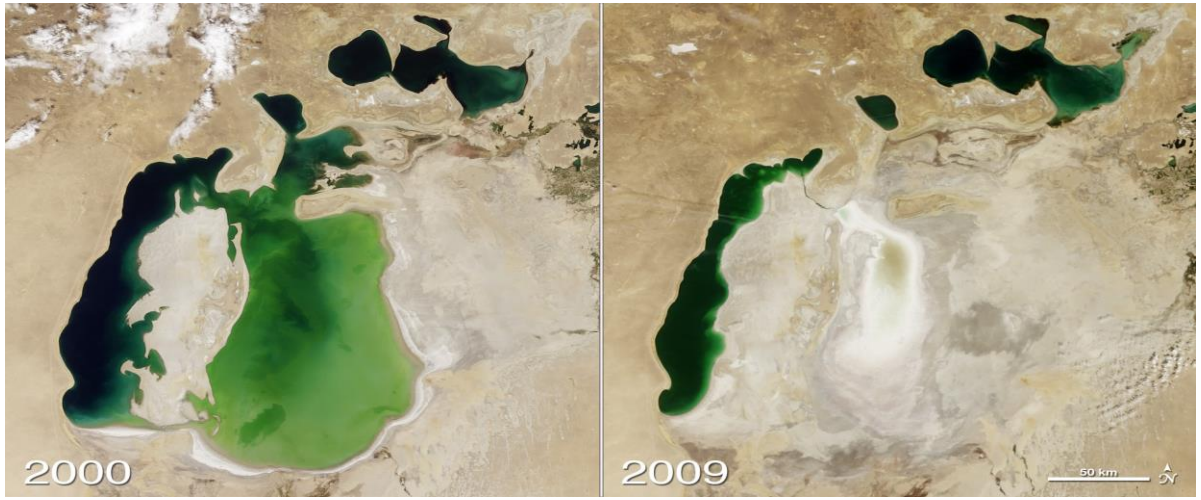

Source: Shrinking Aral Sea, NASA, 2012



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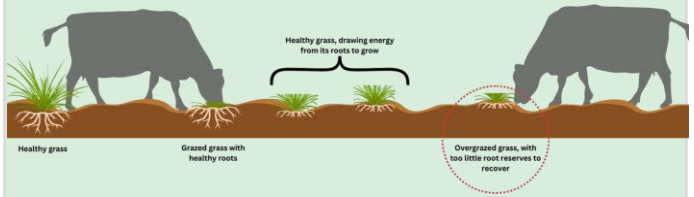
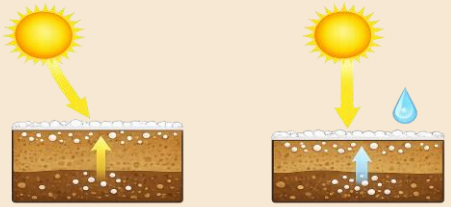
Overgrazing and salinization: two land-degradation pathways

Overgrazing



- Less vegetation
- More exposed soil
- More erosion
- Lower resilience

Salinization



- Poor irrigation
- Salt rises to surface
- Lower yields
- Harder to restore



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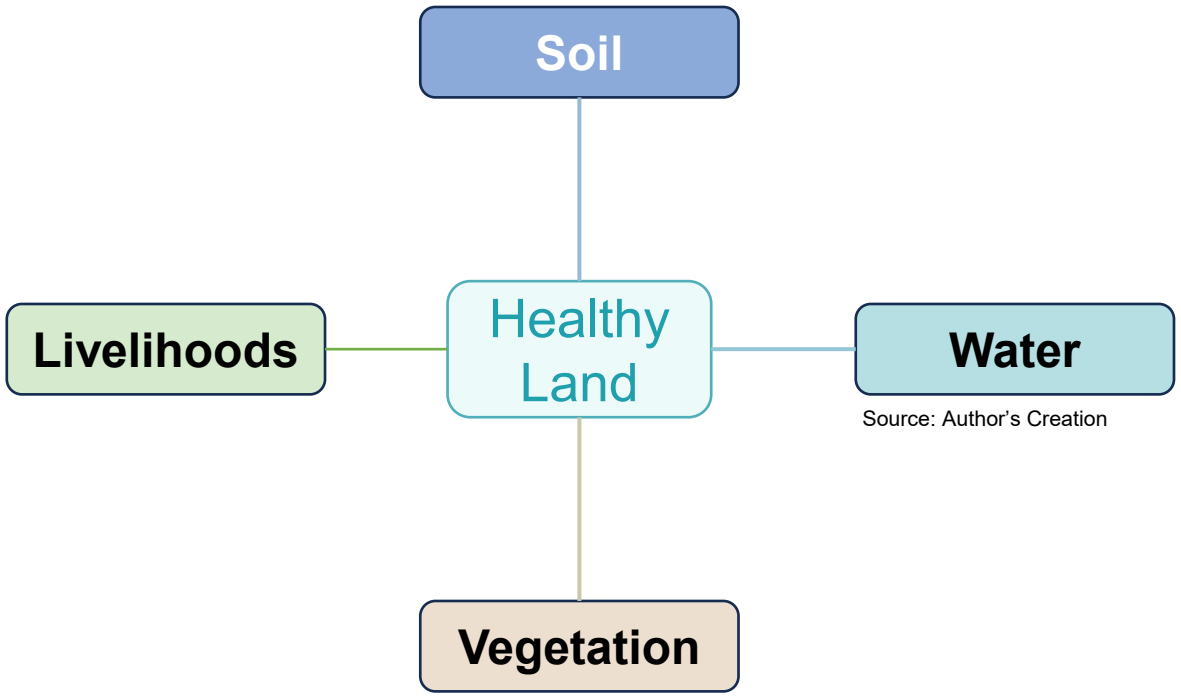
Source: Author's Creation

What sustainable land management means here



Source: Author's Creation

- SLM uses soil, water, plants, and animals to meet needs without degrading future productive capacity.
- It protects environmental functions while supporting livelihoods.
- In this module, SLM is a resilience strategy as much as an environmental principle.
- Healthy land reduces feedbacks that worsen climate vulnerability.



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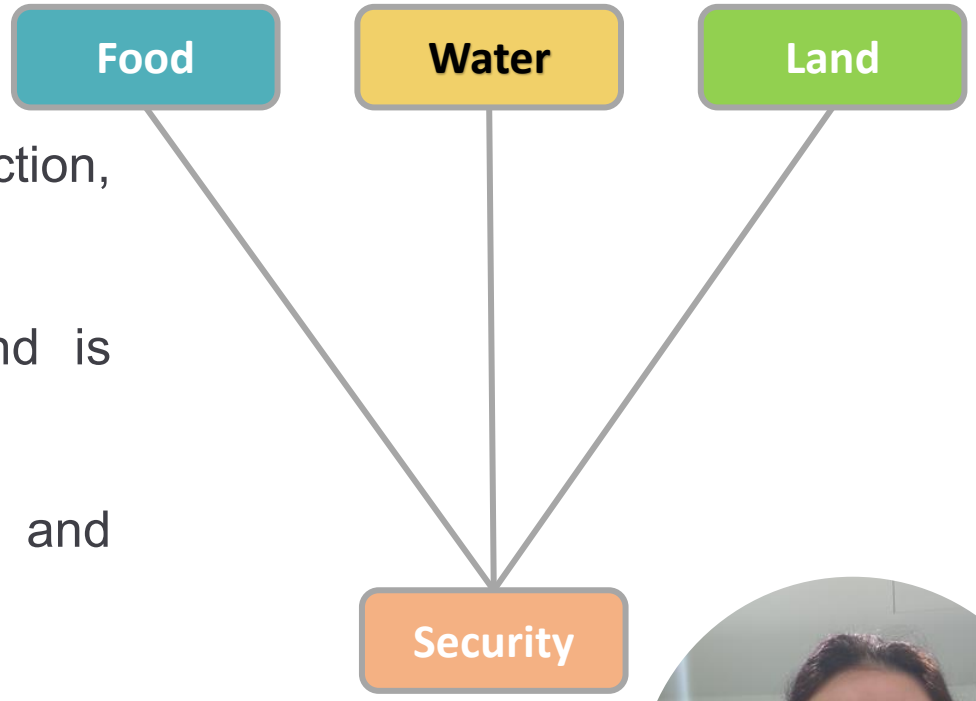
Food and water security as the regional outcome

- The climate-land nexus ultimately affects food production, livelihoods, and water reliability.
- Climate change becomes a threat multiplier when land is already degraded.
- Restorative land stewardship can reduce vulnerability and protect future resource access.
- The regional challenge is practical rather than abstract.



Source: Author's Creation



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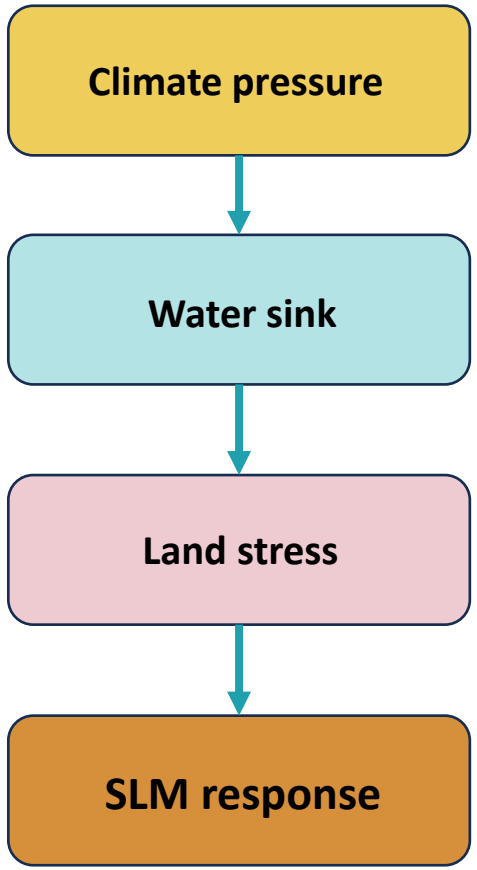
Recap and transition to Central Asia



Source: Author's Creation

- Central Asia is vulnerable because climate stress intersects with water dependence and land degradation.
- Mountain water towers, the Aral Sea crisis, overgrazing, and salinization show linked pressures.
- SLM offers practical pathways for resilience through soil, water, vegetation, and crop management.
- Final prompt: which response seems most urgent for the region, and why?



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