INTERNATIONAL THINK TANK FOR LLDC

Building Resilience and Adaptive Capacity to Climate Change and Disasters in Mongolia

ASSESSING MONGOLIA'S VULNERABILITIES, LOSSES, AND DAMAGES; LINKING APOA IMPLEMENTATION WITH HOSTING UNCCD COP17

Overview

- Introduction to Priority 4 of the Awaza PoA
- Mongolia's Climate Change Vulnerabilities
- Comparing other LLDCs
- Focus on Dzud: Impacts & Recent Data
- Losses and Damages: Economic & Social Metrics
- Building Adaptive Capacity and Resilience Strategies
- Linking APoA Implementation with Mongolia Hosting UNCCD COP17
- Recommendations & Conclusion

Introduction to the Awaza Programme of Action (APoA) for LLDCs 2024-2034

- **Priority 4 :** Enhances adaptive capacity, strengthens resilience, and reduces vulnerability to climate change, natural disasters, and other shocks. Objectives include integrating climate adaptation into national plans, promoting sustainable land management, and fostering international cooperation on disaster risk reduction (DRR).

- **Relevance to LLDCs like Mongolia:** LLDCs face amplified climate risks due to landlocked geography (e.g., limited access to global markets for relief); APoA targets 50% increase in renewable energy use and 30% reduction in disaster losses by 2034

Mongolia's Climate Profile & Global Context

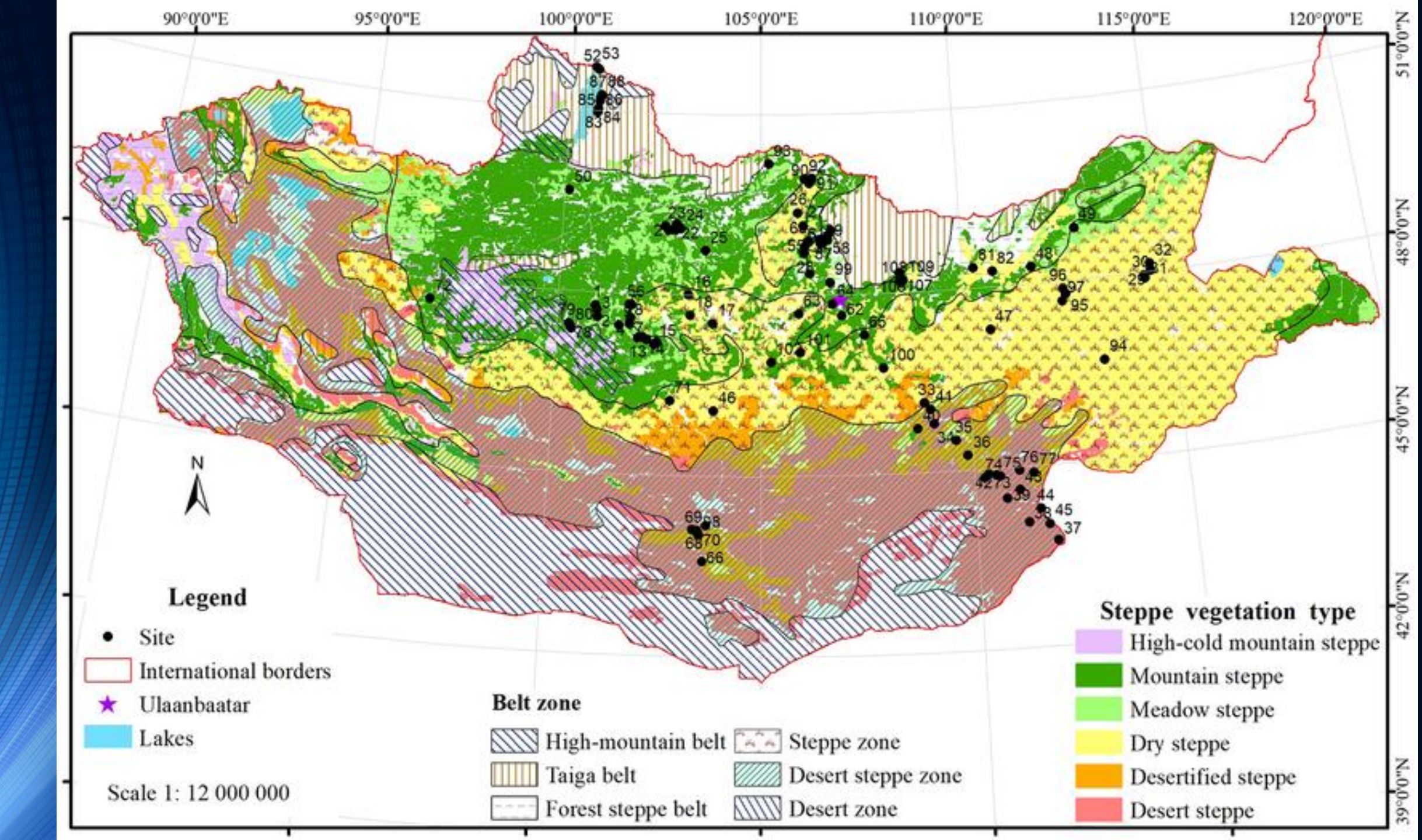
Geographic Overview: Landlocked, arid/semi-arid climate; 1.56 million km²; population ~3.5 million (68% urban, 30% nomadic herders).

Climate Trends: Temperatures risen 2.24°C since 1940 (3x global average); projected increase of 2.4–6.3°C by 2100 under high emissions.

Key Vulnerabilities:

- Desertification: 77% of land degraded; 30% severely affected.
- Water Scarcity: 21% of lakes and 12% of rivers dried up; permafrost melting disrupts hydrology.
- Extreme Events: Droughts doubled in frequency; annual Dzuds since 2015.

Global Ranking: 8th most vulnerable in the Global Climate Risk Index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Lakes
Scale 1: 12 000 000
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High-mountain belt
Taiga belt
Forest steppe belt
Steppe zone
Desert steppe zone
Desert zone
Steppe vegetation type
High-cold mountain steppe
Mountain steppe
Meadow steppe
Dry steppe
Desertified steppe
Desert steppe

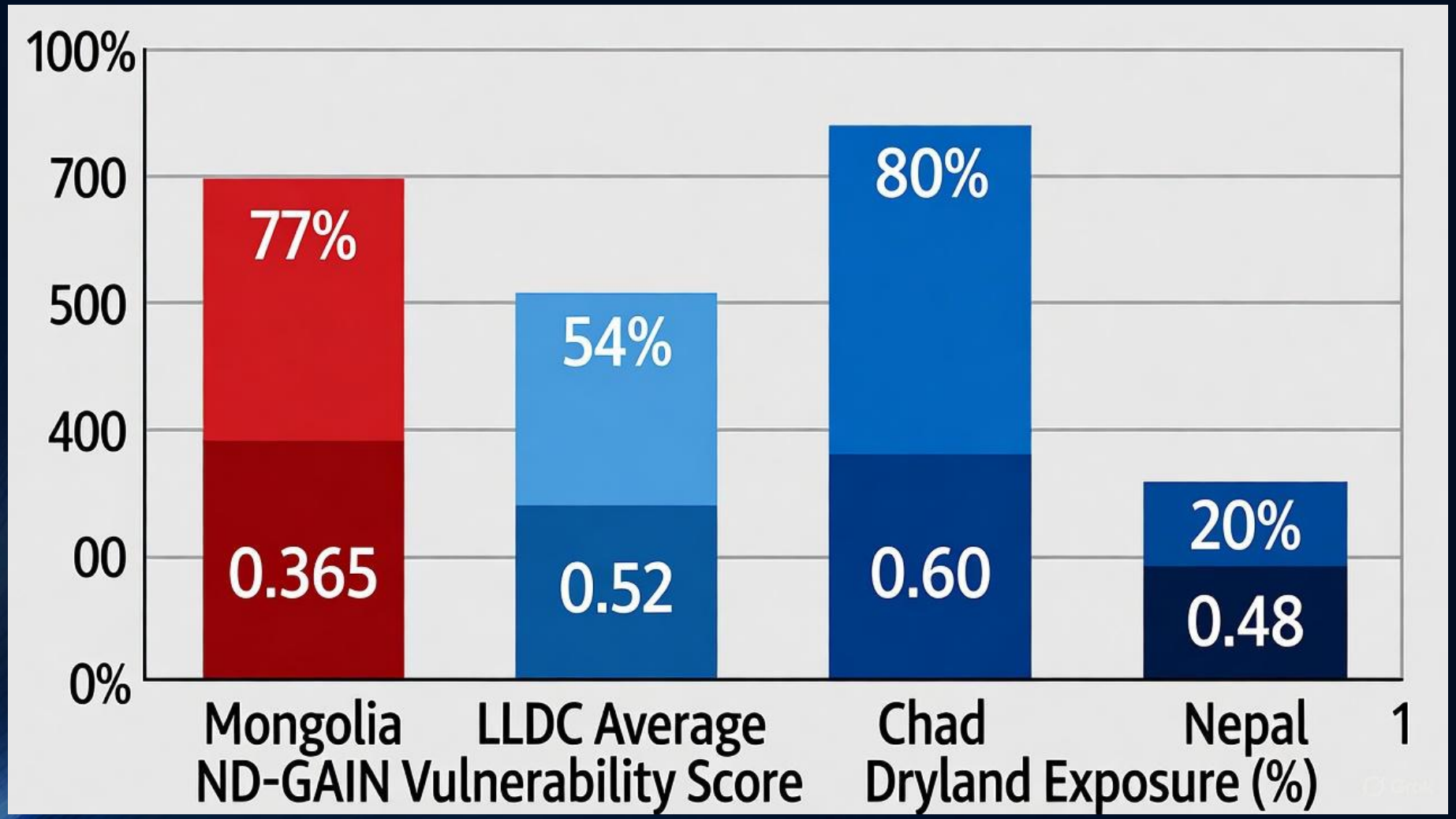
Comparative Climate Vulnerabilities in LLDCs

Country/Group	ND-GAIN Vulnerability Score	Dryland Exposure (%)	Key Hazards
Mongolia	0.45 (High)	77	Dzud, drought, dust storms
LLDC Average	0.52	54	Droughts (60%), floods (30%)
Chad (Africa LLDC)	0.60 (Very High)	80	Droughts, desertification
Nepal (Asia LLDC)	0.48	20	Floods, GLOFs (glacial lake outburst flood), landslides

- LLDCs score worse on socioeconomic vulnerability than coastal developing countries (UN-OHRLLS 2021)
- 60% of LLDC populations in drylands vs. Mongolia's 30% nomadic herders highly exposed
- Mongolia's temp rise (2.24°C) 3x global avg, similar to African LLDCs but unique cold extremes
- **LLDCs Overall:** >20% of global droughts/landslides (2012-2023); 54% land drylands prone to desertification

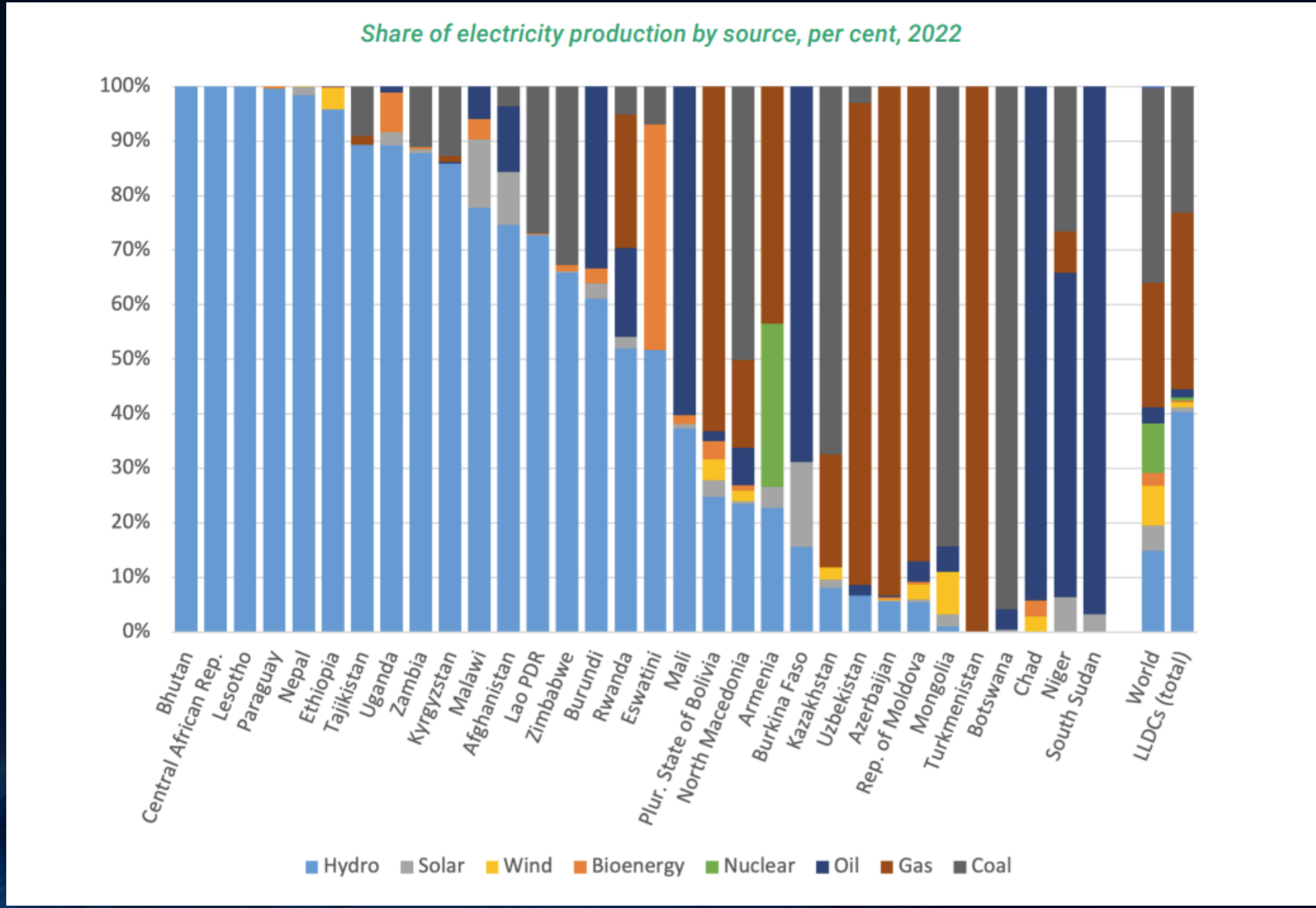
Key vulnerability indicators

(ND-GAIN vulnerability score, dryland %)



Vulnerability scores

(Mongolia 0.45, LLDC Avg 0.52, Chad 0.60, Nepal 0.48)

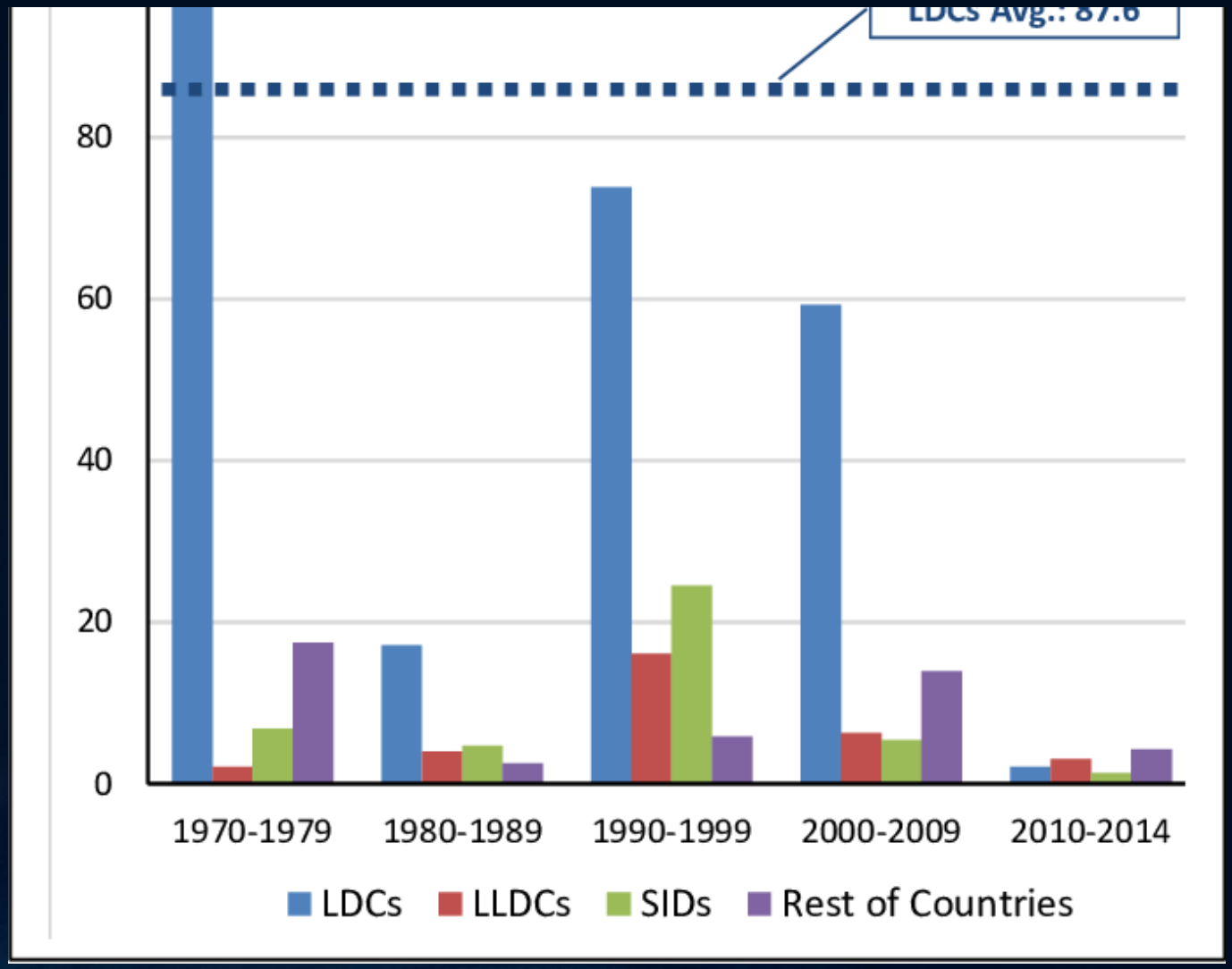


Disaster Impacts: Mongolia's Dzud vs. LLDC Averages

- **Dzud unique to Mongolia/Central Asia, killing 22% herds in 2010 (vs. LLDC avg drought losses 10-15% ag output)**
- **LLDCs report 22 disasters/yr avg, with floods/droughts dominant (UNDRR)**
- **Mongolia's 2024 losses = 2% GDP, comparable to LLDC avg climate shocks (1-3% GDP)**

Metric	Mongolia (Dzud-Focused)	LLDC Average (All Disasters)	Examples (Other LLDCs)
Annual Losses (USD M)	730 (2024 Dzud)	500-1,000	Chad: Droughts ~400M/yr
Livestock/Human Impact	8.1M animals (12.6%)	5-10% ag GDP loss	Nepal: Floods 1M affected/yr
Frequency Increase	2.9x since 2000	1.5-2x (droughts/floods)	Afghanistan: 3x earthquakes

Annual losses & affected population



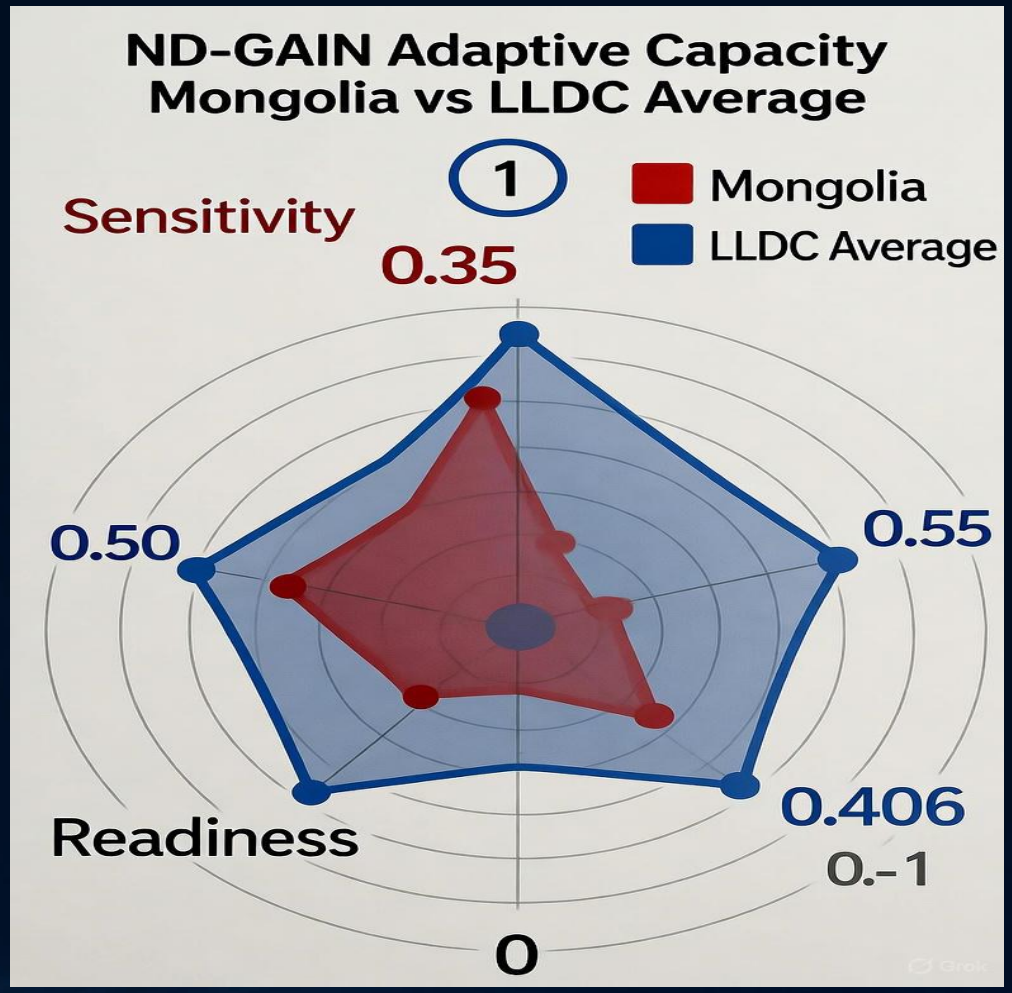
Adaptive Capacity and Resilience Metrics

Metric (ND-GAIN 2023)	Mongolia Score	LLDC Average	Notes
Adaptive Capacity	Readiness 0.406 (Rank 88)	0.50	Midpoint; better HDI than avg
Vulnerability	0.365	0.52	High exposure to extremes
Overall Index	52.0 (Rank 66)	45-55	LLDCs lag coastal developing countries by 10%

- Mongolia's ND-GAIN readiness 0.406 (global rank 88) exceeds LLDC avg due to HDI (0.74 vs. 0.55), but exposure high from 77% degraded land (vs. LLDC drylands 54%)
- **Renewables:** Mongolia 18% (vs. LLDC hydro-heavy 44%), per IRENA 2025

Adaptive capacity pillars - Mongolia vs. LLDC avg.

(ND-GAIN: sensitivity, exposure, readiness)



Economic and Land Degradation Comparisons

- LLDCs score lower on adaptive capacity (UNDP 2022), with Mongolia's 54.2 ND-GAIN better than African LLDCs (e.g., Burkina Faso 0.40) but hindered by rural isolation.
- **Renewables:** Mongolia 18% (vs. LLDC hydro-heavy 44%), per IRENA.

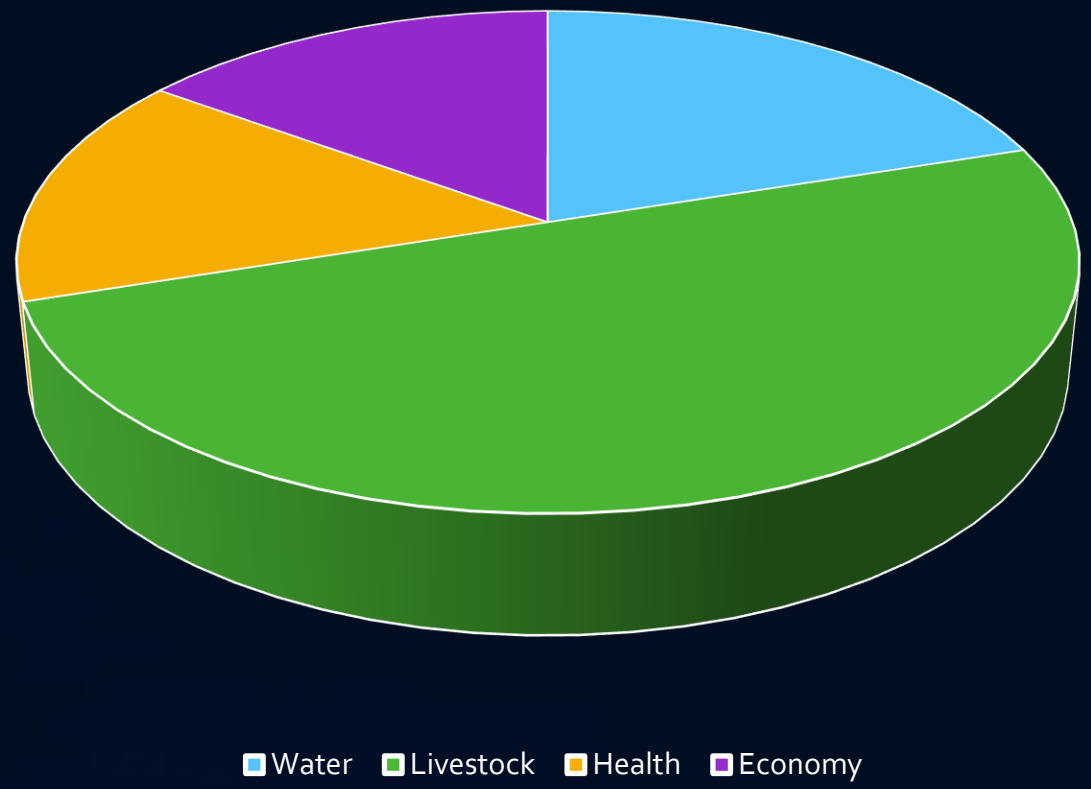
Aspect	Mongolia	LLDC Average	Key Insight
Climate GDP Loss/yr	1-2% (projected)	1-3%	Dzud spikes to 2% (2010/2024)
Land Degradation	77%	50-60% (drylands)	Higher due to overgrazing
Ag/Livestock GDP	11% (vulnerable)	20-40%	Shared resource dependency

Vulnerabilities to Climate Change: Sectoral Impacts

- **Agriculture and Livestock (80% of Ag GDP):** Herders (30% of population) face pasture degradation; projected 5.5% annual livestock loss by 2050, rising to 7.6% by 2100.
- **Health:** Increased respiratory diseases from dust storms; vector-borne illnesses (e.g., plague, tick-borne encephalitis) up due to warmer seasons; malnutrition affects 9.4% of children.
- **Urban Areas:** Ger districts (60% of Ulaanbaatar) prone to flash floods, air pollution; rural-urban migration exacerbates poverty (28.4% national rate).
- **Environment:** Biodiversity loss; forest fires increased; dust storms impact air quality regionally.

Vulnerabilities to Climate Change: Sectoral Impacts

Sector	Key Vulnerability	Projected Impact by 2050
Livestock	Drought + Dzud	15-20% yield decline
Water	Reduced availability	15% more droughts
Health	Heat stress + diseases	5-10% rise in NCDs
Economy	GDP losses from disasters	1-2% annual reduction



Dzud

Severe winter disaster combining drought, heavy snow, extreme cold (-40°C+), and ice layers preventing grazing; types include "white" (deep snow), "iron" (ice), and "black" (no snow but cold).

- **Causes:** Climate change amplifies frequency (2.9x since 2000); summer droughts reduce fodder; overgrazing and land degradation exacerbate.
- **Historical Context:** Occurs every 4-5 years; 2009-2010 Dzud killed 10 million animals (22% of herd).
- **Recent Trends:** Annual since 2015; 2023-2024 affected 90% of territory.

Impacts of Dzud

- **Livestock Losses:** 8.1 million animals died (12.6% of 64.7 million national herd); breakdown: 4.4M sheep, 2.6M goats, 695K cattle, 453K horses, 5.7K camels.
- **Affected Areas:** Highest in Sukhbaatar (47.1% mortality), Khuvsgul (26.3%); "iron Dzud" in 58 soums.
- **Vulnerable Groups:** Small herders (<200 animals) lost 20-61%; women-headed households and elderly more impacted.
- Livestock contributes **13% of GDP** and supports one-third of the population

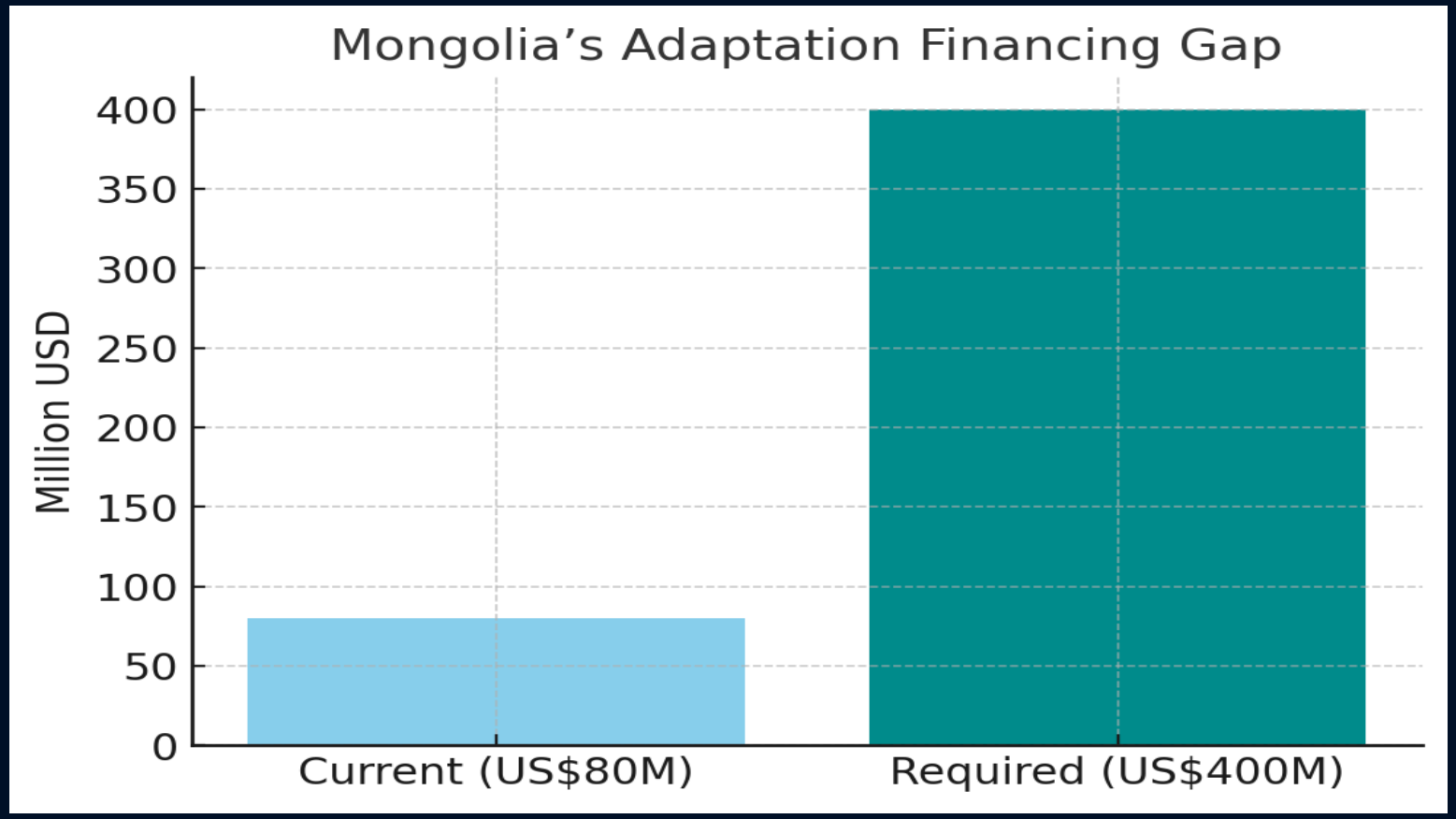
Losses and Damages from Dzud & Climate Disasters

- **Economic Losses:** 2023-2024 Dzud: 2.5 trillion MNT (~USD 730M); agriculture GDP share dropped from 13% (2021) to 10% (2023); historical: 40% of 1996-2013 losses from Dzuds. Estimated **US$3.2 billion in economic losses** from climate-related disasters since 2000.
- **Social Impacts:** 119K herder households affected (64%); food insecurity for 25% of population; increased migration, GBV, mental health issues (67% of male herders depressed).
- **Health and Education:** 20% households reported health impacts; school disruptions for 291K children.
- **Cumulative Data:** Annual disaster costs: 50-70B MNT; projected livestock losses to double by 2100.

Broader Economic & Social Damages from Climate Change

- **GDP Impacts:** 2010 Dzud: 2% GDP loss; overall climate risks could reduce GDP by 1-2% annually by 2050.
- **Inequality Exacerbation:** Post-2009 Dzud, Gini coefficient rose from 0.46 to 0.61; rural poverty at 35.6%.
- **Environmental Damages:** Land degradation costs ~USD 100M/year; dust storms affect regional economies.

Adaptation Financing Gap

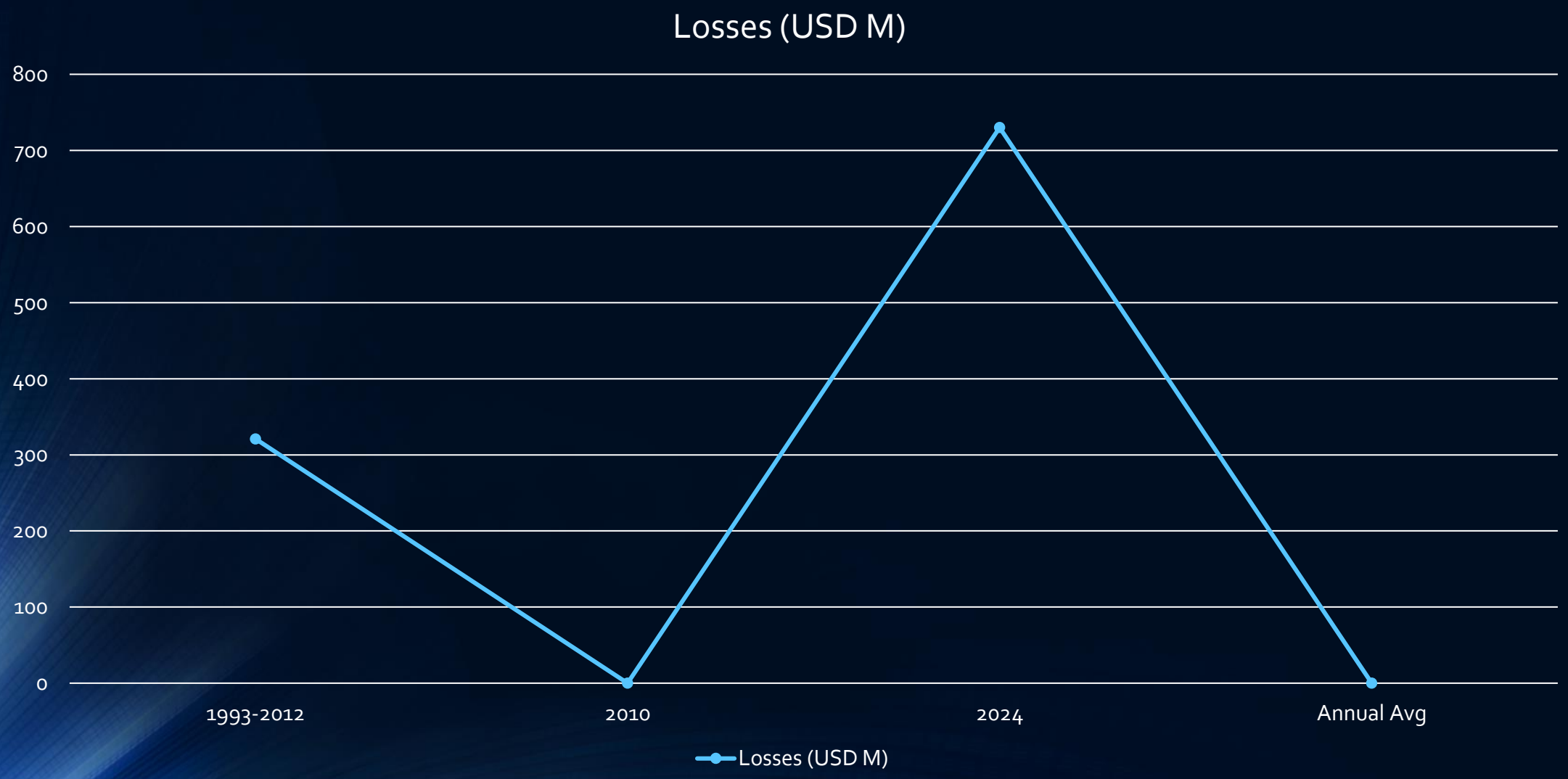


Current adaptation funding is around US$80 million annually—well below the US$400 million required.

Broader Economic & Social Damages from Climate Change

Disaster Type	Economic Loss (USD M)	Affected People (Millions)
Dzud (2024)	730	0.6
Droughts	50-70 annually	1.0+
Total (1993-2012)	321	2.0

Economic Damages from Climate Change



Building Adaptive Capacity: Current Measures

- **National Adaptation Plan (NAP) 2024-2030:** Roadmap for resilience; integrates adaptation across sectors; focuses on vulnerability assessments and early warning.
- **Key Initiatives:**

1. Green Climate Fund Project: "Improving Adaptive Capacity in Rural Communities" (2021-2028); targets 4 aimags, benefits 119K herders.
2. Forecast-Based Financing (FbF): Reduced horse mortality by 50% in pilots.

- **Capacity Metrics:** Resilience Capacity Index (RCI) average 40.45; 57% herders below average.

Strengthening Resilience: Strategies & Projects

- **Livestock Management:** Hay/fodder stockpiling; rotational grazing; insurance coverage expansion (currently <10%).
- **Infrastructure:** Rural roads, mobile clinics, renewable energy for herders.
- **DRR Integration:** Align with Sendai Framework; parametric insurance, e-commerce for diversification.
- **Projects:** IFRC-CIDCA partnership for community resilience; UNDP high-performance computing for forecasting.
- **Targets:** Reduce Dzud mortality by 50% via EWS; 30% increase in sustainable land management.

Reducing Vulnerability: Gender & Social Inclusion

- **Vulnerable Groups:** Women (gendered labor burdens), elderly, children, ethnic minorities (e.g., Kazakhs).
- **Strategies:** Gender-responsive policies; mental health support; education on climate risks.
- **Data:** Women-headed households show 9-12% lower Dzud mortality; but higher GBV (11.8% linked to economic stress).

Linking APoA Priority 4 with Mongolia Hosting UNCCD COP17

- **COP17 Overview:** Ulaanbaatar, August 17-28, 2026; first in Northeast Asia; 10,000 delegates; focus on land restoration, drought resilience.
- **Synergies with APoA:**

1. Advances Priority 4 objectives: Sustainable land management aligns with desertification combat.
2. Opportunities: Attract investments for adaptation; showcase Mongolia's NAP; foster LLDC cooperation on DRR.

- **Benefits for Mongolia:** Strengthen resilience policies; reduce vulnerabilities through global partnerships; target 77% degraded land.

Opportunities from COP17 for APoA Implementation

- **Key Themes at COP17:** Land degradation neutrality; drought protocols; biodiversity integration.
- **Linkages:**

1. APoA Target: 30% disaster loss reduction; COP17 can mobilize funds for Mongolia's EWS.
2. Regional Impact: Benefits other Asian LLDCs (e.g., Kazakhstan, Kyrgyzstan) via shared knowledge.

- **Expected Outcomes:** New commitments on resilience; Mongolia's presidency (2026-2028) to drive Priority 4.

Challenges in Implementation

- **Barriers:** Limited funding; data gaps (e.g., mental health); urban migration strains.
- **Climate Projections:** Dzuds 5-40% more frequent by 2100; 15% crop yield decline by 2030.
- **LLDC-Specific Issues:** Geographic isolation delays relief; trade dependencies amplify shocks.

Recommendations

- **Short-Term:** Enhance EWS with tech (e.g., IoT sensors); scale FbF; provide emergency health support.
- **Long-Term:** Diversify economies (e.g., tourism, renewables); integrate PoA into national budgets; collaborate on COP17 prep.
- **For Mongolia:** Leverage COP17 for green loans; build cooperatives for herders.
- **ITTLLDC Role:** Advocate for LLDC-specific funds; research shared vulnerabilities.

Case Studies: Successful Resilience Efforts

- **FbF Pilot (2017-2018):** Distributed cash/non-food items; reduced losses in vulnerable households.
- **ADAPT Project (UNDP-GCF):** High-performance computing for forecasts; benefits 4 aimags.
- **Outcomes:** 50% mortality reduction in pilots; improved RCI scores.

Projected Outcomes & Metrics

- **By 2030 (NAP Targets):** 20% reduction in vulnerabilities; 15% increase in adaptive capacity.
- **By 2034 (APoA Targets):** 50% renewable energy; 30% disaster loss cut.
- **Monitoring:** Use SDGs (13: Climate Action; 15: Life on Land); annual reporting via UN.

Conclusion

- **Key Takeaways:** Mongolia's vulnerabilities (e.g., 77% land degradation, 8.1M livestock lost in 2024) underscore Priority 4 urgency; COP17 offers a platform for APoA acceleration.

- **Call to Action:** ITTLLDC to lead advocacy; foster partnerships for resilient LLDCs.

"Resilience is not just survival; it's thriving amid change."

UNCCD Executive Secretary