



THE DROUGHT NEXUS

How food security, conflicts, land and water are interlinked

"The impacts of drought ripple through economies, ecosystems, and societies in ways that are often interconnected and difficult to disentangle." Upmanu Lall

"Drought is not just a natural disaster; it is a slow-moving catastrophe that deepens poverty, hunger, and inequality." Amina J. Mohammed

"We can no longer think of water, food, and energy problems in isolation – drought makes their interdependence obvious." Peter Gleick





THE DROUGHT NEXUS

How food security, conflicts, land and water are interlinked

Summary:

The Drought Nexus refers to the interconnected system of environmental, social, economic, and political factors through which drought impacts cascade across sectors and scales. It highlights how drought is not only a climatic hazard, but also a compound risk that links water scarcity, food security, energy production, ecosystems, livelihoods, migration, health, and governance. Unlike existing approaches, it focuses on systemic risks that create vulnerabilities, negative cross-sectoral feedback loops and policy misalignments that amplify drought impacts. Addressing the Drought Nexus therefore requires coordinated governance, aligned financing, and integrated land–water management to reduce root causes rather than only managing impacts.

This policy paper highlights how interconnections amongst systems amplify drought risks in all its dimensions while at the same time also being highly susceptible to drought impacts. Its objective is to make these interdependencies visible and to propose policy solutions that address root causes proactively, helping to decouple unsustainable drivers, harmful incentives, and cascading risks toward a drought-resilient future.

The Drought Nexus spans multiple policy domains and governance levels and inherently requires coordinated and synergetic action. No single institution can manage the Drought Nexus in isolation. Addressing it demands a multisectoral perspective and a global approach to a challenge that affects all of society and transcends national boundaries.

This policy brief does not advocate for the creation of a separate policy domain for the Drought Nexus that bypasses existing institutional frameworks. Rather, it calls for the operationalization of a Drought Nexus approach within and across existing policy domains, such as Integrated Water Resources Management Plans or Climate Change Adaptation Strategies, to enable more effective decision-making and implementation. Actors at different levels of governance and across sectors should position their operations according to the specific Drought Nexus context, in ways that align with and reinforce the efforts of other institutions and bring the whole of society close to resilience objectives. In the context of the Drought Nexus, sectoral agencies can integrate drought considerations into key operational elements such as strategic planning, existing programs, budgets and institutional capacities. In this context, the UNCCD is uniquely positioned to serve as the knowledge and operational platform for integrated drought resilience and all the land, bridging all three Rio Conventions.

I. Understanding the Drought Nexus

Drought is no longer merely a localized natural phenomenon; while it remains a temporary condition by definition, it is becoming increasingly widespread, frequent, and severe. Along with climate change, it has emerged as a **systemic risk** with **cascading impacts** across economies, ecosystems and societies. As the planet warms, drought risks deepen. Increasingly frequent, prolonged and intense drought events are exposing existing vulnerabilities and creating cascading risks across interconnected sectors. Furthermore, the impacts of drought are also compounding existing social and political pressures, contributing to instability, displacement and conflict in vulnerable regions, while being part of intensifying hydrological extremes as a direct consequence of climate change. As drought risks expand across **new geographical areas** and affect countries irrespective of income level or climatic zone, the global community faces an escalating challenge that extends far beyond a single-sector crisis and national boundaries. Drought must therefore be understood as a whole-of-society risk – as a **Nexus** – that interacts with and amplifies broader environmental, economic and social risks.

Drought is increasing also a transboundary phenomenon. Shared river basins, aquifers, ecosystems,

energy systems, trade networks and migration corridors transmit drought impacts across national borders. As a result, drought risks cannot be fully addressed through national policies alone, but require regional cooperation and international coordination to manage cascading impacts and avoid tensions over shared resources.

Land systems play a central role in regulating drought risk, determining whether water functions as a resource that sustains ecological functions and livelihoods or becomes a factor that exacerbates scarcity, degradation and instability. **Nexus approaches** are essential to support integrated, risk-informed governance capable of bridging implementation gaps, strengthening cross-sectoral collaboration and enabling proactive multi-purpose investment in resilience. Such approaches recognize the interconnected dynamics between systems, and the cascading risks that emerge across these under drought pressures representing an opportunity to enhance resilience, improve water (incl. groundwater) and land stewardship, generate co-benefits across sections and support more sustainable and resilient development pathways.



Fig. 1: The Drought Nexus (UNCCD/SEE Int'l)

II. Existing global policy frameworks and National Drought Plans

At the global level, the UNCCD is the only **legally binding convention** addressing land management, desertification, and drought in an integrated manner. Established in 1994 with a focus on arid, semi-arid, and sub-humid regions, its mandate has since expanded geographically and thematically as climate-driven heat extremes and landscape degradation increasingly affect countries worldwide. The UNCCD **Strategic Framework (2018–2030)** represents the most comprehensive global commitment to achieving **Land Degradation Neutrality (LDN)** by halting degradation and restoring socio-ecological systems wherever possible. With 197 Parties, the UNCCD works closely with the other two **Rio Conventions**, the UN Framework Convention on Climate Change (UNFCCC) and Convention on Biological Diversity (CBD).

Several other UN agencies also address drought risk management through global mandates with the UNCCD often as a **coordinating platform** at its center, notably the Food and Agricultural Organization (FAO), World Meteorological Organization (WMO), UN Disaster Risk Reduction (UNDRR), and World Food Program (WFP), though without binding legal mechanisms. For global drought monitoring, the International Drought Resilience Observatory (IDRO), NOAA's Global Drought Information System, the Global Drought Observatory (GDO) and the European Drought Observatory (EDO) from the EU JRC or Spain's SPEI Global Drought Monitor for example, provide near real-time biophysical data. In addition, the Global Water Partnership (GWP) and WMO launched the Integrated Drought Management Programme (IDMP) to strengthen drought monitoring, preparedness, and prevention worldwide.

On the level of the individual state, **National Drought Plans (NDPs)** provide an important opportunity to align drought governance with other sectors and operationalize drought objectives through sectoral programs, budgets, and human resources. Each country differs in terms of where drought nexus considerations can be most effectively integrated and operationalized. In some contexts, this may be through National Climate Change Adaptation Plans, while in others it may be through Integrated Water Resources Management (IWRM) Strategies, Climate-Smart Agriculture or other existing policy and legislative frameworks.

A recent review of existing NDPs demonstrates strong alignment across key sectors such as agriculture, water, environment, climate change and disaster risk management (see fig 1.). While integration remains comparatively weaker in areas including health, energy, and housing, with some sectors, such as security, tourism or education often absent altogether.

These findings underline the need for stronger incorporation of **Drought Nexus** considerations into national drought plans and sectoral policies to ensure that drought-related efforts are systematically embedded within sectoral planning, financing mechanisms, and institutional capacities. Supporting coherent implementation and coordination across sectors may benefit from strengthened institutional arrangements, including mechanisms or entities (e.g. lead agency or national drought committee) that can help facilitate alignment, collaboration and integration across relevant policy domains.

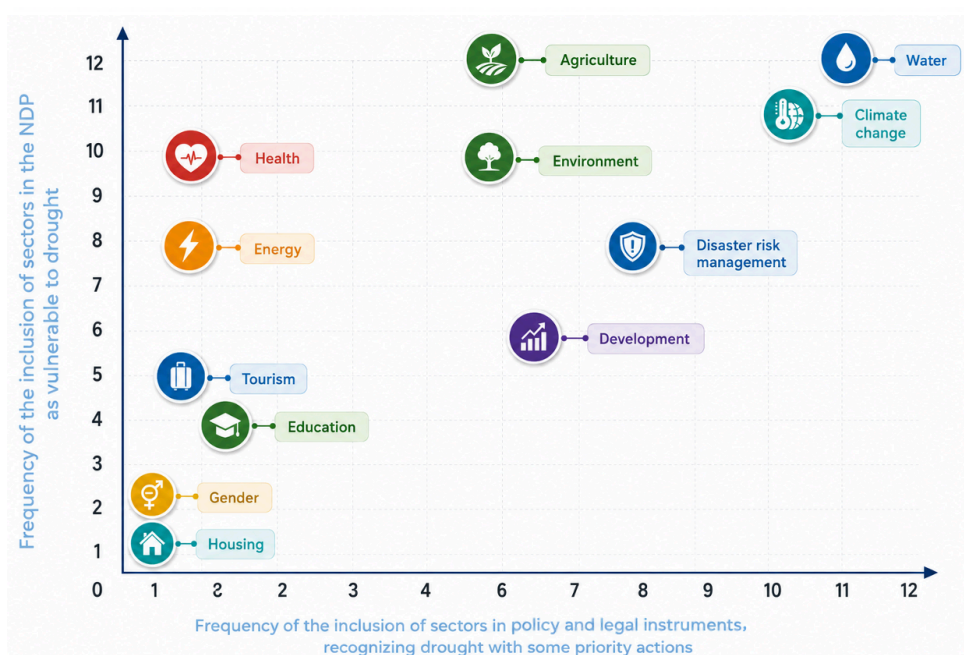


Fig. 2: Cross-comparison of the inclusion of sectors in the NDPs and in sector-specific policy and legal instruments, recognizing drought with priority actions (UNCCD, based on Pek et al., 2026)



III. Policy fragmentation and gaps

Despite growing recognition of drought as a systemic and cross-sectoral risk, significant governance, institutional, technical and financial barriers continue to hinder the implementation of integrated and proactive Drought Nexus approaches.

Fragmented institutional arrangements and overlapping mandates: Drought governance is frequently dispersed across ministries and agencies responsible for water, agriculture, environment, energy, disaster risk reduction and land management, resulting in weak coordination, duplicated efforts and policy inconsistencies. Drought can be underrepresented in development, security or humanitarian sectors. Such fragmentation limits the capacity to address the interconnected and cascading nature of the drought nexus through integrated and proactive approaches, while also constraining the development of coherent long-term resilience strategies across sectors and governance levels.

Weak or insufficient legal frameworks: In many countries, drought policies remain largely reactive and crisis-driven, with limited emphasis on prevention, preparedness, ecosystem restoration and long-term resilience building. Existing legal and policy frameworks often lack clear accountability mechanisms, cross-sectoral integration and enforcement provisions, while drought considerations remain insufficiently embedded within broader land restoration and sustainable development planning processes.

Limited technical and financial capacity: Insufficient monitoring systems, data gaps, limited forecasting and early warning capacities, and inadequate institutional expertise continue to restrict the implementation of proactive drought management strategies, particularly in vulnerable and drought-prone regions. At the same time, fragmented and short-term financing mechanisms impede sustained investments in resilience, preparedness, restoration and integrated land and water management. Where drought is recognized but no concrete actions are defined, institutional dysfunction manifests in the persistent gap between acknowledgment and operationalization, reflected in the failure to identify, integrate, implement actions required to address drought effectively.

Fragmentation at the global governance level: International frameworks and institutions addressing the multiple dimensions of the Drought Nexus often operate in parallel, with insufficient alignment of objectives, financing streams and implementation mechanisms. This fragmentation weakens coordinated responses to systemic drought risks and limits opportunities for integrated Nexus Approaches capable of delivering multiple co-benefits across sectors, scales and international policy processes.



IV. Future costs vs. multiple returns

Drought is becoming one of the costliest systemic risks of the twenty-first century. Recent scientific assessments estimate that global drought damages already exceed US\$60 billion annually, with costs projected to rise sharply as water scarcity and extreme heat intensify (OECD, 2025; Wang et al., 2025). Drought is no longer understood as an isolated water or agricultural issue, but as a **Nexus Risk** that generates cascading impacts across interconnected sectors and regions. Reduced rainfall and degraded ecosystems simultaneously affect food production, hydropower, river transport, public health, biodiversity, infrastructure, trade, and urban water supply, while disruptions in one sector often amplify vulnerabilities and costs in others. The case for proactive investment is therefore evident across all sectors.

Despite rising costs, the global **drought finance** landscape remains fragmented and insufficient. Major gaps persist in long-term adaptation finance, cross-sector coordination, and access to funding for frontline communities. Recent initiatives such as the Luxembourg Drought Resilience Investment Facility (DRIF), the Riyadh Global Drought Resilience Partnership (RGDRP), and the Global Environment Facility (GEF), are beginning to address these gaps by mobilizing blended finance, de-risking private investment, and scaling nature-based solutions. DRIF alone aims to mobilize US\$400 million for sustainable agriculture, water access, and ecosystem restoration. Peer-reviewed research increasingly shows that investments in early warning systems, watershed restoration, regenerative agriculture, groundwater governance and integrated water governance are significantly more cost-effective than reactive crisis response, while also generating co-benefits for biodiversity, livelihoods, climate adaptation, and societal stability. Proactive drought investment therefore delivers multiple economic, social, and ecological returns.

Financing systems should therefore prioritize:

- Investments that address multiple dimensions of the Nexus simultaneously
- land restoration and ecosystem resilience;
- drought preparedness and early warning systems;
- climate-resilient agriculture;
- resilient water infrastructure;
- risk-informed planning;

Blended finance approaches, public-private partnerships, and de-risking instruments can help mobilize larger-scale investment while ensuring that financing reaches vulnerable regions and frontline communities.

Finally, aligning finance with implementation priorities in the Drought Nexus requires establishing a clear hierarchy in which national drought resilience strategies define priority actions across systems, and financing mechanisms are then aligned accordingly. Some risk financing instruments include national disaster fund, drought insurance, disaster-specific budget allocation or aid, contingent disaster line of credit. Financing instruments can be mapped to specific drought nexus risks depending on anticipated impact and frequency. Public finance should provide the strategic foundation and contribute to de-risk investments, while blended finance approaches can mobilize development banks, climate funds, and private capital toward specific forms of drought preparedness.



CASE STUDY MONGOLIA – Drought-Rangelands-Economy NEXUS

Mongolia's evolving approaches to holistic and resilience-based rangeland management demonstrate a proactive approach to the growing cycle of drought and *dzud*, which is a severe winter disaster in which extreme cold, deep snow, ice or other conditions restrict livestock access to pasture. Its impacts are often intensified when summer drought has reduced forage availability and weakened livestock before winter.

The 2023–2024 *dzud* caused losses estimated at approximately 7.9 million livestock, severely affecting herder assets, agricultural output and rural livelihoods. National assessments have identified that 65% of rangelands are degraded compared to ecological reference conditions, but the severity and recoverability of these changes vary considerably. Recent research indicates that climate variability and warming explains much of the long-term change in national rangeland primary productivity, while concentrated grazing, reduced seasonal mobility and weak local governance can intensify pressures in particular locations (Purevjav et al., 2025). Recent research revealed that fewer than 50% of surveyed herders considered themselves adequately prepared for drought and *dzud* which is indicating the important gaps in herder preparedness (IOM, 2025). In response, Mongolia has developed and piloted complementary resilience measures, including community-based pasture governance, seasonal grazing arrangements, rangeland-health monitoring, climate forecasting, *dzud*-risk mapping, livestock insurance and anticipatory support. These measures help strengthen ecosystem resilience, support nomadic herding systems and shift disaster management from reactive aid toward long-term adaptation and sustainable land governance. By combining traditional ecological knowledge with scientific climate models, Mongolia has become an important example of resilience-based dryland management under accelerating climate change. (Ayusheeva et al., 2025; Dashbal et al., 2023; Purevjav et al., 2025)

Policy Lessons

- Integrate traditional ecological knowledge with scientific monitoring, forecasting and early-warning systems.
- Strengthen community-based rangeland governance, pastoral mobility and adaptive grazing systems.
- Link drought preparedness with livestock insurance, anticipatory action, social protection and market-based destocking.
- Shift from reactive disaster response toward long-term resilience planning and sustainable land governance.



CASE STUDY SAHEL –Drought-Conflict-Land-Migration NEXUS

The Sahel region is a clear example of the Drought Nexus, where climate stress, land degradation, conflict and migration reinforce one another. Temperatures have risen around 1.5 times faster than the global average, intensifying droughts and pressure on fragile ecosystems. As of early 2026, more than 7.4 million people were internally displaced within their own country in the Sahel. Most of them were in Burkina Faso with 2.1 million internally displaced persons and Nigeria with 3.6 millions (Donare, 2026). More than 6.5 million Somalian have been pushed to the brink of severe hunger in 2026, as a combination of drought, conflict, diminishing global food aid and local governance (The Guardian, 2026). Declining water and pasture resources have increased tensions between pastoralist and farming communities, particularly in Mali, Niger, Burkina Faso and northern Nigeria. While drought does not necessarily directly cause conflict, it acts as a “threat multiplier” by worsening poverty, food insecurity and weak governance, contributing to displacement across the region. This highlights a critical policy lesson: drought resilience cannot be achieved without addressing the root causes of land degradation. Unsustainable land and water management, declining soil fertility and vegetation loss reduce the capacity of ecosystems to withstand climate shocks, making land restoration and sustainable natural resource management essential pillars of long-term drought resilience (OSS, 2024). An important policy response is Farmer-Managed Natural Regeneration (FMNR) policies and land tenure reforms, which grant farmers rights to manage naturally regenerating trees. Since the early 2000s, more than 5 million hectares of degraded farmland have been restored, improving soil fertility, water retention, crop yields and drought resilience. The approach is widely regarded as a successful low-cost strategy to reduce drought risk, food insecurity and resource conflict in the Sahel. Until now, the Great Green Wall, a visionary initiative to halt desertification and degradation across all Sahel countries by means of ecological restoration has achieved to restore 30 million hectares since its inauguration in 2007. Going forward, the goal is to restore 10 million hectares annually. (Eboeime et al., 2025; Lee et al., 2025; Steinli Træet et al., 2026; Walker et al., 2024)

Policy Lessons

- Secure land tenure and sustainable local resource governance.
- Integrate drought policy with conflict prevention and rural development.
- Strengthen local resilience before crises escalate into displacement and instability.





CASE STUDY MEDITERRANEAN – Drought-Fire-Flood NEXUS

The Mediterranean Basin increasingly exemplifies a Drought–Fire–Flood Nexus, where prolonged droughts intensify wildfire risk and are often followed by destructive floods. The region is warming around 1.2 times faster than the global average, while drought frequency and severity have risen sharply. In 2023, wildfires burned more than 500,000 hectares across southern Europe. In response, national governments and the European Union have strengthened integrated policies linking climate adaptation, wildfire prevention and watershed management. Measures such as the EU Biodiversity Strategy, Nature Restoration Law, and national resilience plans in Spain, Portugal and Greece promote controlled burning, agroforestry, wetland restoration and climate-resilient land-use planning. Policies increasingly support mosaic landscapes and post-fire watershed restoration to reduce fire spread, improve water retention and strengthen long-term resilience across Mediterranean ecosystems. However, the catastrophic wildfires of 2026 demonstrated that Europe's wildfire crisis is no longer confined to the Mediterranean, but has expanded across large parts of the continent, exposing escalating climate risks, overwhelming emergency response capacities, and causing unprecedented losses. (Biella et al., 2026; Drobinski et al., 2025; Rico-Bordera et al., 2026)

Policy Lessons

- Integrate land, fire, water, and climate planning.
- Expand watershed restoration and nature-based solutions.
- Mainstream drought risk into territorial planning and infrastructure policy.

CASE STUDY GLOBALISATION – Drought-Energy-Transport NEXUS

Going beyond a single regions case study, the ongoing process of globalization also marks novel connectivity as a result of increasing drought frequency and severity, exposing growing interdependencies between water availability, energy production and transportation systems in a globalized world, driving up costs of production and distribution worldwide. During the 2023–2024 Panama Canal drought for example, rainfall was approximately 43% below average, forcing daily vessel reduction in transits by almost 50%, contributing to estimated revenue losses of US\$600–800 million. Drought-related water shortages are also constraining energy generation worldwide. In California, for example, hydroelectric power's share of electricity generation fell from 18% to 7% during severe drought conditions, contributing to a 34% increase in emissions from natural gas power plants. Similarly, drought in China's Sichuan Province reduced hydropower output by more than 50%, triggering electricity shortages and increase of industrial production cost. Low river levels further restrict inland navigation and limit cooling water availability for thermal and nuclear power plants, creating cascading impacts across energy supply chains, freight transport and economic activity. In response, governments and infrastructure operators are strengthening integrated drought-risk management through climate-resilient infrastructure planning, de-investment in fossil fuel industries, diversified energy portfolios and coordinated governance across water, energy and transport sectors. (Liu et al., 2023; Kapica et al., 2024; Zhao et al., 2024; Vinke & Turpijn 2024; Muñoz et al., 2025; Bernoni, 2025)

Policy Lessons

- Integrate drought risk across water, energy and transport planning frameworks.
- Diversify energy systems and strengthen climate-resilient infrastructure to reduce systemic vulnerabilities.
- Establish cross-sector monitoring, forecasting and contingency planning mechanisms to manage cascading drought impacts.



V. Policy decision can achieve the following

Addressing drought through a nexus-based and risk-informed policy approach offers significant opportunities to **strengthen resilience** across ecosystems, economies and societies. As drought impacts become increasingly systemic, cascading across sectors, policy responses must move beyond fragmented and reactive interventions toward integrated governance and long-term resilience building. This will naturally lead to some initial tensions with existing sector-based institutional mandates including those traditionally focusing on water, disaster risk management, agriculture that will require adaptive management as an effective institutional interaction emerges. It is understandable that some Drought Nexus measures will ultimately be implemented in sectors not conventionally driven by drought considerations, such as health, energy or security.

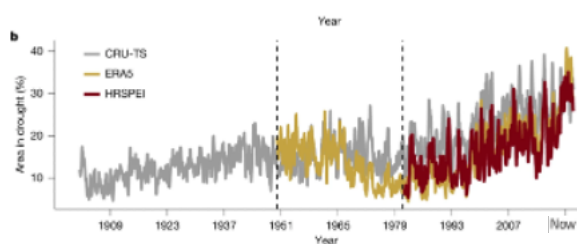


Fig 3.: Global area under drought (based on Gebrechorkos et al., 2025)

Therefore, strengthening institutional coordination, investing in proactive drought management and aligning policies across sectors and scales can substantially reduce vulnerability while generating multiple co-benefits for climate adaptation, land restoration, biodiversity conservation and sustainable development. In this context, coordinated policy action can play a critical role in transforming drought from a recurring crisis into a manageable and governable risk.

Such policy decisions can support more precise accounting of both direct and indirect drought impacts, while strengthening monitoring systems, forecasting capacities and decision-support mechanisms for proactive risk management. They can enable the establishment of national **drought task forces** and improve cross-sectoral integration across water, agriculture, energy, land management and disaster risk reduction institutions. Integrated approaches can further strengthen ecological resilience through large-scale ecosystem restoration and sustainable land and water management, while enhancing local participation and safeguarding the rights, knowledge and leadership of Indigenous Peoples and minority communities. At the same time, enabling financial systems and investment-ready project pipelines can accelerate resilience investments and facilitate access to public and private climate and restoration finance.

Achieving this transformation will require multiple actors of society across various levels, including governments, international organizations, the private sector, financial institutions, academia, civil society organizations, Indigenous Peoples and local communities. Only a holistic whole-of-society approach that combines governance, science, finance, innovation and community-based action can adequately address the interconnected and systemic risks associated with drought and climate change.

Strengthened interregional cooperation and knowledge exchange can further support coordinated responses to transboundary drought risks and contribute to progress toward a coherent global drought framework that addresses The Drought Nexus under the leadership of the UNCCD.



Policy Recommendations

1. Embed Drought Nexus Governance into National Drought Plans

National Drought Plans should move beyond water-focused approaches and integrate land systems, ecosystems, food security, energy, migration, health, infrastructure, and development planning.

2. Establish accountable National Cross-Sector Drought Coordination Platforms

Governments must designate a lead institution or inter-ministerial mechanism with a formal mandate to coordinate drought policy across sectors and governance levels in accordance with the Three Pillar Model of Integrated Drought Management (LINK <https://www.droughtmanagement.info/about-drought-pillars/>), backed by defined accountability mechanism and budget authority.

3. Enable a Whole-of-Society Drought Resilience Effort

The National Drought Lead Institution/s should enable an environment where citizens, the scientific community, farmers, civil society and the private sector join forces and contribute to a more drought nexus-resilient future.

4. Scale Land Restoration as a Core Drought Resilience Strategy

Healthy land systems are foundational to water security and drought resilience. Large-scale ecosystem restoration and sustainable land management should become central drought policy priorities.

5. Strengthen integrated land and water management

Land and water policies need to address their interlinkages through integrated management approaches that reduce drought risk.

6. Expand Systemic Drought Impact Monitoring and Early Warning Systems

Countries and transboundary associations should strengthen integrated monitoring systems that combine climate, hydrological, ecological, and socioeconomic indicators to support proactive decision-making across sectors.

7. Align Financing with Long-Term Resilience Investments

Public and private finance should prioritize prevention, preparedness, ecosystem restoration, and locally led resilience building rather than primarily funding emergency response.

8. Delineate and assign accountability

Policies need to establish accountability beyond the governments and associated agencies, including all sectors and economic actors, whether public or private.

9. Mainstream Drought Risk into Development and Investment Planning

Drought risk should be systematically integrated into infrastructure planning, aquifer governance, agricultural policy, financial systems, national budgets, and development strategies.

10. Strengthen UNCCD's Coordinating Role Across the Rio Conventions

The UNCCD should serve as the central operational platform for integrated drought resilience and support stronger coordination across climate, biodiversity, land restoration, drought governance and all land-related aspects of the Rio Conventions.



Further suggested readings by the UNCCD:

The Global Threat of Drying Lands (2024)

https://www.unccd.int/sites/default/files/2024-12/aridity_brief.pdf

Integrated Land Use Planning and Integrated Landscape Management for Land Degradation Neutrality (2023)

<https://www.unccd.int/sites/default/files/2023-09/UNCCD%20Integrated%20Land%20Policy%20Brief.pdf>

Investing in Resilience (2023)

https://www.unccd.int/sites/default/files/2023-08/Policy%20Brief_Drought%20Finance_August%202023.pdf

A multi-criteria assessment framework for national drought planning (2022)

<https://www.unccd.int/sites/default/files/2022-09/cc1276en.pdf>

Preliminary Analysis of the National Drought Plans (2021)

<https://www.unccd.int/sites/default/files/relevant-links/2022-01/Analysis of National Drought Plans.pdf>

The Land-drought nexus: Enhancing the role of land-based interventions in drought mitigation and risk management (2019)

http://catalogue.unccd.int/1211_03EP_UNCCD_SPI_2019_Report_2.pdf



VI. Bibliography

Afroze, B. S. (2025). Land restoration, desertification, and drought resilience: Facts and Challenges. *International Journal of Pharmacology & Biological Sciences*, 19(1).

Ayusheeva, S., Ivanova, S., Botoeva, N., Lubsanova, N., Mikheeva, A., Bardakhanova, T., ... & Tulokhonov, A. (2025). Impact of the Dzud Disaster on Nomadic Livestock Farming in Mongolia. *Sustainability*, 17(23), 10631.

Biella, R., Shyrokaya, A., Pechlivanidis, I., Cid, D., Llasat, M. C., Tootoonchi, F., & Teutschbein, C. (2026). Lessons learned in institutional preparedness and response during the 2022 European drought. *Natural hazards and earth system sciences*, 26(2), 955-979.

Browder, G., Núñez Sánchez, A., Jongman, B., Engle, N., van Beek, E., Castera Errea, M., and Hodgson, S. (2021) An EPIC Response: Innovative Governance for Flood and Drought Risk Management. World Bank.

Bernoni, N. (2025). When Water Runs Low: Economic and Geopolitical Effects of Panama Canal Capacity Shocks on Global Trade.

Dashbal, B., Bestelmeyer, B. T., Densambuu, B., Ulambayar, B., Sainnemekh, S., Van Zee, J., & Tseelei, E. A. (2023). Implementing a resilience-based management system in Mongolia's rangelands. *Ecosphere*, 14(10), e4665.

De Waal, Alex. (2025). Hunger in global war economies: understanding the decline and return of famines. *Disasters*, 49(1), e12661.

Drobinski, P., Rivera Ferre, M. G., Monem, M. A., Hatab, A. A., Behnassi, M., Chfadi, T., & Santeramo, F. G. (2025). Nexus approach to enhance water-energy-food security and ecosystems resilience under climate change in the Mediterranean. *npj climate action*, 4(1), 115.

Donare (2026) Sahel Crisis. https://donare.info/en/emergencies/sahel_crisis?utm_source=chatgpt.com

Eboreime, E., Anjorin, O., Obi-Jeff, C., Ojo, T. M., & Hertelendy, A. (2025). From drought to displacement: Assessing the impacts of climate change on conflict and forced migration in West Africa's Sahel Region. *The journal of climate change and health*, 23, 100448.

Gebrechorkos, S. H., Sheffield, J., Vicente-Serrano, S. M., Funk, C., Miralles, D. G., Peng, J., & Dadson, S. J. (2025). Warming accelerates global drought severity. *Nature*, 642(8068), 628-635.

IOM (2025) Research study on Changing climate, changing lives: Climate change and migration nexus in Mongolia. IOM. Ulaanbaatar.

Kallis, G., Hickel, J., O'Neill, D. W., Jackson, T., Victor, P. A., Raworth, K. (2025). Post-growth: the science of wellbeing within planetary boundaries. *The Lancet Planetary Health*, 9(1), e62-e78.

Kallis, G., Hickel, J., O'Neill, D. W., Jackson, T., Victor, P. A., Raworth, K. (2025). Post-growth: the science of wellbeing within planetary boundaries. *The Lancet Planetary Health*, 9(1), e62-e78.

Kapica, J., Jurasz, J., Canales, F. A., Bloomfield, H., Guezgouz, M., De Felice, M., & Kobus, Z. (2024). The potential impact of climate change on European renewable energy droughts. *Renewable and Sustainable Energy Reviews*, 189, 114011.

Lee, R., Brandt, M., Oehmcke, S., Reij, C., Maestre, F., Buitenwerf, R., & Fensholt, R. (2025). Farmer Managed Natural Regeneration Promotes Expansion of Trees on Croplands in the Sahel. *Research Square*.

Liu, X., Yuan, X., Ma, F., & Xia, J. (2023). The increasing risk of energy droughts for hydropower in the Yangtze River basin. *Journal of Hydrology*, 621, 129589.

Muñoz, S. E., Lawrence, L., & Wang, S. (2025). Drying of the Panama Canal in a warming climate. *Geophysical Research Letters*, 52(18), e2025GL117038.

OECD (2025). *Global Drought Outlook: Trends, Impacts and Policies to Adapt to a Drier World*, OECD Publishing, Paris.

OSS (2024). *African Land: Land Degradation and the Imperative of Sustainable Management*. Sahara and Sahel Observatory (OSS), Tunis, Tunisia.

Purevjav, A. O., Avirmed, T., Wilcox, S. W., & Barrett, C. B. (2025). Climate rather than overgrazing explains most rangeland primary productivity change in Mongolia. *Science*, 389(6766), 1229-1233.

Pek, E., Salman, M., Giusti, S., Alkadir, M. A., & Mwale, N. S. (2026). Aligning national drought plans with global and national policy frameworks: Methods, case studies and global lessons. *UNCCD & FAO*.

Rico-Bordera, B., Benetó, P., & Khodayar, S. (2026). Emerging Links between Droughts, Heatwaves and Extreme Precipitation in a Western Mediterranean Hotspot: Evidence of Intensifying Compound and Sequential Hazards. *Earth Systems and Environment*, 1-23.

Roy, D., Gillespie, S. A., & Hossain, M. S. (2025). Revisiting the drought-food insecurity nexus: a social-ecological systems perspective. *Global Food Security*, 46, 100874.

Steinli Træet, Henrik, Høie Kvernflaten Herman, Rimestad Mats, Warming Kokkendorff, Tascha & Macijauskaite, Vytene (2026) Overview of the Great Green Wall initiative in the Sahel region. University of Bergen, Norway.

Tintchev, Kalin I.; & Jaramillo, Laura. (2024). Hanging out to dry? Long-term macroeconomic effects of drought in fragile and conflict-affected states (IMF Working Paper No.2024/106). International Monetary Fund.

The Guardian (2026) Drought and floods drove them from their homes. But hunger and poverty have followed them to a Mogadishu camp. *News Report*.

Vinke, F., & Turpijn, B. (2024). Inland shipping response to discharge extremes—A 10 year case study of the Rhine. *Climate Risk Management*, 43, 100578.

Walker, B., Rinaudo, T., Radkovic, A., & Mulherin, A. (2024). Global movements for accelerating climate change action: the case of Farmer-Managed Natural Regeneration. *Journal of Global Ethics*, 20(2), 251-274.

Wang, B. W., He, Y., Wu, W. H., & Teng, F. (2025). Quantifying indirect economic losses from extreme events to inform global and local adaptation strategies. *Advances in Climate Change Research*.

Zhao, A. P., Li, S., Xie, D., Hu, P. J. H., Wu, C., Fei, F. X., & Cao, Z. (2024). Extreme events threat water-energy-carbon nexus through cascading effects. *Next Energy*, 5, 100151.



THE DROUGHT NEXUS

How to cite this publication:

Tsegai, D., Augenstein, P., Trambauer, P., Nunez Sanchez, A. (2026). UNCCD Policy Brief: The Drought Nexus - How food security, conflicts, land and water are interlinked. Bonn, Germany.

Reviewers:

Aich, Valentin (GWP/WMO)
Fouad, Yasmine (UNCCD)
Lamizana Diallo, Birguy (UNCCD)
Bello, Abina AbdoulKarim (OSS)
Nyamtseren, Mandakh (Env. Min., MNG)
Nguma, Ruth (UNESCO)

Layout: Society for Environmental
Education - International (SEE-Int'l)
Images: P. Augenstein & AI

United Nations Convention to Combat
Desertification (UNCCD)
Platz der Vereinten Nationen 1
D-53113 Bonn, Germany
Tel: +49 (0) 228 815 2873
www.unccd.int



United Nations

Convention to Combat
Desertification

United for land

