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DROUGHT IMPACT AND VULNERABILITY ASSESSMENT AVAILABLE APPROACHES AND POLICY RECOMMENDATIONS





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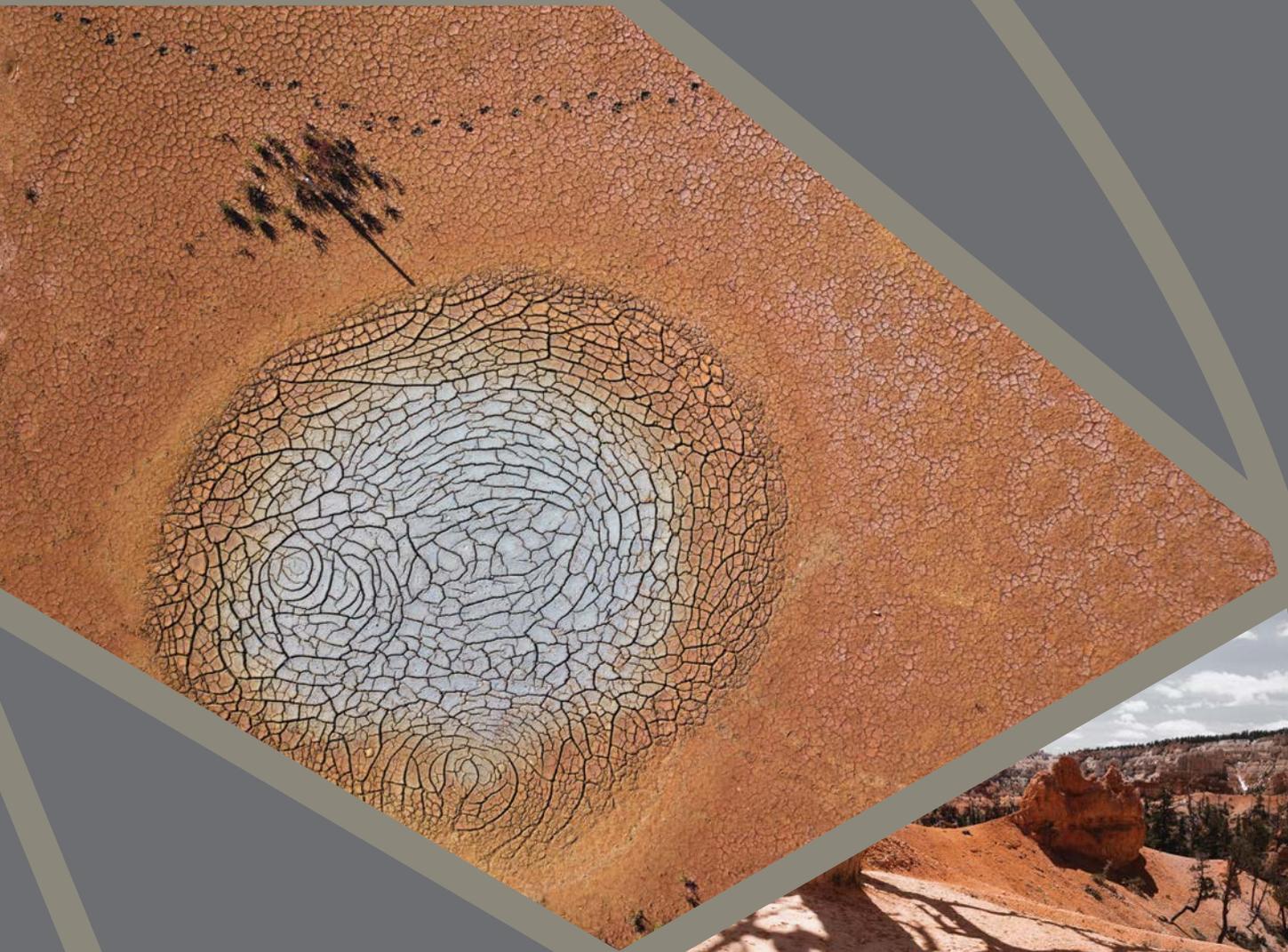


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This policy brief summarizes findings from a rapid preliminary review of available approaches to drought impact and vulnerability assessment. The review draws on experiences from different parts of the world. Recommendations focus on the policy needs to enable proactive assessment approaches that can include vulnerable people and work across sectors, scales and timeframes.

Why assess vulnerability to droughts before they happen?

To manage drought risks effectively, it is important to understand the likely impacts, who will be at risk, and why. Assessing risks and vulnerability *before* droughts occur allows decision-makers and communities to devise measures that reduce and prevent the worst impacts. Anticipating the outcomes of an event that is yet to happen can be a challenge, but in many drought-affected regions the impacts of drought are already all too familiar. In these areas, vulnerability assessment is an on-going informal process that is part of decision-making for many households. Integrating and coordinating these informal private assessments with formal, well-documented collective processes that involve civil society organizations, local and national governments and other institutions can create a more comprehensive shared understanding. It also offers a more promising basis for sharing and managing risk at all levels.

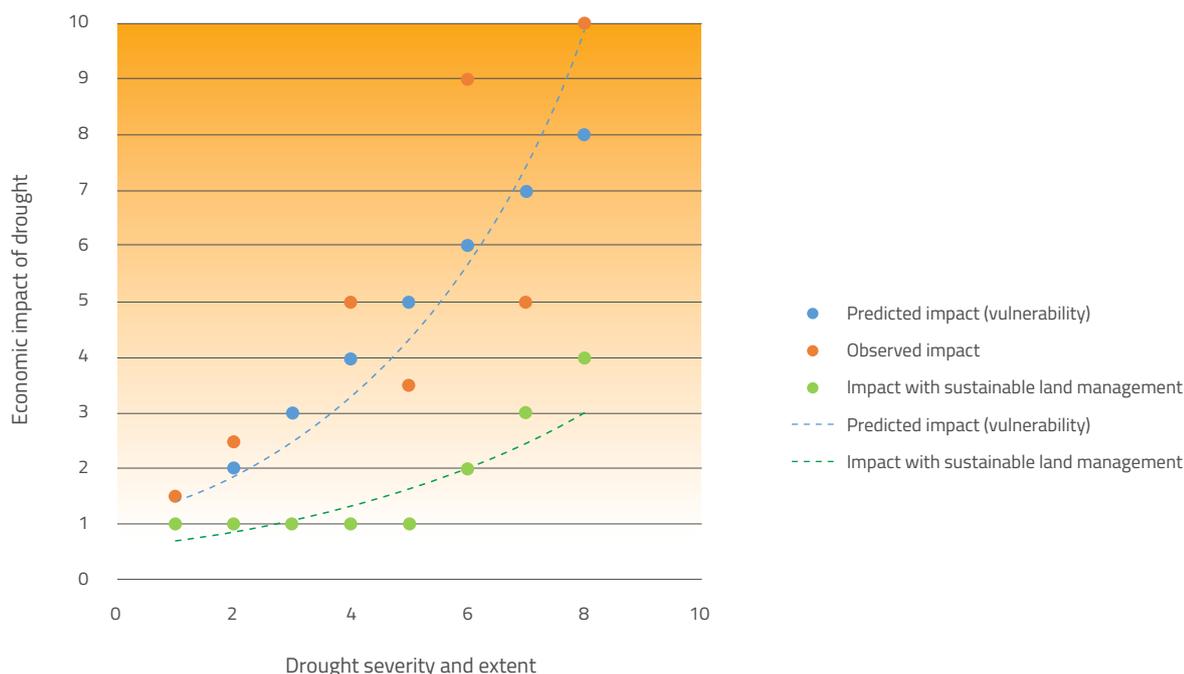
Assessing vulnerability to drought involves prediction of the severity and extent of the hazard as well as its likely effects on the economy and society (Figure 1). Vulnerability and exposure are factors that can mediate the impacts that droughts will have on society at different levels of severity. These observable damage functions of droughts can be altered by the actions of society [2,3]. Risk-reducing interventions can include combatting desertification and investments in sustainable land and water management.

DEFINITIONS [1]:

Drought impacts: Effects of drought on human and natural systems. Impacts of concern to humans generally include effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services and infrastructure due to droughts that affect vulnerability of an exposed society or system. The physical impacts of drought are a subset of the general drought impacts.

Vulnerability to drought: A predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

Figure 1: Assessment of drought vulnerability and impact



Source: Figurative illustration by author.

How do different countries and communities assess drought impacts and vulnerabilities?

Global assessments of drought impacts and vulnerability are limited by inconsistent methods as well as poor connections between assessments across scales [4,5]. A wide variety of approaches, methods and tools for assessment of drought impacts and vulnerability are available. This policy brief summarizes findings from a rapid preliminary review drawing on experiences from different parts of the world.¹ This review was carried out in consultation with the World Meteorological Organization (WMO), the United Nations Convention to Combat Desertification (UNCCD), the Global Water Partnership (GWP) and the Food and Agriculture Organization of the United Nations (FAO).

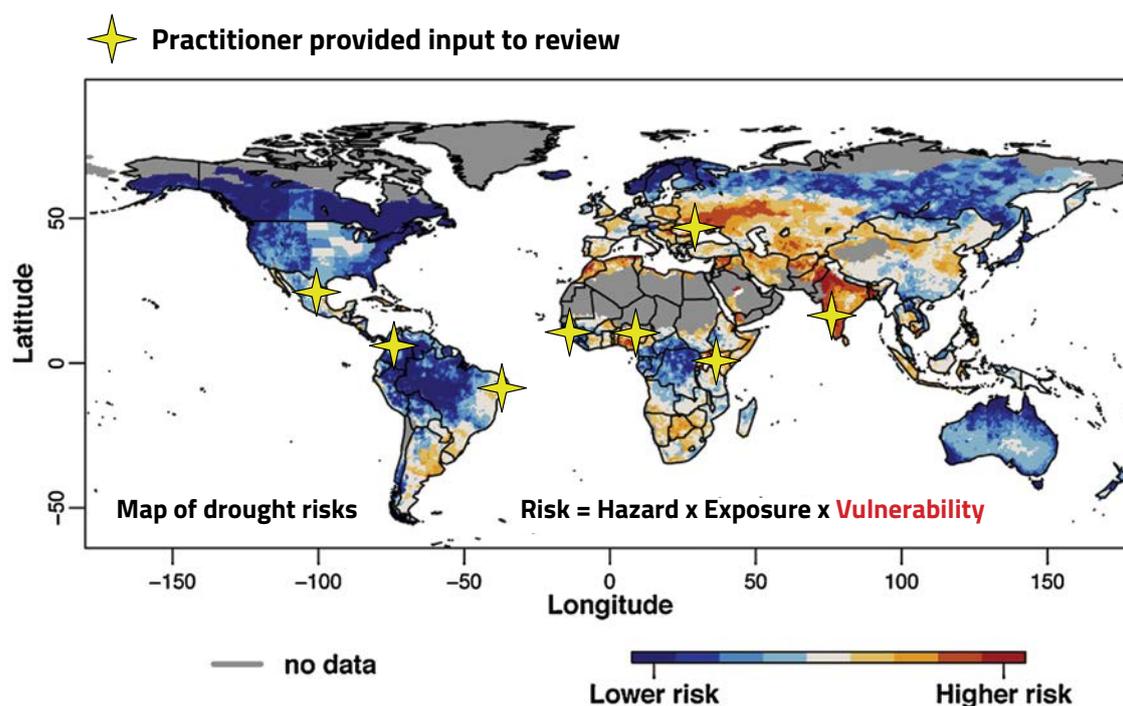
Collecting, applying, adapting and reviewing best practices consistently can improve effectiveness of drought vulnerability assessments and generate insights useful to drought risk management. While experts can recommend promising approaches and

methodological options, they should not dictate a strict set of universally applicable methods for assessing vulnerability to drought, since this depends on many contextual factors. Affected communities understand, observe and adapt to these factors in ways that external decision-makers and experts cannot fully experience. Learning from the experience of affected communities is the best way for drought managers to test the effectiveness of an assessment method. Observing and analysing the experiences of the past and from different locations can help avoid oversights and recurring mistakes.

Interviews were conducted with expert practitioners who shared their experiences in the application of existing approaches and methods for drought impact and vulnerability assessment. Care was taken to include a range of perspectives from drought-prone regions (Figure 2) in Africa, Asia and the Americas. Compiling and analysing information requires time and support from local and global institutions to ensure a well-balanced assessment. This knowledge-sharing process should be expanded to include insights from more regions.

¹ See the full report on Drought impact and vulnerability assessment: a rapid review of practices and policy recommendations at: <https://www.unccd.int/issues/land-and-drought>.

Figure 2: Inputs to the preliminary review from selected expert practitioners



Source: Global drought risk map, Carrão et al, 2016.

An inclusive multi-scale approach

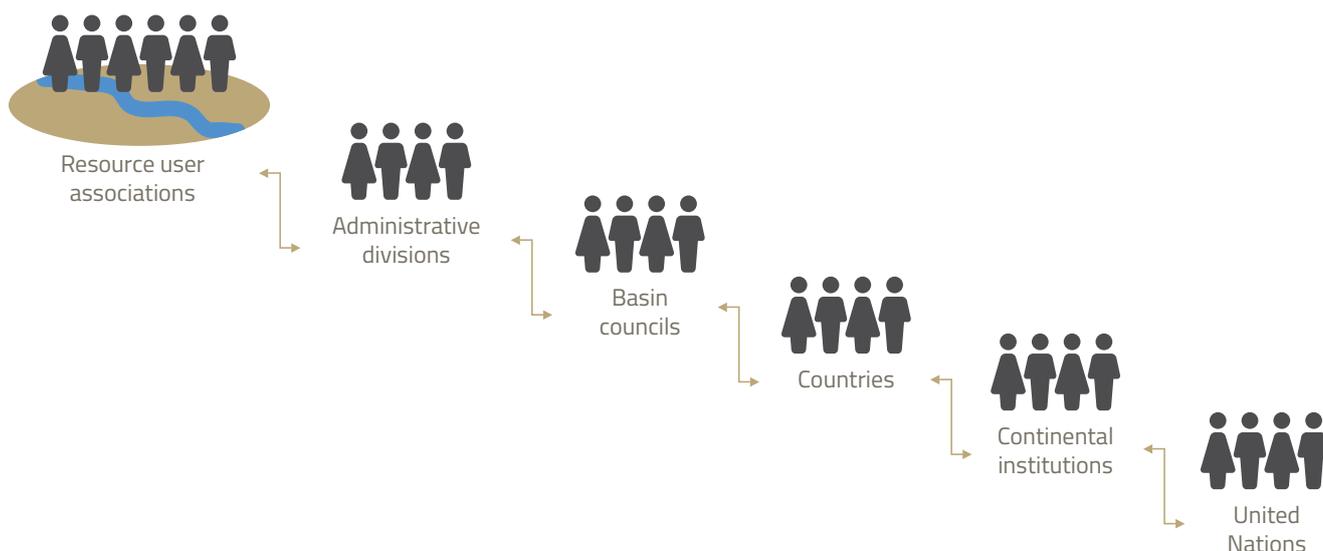
The most vulnerable groups during droughts include those who depend most heavily on natural resources, including the poor and marginalized sectors of society. These groups are also often the ones that have the greatest knowledge and experience of drought impacts and vulnerability. These are informed by their own strategies for mitigating drought impacts and vulnerability. To collect this knowledge and experience and convey it effectively to decision requires a ground-up approach [6]. Community-scale assessment processes need to be carefully designed and implemented to ensure that vulnerable women, youth, the elderly, handicapped and minorities are engaged. High-level support and leadership can ensure that gender and other key dimensions of vulnerability are not overlooked.

Humanitarian assessments of drought impacts have often been criticized for failures to include communities and to fully capture drought effects on them [7]. Well-established rapid appraisal methods provide a way for community groups to document the effects of drought. Consistent iterative assessment and validation of results can guide an

objective qualitative understanding of the nature of drought impacts and vulnerability. To monitor changes in vulnerability and resilience over time requires integration of the participatory assessment into national statistical processes, including periodic census, living standards and resource surveys, as well as remotely sensed information and hydro-meteorological models. To analyse effects on vulnerable groups, disaggregation of data by gender or other relevant characteristics may be needed.

This review identified examples of national vulnerability assessment processes driven from the sub-national level of water basin councils through the national drought monitoring programmes in Mexico [8] and Brazil [9]. In South and West Asia, drought managers are also gradually building the national and sub-national capacities needed to observe and manage deepening vulnerability due to growing groundwater deficits. For example, in India, responsibility for drought vulnerability assessment is decentralized to the level of states. Across sub-Saharan Africa, experiences of vulnerability assessments are emerging from international programmes that focus on building the resilience of vulnerable households [10].

Figure 3: A multi-scale approach from the perspective of the resource-user association



Source: Based on figurative illustration by author.

Available assessment approaches across sectors: opportunities to adapt and integrate

The review reaffirmed that drought managers can work with vulnerable communities to observe and predict drought impacts on:

- Water availability (in soils, surface and sub-surface water bodies and storage facilities) to meet demands across sectors
- Productivity of ecosystems and sectors of the economy (including economic productivity and production of ecosystem services)
- Human livelihoods, income, assets and resilience (including those of the most vulnerable groups such as women, youth, the elderly, disabled and minorities)

Three available assessment approaches that practitioners can apply to predict these aspects of vulnerability were identified (Figure 4). Practitioners should integrate, adapt and improve these approaches at the community and basin levels by involving representatives of the most vulnerable groups.

At the national level, countries are committed to tracking and reporting indicators that are relevant to drought impacts and vulnerability for their Sustainable Development Goals (SDGs) to end poverty and vulnerability to disasters (SDG 1.5), alleviate water stress (SDG 6.4) and reach land degradation neutrality

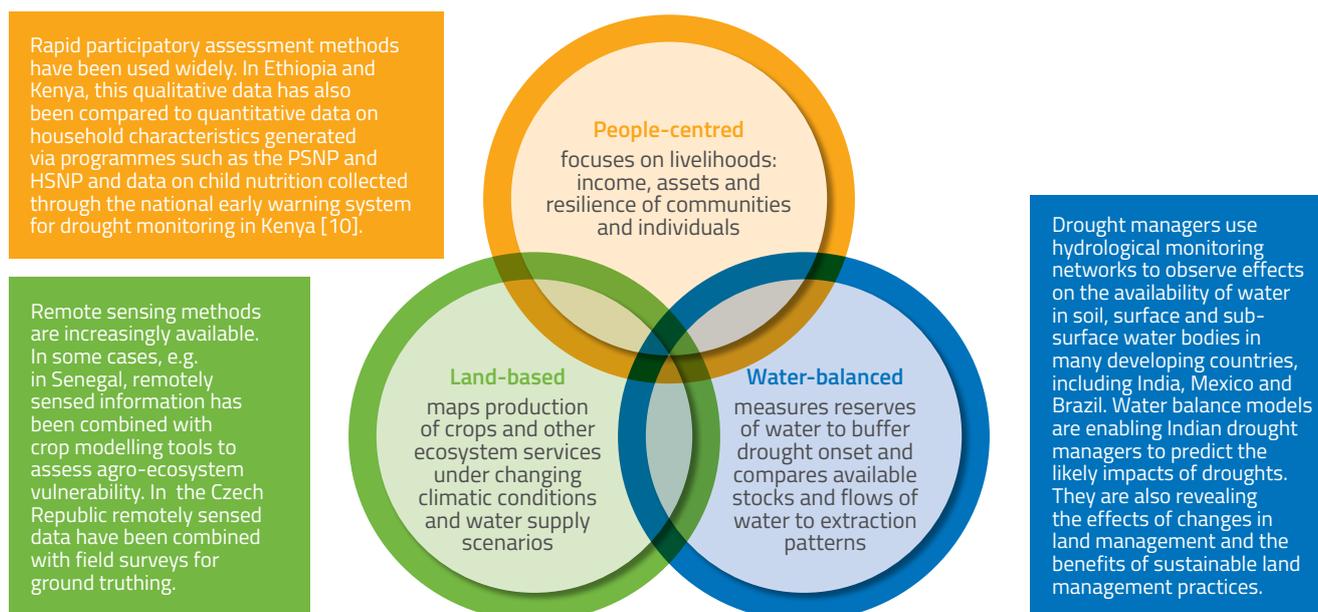
(SDG 15.3). But in many drought-affected countries, guidance is still needed, so that local institutions can apply these indicators in vulnerability assessments at the community and basin levels. In some cases, financial support and international cooperation can accelerate these processes by enabling universities, research centres and non-governmental organizations (NGOs) to contribute to the assessment activities along with the responsible national agencies.

What can policy makers do?

Increasingly, governments and their international agencies are exploring the need to reassess drought impacts, including their long-term multiplier effects [11]. Assessing the economics of vulnerability and risk can serve as a base for designing appropriate actions [12]. Many long and short-term impacts of unmitigated drought risk can be aggregated and compared using monetary units [14,15].

The economic cost of uninsured drought risk goes beyond the cost of losses and damage caused by each drought event that happens. This is because anticipation of high risks, low returns and poor economic prospects in drought-prone economies causes systematic underinvestment [10,13]. Even when there is no drought, negative perceptions of drought-prone areas can still hold back investment. The effects that this has on the national economic growth rates and profiles include far-reaching consequences that multiply and deepen the costs of inaction.

Figure 4: Assessing three dimensions of vulnerability from the ground-up: what is working where?



Source: Based on figurative illustration by author.

To improve drought impact and vulnerability assessments, national and local policy-makers can:

- Take a proactive approach to assess vulnerability *before* drought crises escalate
- Recognize that drought is often a recurrent phenomenon that interacts with other hazards and can be exacerbated by water and land resource management patterns
- Use available assessment methods to foster inclusive, cross-sectoral and multi-scale approaches to vulnerability assessment at basin and community levels
- Ensure that systems for action are connected to the vulnerability assessment process and that sufficient human, institutional and financial resources are available when needed
- Learn by trial, error and review of others' experiences which methods are the best-suited to encourage participation in vulnerability assessments by different groups – including women, men, youth, elderly, disabled and minorities
- Consider where and how disaggregated data should be collected, analysed and protected
- Document assessment successes and failures – including cases where drought impacts were more or less severe than anticipated under the prevailing climatic conditions (some of these may indicate effective water and land management)

- Learn from others' experiences by taking part in coordinated international knowledge exchange and advocate the use of these processes, including review, validation, documentation and dissemination

National and international policy-makers should:

- Ensure that sufficient funds and institutional arrangements are in place at global, regional and local level to enable the pre-emptive drought vulnerability and resilience-building approach
- Ensure effective consideration of hydrologic and socio-economic dimensions of vulnerability alongside land- and ecosystem-based assessment approaches and continuing remotely sensed hydro-meteorological hazard assessments
- Seek out and validate best practices in vulnerability assessment and lessons learned that will be relevant to more than one country context
- Document and disseminate guidance materials, providing practical training opportunities for decision-makers at different levels
- Encourage, advocate and inform the improvement of global databases on drought impacts and vulnerability (including wider global impacts beyond affected regions and national economies)
- Support regional capacity building to ensure more effective medium-term assessment and investment planning (including five- to ten-year planning timeframes)

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