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SYNTHESIS

Capacity Development to Support National **DROUGHT** Management Policies



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UN WATER

Capacity Development to Support National **DROUGHT** Management Policies

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Foreword

The UN-Water Initiative on Capacity Development to Support National Drought Management Policies (NDMP) is a collaborative initiative of several UN-Water entities: the World Meteorological Organization (WMO), the United Nations Convention to Combat Desertification (UNCCD), the Food and Agriculture Organization of the United Nations (FAO), the Convention on Biological Diversity (CBD) and the UN-Water Decade Programme on Capacity Development (UNW-DPC). It was launched in March 2013 on the margins of the High-level Meeting on National Drought Policy (HMNDP) in Geneva, Switzerland.

It is clear that acting on drought proactively, before it actually happens, can reduce the often disastrous impacts on livelihoods and economies. By organizing a series of regional training workshops, the partners aim to help drought-prone countries formulate and adopt effective, risk-based national drought management policies. This is achieved through the targeted development of capacities among the various stakeholders dealing with drought at all levels, including ministries, relevant institutions, practitioners and the society at large. So far regional workshops have been held for Eastern Europe, Latin America and the Caribbean, Asia-Pacific, Eastern and Southern Africa, as well as the Near East and North Africa regions. A final regional workshop for West and Central African countries is due to take place in Accra, Ghana from 4 to 7 May 2015.

This document summarizes the key findings and the most important issues discussed during the series of regional workshops.

On this occasion, I would like to warmly thank our partner organizations, the local hosts for the regional workshops as well as, of course, all of the engaged participants who have made this initiative a success. We hope that by helping countries develop and implement national drought management policies based on the philosophy of risk reduction, we can alter approaches to drought management at the country level and significantly help to reduce the associated impacts.

Also, the year 2015 marks an important year for setting the development goals under the post-2015 development agenda and we hope that this initiative has made a significant contribution to the discussion by raising awareness of the importance of national drought management policy and preparedness planning.

Further information on the initiative is available from:

www.ais.unwater.org/droughtmanagement

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on behalf of the partners of the UN-Water Initiative on "Capacity Development to Support National Drought Management Policies"



Abstract

This document is a collaborative output of the partners of the UN-Water Initiative on "Capacity Development to Support National Drought Management Policy (NDMP)". It presents the initiative's major objectives, the rationale behind national drought management policies, the key pillars and the 10-step process for developing national drought policies and drought preparedness plans. It also provides the lessons learnt from the series of regional workshops and conveys the challenges and key steps for countries on how to develop and implement national drought policies. The document is directed to government policymakers and to other stakeholders mandated to support them in building drought-resilient communities.

1 | Overview of the UN-Water Initiative

Drought, a complex and slowly encroaching natural hazard with significant and pervasive socio-economic and environmental impacts, is known to cause more deaths and displace more people than any other natural disaster. The projected increases in the severity, frequency, duration and spatial extent of droughts and the multiple effects on a range of economic sectors and population groups is a cause of significant concern. Drought knows no political boundaries and so often it affects large portions of a country, or a region that may span several countries.

The implementation of national drought policies based on the principles of risk reduction can mitigate the impacts of drought by improving society's resilience to drought. This was the essence behind the High-level Meeting on National Drought Policy (HMNDP), co-organized by the World Meteorological Organization (WMO), the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Convention to Combat Desertification (UNCCD), in collaboration with a large number of partners, held in Geneva, Switzerland, from 11 to 15 March 2013.

One of the distinct outcomes of the HMNDP was the rolling out of the UN-Water Initiative on "Capacity Development to Support National Drought Management Policies (NDMP)".

Table 1: NDMP sequence of events (March 2013 - May 2015)

| EVENTS | WHEN | WHERE | NUMBER OF PARTICIPANTS | COUNTRIES |
|---|---------------------|-----------------------|------------------------|--|
| International Kick-Off at the High-level Meeting on National Drought Policy | 12 March 2013 | Geneva, Switzerland | 100+ | Global (42 countries) |
| Eastern European regional workshop | 9-11 July 2013 | Bucharest, Romania | 24 | Bosnia and Herzegovina, Bulgaria, Croatia, the former Yugoslav Republic of Macedonia, Moldova, Montenegro, Romania, Serbia, Slovenia and Turkey. |
| Latin America and the Caribbean regional workshop | 4-6 December 2013 | Fortaleza, Brazil | 29 | Argentina, Brazil, Chile, Costa Rica, Cuba, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru and Uruguay. |
| Asia-Pacific regional workshop | 6-9 May 2014 | Hanoi, Viet Nam | 31 | Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand and Viet Nam. |
| Eastern and Southern Africa regional workshop | 5-8 August 2014 | Addis Ababa, Ethiopia | 29 | Botswana, Djibouti, Ethiopia, Kenya, Malawi, Mozambique, Namibia, Rwanda, Tanzania, Uganda, Zambia and Zimbabwe. |
| Near East and North Africa regional workshop | 17-20 November 2014 | Cairo, Egypt | 31 | Algeria, Egypt, Eritrea, Iran (Islamic Republic of), Jordan, Mauritania, Morocco, Oman, Palestine, Sudan, Tunisia and Yemen. |
| West and Central Africa regional workshop | 4-7 May 2015 | Accra, Ghana | 35 | Benin, Burkina Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Mali, Niger, Nigeria, Senegal and Togo. |

The initiative was organized by the World Meteorological Organization (WMO), the United Nations Convention to Combat Desertification (UNCCD), the Food and Agriculture Organization of the United Nations (FAO), the Convention on Biological Diversity (CBD) and the UN-Water Decade Programme on Capacity Development (UNW-DPC) and implemented through a series of regional training workshops for drought-prone countries with a focus on developing countries and transition economies.

The overarching goals of the NDMP initiative were to:

- enhance capacities of key government stakeholders dealing with drought issues in developing countries and transition economies; and
- ensure effective coordination at all levels

of governments in order to generate more drought-resilient societies by reducing the risk associated with the incidence of drought in the future.

Within the framework of the above stated broader goals, the key targets included:

- Improving the awareness of drought issues and countries' needs to establish strategies for national drought management policies based on the principles of "risk reduction".
- Equipping key government stakeholders concerned with drought with tools and strategies to support decision-making and for risk assessments of vulnerable sectors, population groups and regions.
- Furnishing these stakeholders with up-to-date methodologies necessary for: (i) developing and improving drought monitor-

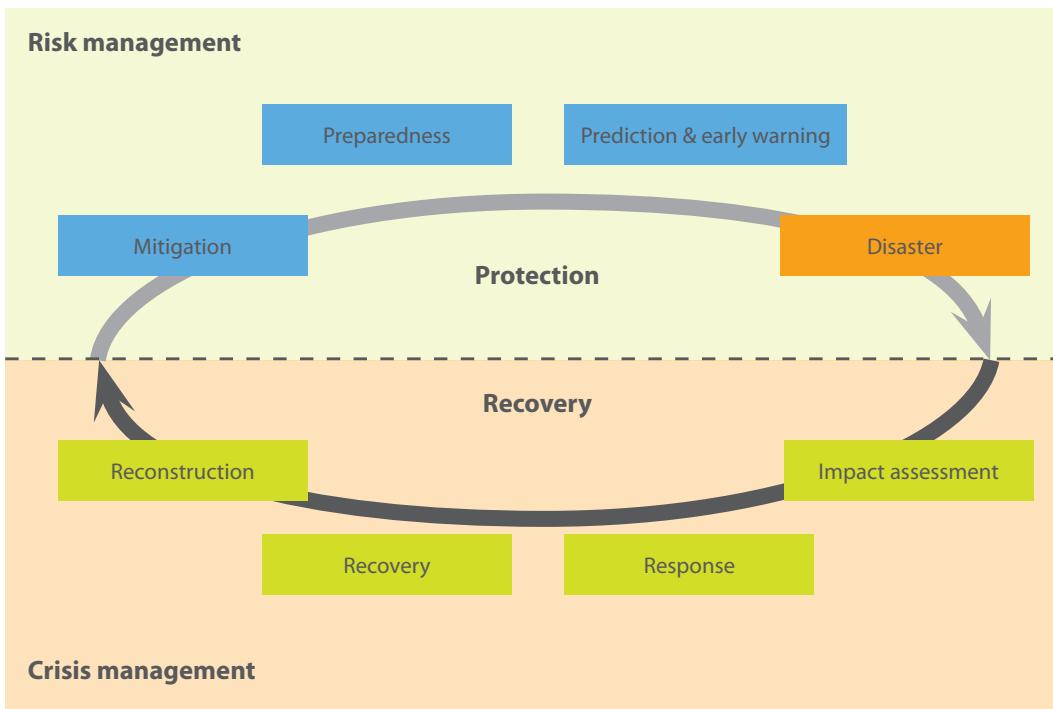


Figure 1: Cycle of Disaster Management

Source: National Drought Mitigation Center, University of Nebraska-Lincoln, USA

ing, seasonal forecasts, early warning and information delivery systems; (ii) conducting vulnerability and impact assessments of the vulnerable sectors and layers of the society; and (iii) implementing drought preparedness, mitigation and response strategies.

- Advancing national drought management policies taking into account long-term benefits of risk-based and proactive approaches that address drought and water scarcity problems at large, moving beyond short-term planning which addresses drought as “crisis”.
- Promoting collaboration between sectors at country and regional levels. To date there is poor coordination among drought-relevant institutions within a country and among drought-prone countries in the regions. Strong coordination is a prerequisite if implementation on the ground is to succeed.

The purpose of this document is to summarize the key findings and main messages of the NDMP initiative. The rationale behind the initiative, the major outcomes of the series of regional workshops, and the way forward regarding drought and drought-related issues are also elaborated upon.

2 | National Drought Management Policy

Why national drought management policy?

With the increase in intensity and frequency of droughts across the globe, it is becoming apparent that drought impacts are exacerbated by the untimely and uncoordinated “post-impact” approach to drought – an approach commonly referred to as “crisis management” (see figure 1). The time is ripe for countries to look for an alternative approach to drought management. There is a need for a paradigm shift from managing disasters to focusing on managing risks; to emphasize the path of “protection” rather than “recovery” and to move from a “piecemeal” and uncoordinated approach to a more coordinated and comprehensive one.

Recovery measures primarily focus on addressing the impact without giving due emphasis to the root causes of vulnerability to drought. Such an approach treats only the symptoms of drought. Given the urgency and insufficient time to plan during the time of drought crisis, emergency

response is usually implemented with little or no preparation. Most importantly, countries rarely learn from past droughts, leading to little or no reduction in risk to subsequent drought episodes.

However, the “proactive” drought management strategy allows governments to adopt national drought policies that promote cooperation and coordination of stakeholders at all levels in order to enhance their capacities to cope with extended periods of drought.

National drought management policies enable governments to address the wide-ranging impacts of drought that spread out across numerous sectors, as drought is no longer associated with the loss of crop and livestock production only. Apart from agriculture, drought has negative impacts on many other sectors including energy, tourism, health, environment and transportation, among others. Thus with the incidence of drought, increased conflict between water users – sectors and regions at all levels – is inevitable.

Equally important is the benefit of national drought policies in promoting wise stewardship of natural resources. National drought management policies reduce the need for governmental and non-governmental assistance during drought, which in turn allows for resources to be invested more wisely.

Investment in drought preparedness and mitigation measures is more cost-effective over time than the traditional crisis management approach that leads to reactive responses by governments and non-governmental sources in the event of drought (WMO/GWP, 2014). Also, emergency response measures often increase vulnerability to future drought episodes through increased reliance of those affected on government and donor support.

What is the status quo?

Presently, the “business as usual” approach to drought for most governments is to react or respond to drought with post-impact programmes.

Although the challenges associated with drought management differ from country to country, the practice of the traditional reactive approach for many governments is largely due

to the following reasons:

- The impacts of drought accumulates gradually because of the slow onset and “creeping phenomenon” characteristics of drought.
- The lack of precise and universal definition for drought leads to confusion about when a drought begins and when it ends and the precise time to implement emergency response actions or mitigation measures.
- The cost-effectiveness of proactive drought management as compared to drought response measures is not well understood. Research is needed to quantify the cost-effectiveness of “proactive” versus “reactive” drought management and the “cost of inaction” if countries continue to respond as they have done traditionally.
- Drought impacts are essentially non-structural and they are spread over large areas, in many cases crossing national boundaries, which makes drought impact assessment and response difficult.

What is required to implement national drought management policies?

- Building capacity at various levels – individual, institutional and system level – is essential to facilitate the necessary framework for developing national drought management policy. In many countries, these capacities are weak or non-existent.
- Depending on the drought situation, governments need to prioritize drought in the development policy.
- More than anything, national drought policies need a collaborative environment that supports and encourages coordination within and between various levels of government.
- The research community should also be engaged to investigate the historical incidence of drought and its impacts in the country and the trends in frequency, severity and duration.
- The role of strong outreach and media programmes at all levels of government to improve awareness of drought and the need to raise the level of consciousness of society regarding drought cannot be neglected.
- National drought policies should reflect regional differences in drought character-

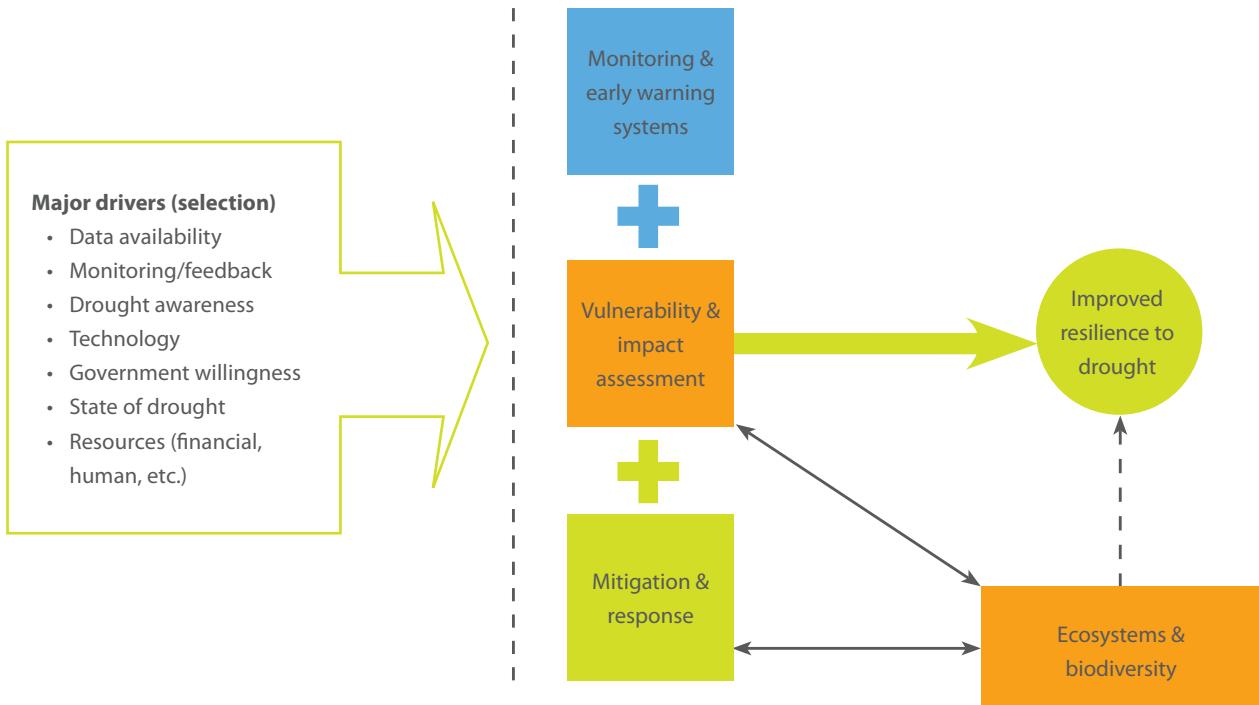


Figure 2: Key pillars of national drought policy

istics, vulnerability and impacts to allow decision makers identify sectors and regions that are vulnerable to drought and investigate management options before crisis occurs.

National drought management policy can either be a stand-alone policy or, alternatively, it can be part of the overall national disaster risk reduction or climate change adaptation strategy. Drought management policy should not only be consistent and equitable for all regions and population groups, but also consistent with the goals of sustainable development.

3 | Key Pillars of National Drought Management Policy

(i) Monitoring and early warning systems

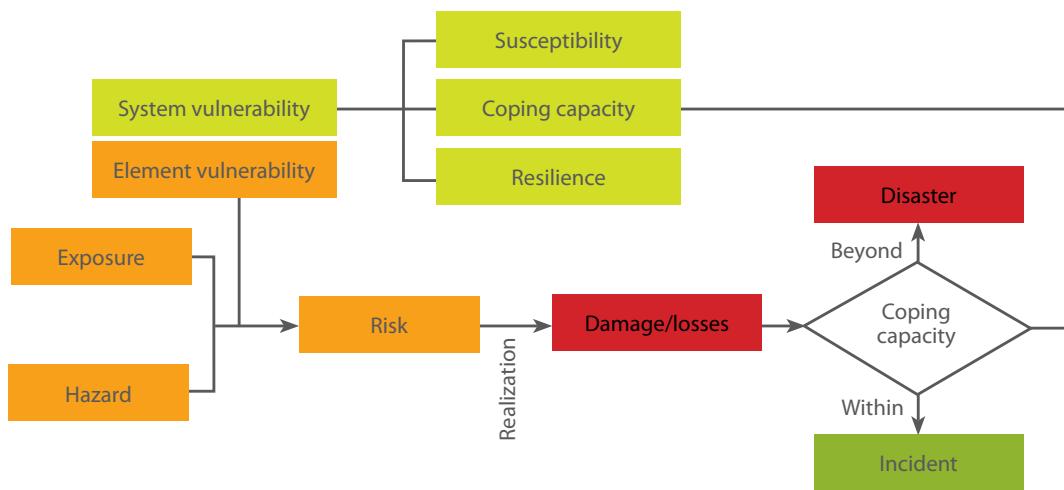
One of the three important pillars (see figure 2) of national drought policies is the implementation of monitoring and early warning systems. This includes monitoring of key indicators and indices of precipitation, temperature, soil moisture, vegetation condition, stream flow, snowpack and ground water.

It is also important to monitor the impacts associated with drought, especially on vulnerable sectors such as agriculture. The development of more reliable seasonal forecasts is critically important, as are the development of appropriate decision-support tools for the key sectors affected by drought.

Generally, all early warning systems (EWS) must address five questions, which can be used to educate the public about the drought hazard (Glantz, 2004):

Figure 3: Steps for drought vulnerability assessment

Source: GRIP (2010)



- What is happening with respect to the hazard(s) of concern?
- Why is this a threat in the first place (i.e., what are the underlying causes for potential adverse impacts).
- When is it likely to impact (providing as much lead time as possible to populations at risk).
- Where are the regions which are most at risk? and
- Who are the people most at risk who need to be warned?

As far as feasible, local knowledge systems, including traditional knowledge of farmers and pastoralists, should be incorporated into information systems.

Early warning systems allow for early drought detection, improves proactive response, triggers actions within a drought plan, allows a critical mitigation action or measure to be implemented and it is the foundation of a drought plan. The major components of early warning systems include timely data and information acquisition as well as synthesis and analysis of data which are used to “trigger” a set of actions within a drought plan and efficient dissemination network (web, media, extension, etc.).

Also, the importance of drought indices – whether single, multiple or composite indices – cannot be overemphasized. Indices simplify complex relationships and provide a good communication tool for diverse audiences and allow quantitative assessment of anomalous climatic conditions (intensity, duration and spatial extent).

(ii) Vulnerability and impact assessment

The second pillar deals with risk assessment of vulnerable sectors, population groups and regions (see figure 3). Vulnerability is a condition resulting from social, economic, and environmental factors or processes, which increases susceptibility of a system to the impact of drought hazard. Thus drought impact and vulnerability assessment is about understanding the human and natural processes that add to drought vulnerability (i.e., a vulnerability profile for key sectors) and community resilience and conducting vulnerability mapping for vulnerable communities, populations groups and topographies (geographic areas). Also, developing criteria for vulnerability assessment is needed to assess mitigation actions.

Drought vulnerability assessments comprise:

- recording drought impacts on vulnerable economic sectors including, among others, rain-fed and irrigated agriculture, livestock, environment (including biodiversity), energy, tourism, health sectors, etc.;
- determining who and what is at risk and why, before, during and shortly after drought, requires the assessment of the physical, social, economic and environmental pressures on the communities measured at various geographical scales;
- assessing conditions or situations that increase the resistance/susceptibility of a system to drought;
- assessing the degree or extent of potential damage or loss in the event of a drought; and
- assessing the coping capacity of communities affected by drought.

Conducting drought risk assessments for the various population groups – women, children, the elderly, sick, the landless, farmers, pastoralists, marginalized communities and indigenous communities – is also an integral part of the process. It is advisable for governments in a region to develop region-wide common methodologies to measure progress in reducing vulnerability at multiple spatial scales. This can be done by assessing factors to identify vulnerable population groups and communities which include gender, age, ethnicity, dependency on agriculture and livestock, poverty level, education level, etc.

(iii) Mitigation and response

Drought mitigation comprises any structural or physical measures (such as appropriate crops, dams, engineering projects), and non-structural measures (such as policies, awareness, knowledge development, public commitment, legal framework and operating practices), that are undertaken to limit the adverse impacts of drought. Response to drought includes all efforts, such as the provision of assistance or intervention during or immediately after a drought disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration (UNISDR Terminology of Disaster Risk Reduction). Thus “drought mitigation and response” comprises the appropriate measures and actions – also called drought risk management options – aimed at building greater resilience to drought and eliminating or at least reducing the impacts of drought when it occurs. They concern all sectors affected by drought, based on their vulnerabilities, particularly agriculture, water and the environment, but also health, transport, tourism, etc. They can be subdivided into long-term, medium-term or short-term options, depending on their implementation time.

Long-term measures are normally included in the development strategies of the concerned sectors; hence revisiting these strategies to ensure their alignment with drought risk management is an important step when developing a national drought management policy.

Medium-term measures are implemented in a timely manner, prior, during and after

drought, based on triggers (or agreed given levels of the drought index) provided by monitoring in early warning systems. They target the mitigation of specific impacts prior to their occurrence. Emergency response measures are implemented – in the incidence of severe levels of drought – with a view to responding to basic needs of the population affected, while contributing to long-term development.

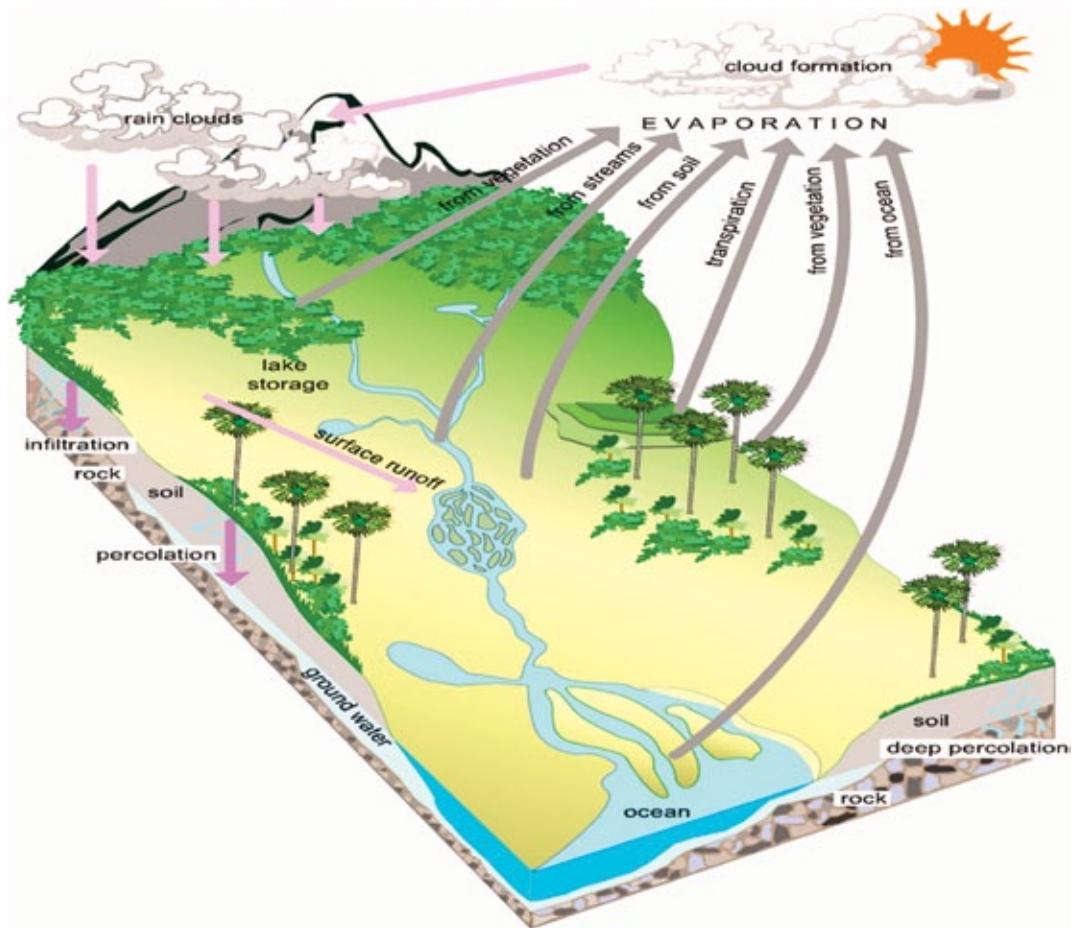
Process wise, drought mitigation and response measures, ranked with respect to priority, are designed to address the vulnerabilities described in the section on “drought impacts and vulnerability assessment” above.

Ideally, the drought index should be composite and include indices related to meteorology as well as agriculture, water and eventually other sectors impacted by drought. Communicating successful examples of drought monitoring and early warning in countries affected by drought can serve as a guide for other countries. However, the definition of drought levels, the parameters to monitor and the type of drought index to adopt are context specific, depending on capacities and resources. Indigenous local practices and knowledge are often important in mitigating drought impacts. Such relevant practices should be included in the drought plan. A non-exhaustive list of sample drought mitigation and response measures for the main sectors (agriculture, water, etc.) is available in the presentation titled “Drought Preparedness, Mitigation and Response” at the link: http://www.ais.unwater.org/ais/pluginfile.php/571/mod_page/content/85/FAO.pdf.

In the context of vulnerability and drought mitigation and response, the important role of biodiversity should also be highlighted. Economic impacts of drought and their effect on biodiversity can be significant. Drought can impact biodiversity resources that people depend directly upon, for example for their livelihood or food and nutrition security or when nature-based tourism is impacted. In drought management, biodiversity can be important as a source of genetic material to support the development of drought-resistant crops and livestock and wild resources as an emergency source of food during a period of crisis. It is critically important to capture these and other dimensions in vulnerability assessments and drought mitigation measures (see Box 1).

Figure 4: The water cycle at the landscape scale (much simplified). Biodiversity in the landscape (including in soils) has a major influence on how water is cycled – including influencing its availability and quality at any point in time and space. This relationship can be managed in order to reduce vulnerability to drought.

Source: SCBD (2013)



Box 1: The role of biodiversity in drought management

The key role of biodiversity in drought management arises through the ecosystem services (benefits for people) it underpins which play an important role in regulating the water cycle (see figure 4). Examples include how vegetation in the landscape regulates the infiltration of water into soils, stabilizes soils (reducing erosion) and contributes to local climates (including precipitation) through evapo-transpiration. Soil biodiversity is particularly important in maintaining soil health, including its ability to maintain soil moisture, without which crops become vulnerable and water is lost from the landscape, increasing water scarcity. Ecosystem degradation, which reduces water-related ecosystem services, is a major contributor to reduced drought resistance and in many cases can trigger drought events (examples include how deforestation or other vegetation loss exacerbates drought and desertification, or soil degradation which undermines crop water and nutrient availability). The evidence confirms that landscapes that are more diverse, with healthy biodiversity, are more resilient to drought, in addition to other co-benefits the biodiversity provides.

Ecosystems are being increasingly considered as “green” or “natural” water infrastructure to be managed either as an alternative to, but more usually in conjunction with, built (physical) infrastructure (Coates and Smith, 2012). Ecosystem conservation and restoration have a major role to play in reducing vulnerability to, and risks of, drought as well as mitigating impacts of drought should it occur. Ecosystem conservation and restoration should therefore feature prominently in any proactive approach to reducing vulnerability and risk, including featuring as a key element of land and water management strategies.

Box 2: The 10-step process

1. Appoint a national drought policy commission.
2. State or define the goals and objectives of risk-based national drought management policy.
3. Seek stakeholder participation; define and resolve conflicts between key water use sectors, considering transboundary implications.
4. Inventory data and financial resources available and identify groups at risk.
5. Prepare/write the key tenets of a national drought management policy and preparedness plans (monitoring, early warning and prediction; risk and impact assessment; mitigation and response).
6. Identify research needs and fill institutional gaps.
7. Integrate science and policy aspects of drought management.
8. Publicize the national drought management policy and preparedness plans, build public awareness and consensus.
9. Develop education programmes for all age and stakeholder groups.
10. Evaluate and revise drought management policy and supporting preparedness plans.

Source: WMO/GWP (2014)

4 | Towards the 10-Step Process

The Integrated Drought Management Programme (IDMP) (2014) developed a generic “10-step process” for developing national drought policies which proved to be valuable in countries like the USA. Many other countries such as Brazil, Mexico, Morocco and South Africa have also benefitted from the “10-step process” which they modified to fit into their countries’ specific situation. The process has been revised several times and the latest version is available at the IDMP website (<http://www.droughtmanagement.info/>). In principle, the 10-step process (see Box 2 above) is generic and modified to fit into each country’s specific situation with regards to current institutional capacity. Depending on a country’s exposure to drought, the stage in drought preparedness planning and the kind of challenges and institutional structure, countries differ in their stage towards the development and implementation of drought policies. The steps listed below can be used as a template by drought-prone countries interested in developing and implementing national drought policies.

5 | Challenges and Next Steps

Challenges

The availability of relevant data: The availability of relevant data on drought characterization in countries is scarce at best, absent at worst. Drought monitoring and vulnerability risk assessment require reliable weather and drought impact data in order to generate information for decision makers and end users. Thus, gathering the necessary data for drought risk assessment, reviewing existing data, identifying data gaps, working on the availability of data and data management systems as well as on user interface is crucial.

Some of the data issues that need to be resolved include:

- developing a country-level database on past drought incidences and impacts;
- promoting exchange and integration of data needed for drought monitoring;
- developing assessment tools and approaches to quantify drought impacts; and

- increasing density of rain gauges and sensors or stations for important drought-related parameters such as stream flow, soil moisture and reservoir levels.

Inconsistent drought assessment methodology: In many countries, there is no consistent methodology for assessing drought impacts or archiving this information in a database. An integrated drought monitoring system needs to be comprehensive in scope by combining meteorology, soil, water, crops, and others as relevant. Drought indices are the means of identifying, classifying and communicating drought conditions and they are often used as triggers for decision-making in risk management and emergency relief decisions. An integrated approach for assessing drought severity using a single drought index that combines parameters related to meteorology as well as to water, crops and other primarily impacted sectors is the preferred methodology for countries. The level of integration of this information will be country-specific depending on the kind of data available. Delivery of information to users in a timely manner and incorporating user needs in the development of decision support tools is recommended as part of a comprehensive early warning system.

Lack of political will: The lack of political will is one of the challenging issues hindering progress on national drought management policies. Factors that contribute to the lack of the necessary government commitment include, among others:

- the lack of awareness among various levels of government and other players with regard to the extent of drought impacts on various sectors, population groups and communities;
- the lack of systematic assessments of drought severity among the primary ministries and agencies, i.e., lack of a comprehensive early warning and information delivery system;
- lack of monitoring drought impacts as well as insufficient knowledge about vulnerabilities and their cause ; and
- the slow onset nature of drought does not capture the attention of the media, policymakers and the public when compared to other extreme events such as floods and hurricanes.

Lack of funding: The lack of funding is also a limiting factor for developing and implementing national drought policy. In many countries, it is envisaged that resource mobilization, strong involvement of the private sector and investment on drought management issues can improve funding and facilitate the development and implementation of national drought policies effectively.

Next Steps

To continue improving human and institutional capacities: strengthening human and institutional capacities for stakeholders at all levels is an important step forward. In many countries, drought awareness is limited and institutional capacities are weak. We need to continue enhancing the capacity of various relevant players including policymakers, state authorities and resource managers at different levels, and promoting public awareness on drought impact and drought risk by organizing training and advocacy programmes. Also, bringing science, policy and practitioner constituencies together will facilitate a more integrated and proactive approach to drought management.

To improve the understanding of the economics of drought: achieving a better understanding of the economics of drought is one of the key areas that need to be strengthened. The economic, social and environmental impacts of drought exceed that of any other natural hazard. However, there is a need to provide more precise estimates of the costs associated with a proactive approach to drought management. This area warrants further research.

To raise awareness of the ineffectiveness of the current approach to drought management: awareness should be raised of the fact that the current approach to drought management fosters greater dependence on government and donors rather than building resilience to future drought episodes. Although the development of a national drought policy and preparedness plans require an investment of financial and human resources, the crisis management approach is commonly more expensive and increases societal vulnerability in the long-term.

To strengthen cooperation at all levels:

strengthened cooperation at all levels is the way forward for national drought policy. "Sectoral thinking" is one of the major hindrances for cooperation among "drought relevant" sectors. Developing and implementing national drought management policies demands effective cooperation among countries and communities as well as operational synergies between relevant economic and other sectors. Not all sectors are equally affected by drought. The most immediate consequence of drought are usually in the agricultural sec-

tor. However, drought is a cross-cutting and complex issue with multi-faceted effects. Lack of adequate and appropriate communication and coordination among the various levels and sectors of government is a major reason for the ineffectiveness of drought response in most countries.

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United Nations Convention
to Combat Desertification



Food and Agriculture
Organization of the
United Nations



Convention on
Biological Diversity



For more information on the initiative, visit
www.ais.unwater.org/droughtmanagement



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