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Advocacy policy framework on the thematic issue of drought, including water scarcity

Note by the secretariat

Summary

This draft advocacy policy framework (APF) on drought[1] was compiled by the secretariat of the United Nations Convention to Combat Desertification (UNCCD). The draft APF benefitted extensively from the two documents prepared for the High-level Meeting on National Drought policy: (1) *Policy Document: National Drought Management Policy*; and (2) *Science Document: Best Practices on National Drought Management Policy*, as well as the proceedings from the expert meeting of 14–15 July 2011: *Towards A Compendium on National Drought Policy*.

Along with decision 9/COP.10, the APF on drought provides the UNCCD secretariat with tools and approaches for assisting country Parties in addressing key drought issues and concerns. The overarching goal of this APF is to promote the development and adoption of policies that reduce societal vulnerability to drought. It aims to promote enabling national policies that meet the challenges presented by drought in the drylands.

The APF is intended to help countries respond to these challenges by developing national drought management policies (NDMPs) and a broad array of related national laws, regulations and programmes for supporting, funding and mitigating the impacts of drought on humans, animals, industry, agriculture and the environment. This APF allows the secretariat to interact with and advocate to countries' policymakers to develop and adopt relevant drought management policies at country level.

The APF is not intended to provide any content or any specific recommended policy position. The specifics of an NDMP are country-dependent and need to be worked out by the countries concerned with the full participation of all interested and affected stakeholders. The legal implications of the proposed drought policy and the consistency

[1] In this document, 'drought' always includes water scarcity.

between the emerging policy and the policies of other sectors must be taken into consideration.

The APF is therefore primarily for the UNCCD secretariat to promote the development of NDMPs at country level, mitigate the impacts of drought and water scarcity on economic growth and human and environmental well-being. It is envisaged that, by making use of the APF on drought, and advocating for a participatory approach and a bottom-up process of dialogue and consultation in meeting the challenges of frequent and severe droughts, sets of decisions will be made by the highest political level in affected countries. The process would determine what and how drought issues will be addressed at all levels.

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I. Introduction

1. Drought,[2] like land degradation and desertification, is exacerbating the global water crisis, and the freshwater supply cannot be increased. Frequent and severe droughts lead to the widespread falling of water tables, resulting in serious water shortages and salt intrusion in coastal areas. Water security, like food security, is becoming a major national and regional priority in many areas of the world.

2. Partly because of these droughts, one third of the global population is living in water scarce conditions since 1990, with desertification and land degradation exacerbating the situation. As the world's population has swollen to well over 7 billion people and in the face of these droughts, some countries have already reached the limits of their water resources and are increasingly experiencing water scarcity. Given the prevailing climate change scenario, combined with the effects of desertification, land degradation and drought (DLDD), almost half the world's population will be living in areas of high water scarcity by 2030,[3] including between 75–250 million people in Africa.

3. Of the Parties to the United Nations Convention to Combat Desertification (UNCCD), a total of 164 countries within and outside the drylands are affected either by DLDD or by all three phenomena. Incidentally, water resources are often among the first to experience the negative effects of DLDD. Water scarcity in the face of exponentially increasing demand demonstrates the potential for disputes and conflict both within and among States. Also, there is a strong link between drought, food insecurity, poverty and water scarcity.

4. Average annual rainfall in the world's drylands is already less than 650 millimetres. This rainfall shows extreme spatial and temporal variability, which is expected to continue due to climate change impacts, exposing hundreds of millions of people to more extreme weather events (droughts and floods). The effects of desertification, land degradation and drought may expose almost two-thirds of the world's population to increased water scarcity by 2030.

5. These adverse climatic conditions create dire circumstances for poor populations; estimates show that each person consumes between two and four litres of water per day. Most of the water that people consume is contained in the food they eat. For example, producing one kilogram of beef requires 15,000 litres of water, while one kilogram of wheat requires 1,500 litres. DLDD is contributing to the global water crisis, and as populations increase, especially in dryland areas, more and more people are becoming dependent on fresh water supplies in lands that are degrading. In the face of frequent and severe droughts, this is unsustainable.

The legal mandate to develop the advocacy policy framework on drought (including water scarcity)

6. In the international agenda on drought and water scarcity, the Convention has a key role to play in convincing governments to mainstream sustainable land and water management practices into national policy platforms in order to achieve more drought resilient populations and ecosystems.

[2] In this document, 'drought' always includes water scarcity.

[3] World Water Assessment Programme. 2009. *WWDR3: Water in a Changing World*. Available at: <http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/wwdr/wwdr3-2009/>.

7. Article 10 of the Convention states that national action programmes (NAPs) shall "enhance national climatological, meteorological and hydrological capabilities and the means to provide for drought early warning" and may include:

(a) Establishment and/or strengthening, as appropriate, of early warning systems, including local and national facilities and joint systems at the subregional and regional levels, and mechanisms for assisting environmentally displaced persons;

(b) Strengthening of drought preparedness and management, including drought contingency plans, at the local, national, subregional and regional levels, which take into consideration seasonal to inter-annual climate predictions;

(c) Establishment and/or strengthening, as appropriate, of food security systems, including storage and marketing facilities, particularly in rural areas;

(d) Establishment of alternative livelihood projects that could provide incomes in drought prone areas; and

(e) Development of sustainable irrigation programmes for both crops and livestock.

8. In addition, the Conference of the Parties (COP), through decision 8/COP.9 paragraph 6, requested the secretariat to generate advocacy policy frameworks on thematic issues in order to address the adverse impacts of DLDD, keeping in mind gender sensitive approaches, and to regularly inform affected countries and other key stakeholders on such proceedings that may be useful in the implementation of action programmes;

9. In decision 9/COP.10, paragraph 11 (a), the COP also requested the Executive Secretary to continue formulating an additional APF on the thematic issue of drought, in consultation with national focal points, taking gender-sensitive approaches into account;

10. In the implementation of the APF on drought, the UNCCD secretariat will advocate for targeted drought policy development, research and funding for mitigating the effects of drought through NAPs, subregional action programmes (SRAPs), regional action programmes (RAPs) and thematic programme networks,[4] focusing on drought and sustainable land management (SLM). The APF on drought will facilitate this by advocating to Parties to develop national drought management policies (NDMPs), ensuring coordination of agendas at the international policy level, and marshalling available financial, institutional and technical resources in a way that maximizes the benefits of mitigating the effects of drought on the ground.

II. Rationale for developing an advocacy policy framework on drought (including water scarcity)

A. Problem

11. Droughts have caused human suffering for a very long time and still wreak havoc on ecosystems and societies, as demonstrated by the recent drought in the Horn of Africa and the Sahel. The impact of recurrent drought-related crises across the globe is rapidly escalating, with more and more people being affected each time a drought occurs. Its frequency is increasing around the world, even in countries outside the drylands.

12. In developing countries, drought increases the vulnerability of local populations. The ability of vulnerable populations to respond to drought is limited; this is due not only to

[4] Decision 8/COP.9, paragraph 9.

the increasing frequency of drought but also to non-resilient livelihoods, a dwindling resource base, resource conflicts, changes in access to land and water, and the impact of other shocks such as flooding and disease outbreaks.

13. Drought has major implications not only on human life but also, increasingly, in terms of short-term and long-term economic losses. Sectors that are often affected by drought include agriculture and hence food security, energy and industrial production, and the natural environment, including wildlife and fauna.

14. In the foreseeable future, climate change is likely to shift drought patterns and increase the frequency and severity of extreme events; this further increases the risk of human and economic losses. As a consequence, it is expected that droughts may fuel communal violence, civil wars or even wars between nations in future.

B. Analysis of the current drought management situation

15. Although drought is widely recognized as a creeping natural hazard that is a consequence of natural climatic variability, most negatively affected countries lack comprehensive water and drought management policies that proactively protect livelihoods, assets and/or the environment and establish land-use practices that promote resilience over the long term. In recent years, concern has grown worldwide that droughts may be increasing in frequency and severity given the changing climatic conditions.

16. Responses to droughts in most parts of the world are generally reactive in terms of crisis management and are known to be untimely, poorly coordinated and disintegrated. Consequently, the economic, social and environmental impacts of droughts have increased significantly worldwide. Without a coordinated national drought policy that includes effective monitoring and early warning systems to deliver timely information for decision-makers, effective impact assessment procedures, proactive risk management measures, preparedness plans aimed at increasing coping capacity and effective emergency response programmes directed at reducing the impacts of drought, nations will continue to respond to drought in a reactive, crisis management mode. Because of their long-term socioeconomic impacts, droughts are by far the most damaging of all natural disasters. Thus the recurrent droughts call for proactive future actions to be able to cope with their associated imperatives.

C. Gaps in drought management policy

17. Despite the repeated occurrences of droughts throughout human history and their significant impacts on different socioeconomic sectors, countries across the globe, with the exception of Australia, have yet to make concerted efforts to establish NDMPs. Current approaches tend to be limited to post-impact responses. The most commonly used approach, and the one most often followed by both developing and developed nations, is post-impact government (or non-government) interventions. These interventions are normally relief measures in the form of emergency assistance programmes aimed at providing financial resources or other specific types of aid such as food, livestock feed and water to the victims (or those experiencing the most severe impacts) of the drought.

18. Such a reactive approach usually fails to reduce vulnerability among the affected communities as it does not encourage sustainability or build capacity. The recipients of this assistance do not change their behaviours nor are they encouraged to adopt resource management practices necessary for change in order to receive the assistance. Affected communities are not consistently involved in designing drought resilience measures. Continued dependence on externally provided drought relief does not encourage self-

reliance among affected communities. These require more local decision-making, participatory governance and predictable investments towards long-term capacity-building and drought resilience.

19. This traditional approach of providing relief is also flawed in terms of the timeliness of assistance being provided. It often takes weeks or months for assistance to be received, which is often beyond the window of when the relief would have been of greatest benefit. A philosophical change is needed in how local and national governments respond and promote change when facing drought, especially among vulnerable affected communities.

20. A second, more complex drought policy approach is the development of pre-impact or risk management programmes intended to reduce vulnerability and impacts through drought prediction. These measures are referred to as mitigation measures and often appear to be less obvious when associated with drought since impacts are generally non-structural. These measures include establishing comprehensive early warning systems; improving seasonal drought forecasts; placing increased emphasis on water harvesting and conservation; using ground water resources more effectively; constructing reservoirs; interconnecting water supplies between neighbouring communities; utilizing drought risk planning measures; building awareness; and providing education. In some countries, drought insurance exists as part of drought mitigation programmes; this could also be explored for use under special conditions.

21. A third type of policy response that is gaining ground is the development and implementation of preparedness plans and programmes that include organizational frameworks and operational arrangements established in advance of drought and maintained in between drought episodes by governments or other stakeholders. This approach is an attempt to create greater institutional capacity focused on improved coordination and collaboration within and between levels of government and among stakeholders in the myriad private and public-private organizations with a vested interest in drought management (e.g. communities, natural resource managers, utilities, agribusiness, farm organizations, schools and universities).

22. Knowledge and a compendium of best practices (see annex I) in drought management polices exist at global level. However, considering that the human costs associated with drought disasters are largely preventable through appropriate and strategic responses, more comprehensive drought management policies and adequate related competencies that holistically draw on at least the three approaches mentioned in paragraphs 19–21 should be established at all levels.

D. Opportunities for addressing drought management policy gaps

23. The existing weak policy base for addressing drought and recurrent water scarcity is conducive to reactive responses. Developing and adopting drought management policies will enable local communities, governments, the private sector, donors, the United Nations and non-governmental organisations to change their approach to chronic drought situations. Current weaknesses in approach, most notably a lack of linked policymaking at national and local level, would be addressed.

24. A better outcome would result from a long-term strategy and policy that combines short-term measures (crisis response, e.g. humanitarian relief) as the primary interventions needed to save human life with measures that prevent disaster, aid recovery and support livelihoods. The emphasis should be on resilience-building, livelihood improvements and technology transfer as well as a systematic approach to the assessment of drought impacts, mainstreaming drought management initiatives in UNCCD policies and governance structure.

25. In particular, the development and mainstreaming of NDMPs would allow stakeholders to act systematically and continuously without waiting for specific drought effects on the ground before responding. NDMPs would help tackle the root causes of vulnerability, actively reducing risk rather than focusing on the individual crisis. In turn, this should increase the population's resilience to the impacts of drought and save lives whilst advancing other development objectives designed to improve and sustain the welfare of the vulnerable as well as the wider community.

26. The aim of an NDMP would be to enhance the capacities of local communities to efficiently and effectively deal with drought disasters and increase the coping capacities of affected populations during drought, both when resources are scarce and in times of plenty. This would enable them to exploit the available opportunities to improve their livelihoods. Therefore, drought management policies must, over the long term, lead to greater population resilience and a reduced need for interventions in the form of drought disaster assistance from governments, donors and other stakeholders.

27. In developing and adopting drought management policies, countries should streamline contextual factors such as practices, capacities, structures, strategies and rationale that influence actions taken in response to drought. Furthermore, countries will identify mechanisms, systems, functions and institutions that need to be strengthened, enable people to build and consolidate the resilience of their livelihoods, and establish more timely and appropriate responses to protect livelihoods and save lives in the event of future droughts. Such drought management policies would allow for the continued implementation of livelihood interventions, particularly those for which timing is crucial.

28. An NDMP would establish a clear set of principles or operating guidelines to govern the management of drought and its impacts. It should be consistent and congruent with affected areas with similar conditions, ecosystem functionality, population groups, and economic sectors at national level, and consistent with the national, regional and global sustainable development goals.

29. National drought (and water scarcity) management policies should promote strategies that emphasize the development and implementation of pre-impact programmes and preparedness plans as well as policies that are directed towards drought risk reduction. These policies reduce risk by building and consolidating the resilience of livelihoods, establishing more timely and appropriate responses that protect livelihoods and human life, tackling the root causes of vulnerability and managing the associated drought risks rather than focusing on each individual crisis.

30. NDMPs are not stand-alone. They will be mainstreamed into and complement existing national and international initiatives such as the UNCCD NAPs, RAPs and SRAPs, disaster risk and reduction management policies, national climate change adaptation policies and plans, as well as integrated soil and water conservation management practices, policies and plans. This coordinated approach in line with the text of the Convention and the 10-year strategic plan and framework to enhance the implementation of the Convention (2008–2018), would enhance the resilience of local livelihoods, increase food security, reduce the vulnerability of poorer populations and promote economic growth at local level.

III. Potential key policy intervention measures: a critical response to drought (including water scarcity)

31. An effective response to drought requires an NDMP. To be effective, such a policy should enable a paradigm shift that helps to save lives and livelihoods in affected communities. At the same time, concerted support in establishing effective drought

management policies will enable the international community and national governments to commit to important changes in global and national approaches to drought.

Critical actions necessary for a national drought management policy to effectively respond to drought (including water scarcity)

32. The following initiatives are proposed as critical for an NDMP to effectively respond to drought.

1. Moving from drought disaster response to drought risk reduction

33. It is anticipated that countries' drought management policies will foster their efforts towards drought risk reduction, which saves more lives overall, rather than continue with the drought disaster response approach that has repeatedly resulted in more human suffering and death. Drought management policies will guide efforts towards building institutional capacity at national and local level with a view to enabling effective drought preparedness and mitigation programmes among societies that are highly vulnerable to drought and other natural disasters. These policies are intended to address the key challenges facing affected countries in the context of drought risk reduction, focusing on the social and economic development of countries. In view of the increases in drought vulnerability in the affected countries and the challenges posed by drought to their development agendas, NDMPs will enable affected countries to choose disaster risk reduction and management as the way forward.

34. The following proposed actions are intended to help move from drought disaster response to drought risk reduction:

(a) Implementing emergency response and relief measures that reinforce national drought policy goals and create new capacities that allow for timely response in the event of drought;

(b) Identifying emergency measures to reduce the impact of current droughts while reducing vulnerability to future occurrences;

(c) Ensuring that the relief reaches affected communities/sectors in a timely fashion;

(d) Linking drought relief to preparedness and mitigation actions by:

(i) Stakeholders identifying risks and mitigation measures;

(ii) Collecting and analysing information;

(iii) Using evidence-based processes for risk assessment and the prioritisation of mitigation measures;

(iv) Identifying institutional bottlenecks and arrangements; and

(v) Mainstreaming drought management systems by linking the related measures to existing policies and institutions.

2. Building capacity and resilience to drought hazards in vulnerable communities

35. Such drought management policies will enable affected countries to build and enhance the capacities of vulnerable communities to efficiently and effectively deal with drought hazards and increase their coping capacity during drought, particularly when resources are scarce. This is one of the major challenges requiring policy guidelines in order to save lives and the livelihoods of vulnerable communities. Building this capacity

and resilience would reduce the need for unsustainable interventions by governments, donors and other stakeholders in the form of drought disaster assistance and/or alleviation. In this regard, it is imperative to pay greater attention to national drought management policies that foster drought risk reduction and guide efforts for building local level capacity and resilience with a view to facilitating effective drought preparedness.

36. The following proposed actions are intended to enhance capacity-building and resilience:

(a) Promoting training opportunities to enhance understanding on how seasonal forecasts and decision-support tools can be applied by vulnerable groups and within vulnerable sectors to improve resilience/coping capacities and preparedness;

(b) Developing a business (management) plan to carry out training in various sectors;

(c) Emphasizing training of trainers (e.g. extension service personnel) to better communicate policy instruments to user communities;

(d) Stressing the use of climate risk information in management and policy;

(e) Understanding user needs and involving users in developing decision-support tools from the outset;

(f) Employing the media to engage the public and policymakers, and receiving feedback on the effectiveness of emergency relief measures;

(g) Assessing the availability of early warning and decision-support tools and methodologies in support of drought preparedness planning and policy development;

(h) Assessing drought risks, identifying potential threats and determining the degree of vulnerability of local populations and economic sectors to droughts and how these vulnerabilities vary by region within a country;

(i) Evaluating the existing capabilities in the country for the early warning of droughts, identifying gaps and taking appropriate steps to develop and strengthen national capabilities for providing effective early warning of drought;

(j) Evaluating existing decision-support tools in close collaboration with user communities in different sectors impacted by droughts and improving these tools by taking advantage of innovations to provide better and more timely information for decision-making;

(k) Promoting multidisciplinary collaboration among meteorologists, hydrologists, soil scientists, ecologists, agronomists, social/behavioural scientists, health care system experts and others in the collection of data (including meta-data) and the generation of drought products for the user community; and

(l) Developing the capacities of users and policymakers.

3. Linking drought risk reduction interventions with the development of resilient livelihoods and sustainable land management

37. Effective drought management policies require that the associated drought risk reduction interventions are viewed and treated as part of national development activities. At the same time, countries' development strategies and programmes need to be sensitive to drought disaster risk in order to avoid or minimize the negative impacts of drought hazards on the lives and livelihoods of vulnerable populations. Therefore, drought management policies should enable affected countries to recognize that, given the destruction and loss drought disasters cause and the high costs involved in helping vulnerable people recover,

sustainable development cannot be achieved without addressing drought disaster risk reduction issues in a comprehensive manner. This also tallies with the need to put drought management policies at the centre of sustainable development and drought risk reduction priorities. This increases the resilience of vulnerable populations to the impacts of drought whilst advancing other development objectives aimed at improving and sustaining the welfare of the vulnerable and wider community.

38. The following proposed actions are intended to enhance the links between drought risk reduction and the development of resilient livelihoods and SLM:

(a) Establishing comprehensive development policies that support food security, environmental protection, land use and land tenure;

(b) Attaching high priority to drought management initiatives in the context of sustainable development and risk reduction;

(c) Enhancing the capacity of local communities in efficiently and effectively dealing with drought disasters by increasing coping capacity during drought when the resources are scarce and also during the times of plenty; and

(d) Building greater resilience and reducing the need for unsustainable interventions by the government, donors and other stakeholder in the form of drought disaster assistance.

4. Developing further drought management measures to enhance preparedness and mitigation actions

39. Establishing and adopting effective drought management policies should facilitate the development of measures that address the effects of drought on vulnerable communities. These should be effectively incorporated into the broader socioeconomic and political development agendas of affected countries, leading to the establishment of resilient and sustainable lives and livelihoods. The policies will also enable countries to address possible gaps in drought management, including the lack of adequate policy frameworks or the failure to implement drought policies; this tends to restrict development in major sectors usually adversely affected by drought, such as agriculture (focusing on small-scale farmers), health, education and environment. They will further provide the much needed links between drought management and other development policies supporting food security, environmental protection, land use and land tenure that may alleviate resource-based conflicts and reduced productivity. NDMPs should be mainstreamed into national policies and international frameworks such as NAPs.

40. The following proposed activities are intended to enhance drought preparedness and mitigation:

(a) Focusing action, from research to policy implementation, at community level;

(b) Assisting in developing, testing and improving methodologies and progress measures for reducing vulnerability and enhancing community capacity, e.g. drought risk management, evaluation of the cost-effectiveness of methodologies and analyses, as well as assessments of the societal impacts of catastrophic events;

(c) Building the capacities of affected and non-affected populations through support from governments and institutions, the provision of information, incentives and the legal frameworks of successful approaches to increasing capacities and carrying out targeted action at the local level;

(d) Developing mitigation actions;

(e) Using drought impact records to develop probabilistic drought-risk assessments and facilitate proactive planning and drought risk management;

(f) Considering the ability of farmers, including smallholder farmers, to develop or efficiently obtain and use information for agricultural production;

(g) Developing drought response measures that reinforce the concept of risk management as a key element of a national drought policy while promoting environmental stewardship;

(h) Identifying incentives that could be provided to vulnerable sectors/groups to increase the likelihood that risk-based management measures are adopted in support of a national drought policy; and

(i) Strengthening research efforts to promote sustainable development and increase community resilience to drought.

5. Establishing effective and reliable early warning systems, preparedness levels and implementation capacity

41. The potential drought management policies are expected to enhance and/or promote the establishment of effective and reliable drought early warning systems, preparedness levels and implementation capacities at appropriate levels in affected countries. This is based on the understanding that the timeliness of interventions addressing drought risks depends on an effective early warning and drought monitoring system, levels of preparedness that include the existence of effective contingency funding, and implementation capacity on the ground.

42. Drought management policies will promote an enabling environment for establishing and adopting forward-looking early warning systems at national level that alert vulnerable populations, governments and their partner stakeholders (donors and other actors) of any impending droughts or severe water scarcity; this facilitates the implementation of on-the-ground measures and avoids reactive responses. Drought management policies will also help decision-makers better understand the livelihood systems of vulnerable populations and build the required consensus on what constitutes drought risk mitigation, thus avoiding emergency responses and enhancing recovery activities that promote the sustainability of livelihoods and save lives.

43. In terms of implementation on the ground, drought management policies will foster the capacity to identify, design, plan, coordinate and implement timely sustainable livelihood interventions that build resilience among vulnerable communities. Developing and adopting drought management policies should disentangle rigid planning systems and cumbersome financial procedures among key government ministries and United Nations coordinating agencies that often hamper implementation capacity, both in terms of coverage and technical expertise on the ground.

44. Drought management policies will also promote the establishment of a national drought contingency fund in the form of a multi-stakeholder basket where stakeholders contribute towards drought mitigation and alleviation. Governments and the private sector will therefore be in a position to undertake effective and appropriate interventions related to drought and water scarcity in terms of preparedness, mitigation, emergency and recovery measures.

45. The following proposed actions are intended to enhance early warning systems, preparedness levels and implementation capacity:

(a) Creating a continuous supply of harmonized information on the potential risks drought poses to different eco-regions and their populations through effective decision-making at local and national level;

(b) Establishing and supporting a comprehensive, effective and straightforward integrated drought monitoring system at country level, starting with existing initiatives;

(c) Assessing the adequacy of existing networks, in particular meteorological, hydrological and ecological networks, for drought monitoring and data quality;

(d) Examining the current arrangements and procedures for collecting and analysing data, and ensuring coordination between numerous agencies and ministries at the different administrative levels;

(e) Allowing the local community to develop innovative end products, information and/or decision-support tools, and ensuring their timely delivery to end users;

(f) Facilitating the development and mainstreaming the effectiveness of early warning information systems that include warnings on the potential impacts to livelihoods;

(g) Building capacities at local and national level to systematically monitor and record local drought impacts in real time;

(h) Building capacities at local and national level to measure and control data quality, and ensuring that drought early warning information systems are designed to reach (and can be used by) local communities; and

(i) Helping develop options for the adequate coordination of livelihood protection, early warning, and relief and response.

6. Enhancing coordination at all levels

46. Effective coordination must be promoted at all levels if drought management policies are to build resilience. In that regard, drought management polices shall endeavour to amalgamate any fragmented coordination systems that may exist at any level by bringing together existing separate coordination structures for drought response and long-term development issues, including those of a financial nature, such as insurance plans and budget and tax/subsidy schemes.

47. It should be stressed that these frameworks must complement the long-term socioeconomic development for effective drought risk reduction and management. The policies will thus foster the understanding that drought management needs to be addressed in a coordinated and harmonized fashion through a cross-sectoral framework if they are to be effective over the long term.

48. The following proposed actions are intended to enhance coordination at all levels:

(a) Understanding the natural processes and human activities that contribute to vulnerability and community resilience;

(b) Addressing gaps in knowledge, types of information and methodologies that prevent the effective application of these methodologies. A key goal here is to ‘build the capacities of affected populations’;

(c) Working with and supporting communities facing drought hazards in managing their own environments more responsibly and equitably over the long term by

participating in a global structure that supports informed, responsible and systematic actions;

(d) Encouraging government departments and institutions, both public and private, to provide support and incentives, coordinate data and decision support, and legitimize successful approaches to increasing capacity and action;

(e) Characterizing drought-related impacts and carrying out vulnerability mapping with due consideration to vulnerable groups and communities;

(f) Strengthening the cross-sectoral coordination of the assessment of drought vulnerability and impacts and establishing partnerships among concerned stakeholders for conducting impact assessments; and

(g) Developing criteria to weigh the importance of drought impacts and vulnerability factors and identifying high-leverage mitigation actions.

49. The following proposed actions are intended to raise awareness on cost of inaction:

(a) Documenting the social, environmental and economic impacts associated with past drought events and impact trends for all levels and sectors;

(b) Understanding the cost-benefit relationships between reactive, post-drought impacts and emergency relief government policies vs. a risk-based government policy directed towards investment in mitigation actions that reduce impacts and the need for government interventions; and

(c) Deriving opportunity costs involved in translating science into policy action.

IV. Proposed methods for reviewing and reporting on implementation progress

50. At each session of the Committee on Science and Technology (CST), the Committee for the Review of the Implementation of the Convention (CRIC) and the COP:

(a) The CST may consider establishing a standing agenda item on its sessional work programme on the science-policy interface to deliberate and provide relevant scientific information on a given thematic issue such as drought;

(b) At each session of the CRIC, the CST – under the guidance of the COP – should hold a dialogue with Parties on a selected thematic policy issue to elaborate on its findings and provide tangible proposals on potential initiatives to address the negative impacts of the selected thematic issue;

(c) Parties and all other stakeholders shall submit their views to the CRIC on science-based policies related to DLDD; these will be compiled by the secretariat and used during future exchanges for developing of APFs.

V. Conclusions

51. An NDMP should establish a clear set of principles or operating guidelines to govern the management of drought and its impacts. The NDMP should be consistent and congruent with affected areas with similar conditions, ecosystem functionality, population groups, and economic sectors at national level, and consistent with national, regional and global sustainable development goals. In this regard, an NDMP should enable countries to establish:

(a) Proactive mitigation and planning measures, risk management, capacity-building at local level, public outreach, and environmental and natural resources stewardship as key elements of effective national drought policy;

(b) Increased collaboration at national, regional and global level, including on observation networks and information delivery systems, to improve public understanding of and preparedness for drought;

(c) Incorporation of comprehensive governmental, public–private and private insurance and financial strategies into drought preparedness plans;

(d) Recognition of the need to set up national safety nets on emergency relief based on the sound stewardship of natural resources and self-help at various governance levels; and

(e) Links between drought programmes and national priority policies for responding in an effective, efficient and user-oriented manner.

52. The challenges facing countries in developing a risk-based NDMP are complex and require political will and a coordinated approach involving all levels of government and diverse stakeholders who must be engaged in the policy development process. The process of developing drought preparedness and mitigation plans is a step-by-step planning process that requires the participation of all stakeholders.

VI. Proposals for action by Parties

53. The Committee for the Review of the Implementation of the Convention (CRIC) may wish to recommend to the Conference of the Parties (COP) the following decision text approving the advocacy policy framework (APF) on drought:[5]

The Conference of the Parties,

1. *Requests* the secretariat to report on the implementation of the advocacy policy framework during Committee for the Review of the Implementation of the Convention meetings,

2. *Acknowledges* that mainstreaming policy-relevant actions at national and international level within the United Nations Convention to Combat Desertification mandate, as indicated in the advocacy policy framework, provides the necessary elements for implementing decision 8/COP.9 and decision 9/COP.10 on the generation of such policy frameworks on thematic issues in order to address the adverse impacts of desertification, land degradation and drought, keeping in mind gender sensitive approaches,

3. *Recommends* that the secretariat and Convention bodies strengthen the science-policy interface with a focus on drought (including water scarcity),

4. *Emphasize* the importance of integrating the United Nations Convention to Combat Desertification advocacy policy framework focusing on drought and water management into ongoing international efforts of United Nations agencies, as recognized in a wide range of global agreements and fora;

[5] In this document, 'drought' always includes water scarcity.

5. *Recognize* the relevance of the outcome of the High-level Meeting on National Drought Policy, jointly organized by the World Meteorological Organization, the Food and Agriculture Organization of the United Nations and the Secretariat of the United Nations Convention to Combat Desertification,

6. *Call upon* development partners, the Global Environment Facility, the Global Mechanism and international and regional development banks as well as other financial institutions to assist the secretariat and the Convention process by providing additional adequate, accessible and timely resources to implement the APF on drought (including water scarcity)

54. The COP May therefore decide to:

- **Approve the APF on drought and water scarcity;**
- **Call on countries to develop national drought management policies (NDMPs) and mainstream these into existing plans and mechanisms, especially the national action programmes (NAPs).**
- **Request the Global Mechanism (GM) to explore partnerships for implementing drought management policy through NAPs.**
- **Request the Committee on Science and Technology to review the available science on drought and water scarcity, and to make proposals to document and address the knowledge gaps identified, particularly in a climate change scenario.**
- **Request the organizers of the 3rd Scientific Conference to document the contribution that traditional scientific knowledge can make to drought management and policies;**
- **Request the secretariat and partners to build on the outcomes of the 2013 World Day to Combat Desertification, focusing on water and drought, and to continue to engage in communication and awareness-raising activities on global drought and water-scarce environments;**
- **Request the secretariat to review the Comprehensive Communication Strategy and strengthen the drought and water scarcity components;**
- **Request the GM to develop guidelines and provide support to Parties on developing predictable financing for drought and water scarcity issues, such as insurance plans, etc.;**
- **Request the secretariat to support the documentation of lessons learned to facilitate education, capacity-building and training (including manuals and other publications where appropriate), particularly at regional level; and**
- **Request the Committee for the Review of the Implementation of the Convention to organize, through the secretariat, policy dialogues on drought and water scarcity to monitor progress on the implementation of this APF.**
- **Develop NDMPs, mainstream drought policy into NAPs and subregional action programmes as a primary tool for implementing such policies, and document experiences for future reporting cycles;**

- **Integrate drought preparedness schemes into broader sustainable land management (SLM) approaches, e.g. resource management and water/watershed management approaches;**
- **Increase investment in a range of SLM actions in degraded land in order to help local (food) producers to better adapt to drought;**
- **Develop and strengthen existing networks on land management to support information sharing, coordination and partnership-building on drought and water scarcity issues at community level;**
- **Strengthen capacity-building programmes for community organizations related to drought and build partnerships with civil society organizations and the business sector for local actions.**

Annex

[English only]

Compendium of drought management practices at national level from the High-level Meeting on National Drought Policy

The key elements in a national drought[6] management policy (NDMP) fall under the following areas:

- Promoting standard approaches to vulnerability and impact assessments;
- Implementing effective drought monitoring and early warning systems;
- Enhancing preparedness and mitigation actions;
- Implementing emergency response and recovery measures that reinforce NDMP goals; and
- Understanding the cost of inaction.

These proposed elements in each of the five areas are described in the following.

A. Promoting standard approaches to vulnerability and impact assessments

1. Understanding the natural processes and human activities that contribute to vulnerability and community resilience and how these will be integrated to inform risk reduction and management. This involves:
   (a) Addressing the gaps in knowledge, types of information and methodologies that prevent the effective application of these methodologies. A key goal is the enablement of affected populations;
   (b) Working with communities (broadly defined) facing hazards to manage their own environments more responsibly and equitably over the long term by participating in a global structure that supports informed, responsible and systematic actions to improve local conditions in vulnerable regions; and
   (c) Encouraging governments, departments and institutions, both public and private, to provide support and incentives, coordinate data collection and dissemination, provide decision support, and legitimize successful approaches to increasing capacity and action.
2. Characterize and integrate drought-related impacts, vulnerability and risk information to identify proactive mitigation actions and measures.
3. Record drought impacts on and conduct risk assessments for vulnerable economic sectors, including but not limited to:
   (a) Rain-fed agricultural production:
      (i) Impact(s): reduced or no yields; increases in extreme events; and accelerating negative trends in rainfed agriculture productivity;

[6] In this document, ‘drought’ always includes water scarcity.

(ii) Potential mitigations: imports (short term); choosing to sow different crops or not sow at all (short term); and application of improved agronomic practices (e.g. no tillage);

(b) Irrigated agricultural production:

(i) Impact(s): reduced yields; vulnerability of water resources; reduced water quantity; and poor water quality;

(ii) Potential mitigations: water rationing; review of water allocation; sowing dryland crops; and introduction of water banks for the temporary transfer of water rights;

(c) Livestock production:

(i) Impacts: weight loss; mortality; destocking; increased incidence of diseases; and lower fertility and reproduction rates;

(ii) Potential mitigations: destocking; feed distribution; cattle parking/relocation of herds; nomadic migration; and use of special reserved areas (stock routes and stock reserves);

(d) Water:

(i) Impacts: degraded water quality (salinity, biochemical oxygen demand/chemical oxygen demand); surface water shortages; overdrawing and depletion of groundwater; and increased competition and conflict over water;

(ii) Potential mitigations: ex ante identification of supplemental and alternative sources of water; use of reserve sources of groundwater; technical optimization of water resources; water laws and rules for special circumstances; dry-year options (sale, expropriation, restrictions) using critical drought thresholds; development of critical thresholds; prediction of future water use to determine zoning; realization of water reservoirs or farm ponds; interconnection of urban or rural water supply systems; and establishment of a water security plan for all rural and urban areas with respect to climate change;

(e) Environment:

(i) Impacts: ecosystem degradation; loss of biodiversity; species migration and extinction; landscape change and wind erosion; increased risk of wildfires; and impacts on fisheries;

(ii) Potential mitigations: maintenance of environmental flows;

(f) Transportation:

(i) Impacts: reduced transportation and navigation on rivers and lakes;

(ii) Potential mitigations: preparation of alternate transportation plans using railways and roadways;

(g) Health:

(i) Impacts: increases in morbidity and mortality; increased suicide rates; incidence of wind-, dust- and vector-borne diseases and respiratory illnesses; degradation of sanitation; decreasing levels of nutrition; depression, trauma and suicide; and increased use of and dependence on drugs and alcohol;

(ii) Potential mitigations: food supplements; food stockpiling; more robust social safety nets; improved access to mental and physical health care; and access to counselling services;

(h) Tourism and recreation:

(i) Impact(s): loss of recreation areas, decline of tourism revenue; and reduction in taxes collected;

(ii) Potential mitigations: improved management of water reservoirs; and reallocation of water supplies between user sectors;

(i) Energy:

(i) Impacts: decreased hydropower production; brownouts and blackouts; increased demand; and destruction of transmission lines;

(ii) Potential mitigations: energy restrictions; improvements in efficiency; alternative energy supplies; and diversification of energy sources;

(j) Society:

(i) Impacts: migration and loss of community; decreased marriage rates; increased divorce rates; increased suicide rates; increased conflicts; loss of assets and reduced property values; increased theft and crime; impacts on traditional cultures and practices; gender inequality; and migration of population from farm/rural areas to urban areas;

(ii) Potential mitigations: social protection and cash-transfer programmes; diversification of rural livelihoods; employment programmes and schemes; and provision of counselling services;

(k) Education:

(i) Impacts: school dropout rates (short-term); and lower school enrolment (longer term);

(ii) Potential mitigations: targeted social protection (e.g. Bolsa Família); and mid-day meal schemes to prevent school dropouts;

(l) Cost of emergency response programs:

(i) Impacts: amount spent on relief and response;

(ii) Potential mitigations: insurance schemes; better targeted response programmes; and improved monitoring of impact sectors to determine when measures should be implemented; and

(m) Secondary and tertiary impacts on economic productivity:

(i) Impacts: loss of income and productivity; opportunity costs; and higher personal debt levels;

(ii) Potential mitigation: employment guarantee schemes; and loan waivers.

4. Elicit information from key stakeholders on important issues and their needs for seasonal and longer-term climate information.

5. Assess socioeconomic and management characteristics, capacity-mapping and trends in countries/communities of concern, and include standards for data collection.

6. Develop risk assessments and profiles showing physical, social, economic and environmental pressure on a community at global, regional and local scale to determine who and what is at risk and why.

7. Understand effective decision-making in the context of drought risk management, i.e. what it is and how it can be improved. This involves:

   (a) Conducting research on decision-making, risk perceptions and the implementation of risk management and mitigation programmes; and

   (b) Including critical actors at each jurisdictional level as well as their risk assumptions, their needs for different types of information, and the design of an information infrastructure that would support their decisions at critical entry points.

8. Conduct risk profiles prior to the onset of droughts and record drought impacts on vulnerable populations. Risk profiles should take vulnerable groups into account, including but not limited to:

   (a) Women;

   (b) Children;

   (c) The elderly;

   (d) The invalid, infirm and ill;

   (e) The landless;

   (f) Farmers;

   (g) Pastoralists;

   (h) Marginalized communities; and

   (i) Indigenous communities and populations.

9. Develop, test and improve methodologies and measure progress in reducing vulnerability and enhancing community capacity, e.g. with regard to drought risk management, the cost-effectiveness of methodologies and analyses, and societal impacts of catastrophic events.

10. Strengthen cross-sectoral coordination in assessing drought vulnerability and impacts as well as partnerships among the state, academia and the private sector for conducting impact assessments. This involves:

   (a) Assessing impediments and opportunities related to the flow of information, including issues of credibility, legitimacy, compatibility (appropriate scale, content, ability to be matched with existing practices) and acceptability; and

   (b) Developing/testing common drought risk reduction practices and coordinating information flow from different organizations in easily understandable language for all affected communities in countries and communities at risk.

11. Develop and mainstream the effectiveness of impact assessments for early warning information systems that include warnings for potential impacts on livelihoods.

12. Build capacities of affected populations through support from governments and institutions, the provision of incentives, and the legitimization of successful approaches to increasing capacity and action at local level.

13. Identify and assess vulnerable people and communities. Factors to consider include, but are not limited to, the following:

    (a) Gender;

    (b) Age;

    (c) Ethnicity;

    (d) Political status;

    (e) Dependency on agriculture;

    (f) Level of wealth/poverty and human development;

    (g) Education status;

    (h) Access to natural assets;

    (i) Access to alternative supplies of water and fodder;

    (j) Access to markets;

    (k) Baseline health;

    (l) Livelihood/employment options and access to alternative/supplemental employment;

    (m) Social networks and level of isolation;

    (n) Access to infrastructure;

    (o) Underlying climate variability; and

    (p) Previous exposure to droughts, floods and other hazards.

14. Develop criteria to weigh the importance of drought impacts and vulnerability factors and to identify high-leverage mitigation actions.

15. Develop mitigation actions for various points during drought episodes to enable the implementation of appropriate mitigation actions at the outset and termination. This involves:

    (a) Using drought impact records to develop probabilistic drought-risk assessments and facilitate proactive planning and drought-risk management; and

    (b) Considering the abilities of farmers to receive and use information.

16. Systematically monitor and record local drought impacts in real time using drought early warning systems; this information should be made available in a timely fashion to local communities.

17. Develop common methodologies and terminology to assess drought vulnerability for determining drought risk at multiple spatial scales and across political borders.

B. Implementing effective drought monitoring and early warning systems

18. Identify and evaluate existing comprehensive, integrated drought monitoring systems that incorporate multiple climate, water, soil and crop parameters and socioeconomic and environmental indicators and indices to fully determine the magnitude, spatial extent, trends, duration, and potential impacts of droughts. This involves:

    (a) Establishing and supporting a comprehensive and effective integrated drought monitoring system at national level;

    (b) Ensuring that relevant parameters for climate, water, crops and soil, and socioeconomic and environmental indicators and indices are collected and made available through the system;

    (c) Placing more emphasis on supporting research to determine the magnitude, spatial extent, trends, duration and potential impact of droughts on social, environmental and economic aspects in the region/country;

    (d) Using an appropriate classification system for different types of droughts – e.g. meteorological, agricultural, hydrological and socioeconomic droughts – while regularly communicating drought information; and

    (e) Developing effective delivery systems for the dissemination of information to the user community for improved decision-making.

19. Assess the adequacy of networks, particularly meteorological, hydrological and ecological networks, for drought monitoring and data quality. This includes:

    (a) Ensuring that an adequate and coordinated network of meteorological, hydrological and ecological stations is established in the country to provide good spatial characterization of droughts;

    (b) Ensuring that the meteorological, hydrological and ecological stations have the necessary instruments in good working condition to provide relevant data;

    (c) Taking full advantage of advances in instrumentation technology, such as Data Collection Platforms (DCPs), automatic weather stations, telemetry and hydroprobes in automating data collection;

    (d) Using gridded products to compensate for gaps in station networks to create a time series using climate monitoring products;

    (e) Encouraging the wider availability and use of remote sensing data/products and providing training to natural resource managers and policymakers on properly interpreting these products;

    (f) Implementing effective data management and data quality control systems, including proxy data consistent with World Meteorological Organization quality control procedures;

(g) Ensuring the long-term sustainability of meteorological, hydrological and ecological networks in order to regularly provide the user community with relevant information; and

(h) Assessing the needs of the user community in terms of specific information requirements for making time sensitive decisions.

20. Examine current arrangements and procedures for coordinating the collection and analysis of meteorological, hydrological and ecological data and eliminate fragmentation between various agencies and ministries at the different administrative levels. This involves:

(a) Encouraging close collaboration among meteorological, hydrological, ecological and other relevant agencies in collecting comprehensive drought data;

(b) Developing standard protocols for data collection and analysis;

(c) Establishing a centralized authority for the analysis and quality control of meteorological, hydrological and ecological data to generate integrated products related to droughts; and

(d) Determining the most user-friendly format for the integrated data for easier access and use by both researchers and practitioners.

21. Evaluate existing procedures for data sharing during drought, including aspects such as monitoring, preparedness, mitigation and response. These involve:

(a) Reviewing existing data sharing practices and procedures;

(b) Encouraging regular interaction between all relevant agencies and institutions at local, national, and regional level in developing specific drought products for all sectors affected by droughts;

(c) Adopting standards for sharing data and products with all sectors concerned with the impacts of droughts;

(d) Promoting a policy of free, open and unrestricted exchange of data, information and products with all interested agencies and institutions in the public and private sectors; and

(e) Establishing a rigorous monitoring system to ensure that data, information and products are shared freely between institutions and agencies in a timely manner.

22. Assess the availability of early warning and decision-support tools and methodologies in support of drought preparedness planning and policy development. This involves:

(a) Comprehensively assessing drought risks; identifying potential threats and determining the degree of vulnerability of local populations and economic sectors to droughts and how these vulnerabilities vary by region within a country;

(b) Evaluating the existing capabilities in the country for the early warning of droughts, identifying gaps and taking appropriate steps to develop and strengthen national capabilities for providing effective early warning of drought;

(c) Evaluating existing decision-support tools in close collaboration with the user communities in different sectors impacted by droughts and improving these

tools by taking advantage of innovations to provide better and more timely information for decision-making;

(d) Promoting multidisciplinary collaboration among meteorologists, hydrologists, soil scientists, ecologists, agronomists, social/behavioural scientists, health care system experts and others in the collection of data (including meta-data) and the generation of drought products for the user community; and

(e) Considering the capabilities of users and policymakers.

23. Assess the current ability to make regional outlooks and forecasts with regard to the duration and severity of drought, build capacities in making these forecasts and enhance communication to users. This involves:

(a) Encouraging investments to strengthen research capacity at national, regional and local levels into the causes and effects of climate variations and long-term climate prediction to provide early warnings for drought;

(b) Collaborating with the Global Producing Centres for Long-range Forecasts and the Regional Climate Centres to boost countries' abilities to provide seasonal, intra-seasonal and inter-annual forecasts and skill indicators for drought outlook and decision-making;

(c) Assessing past and current droughts in the context of trends and extreme events that affect the duration and severity of droughts; and

(d) Improving capabilities to forecast and develop future drought predictions.

24. Evaluate the four phases of drought risk management: vulnerability and risk assessment; monitoring and early warning systems; preparedness and mitigation; and emergency response and recovery. This involves:

(a) Establishing an evaluation procedure for each of the four phases;

(b) Implementing a feedback process in the drought life cycle to learn from past practices in mitigation and/or prevention, preparedness, response and recovery strategies;

(c) Ensuring that early warnings are delivered to decision-makers in a timely fashion and in appropriate formats, and that preparedness, response and recovery plans are in place;

(d) Ensuring that drought early warning systems are always functional and incorporate a tiered approach based upon the severity of the event;

(e) Developing long-term solutions in addressing recurrent/multi-year droughts; and

(f) Identifying appropriate and sector-specific triggers for the timely implementation of mitigation actions.

25. Examine the need for developing useful end products, information or decision-support tools for delivery to the end users. This involves:

(a) Ensuring that the user community in different sectors impacted by droughts is involved from the outset in the development of useful end products, information and decision-support tools in order to ensure that they meet their needs and expectations;

(b) Developing appropriate decision-support tools and climatological end products covering all aspects of drought to assist users in their drought risk management decision-making; and

(c) Including extension service personnel and boosting their capabilities in understanding and using drought indices to better disseminate information regarding the four phases of drought risk management.

26. Assess the capacity of delivery systems to disseminate data, information, products and services to users in a timely manner to enhance their usefulness in decision-support. This involves:

(a) Undertaking a review of past and present delivery systems for disseminating drought services to end users and using the review findings and recommendations as the basis for developing user-friendly delivery systems;

(b) Establishing a procedure/survey to ensure that the needs of decision-makers are being adequately met by the delivery system and modifying the system as required;

(c) Designing data presentation and products to meet the specific needs of various decision-makers (do not make users search through all data but provide access to different products for different groups, e.g. agriculture, education, policymakers);

(d) Using the most cost-effective and modern methods for information delivery including Internet, social media (Facebook, Twitter, etc.), social gatherings, mobile phones, radio, TV, etc., which are appropriate to the local conditions; and

(e) Placing emphasis on training user communities to use decision-support tools and products.

C. Enhancing preparedness and mitigation actions

27. Develop drought response measures that reinforce the concept of risk management as a key element of an NDMP while promoting environmental stewardship. This involves:

(a) Emphasizing a fundamental need for an integrated drought monitoring and analysis system;

(b) Establishing drought triggers or thresholds for taking action;

(c) Differentiating between normal seasonal dry periods and prolonged drought situations in the context of implementing emergency relief and response measures;

(d) Continuing the assessment of socioeconomic consequences/impacts of specific drought events;

(e) Identifying emergency measures that will reduce the impact of current drought while reducing vulnerability to future occurrences (these measures should, at least, be neutral);

(f) Establishing an effective communication and awareness-building strategy for public education;

(g) Developing a policy to ensure that relief reaches affected communities/sectors in a timely fashion; and

(h) Providing a drought fund for relief and response as part of an NDMP.

28. Promote training opportunities to enhance understanding on how seasonal forecasts and decision-support tools can be applied by vulnerable groups and within vulnerable sectors to improve resilience/coping capacities and preparedness. This involves:

(a) Developing a business (management) plan to carry out training in various sectors;

(b) Emphasizing training of trainers (e.g. extension service personnel) to better communicate policy instruments to user communities;

(c) Stressing the use of climate risk information in management and policy;

(d) Understanding user needs and involving users in developing decision-support tools from the outset; and

(e) Employing the media to engage the public and policymakers and receiving feedback on the effectiveness of emergency relief measures.

29. Identify incentives that could be provided to vulnerable sectors/groups to enhance the adoption of risk-based management measures in support of an NDMP. This involves:

(a) Considering financial incentives (implementation of a government-approved programme to provide loans on a tax-free basis to stimulate the implementation of drought mitigation measures);

(b) Linking drought relief to the establishment/implementation of drought plans at any level;

(c) Instituting a policy whereby a portion of funds provided for emergency drought relief payments must be directed towards mitigation measures to reduce the impacts of future droughts;

(d) Evaluating existing drought insurance plans or schemes in terms of how effectively the plans promote rewarding the wise stewardship of natural resources and sustainable development; and

(e) Using rewards for drought preparedness and effective response, and matching funds to finance preparedness plans.

30. Identify and communicate successful examples of how inter-agency or interministerial coordination enhanced drought monitoring, mitigation, response and planning (e.g. US Drought Monitor, North American Drought Monitor, the Australian drought monitor and the State of Ceará in Northeast Brazil, drought and climate monitoring centres).

31. Examine how drought drills or exercises could effectively be used to promote more effective institutional coordination for preparedness and response.

32. Collect local and traditional knowledge and incorporate it into the decision-making process.

33. Ensure connections between science and policy aspects.

D. Implementing emergency response and relief measures that reinforce national drought management policy goals

34. Develop adequate linkages between early warning and relief and response.

35. Carry out rapid assessment of ongoing drought emergencies. This involves:

    (a) Preparing diagnostic tools for rapid assessments; and

    (b) Establishing and training inter-agency diagnostic teams (pre-emergency).

36. Conduct research that evaluates the effects of drought relief measures on societal vulnerability. This involves:

    (a) Identifying case studies at local level on how risk management can reduce vulnerability (i.e. reduce impacts and improve resilience);

    (b) Diversifying activities and portfolios of assets as a drought mitigation strategy (e.g. in crop production);

    (c) Assessing the effectiveness of drought policies and looking for areas of improvement and refinement; and

    (d) Using risk mapping to identify vulnerabilities to help develop appropriate drought policies.

E. Understanding the cost of inaction

37. Document the social, environmental and economic impacts associated with past drought events and impact trends for all levels and sectors.

38. Understand the cost-benefit relationships between a reactive, post-drought impact and emergency relief government policy vs. a risk-based government policy directed towards investment in mitigation actions that reduce impacts and the need for government interventions.

39. Derive opportunity costs involved in translating science into policy action.

F. National drought management policy: the way forward

The challenge that nations face in developing a risk-based NDMP is complex and requires political will and a coordinated approach involving all levels of government and diverse stakeholders who must be engaged in the policy development process. One tool that has been essential in providing guidance in developing drought preparedness and mitigation plans in the United States of America is a 10-step planning process. This step-by-step approach has been modified and provided below as one approach for assisting nations with the national drought policy development process. The terminology from the original 10-step process has been modified slightly to reflect the objective of developing an NDMP vs. a preparedness or mitigation plan as was originally intended.

Step 1: *Appoint* an NDMP commission or task force.

Step 2: *State* or *define* the goals and objectives of a risk-based NDMP.

Step 3: *Seek* stakeholder participation; *define* and *resolve* conflicts between key water-use sectors.

Step 4: *Inventory* data and financial resources available and *identify* groups at risk.

Step 5: *Prepare/write* the key tenets of an NDMP, including the following elements:

- Monitoring, early warning and prediction;
- Risk and impact assessment; and
- Mitigation and response.

Step 6: *Identify* research needs and *fill* institutional gaps.

Step 7: *Integrate* the science and policy aspects of drought management.

Step 8: *Publicize* the NDMP and *build* public awareness.

Step 9: *Develop* educational programmes for all age and stakeholder groups.

Step 10: *Evaluate* and *revise* the NDMP.

The tenets of a national drought policy require periodic evaluation and revision in order to incorporate new technologies, lessons learned from recent drought events, changes in vulnerability, and so forth. Nations are advised to complete periodic assessments of their national drought policy, conduct drought exercises to ensure the highest level of coordination between government agencies, ministries and/or non-governmental organizations, and revise or update the policy accordingly.