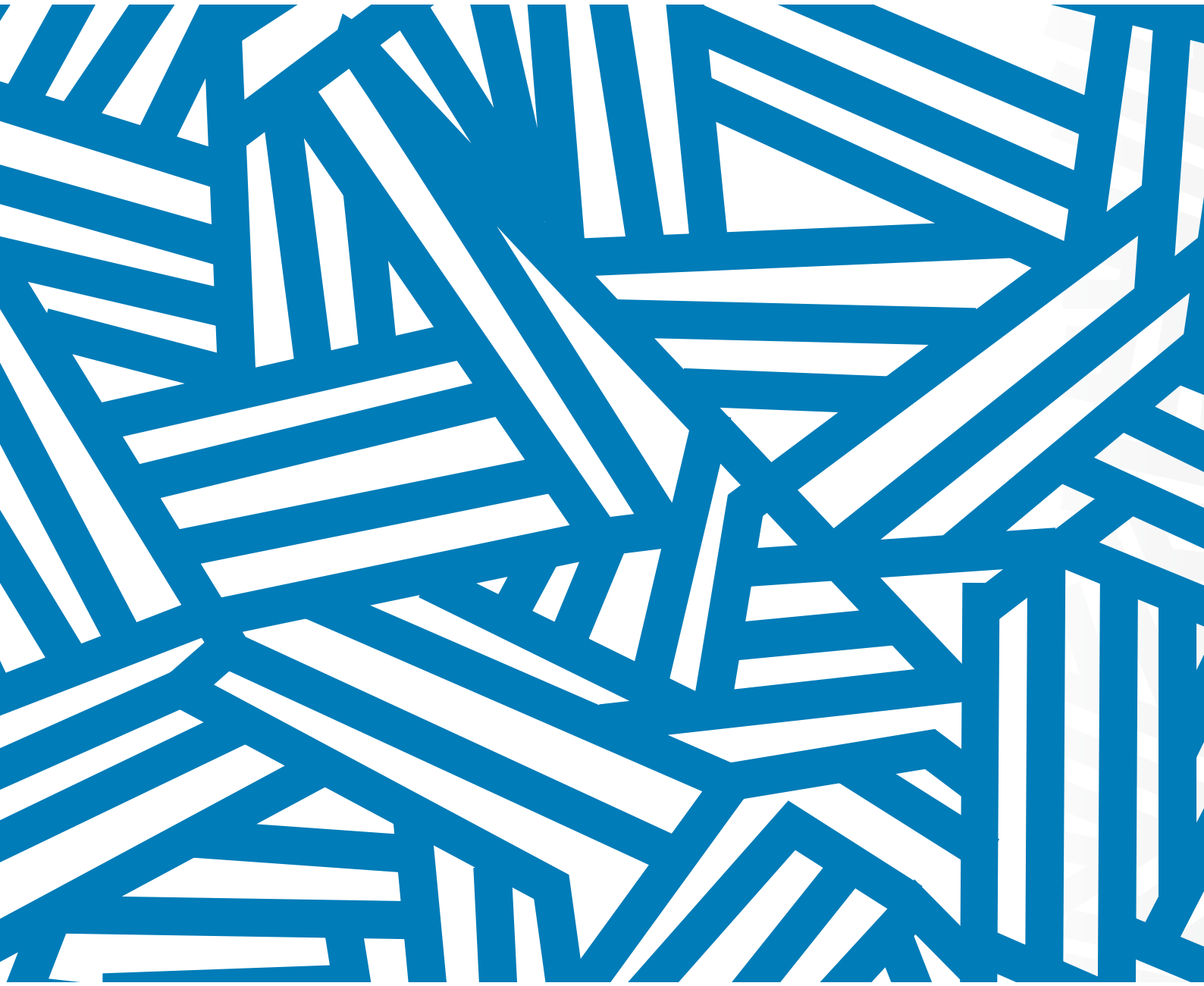
Water and Disaster Risk

A contribution by the United Nations to the consultation leading to the Third UN World Conference on Disaster Risk Reduction



United Nations

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Overview

A holistic approach is required to integrate water into socio-economic development planning in order to simultaneously achieve economic efficiency, social equity and environmental sustainability (the three pillars of sustainable development and the Integrated Water Resources Management process).

Disaster risk reduction and water security are thus not water sector issues, but societal issues. Encouraging other sectors to consider water in their policies and planning is the only way to ensure water-related disaster risk reduction.

Water-related risks arise from too much water, too little water, or polluted water. The occurrence of floods and droughts are expected to increase with a changing climate, with the IPCC predicting these water-related disasters to increase in both frequency and severity, as the whole global water cycle is affected by climate change. In fact in many places these changes are already taking place and the world is ill-prepared to respond to these risks.

Water management is key in disaster risk reduction and building resilience. Water is the medium through which most climate impacts and disasters such as droughts and floods are felt. Therefore, to recognize this reality and to respond accordingly is essential.

Existing land and water management practices have the potential to strengthen the resilience of vulnerable communities and to ensure water security, and thus directly contribute to sustainable development. Innovative technological practices and implementation of strategies at the appropriate levels are necessary measures to address the needs of adapting to climate change, while at the same time addressing the urgency of mitigating climate change.

Why is water important to disaster risk reduction?

- Since the Rio Earth Summit in 1992 floods, droughts and storms have affected 4.2 billion people (95% of all people affected by disasters) and caused USD 1.3 trillion of damage (63% of all damage).
- Floods, droughts and windstorms are the most frequently occurring natural disaster events and account for almost 90% of the 1,000 most disastrous events since 1990.
- The number of people affected and estimated damages from water-related disasters continues to increase
- Climate change is disrupting the global water cycle and will increase the frequency and severity of disasters. The Intergovernmental Panel on Climate Change (IPCC) 5th Assessment predicts more frequent and more severe droughts, floods and storms, intensified glacier melting and sea level rise, all of which will cause and contribute to increasing numbers of disasters worldwide.

What is needed from a water perspective to strengthen the post-2015 Disaster Risk Reduction Framework?

- Reflect that water-related disasters (floods, droughts and windstorms) account for almost 90% of the 1,000 most disastrous events since 1990.
- Move from the implicit to explicit references to water including droughts, floods and higher degree of uncertainty in rainfall, in order to be action oriented and point to implementation.
- Integrated Water Resources Management is an effective way to strengthen resilience for disaster risk reduction and climate change adaptation.
- Integrated flood management and integrated drought management are participatory, multi-stakeholder approaches to developing solutions and reducing water-related disaster risks.
- Recognize that food and energy security depend on managing water resources in an efficient and sustainable way which will make societies more resilient to climatic extremes, such as droughts and floods.
- Recognize the close linkages between development and poverty reduction and sound water resource management, as well as access to safe drinking water and adequate sanitation, to enhance the resilience to climate extremes.
- Recognize the severe impacts on public health from climate extremes such as floods and droughts and the degradation of water resources through pollution.
- Address the requirement that the basis for improved water resources management is hydrological data. Unless we have good quality design data that can be shared and exchanged between key stakeholders, we cannot manage water in a sustainable way.
- Since more than 60% of all watercourses cross borders and disasters thus have a trans boundary dimension, water management and disaster risk reduction need to be addressed from a trans boundary perspective.

Drivers for mainstreaming water-related disaster risk reduction

Better water management is pivotal in disaster risk reduction.

- Focusing on disaster prevention, preparedness, disaster mitigation and adaptation is less costly in social and economic terms than relying on emergency responses.
- A post-2015 disaster risk reduction framework represents an opportunity to adopt new implementation pathways, including greater stakeholder participation, particularly of people in poverty, indigenous communities, people with disabilities, women and youth.
- Institutions, including basin councils and river basin commission will need to be strengthened to deliver results across the broad spectrum of water, sanitation and related areas.
- There is a need to manage water-related risks by putting in place integrated planning and actions for water, climate change and disasters, linked to regional and national development and adaptation plans.
- Improving individual and institutional capacity will be key in reducing water-related disaster risks and vulnerabilities and adapting to climate change impacts. Institutional coordination remains a challenge, especially in circumstances where there is an underlying capacity deficit.
- Preparing existing and planned infrastructure and systems for ongoing climate change will require significant attention in order to maintain and meet economic development goals.
- Natural infrastructure should be considered in order to build resilience and reduce disaster risk. Natural systems are responding in dynamic, often unpredictable ways to ongoing climate change, and natural resource management systems should reflect this dynamic nature in order to promote integrity with unavoidable change.
- The scale of investment required to secure sustainable water for all will be substantial.
- An innovative and comprehensive monitoring and evaluation system will be needed to measure progress.

Measuring water-related disaster risk, target and indicator options as proposed by UN-Water for a post-2015 Global Goal for Water

Target: Reduce mortality by (x%) and economic loss by (y%) from natural and human-induced water-related disasters

Proposed core indicators:

1. Mortality due to water-related disasters and mortality within vulnerable groups and by gender
2. Direct economic losses due to water-related disasters, as percentage of GDP
3. Proportion of at-risk communities with effective people-centred early warning systems for water-related disasters
4. Proportion of nations that have assessed their risk of water-related disaster and that have established plans and strategies for integrated disaster risk management, including monitoring systems and preparedness

Supporting indicators:

- Number of total victims per disaster (persons)
- Gender of victims per disaster (male/female)
- Age of victims per disaster (year)
- Income of victims per disaster (USD)
- Direct economic losses per disaster (USD)

Desired outcomes/ country actions:

- At-risk communities implement hazard-specific early warning systems and evaluate effectiveness of their systems with respect to lead time and accuracy of forecasts and efficiency of dissemination.
- Countries understand trends in disaster impacts and are able to make informed decisions as to investments in disaster risk mitigation and preparedness. Leaders are aware of the impact of disasters to vulnerable groups and are able to tailor policies to address the specific root causes of vulnerability in their country
- Economic losses reduced and livelihoods improved for vulnerable communities.

Status of mainstreaming water-related disaster risk reduction

(i) Progress in addressing disaster risk:

Water-related risks and the competition for water resources are perceived by a majority of countries to have increased over the past 20 years. Governments are obliged to take disaster risk reduction measures to protect, respect and fulfil the human rights guaranteed by international human rights instruments. 80% of countries, which participated in a UN-Water survey in 2012 have since 1992 embarked on reforms to improve the enabling environment for water resources management based on the application of integrated approaches, as stated in Agenda 21 and affirmed in the Johannesburg Plan of Implementation. Integrated Water Resources Management is a direct contribution to reduce vulnerability and strengthen the resilience to water-related extreme events.

Water management is part and parcel of the responsibility of institutions in various sectors. Agriculture accounts globally for about 70% of water withdrawal. Water is needed to generate energy and at the same time energy is needed to provide water to homes and industries. Water provides crucial ecosystem services, and a lack of sanitation and safe drinking water services as well as polluted water is a major public health threat. Water is thus not a "sector", but a vital resource for societies, cultures, the environment and economies that require strong coordination to be effectively managed. According to the OECD 2050 Environmental Outlook, the demand for freshwater will increase by 55% between 2000 and 2050.

More than 60% of all watercourses cross boundaries. In these basins, disasters such as floods and droughts have basin-wide impacts and therefore need to be addressed at the basin-level, for example through data exchange and by implementing measures for disaster risk reduction and climate change adaptation, such as forecasting, where they have the optimum effect in a basin.

There is strong evidence that all parts of the world are already experiencing effects from climate change in different ways. The report from the Intergovernmental Panel on Climate Change (IPCC) states that the effects of climate change are already occurring on all continents and that the world is ill-prepared for risks from a changing climate. The report also concludes that there are opportunities to respond to such risks, though the risks will be difficult to manage with high levels of warming. Disaster management in connection to water is key to respond to climate change and to cope with already occurring impacts. The report also acknowledges the role of water as a connector linking key sectors such as energy, food and industry.

The frequency of floods and droughts is anticipated to increase by the end of the 21th century, with more frequent urban flooding, flash floods, glacial lake outburst floods in mountainous areas and the effects of storm surges in coastal zones including salinization of groundwater bringing major challenges to societies.

Water is key to addressing adaptation to climate change, and at global level this has been identified. For example in a workshop of the Nairobi work Programme on Impacts, Adaptation and Vulnerability (NWP) under the UNFCCC, held in Mexico 2012, integrated water resources management and disaster risk management were identified as important adaptation strategies bringing development benefits in both the short and long term, as means to build resilience of water resources to climate change impacts. Water has since been included into the NWP as one of four key areas, through a decision by the Conference of the Parties on its nineteenth session.

Where adaptation responses are insufficient there is a need to address loss and damage related to climate change impacts such as water-related disasters. Under the UNFCCC, a mechanism has been set up to address loss and damage related to impacts of climate change, including extreme events and slow onset events. This mechanism is aimed towards supporting developing countries particularly vulnerable to the adverse effects of climate change. This may be of high value to vulnerable communities to deal with loss and damage, and to move ahead with addressing this issue.

The Executive Committee for the Warsaw International Mechanism for Loss and Damage has been set up to address the issue of loss and damage under the Convention (UNFCCC 2014). It is essential that activities related to the UNFCCC Loss and Damage mechanisms and the post 2015 disaster risk reduction framework are mutually supportive and synchronised.

(ii) Emerging trends

There are strong trends towards increasing knowledge-sharing and understanding about building resilience in communities at risk from water-related disasters, especially those likely to arise from climate change. A holistic approach that integrates water into socio-economic development planning is being adopted and should be further supported. The ultimate aim is to achieve economic efficiency, social equity and environmental sustainability.

This approach applies the principles of integrated disaster risk management and is a direct form of strengthening resilience and reducing vulnerabilities to extreme events. Some localities are already implementing monitoring and people-centred early warning systems in communities most at risk from water-related disasters. The basis for improved water resources management is hydrological data, not only on water availability, but on water extremes.

Unless we have good quality design data, we cannot build resilient structures/communities. Yet, basic hydrological data is lacking in many parts of the world and inadequate in many others.

Further support is needed to mainstreaming a preparedness approach to water-related disaster management, which responds to the needs of communities and that is implemented.

The Integrated Drought Management Programme (IDMP) and the Associated Programme on Flood Management (APFM) are good examples of programmes that are directly contributing to the implementation of Disaster Risk Reduction. They provide a platform and a resource for countries to develop integrated approaches for the management of water-related disasters. Both programmes address the complete cycle of disaster risk management, helping countries to shift the focus from reactive to proactive measures through disaster mitigation, vulnerability reduction and preparedness. These joint GWP-WMO programmes form part of the user interface platform for the Global Framework for Climate Services (GFCS).

The Global Framework for Climate Services (GFCS) is a UN-led initiative spearheaded by WMO to guide the development and application of science-based climate information and services in support of decision-making to strengthen the resilience of communities to disasters. The GFCS has four priority areas: agriculture and food security, water, health and disaster risk reduction. The vision of the GFCS is to enable society to better manage the risks and opportunities arising from climate variability and change, especially for those who are most vulnerable to such risks. This will be done through development and incorporation of science-based climate information and prediction into planning, policy and practice. The greatest value of the GFCS will occur incrementally through the delivery of a multitude of climate services at national or local levels.

Regional/international policy frameworks and initiatives to be targeted on water

The recommendations made here are in line with the "Post-2015 Global Goal for Water: Synthesis of key findings and recommendations from UN-Water", which is being advocated by many actors as an input to the international negotiations on Sustainable Development Goals.

This brief builds on the findings of the National Stakeholder Consultations carried out by the Global Water Partnership (GWP) in 22 countries in 2013 and 29 countries in 2014, which created a platform for broader ownership and influence on the global development agenda beyond 2015.

List of agencies contributing and very brief description of institutional commitment

The Global Water Partnership: GWP's vision is a water secure world. GWP's mission is to advance governance and management of water resources for sustainable and equitable development.

GWP is an international network that was created in 1996 to foster the implementation of integrated water resources management: the coordinated development and management of water, land, and related resources in order to maximise economic and social welfare without compromising the sustainability of ecosystems and the environment. GWP actively contributes to the Disaster Risk Reduction agenda through its work on integrated water resources management and its Water, Climate and Development Programme (WACDEP), as well as the two joint GWP/WMO programmes, the Integrated Drought Management Programme (IDMP) and the Associated Programme on Flood Management (APFM).

GWP is a partner to UN-Water and works closely with UN-Water in supporting the negotiations on the post-2015 development agenda.

Key documents/source of additional information

- Global Water Partnership (GWP) www.gwp.org
- World Meteorological Organization (WMO) www.wmo.int
- UN-Water www.unwater.org
- GWP/WMO Associated Programme on Flood Management www.floodmanagement.info
- GWP/WMO Integrated Drought Management Programme www.droughtmanagement.info
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- GWP, AMCOW, CDKN (2012) Water Security and Climate Resilient Development; Strategic Framework and Technical Background Document
- GWP (2013) National Stakeholder Consultations on Water: Supporting the Post-2015 Development Agenda
- GWP (2014) The post-2015 development agenda; National stakeholder perspectives on a water goal and its implementation.
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- http://ipcc-wg2.gov/AR5/images/uploads/IPCC_WG2AR5_SPM_Approved.pdf
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- UNFCCC (2014) SBSTA and SBI Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts: Draft Conclusions proposed by the Chair. FCCC/SB/2014/L.4 Available at: http://unfccc.int/resource/docs/2014/sb/eng/l04.pdf
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- UNEP (2012) The UN-Water Status Report on the Application of Integrated Approaches to Water Resources Management.
- UNISDR. (2012). Impacts of Disasters since the 1992 Rio de Janeiro Earth Summit. Available at: http://www.preventionweb.net/files/27162_infographic.pdf
- UN-Water (2014) A Post-2015 Global Goal for Water: Synthesis of key findings and recommendations from UN-Water

About the UN Plan of Action on Disaster Risk Reduction for Resilience: The UN Plan of Action, endorsed by the UN Secretary-General and the Executives Heads of UN Specialized Agencies, Funds and Programmes, includes a commitment for the UN system to work together to ensure disaster risk reduction is a key component of the post-2015 development agenda supported by a post-2015 framework for disaster risk reduction (HFA2). The UN Plan of Action improves system-wide coordinated actions and coherence, as well as increased effectiveness and collaboration in the support to Member States on disaster risk reduction.

UN High Level Programmes Committee Senior Managers Group on Disaster Risk Reduction for Resilience (HLCP/SMG): Members of the HCLP/SMG that oversees the implementation of the UN plan of Action are FAO, IAEA, IFAD, IFRC, ILO, IMO, IOM, ITU, UNAIDS, UNCCD, UNDP, UNEP, UNESCO, UNFPA, UNHABITAT, UNHCHR, UNICEF, UNISDR, UNOCHA, UNOPS, UNOOSA, UNWOMEN, UNWTO, UPU, WFP, WHO and the World Bank.

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