WATER PARTNERSHIP PROGRAM

The World Bank

Water Partnership Program (WPP)

Drought Mitigation & Preparedness: Benefits of Action & Costs of Inaction

Summary of the joint World Bank / IDMP Workshop

Washington, DC, April 26/27, 2017

WORLD BANK GROUP

IDMP Integrated Drought Management Programme

Global Water Partnership

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM NIDIS

WORLD METEOROLOGICAL ORGANIZATION

NDMC NATIONAL DROUGHT MITIGATION CENTER UNIVERSITY OF NEBRASKA

1818 H Street NW
Washington dc 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

Acknowledgements

This work was made possible by the financial contribution of the Water Partnership Program (WPP) – http://water.worldbank.org/water/wpp and the National Oceanic and Atmospheric Administration's (NOAA) National Integrated Drought Information System (NIDIS) and the technical contribution of the Integrated Drought Management Programme (IDMP) and World Bank (WB) experts planning and attending the workshop.

The workshop was organized as part of the WPP Disaster Risk Management Window work plan. The WB Community of Practice on Drought Resilience, led by Amal Talbi, Marcus Wijnen, Nathan Engle and Natalia Limones backed the workshop arrangement and the report preparation.

This report was put together by Courtenay Cabot and Paul Venton from the workshop recordings, notes and material provided by the note takers as well as the written inputs provided by the participants before and during the event.

Frederik Pischke, Mario Lopez, Don Wilhite, Natalia Limones, Marcus Wijnen and Amal Talbi contributed extensively with their workshop notes and comments to the text.

TABLE OF CONTENTS

Summary of Key Points 4
Background 5
Overview of Workshop 7
Methodologies Presented 7
Key Discussion Points 9
Way forward 12
List of participants 13

Summary of Key Points

The economic argument for drought mitigation and preparedness can play a critical role in ensuring a proactive response. However, the idea that numbers alone will lead to action is not accurate. Such assessments need to sit within a much more holistic framework for drought mitigation and preparedness, that includes an understanding of the political economy for creating change, and has a clear dissemination and communication plan. An assessment of the benefits of action needs to be prepared proactively, so that it can be used to propose solutions when a crisis is imminent.

Within this context, a common framework for action should highlight not only the benefits of action in relation to a drought, but also the additional co-benefits that can occur. This can be key to help mitigate against uncertainty and de-risk an early response. The framework should address drought as a continuum with a better mix between mitigation and preparedness, and consider any other pressures and obstacles that may hinder effective action. It should be multi-disciplinary, particularly in fragile or conflict situations where effective response can be difficult. Any economic assessment should account for both qualitative and quantitative aspects, and build out practical examples where early action has resulted in benefits.

The key action point to be taken forward is the development of a common but flexible framework for assessments, that is systematic enough to allow for comparability across countries and contexts, but can also be tailored to be relevant to multiple disciplines and sectors.

Background

This note summarizes the methodologies presented and key findings from a workshop jointly organized by World Bank and the Integrated Drought Management Programme (IDMP). This work explores the benefits of action and the costs of inaction of drought preparedness, which includes the evolution of resilience across time scales, namely how lessons on pro-active drought management have been learned (and which actions were taken) over time and in different sectors.

An Expert Group Meeting was held on this topic in Geneva in September 2016 and a literature review on the Benefits of Action and Costs of Inaction for Drought Preparedness and Mitigation developed to set the stage for the discussions. The findings of these first steps were:

- Progress has been made over the past decade in improving understanding of droughts and their impacts.
- Significant gaps in research, policy and practice remain, particularly regarding the merits of risk management compared with traditional crisis management approaches.
- Many available estimates of drought costs are partial and difficult to compare because of the different methodologies used. The problem is compounded by the lack of data on droughts and their impacts.
- Relatively little knowledge is available on the costs of indirect and longer-term drought impacts.
- There is a lack of mutually compatible methodologies as a means of comprehensively assessing drought costs and impacts.
- Comprehensive evaluations of the costs of action versus inaction against droughts need to be informed by drought risk assessments. They require weather and drought monitoring networks with sufficient coverage, as well as adequate human capacity to analyze and transform this information into drought preparedness and mitigation actions
- It is recognized that there is a need to build-up the evidence base on this issue as well as the development of compatible methodologies. These items could be carried out through a research project.

To reflect on the previous findings and challenges, the same partners met in the workshop: “Drought Mitigation & Preparedness: Benefits of Action & Costs of Inaction” in Washington, D.C., during 26 and 27 of April, 2017.

The workshop had the following objectives:

- Advance towards compatible methodologies or a framework to assess the benefits of action and costs of inaction for drought mitigation and preparedness; and
- Develop a work plan towards addressing knowledge gaps to assess the benefits of action and costs of inaction for drought mitigation and preparedness.

These two days were aimed at achieving a better understanding of the drought impact pathways, vulnerabilities, costs and benefits of drought crisis and risk management approaches and the co-benefits of risk management approaches.

This document provides a summary of the key discussion points from this workshop.

Overview of Workshop

The workshop covered a wide range of topics with presentations from experts coming from both developing and developed country contexts, with a diverse expertise. Sessions focused on key topics such as:

- Assessing the impacts of drought;
- The challenges of measuring the costs and benefits of proactive drought management; and
- Practical examples from the World Bank in building drought resilience.

A great deal of time was also dedicated to brainstorming ways forward.

The workshop stimulated a lot of discussion and debate. The most salient and prominent points are summarized here, to help facilitate discussions around how to develop a framework for Benefits of Action/Costs of Inaction to drought. This document complements a white paper that brings together the key discussion points from the workshop with the wider literature and latest thinking, to propose a way forward and next steps.

Methodologies Presented

A wide variety of methodologies and frameworks were presented at the workshop. A selection of these are summarized in brief below, to demonstrate the range of approaches that were discussed.

A key take away is that there are many different approaches. These approaches use a mixture of qualitative and quantitative data and analysis. Some are based on retrospective analysis of actual impact data (for example in the case of Post Disaster Needs Assessments), others use a wide range of models that simulate the impact of a drought on impact and outcomes. Some look at specific sectors whereas others are more broad brush. Some choose a specific lens for assessing impact, for example looking at ecosystem based services, or human/social/wellbeing impacts. On the one hand, this diversity of assessment is essential, as it allows for an approach that is tailored to the specific needs and objectives of the context in which it is being applied. However, it also makes it very difficult to compare across studies and contexts.

World Bank, Building Drought Resilience, Lessons from Southern Africa

World Bank LINKAGE CGE model uses USDA projected maize production estimates, as well as price data, to simulate the macro-economic impact of reduced maize output. The model

simulation projected that reduced maize output as a result of the 2015/2016 El Nino event could reduce SADC GDP by 0.1%.

Better response requires: 1) better use of early warning; 2) better planning of early action; and 3) pre-arranged and pre-negotiated early financing.

DFID, Economics of Early Response and Resilience

Quantifies the cost savings from an earlier response (through better procurement, pre-positioning, etc), and uses the Household Economy Approach to estimate the economic impact on households of an earlier response. Analysis in Ethiopia and Kenya helped to drive earlier funding in the 2015/2016 drought, but aid was still largely late, suggesting that the economic justification is not enough unless its coupled with strong political will and early financing mechanisms.

University of Adelaide, Ecosystems Services Framework

Use ecosystem services as a lens to assess the benefits of action/costs of inaction. Such a framework helps to articulate the links between biophysical changes and economic benefits. Integrates hydrological, ecological and economic models. Measuring ecosystem services and economic impacts needs to be linked to monitoring and early warning indices.

FAO Methodology to Measure Disaster Impact

Measures the value of production damage and losses attributed to disasters, together with the value of damaged agricultural assets and infrastructure. The methodology needs to be tested on different hazards and regions, and FAO is developing a global information system on damage and loss to collect data.

UC Davis, Lessons from California

Models integrating physical and socioeconomic aspects of agricultural production used to investigate drought impacts. Water supply scenarios inputted to three models to estimate changes to groundwater, agricultural production, and region-wide effects (employment, sector output, etc). Findings fed specifically into action planning and public communications/messaging around the drought, groundwater management.

GFDRR, Bolivia

Study to complement the quantitative evidence of impact of droughts on the well-being of Bolivian households, specifically intangible dimensions such as people's capacity for action.

World Bank, Multi-Agency Assessment of Opportunities for Enhancing Resilience in Africa's Drylands.

Comprehensive study that investigates the costs and benefits of different responses to drought. The analysis is supported by a very complex set of analysis and modelling, summarized in six supporting reports that each cover a different sector.

World Bank, India

Developed a framework for simulation the long term impacts of drought, estimating direct losses, economic losses, and fiscal losses. A probabilistic drought risk assessment model includes modules for hazard, vulnerability, direct and indirect losses. Yields and production can be estimated based on standardized precipitation index, with average annualized losses estimated by district. Adaptation strategies can also be inputted to look at avoided losses as a result.

GFDRR, Unbreakable

Uses a traditional risk assessment (combining hazard, exposure and vulnerability), and adds in socio-economic resilience – the capacity of affected people to cope with and recover from the shock. Specifically, they model well-being, incorporating not only asset losses, but also income, consumption, and well-being (marginal utility, income distribution, etc) losses. Conducted across 117 countries.

World Bank, Malawi

Post Disaster Needs Assessment quantified damages, losses and recovery costs following the 2015/2016 drought, encompassing a wide range of sectors, including productive (crops, livestock, etc), physical (energy, environment, transport, etc), social (food security, education, health, etc), as well as cross cutting issues (DRR, contingency funding). This was used as part of a multi-sectoral drought recovery strategy.

Key Discussion Points

During the course of the two days, a wide variety of points were discussed. The following section summarizes some of the key discussion points and take aways.

The economic argument for drought mitigation and preparedness can play a critical role in ensuring a proactive response. However, it was also repeatedly emphasized that this assessment has to sit within a wider disaster risk management framework to be successful.

Quite a few points were raised in respect to this key finding:

- Making the economic case for a more proactive response is a powerful tool for convincing governments and donors to act early, particularly when it is used in the context of a recent crisis where the cost savings and benefits of a more proactive response can be quantified and articulated.
- However, the idea that numbers alone will lead to action is not accurate. Such assessments need to sit within a much more holistic framework for drought mitigation and preparedness, that includes an understanding of the political economy for creating change (especially in fragile and conflict countries), and has a clear dissemination and communication plan that includes not only the government and donors, but also the public via advocacy and an educated media.
- Even where there is political will to act early, supported by a clear economic case for action, mechanisms to trigger early response will also need to be in place.

An assessment of the benefits of action needs to be prepared proactively, so that it can be used to propose solutions when a crisis is imminent.

- Crises can present opportunities to push for reform and create change with key challenges, but will depend on having BACI-type assessments that support a framework for action already to hand.
- These assessments need to be supported by both bottom-up and top-down analysis and action. A bottom-up participatory approach, that builds on community awareness and input, is a key entry point for proactive action. However, government prioritization is equally important.
- The case study from Mexico provided a good example of how crisis was an entry point for the discussion about the need to be prepared, and the Government was able to trigger very effective top-down action. However, the conditions for acting were there before the crisis, and this is clearly not generated under top-down approaches. While a crisis can drive transformative change, the capability and capacity to make that change happen needs to be already there, by bringing together policy makers to prioritize effective action and having a plan already in place at a teachable moment.

A common framework for action needs to have the following elements:

- It is important that an assessment of the benefits of action highlights not only the benefits in relation to drought, but also the additional/co-benefits that can occur without a drought happening. This can help to de-risk the idea of investing in drought mitigation and highlight the substantial opportunities for growth that can occur through

no/low regrets measures. This is key to mitigate against uncertainty, and the risk that an early response to a drought that does not materialize can raise criticism.

- Drought needs to be looked at as a continuum, and any assessment should reflect this. There is a need for a better mix between reaction and prevention (mitigation and preparedness), and identifying the types of actions that should be prioritized in the different phases of a drought.
- On a related theme, any economic analysis in drought management will need to take into consideration other pressures and obstacles that may hinder effective action - such as a lack of resources, prioritization of emergency funds to alleviate crises, and other more impelling short term problems. Hence a common framework for action will need to consider improved drought management within a more holistic framework in order to ensure that effective action is taken.
- It is imperative that any assessment takes a multi-disciplinary approach, as drought is affected by, and affects, so many different sectors. For example, a key focus of the workshop was looking at the intersection of drought and conflict, and how drought can exacerbate existing tensions. The psychological impacts of drought were also a key theme, with a presentation on the psychological dimension of the impacts of drought and how they can be better considered and incorporated into an economic analysis. The need for understanding the interplay of different sectors and issues was also highlighted through discussions on traditional coping mechanisms and how action on drought can disturb these existing mechanisms. The other aspect discussed is on the limitation to respond to drought in a fragile and conflict situation due to limited ability to go to the field for assessment (for example, challenges in designing responses to Somalia drought), and the lack or weak government counterpart (in cases of de facto government, or government with financial and human resources drained by conflict).
- These points also highlight the importance of an economic assessment framework that is focused on both a qualitative as well as a quantitative assessment of the benefits of action. This is critical to ensure that issues that cannot be easily monetized – such as psychological impacts – are nonetheless part of the analysis.

There is a need for practical examples where early action is demonstrated to result in benefits.

- Case studies, where early action is demonstrated to result in benefit, can play a key role in communicating the benefits of action, and ensuring that it results in greater preparedness.

- Practical examples can help to explore the benefits of action and the costs of inaction of drought preparedness, including the evolution of resilience across time scales, how lessons on pro-active drought management have been learned (and which actions were taken) over time and in different sectors. It would also be helpful to identify cases where drought risk management frameworks really led to effective decision making towards drought.

Way forward

The key action point to be taken forward is the development of a common but flexible framework for assessments.

There is a need for a more systematic and common conceptual framework for assessing drought risk and analyzing the benefits of action/costs of inaction. It should be systematic enough to allow for comparability across countries and contexts. However, it should also be modular/provide options so that it can tailored depending on the context in which it is being used. It was mentioned several times that this framework should help actors to ask the right questions to establish the case for more proactive response.

Key elements of this framework that were discussed during the workshop include:

- The framework needs to relevant to multiple disciplines and sectors, and hence flexibility will be important. It should be able to take account of issues such as conflict that intersect with drought.
- The conceptual framework needs to include a communications plan to ensure that any assessments contribute to capacity building and planning for action.
- It needs to include examples and case studies of where frameworks/assessments have resulted in positive action.

List of participants

NAME	UPI/ COMPANY	EMAIL	UNIT/DEPT
Shiva S. Makki	114278	smakki@worldbank.org	DECVP
Mario LÓPEZ PEREZ		mario_lopezperez@tlaloc.imta.mx	IMTA/ México
Jose Medellin		jmedellin@ucdavis.edu	UC DAVIS
Roger Stone		Roger.Stone@usq.edu.au	
Arati Belle	167030	abelle@worldbank.org	GSURR
Tiffany Griffin		tgriffin@usaid.gov	USAID
Brian Walsh	512924	bwalsh@worldbank.org	GFDRR
Macha Kemperman	457615	mkemperman@worldbank.org	GWASO
Courtenay Cabot		cabotventon@hotmail.co.uk	
Mark Svoboda	NDMC- UNL	Msvoboda@unl.edu	
Don Wilhite	UNL	Dwilhite2@unl.edu	
Nicolas Gerber	zef	ngerber@uni-bonn.de	
James Brooker	Siena College	jbrooker@siena.edu	
Mira Markova	FAO	Galimira.Markova@fao.org	
Rositsa Yaneva	516994	ryaneva@worldbank.org	WPP
Natalia Limones	480035	nlimones@worldbank.org	WPP
Jeff Connor	Uni. S. Au.	Jeff.Connor@unisa.edu.au	
Neville Crossman	Adelaide Uni.	Neville.crossman@gmail.com	
Eelco Van Beek		eelco.vanbeek@deltares.nl	
Marcus Wijnen	377266	mwijnen@worldbank.org	GWA01
Amal Talbi	234290	atalbi@worldbank.org	GWA05
Terrence McCabe	U. Col.	tmccabe@colorado.edu	
Frederik Pischke	GWP-IDMP	frederik.pischke@gwp.org	
Bill Young	246644	wyoung@worldbank.org	
Jonh Wilson	USAID	jwilson@usaid.gov	
Mike Thibert	515267	mthibert@worldbank.org	WPP
Nathan Engle	338952	nengle@worldbank.org	CC CCSA
Stefanie Herrman	512661	sherrmann@worldbank.org	WPP
Daniel Tsegai	UNCCD	dtsegai@unccd.int	E.PA
Bea Lougedo	495893	blougedo@worldbank.org	GWA04
Stephane Hallegatte		shallegatte@worldbank.org	GFDRR
Catherine Signe Tovey		ctovey@worldbank.org	AFCS1
Roger Pulwarty	NOAA	roger.pulwarty@noaa.gov	
Sebnem Sahin		ssahin@worldbank.org	GENGE
Moses Mung'oni		mmungoni@worldbank.org	GFDRR
Christopher Decker	University of Oxford	christopher.decker@wolfson.oxon.org	
Veronique Morin		vmorin@worldbank.org	GSU19
Francis Samson		fnkoka@worldbank.org	GSU13
Miriam Muller		mmuller1@worldbank.org	GPV04
Maria Eugenia Genoni		mgenoni@worldbank.org	GPV05