

International Drought Mitigation Research Centre (IDMRC) (2.8)

IDMRC – Component of IDMP

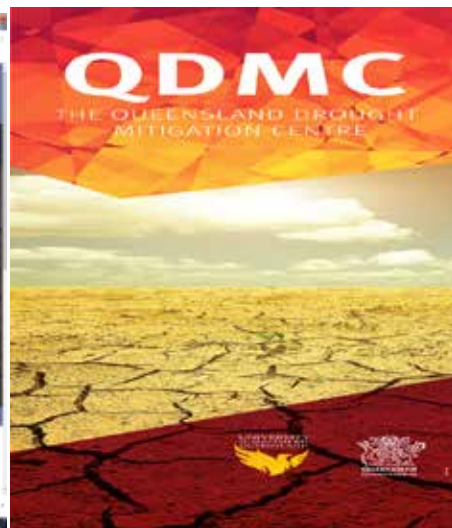
As component of IDMP, International Drought Mitigation Research Centre will initiate global research initiatives, including building upon key existing regional initiatives:

- Facilitate and conduct research on drought mitigation issues;
- Learn from and synthesize major project and program initiatives underway in regions and countries;
- Establish and maintain strong links and provide support to GFCS and with other IDMP partners and their key global initiatives
- Identify significant gaps in drought research, policy and practice

An International Drought Mitigation Research and Development Center - Update

Roger C Stone and Bob Stefanski,
Queensland Drought Mitigation Centre
University of Southern Queensland, Australia.
World Meteorological Organisation, Commission for Agricultural
Meteorology.

Global Water Partnership, Stockholm, 24 August 2019.



Rationale – Core issues

- Drought mitigation research and development issues are extremely complex and not necessarily capable of being tackled by single institutes or even countries in isolation.
- ‘We cannot do this work alone’ – we need to learn from each other, globally.
- Significant gaps in research, policy and practice remain, particularly regarding the merits of risk management compared with traditional crisis management approaches (IDMP, 2017).
- As a component of IDMP, the creation of an International Drought Mitigation Centre that will initiate global research and capacity building initiatives, including building upon key existing regional initiatives, that are already providing valuable developments.



International Drought Mitigation Research Centre Draft Terms of Reference

- As a component of IDMP, the International Drought Mitigation R&D Centre will initiate global research and capacity development initiatives, including building upon key existing regional initiatives, that are already providing valuable developments. *Drought mitigation research and development issues are extremely complex and not necessarily capable of being tackled by single institutes or even countries in isolation.*
- Facilitate and conduct research and development on drought mitigation issues relevant for industry, government, agriculture, water resources, insurance, engineering systems, climate science and applications, whole value chain approaches in agriculture, drought policy, communities – and their management systems;
- Learn from and *synthesize major project and program initiatives underway* in regions and countries to the benefit of international drought management needs ;
- Establish and maintain strong links and provide support to GFCS and with other IDMP partner (FAO, UNDP, UN Environment, UNCCD, UNISDR) and their key global initiatives (NIDIS, IDMP in Eastern and Central Europe, USDMC, Korea National Drought Information - Analysis Center);
- Identify significant gaps in research, policy, infrastructure and capacity needs and practice, particularly regarding the merits of risk management compared with traditional crisis management approaches and develop research proposals to address these gaps.

International Drought Mitigation Center: Aims

- To create programs for *researching and developing drought management and capacity development* systems *relevant* for industry, government, agriculture, water resources, insurance, engineering systems, climate science and applications, whole value chain approaches in agriculture, drought policy, communities – and their management systems.
- *To capture and synthesise major project and program initiatives underway in regions and countries* to the benefit of international drought management needs – its more than facilitation - we cannot do this alone....to be an Integral component of IDMP– and synthesising links to new global partners
- To create strong links and support to the Global Framework for Climate Services (GFCS) (“GFCS provides a worldwide mechanism *for coordinated actions* to enhance the quality, quantity and application of climate services”).
- To facilitate strong links to FAO, UNDP, UN Environment, UNCCD, UNISDR and key global initiatives: NIDIS, IDMP in Eastern and Central Europe, USDMC,
- ..

International Drought Mitigation Center: Outcomes (1)

- Advancement in the understanding of the weather and climatic mechanisms that lead to drought onset, persistence, and recovery;
- Enhanced capacity development and institutional development in developing countries in core drought management and preparedness capabilities.
- Further improved weather and climate/decadal/climate change scale forecasting and projection systems relevant to drought preparedness by identifying sources of drought predictability across timescales and regions;
- Enhanced translation of global scientific advances into metrics relevant for various societal sectors;
- Strengthened coordination and dissemination of information through improved delivery platforms as well as in-person drought outlook forums and webinars.
- Enhanced drought policy capabilities.

International Drought Mitigation Center: Outcomes (2)

Through development of the world's first collaborative drought research and development center (Queensland-DMC/US-DMC/K-Water/Korea/World Meteorological Organisation of the United Nations/the Global Water Partnership/Eastern European Drought Center) :

- Major advances in development of new drought research and development systems (eg: enhancing 'flash drought' capability);
- enhancement of seasonal to decadal climate forecasting systems directly relevant to drought preparedness through use of global forecasting centers;
- enhanced drought mapping and declaration capability;
- enhanced global re/insurance systems;
- enhanced food security management systems;
- improved farm profitability;
- improved river and dam management systems relevant to drought 'proofing';
- Enhanced student and scientific exchange on drought science.
- Enhanced extension and learning systems.



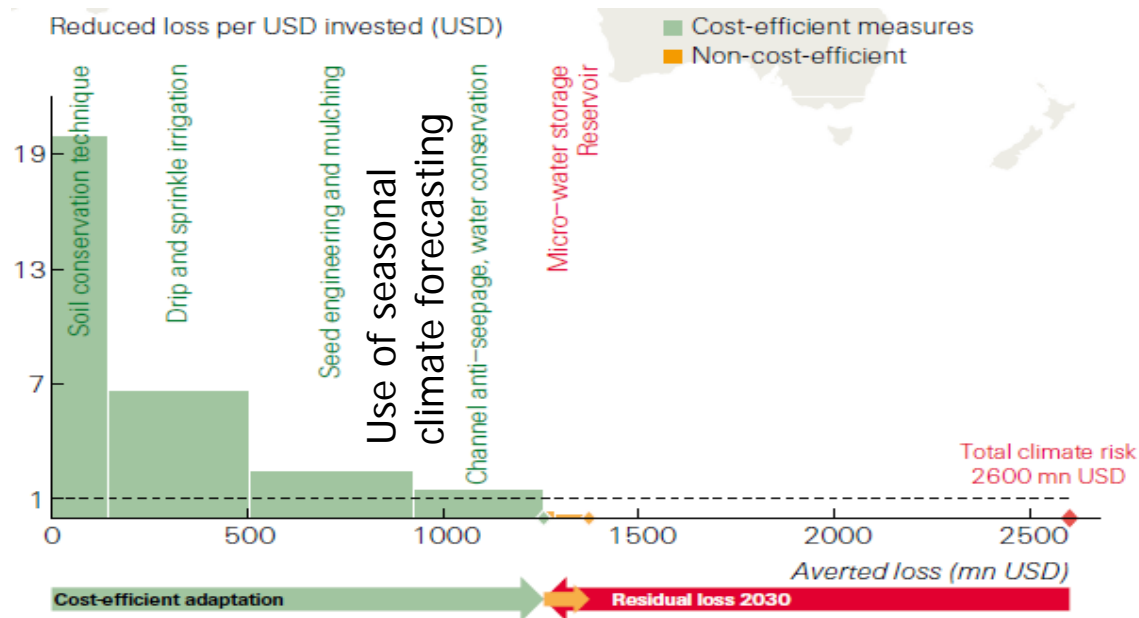
High value in a collaborative drought research and development framework that has a focus on management systems.

- Improving seasonal climate forecasts
 - Improving the ability of forecasts to predict multi year/decadal droughts-S2S
 - Climate change adaptation for agricultural industries
 - Producing enhanced “named-peril” crop insurance systems /similar index-based systems
 - Improved crop yield and production forecasts
 - Developing products for use in drought monitoring: drought indices
 - Developing and customising decision support tools
 - Revamping Managing for Climate user engagement Workshops
 - Crop production modelling under climate change and regional adaptation
 - Assessing the economic value of improved climate risk management strategies through the application of seasonal climate forecasts for key agricultural industries
-
- sub-seasonal to seasonal climate variability and their impact on US drought.
 - Assess and utilise decadal prediction systems
 - Evaluating/developing dynamical climate models: includes hybrid statistical-dynamical type techniques
 - Assess ‘flash droughts’ – short term development of severe droughts.
 - Linking land surface initial conditions with modelling to provide an important source for skilful drought forecasts
 - interdisciplinary research and applications: - to ensure federal research is as coordinated and integrated into decision-making as practicable, inspiring interaction between the research community and beneficiaries.

Qld Drought Mitigation Centre

NIDIS/USDMC

The Risk Management and Risk Transfer challenge



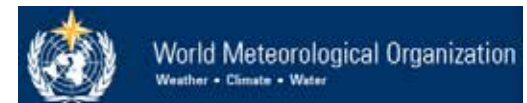
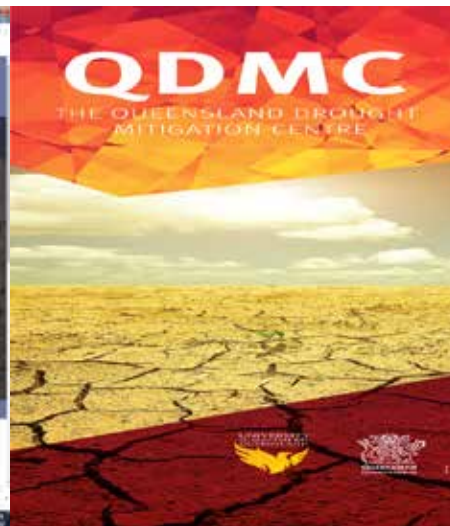
A portfolio of climate adaptation measures is required to address the total climate risk (Mushtaq).

Source: Swiss Re (Economics of adaptation)

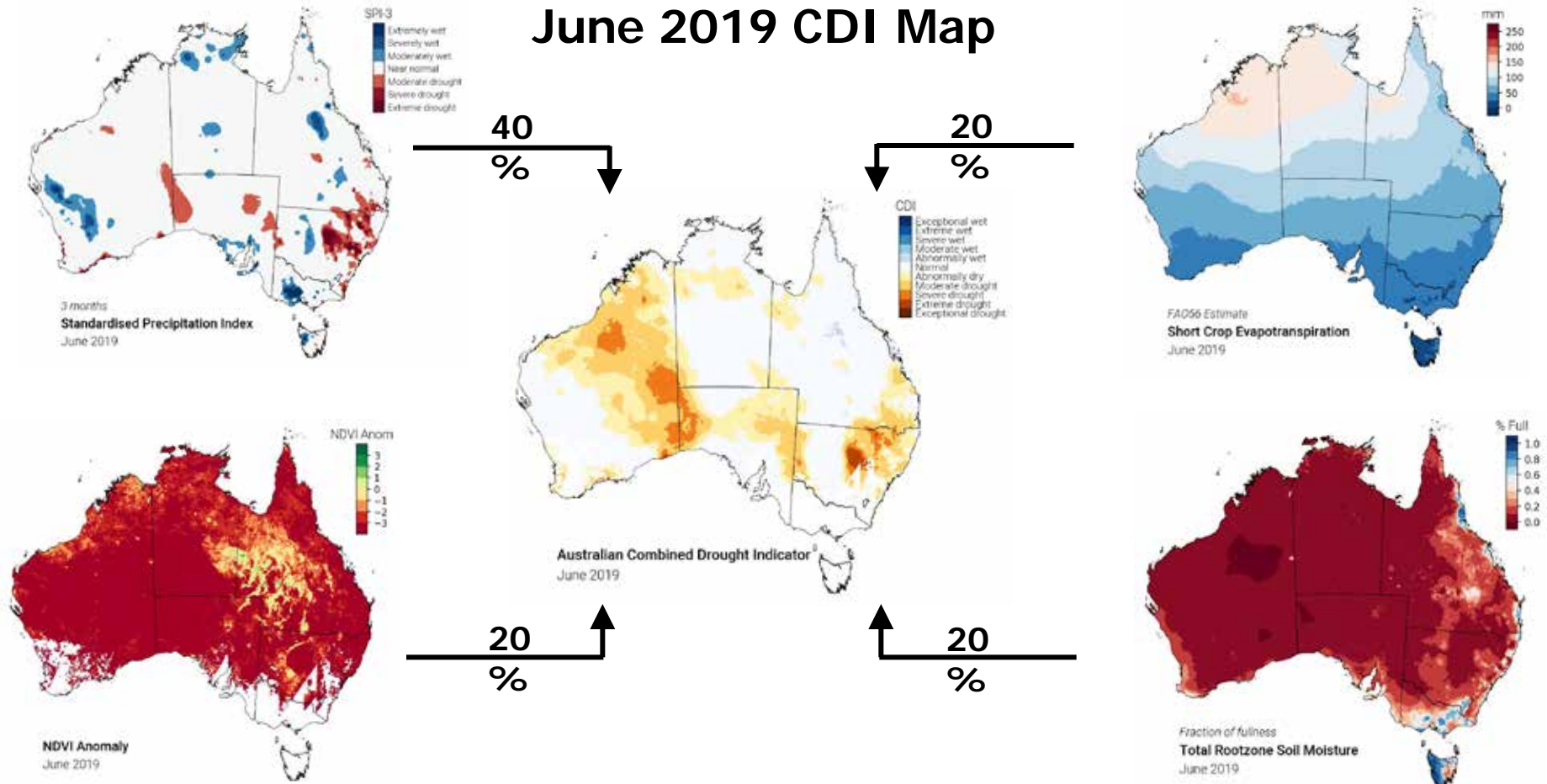
Global leadership building blocks : High value in an international collaborative drought research and development framework that has a focus on management systems – we cannot do it alone.



Towards an International Drought Mitigation Centre



June 2019 CDI Map



The value of QDMC NDMC collaboration



Integrated Drought Management Programme Working Paper No. 1

Benefits of action and costs of inaction: Drought mitigation and preparedness – a literature review

Nicolas Gerber and Alisher Mirzabaev

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About the authors

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Correct citation:

World Meteorological Organization (WMO) and Global Water Partnership (GWP) (2017). Benefits of action and costs of inaction: Drought mitigation and preparedness – a literature review (N. Gerber and A. Mirzabaev). Integrated Drought Management Programme (IDMP) Working Paper 1. WMO, Geneva, Switzerland and GWP, Stockholm, Sweden.

Abstract

This review of available literature on the benefits of action and costs of inaction of drought mitigation and preparedness shows that significant progress has been made over the past decade in improving understanding of droughts and their impacts. However, significant gaps in research, policy and practice remain, particularly regarding the merits of risk management compared with traditional crisis management approaches.

The findings highlight the need for mutually compatible methodologies as a means of comprehensively assessing drought costs and impacts. Presently, many available estimates of drought costs are partial and difficult to compare. The problem is compounded by the lack of data on droughts and their impacts. Moreover, relatively little knowledge is available on the costs of indirect and longer-term drought impacts.

The costs of action against droughts are classified into three categories: preparedness costs, drought risk mitigation costs and drought relief costs. This paper reviews several methodologies for making economic drought impact assessments and describes the main obstacles and opportunities facing the transition from crisis management to risk management. It identifies drivers of ex ante and ex post action against drought and highlights actions that are associated with co-benefits beyond drought risk management.

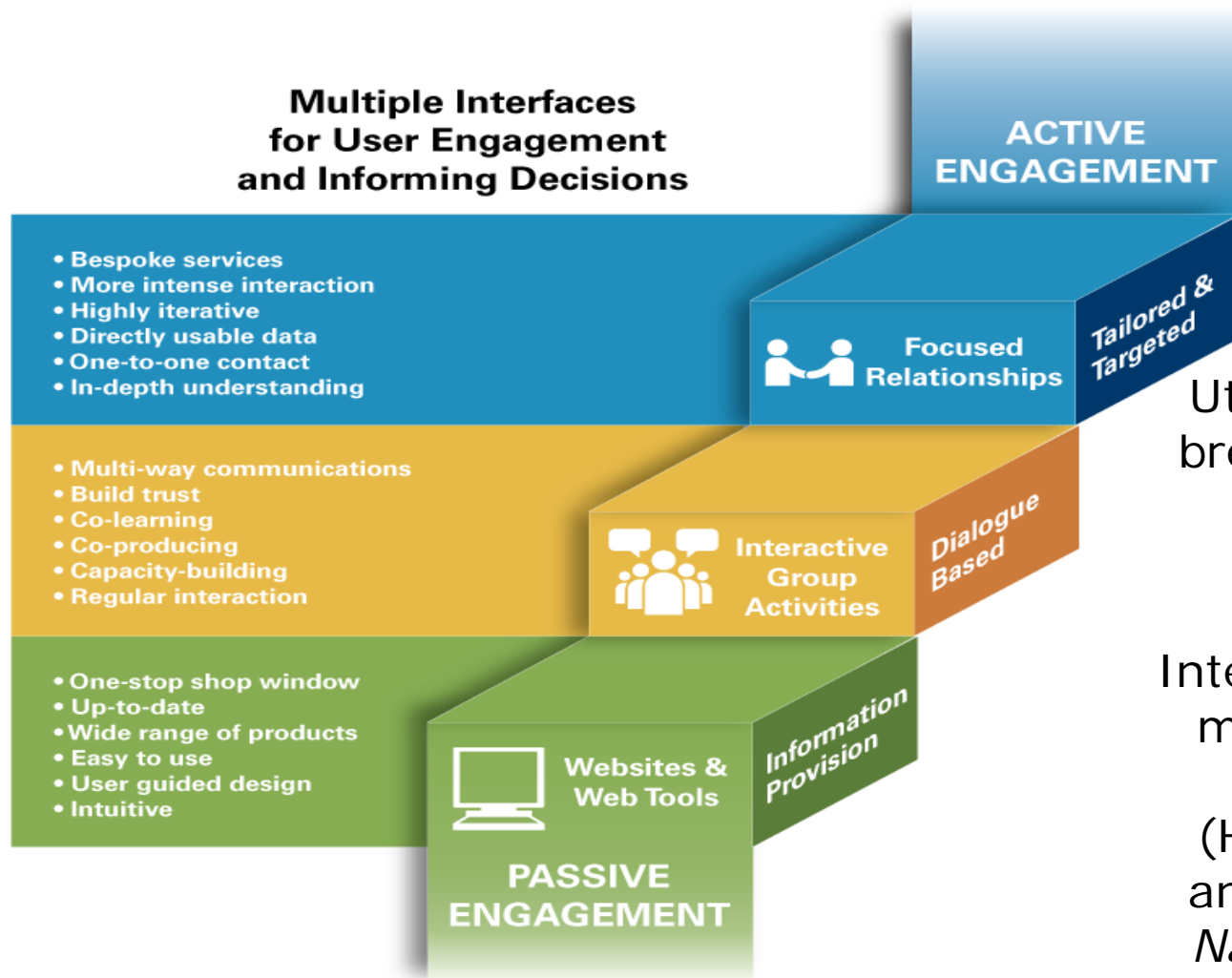
1. Introduction

Droughts are major natural hazards and have wide-reaching economic, social and environmental impacts. Their complex, slow and creeping nature; the difficulty of determining their onsets and endings; their site-dependence; and the diffuse nature of their damage (Below et al. 2007) make the task of comprehensively and accurately determining the cost of droughts a highly challenging one. These difficulties are compounded by a lack of data on droughts and their impacts (Changnon 2003), especially in low-income countries.

USQ and Univ Nebraska
are members of IDMP



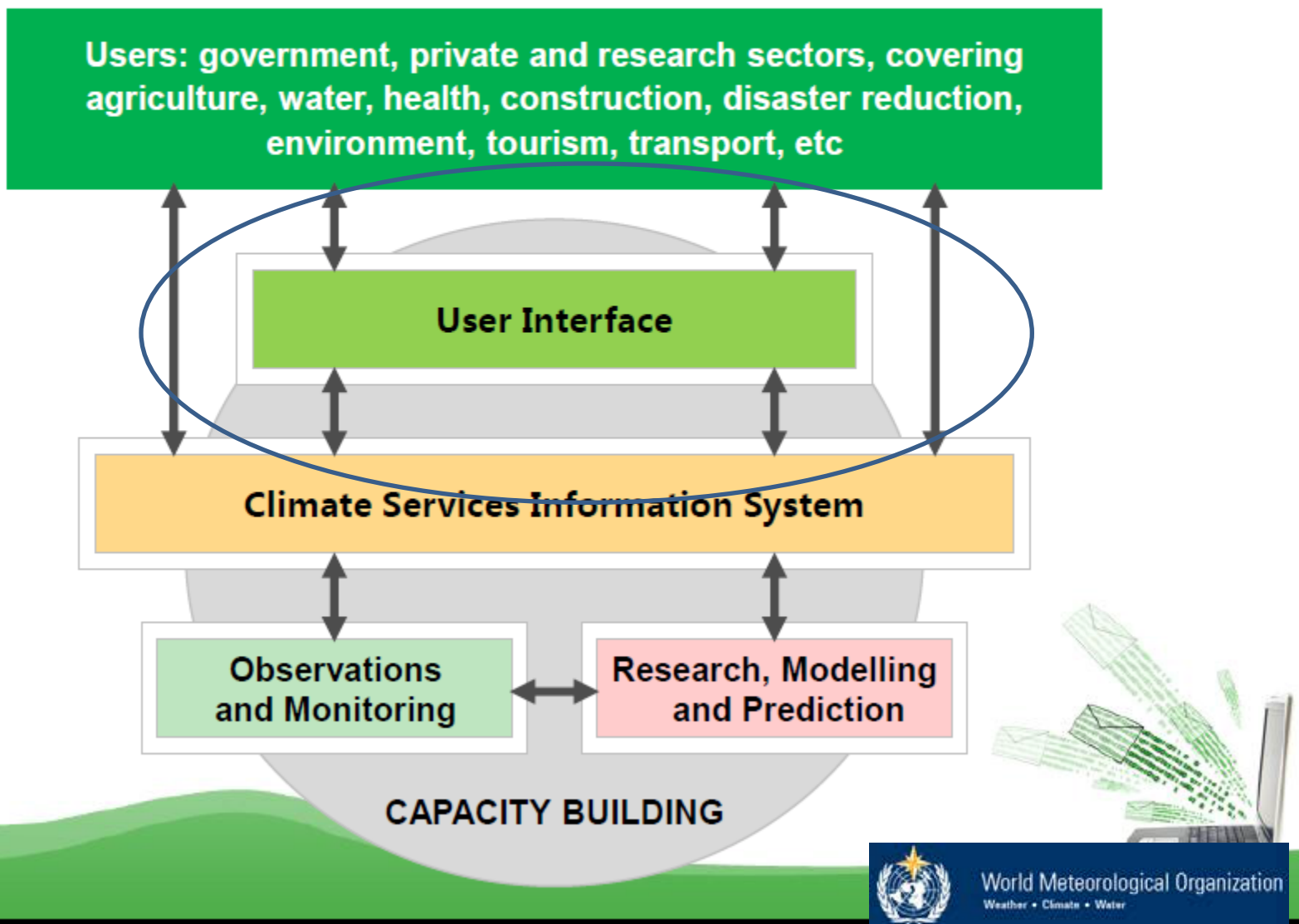
WHAT ARE THE USERS' NEEDS?



Utilise WMO ET
breakthroughs -
CCI
ET
User
Interface/decision
making , 2017

(Hewitt, Stone
and Tait, 2017)
*Nature Climate
Change*

Components of the Global Framework

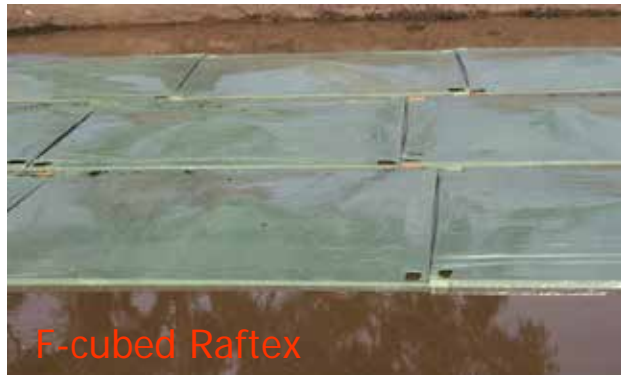




Netpro
shadecloth



Rio-Tinto
Aquacaps



F-cubed Raftex



ECS E-VapCap

Physical covers for the protection
of agricultural water



Drought insurance tool example

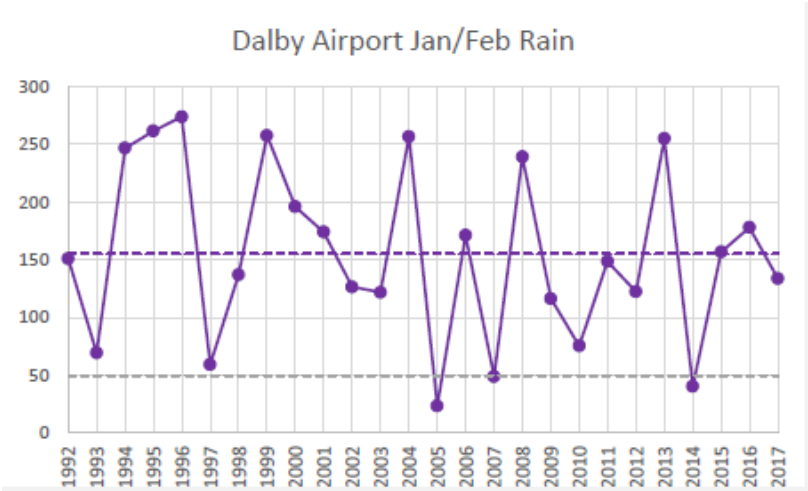
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Inputs	
Attachment Strike	50
Limit Strike	0
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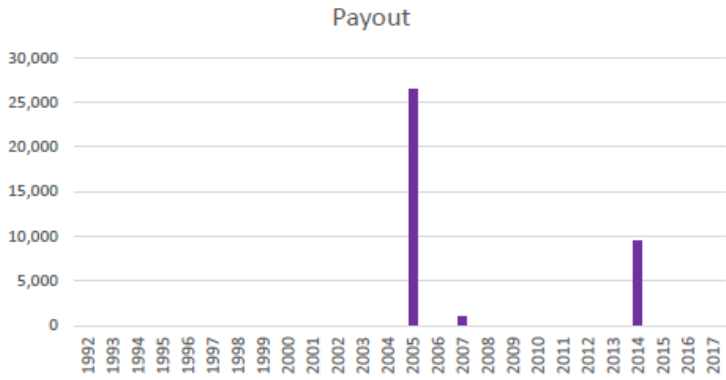


Crop losses from low seasonal rainfall

→ 2. Assess when low seasonal rainfall occurs



↓ 3. Calculate payouts for when low seasonal rainfall occurs



Next steps:

FUNDING.

Discussing with key agencies - eg Green Climate Fund,
International Climate Initiative (IKI)(German Government), World
Bank, etc

Acknowledgements:

Bob Stefanski

Frederik Pischke

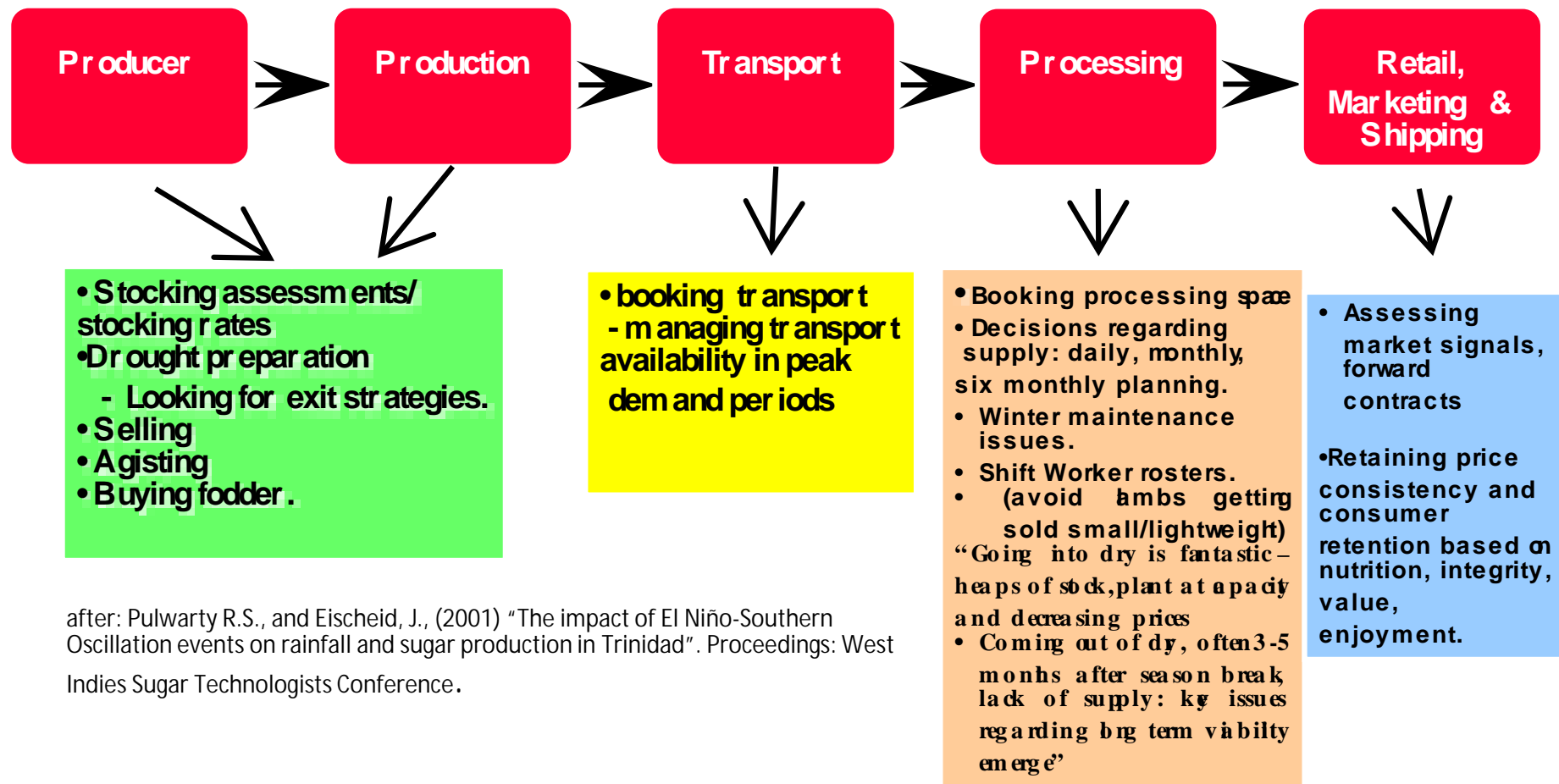
Mark Svoboda

Roger Pulwarty

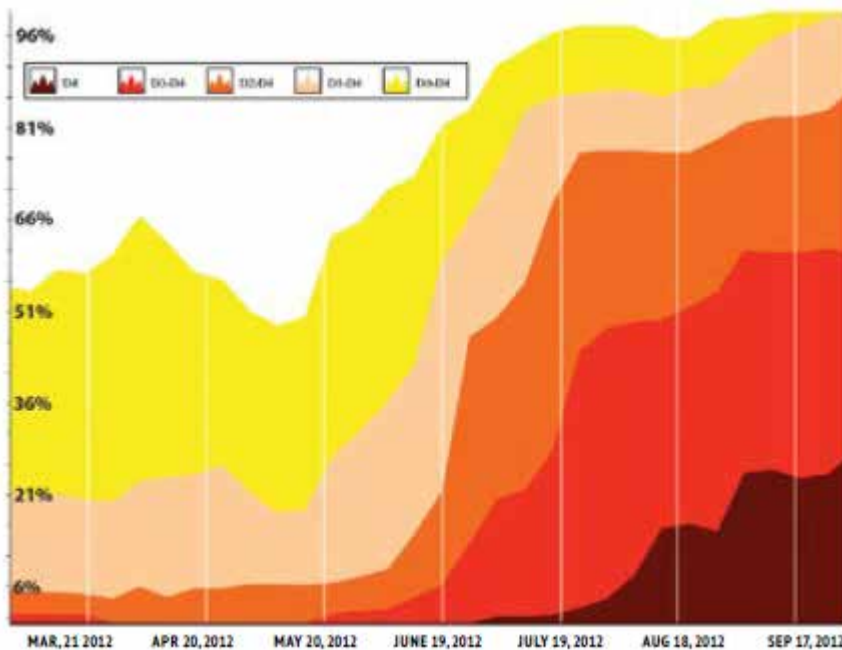


Thank you

Climate/drought information/forecasting research and capacity building has no value unless it changes a management decision...



after: Pulwarty R.S., and Eischeid, J., (2001) “The impact of El Niño-Southern Oscillation events on rainfall and sugar production in Trinidad”. Proceedings: West Indies Sugar Technologists Conference.

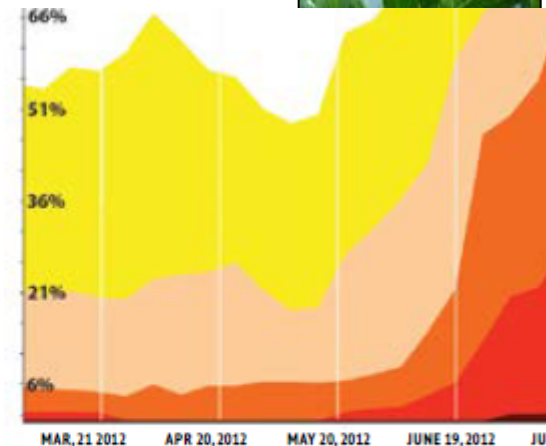


‘flash droughts’ (NIDIS)

“Flash droughts,” or droughts that develop quickly, on the order of weeks as opposed to months or years, are still not well understood. Although much has been learned in recent years, there remain questions on physical processes that drive flash droughts, predictability of these droughts, and the capability of current models to predict them. For instance, are certain flash droughts more predictable than others, and if so why? Which events are primarily temperature vs. precipitation controlled? Although the latter question is applicable to multiple time scales of drought duration, this Group plans to focus on sub-seasonal events.

3. Pursue dynamical model post-processing strategies.

Precipitation prediction at leads greater than two weeks remains considerably



Flash droughts – initially innocuous droughts that, within a matter of a few weeks, become very severe



“Applying seasonal climate forecasting and innovative insurance solutions to climate risk management in the agriculture sector in SE Asia” – expected outcomes – (‘IKI’ German Government).



World Meteorological Organization
Weather • Climate • Water

- Enhanced targeting of seasonal climate forecasts to management needs. Smallholder farmers and businesses engaged with the agricultural value chain are better shielded from physical and financial disaster associated with climate change if seasonal climate and agricultural.
- Better quantification of risks, together with improved risk management strategies of smallholder growers, will allow re/insurance companies to develop better targeted and affordable insurance products.
- Financial risks to smallholder farmers and agribusiness are alleviated if targeted/affordable risk transfer mechanisms, through (for example) innovative index-based insurance programs, and are easily accessible/fully supported by national and regional adaptation and risk management plans.





THE NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM **IMPLEMENTATION PLAN** DECEMBER 2016 UPDATE



Logistics-in-Brief

Contact Alyson Wright with any questions: awright@agci.org | 603-493-2199

To book flights: contact Paula Hudson paula@ski.com | 1-800-525-2052 ext. 3029



Meeting Location: The meeting will take place at the Annabelle Inn at 232 W Main St. in Aspen.

Internet Access: The hotel and meeting space have high-speed wi-fi available. AGCI has a Mac laptop to run all presentations. Please have your presentation prepared to transfer in advance of your presentation.

Dress & Weather: Please dress in layers to accommodate temperature variations throughout the day (during the day it could be warm or chilly (up to 68 deg F/20 deg C) and chilly at night (as low as 32 deg F/0 deg C). Dress for the meeting and dinners is casual. Rain gear is advised for afternoon showers.

Altitude: Aspen is at an elevation of 7,908 ft (2,410 m) above sea level. It is important to drink more water than normal before arriving and throughout your stay to prevent altitude sickness. Be aware alcohol might affect you faster. Please consult a physician before coming to Aspen if you have any altitude related health problems.

