

A Modest Attempt to Take the "I" out of the "Hydro- Illogical" Cycle

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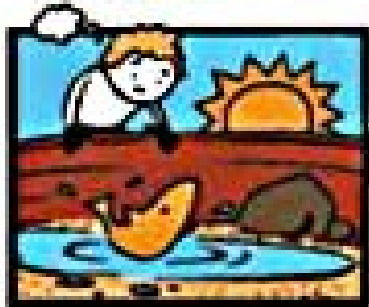
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This process has been
facetiously described as the

“El Ninny Effect”

or the

Hydro-illogical cycle.



CONCERN



PANIC



RAIN

**THE
HYDRO-ILLOGICAL
CYCLE**



AWARENESS



DROUGHT



APATHY

Why Does This Occur?

- Resources are allocated to the most clear and present danger.
- *When it rains* the sense of vulnerability to drought diminishes dramatically.
- **Risk = Vulnerability x Hazard (drought)**

- Yet we save for retirement when we expect our working income stream will suffer a drought?
- What is the difference?

Could it Be Advertising?

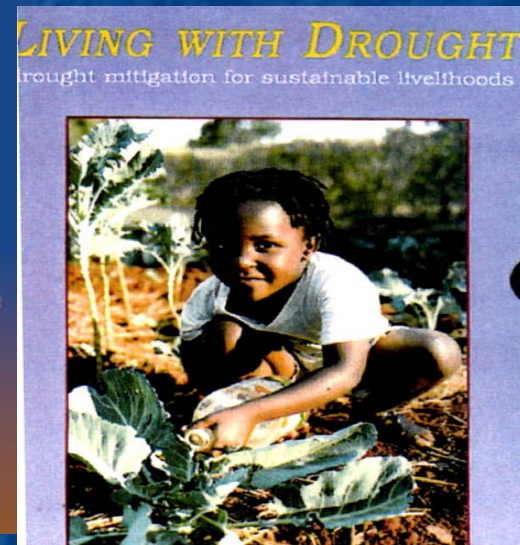
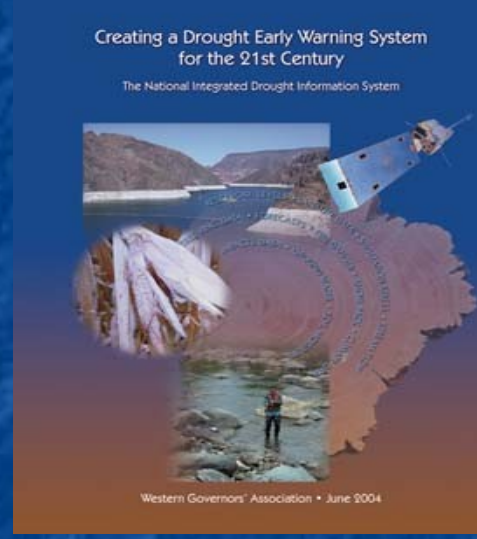
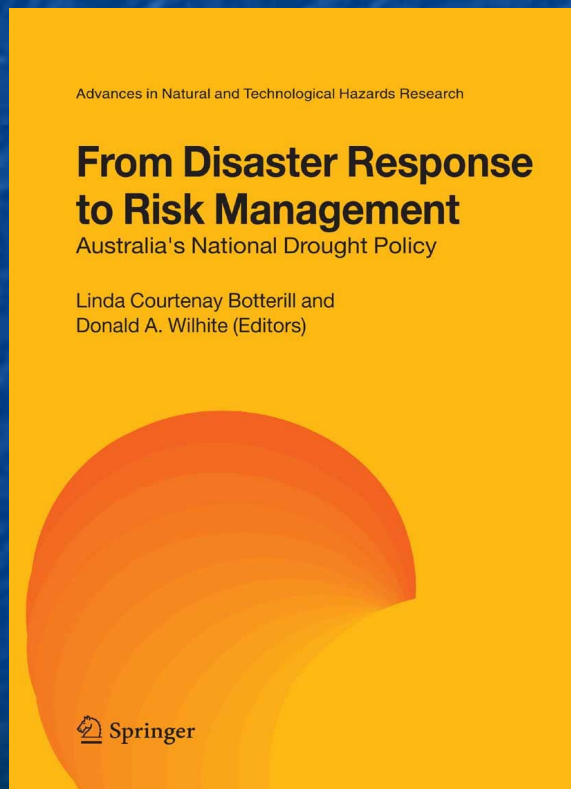


RETIREMENT

Hey... you! You'll never get there unless you stop looking at this poster and get back to work!

- The Mutual Fund Industry keeps most of us at a healthy level of guilt regarding our retirement finances.
- Is there any equivalent form of advertising for drought?
- Are there any mechanisms to convert that process into tangible proactive responses?
- Our international competitors and colleagues do.

Many Have Adopted a Risk Awareness Vs. Crisis Management Approach



Drought Science and Drought Policy in Australia: A Risk Management Perspective

Greg Laughlin and Anthony Clark
Bureau of Rural Sciences, Department of Agriculture, Kingston, Australia

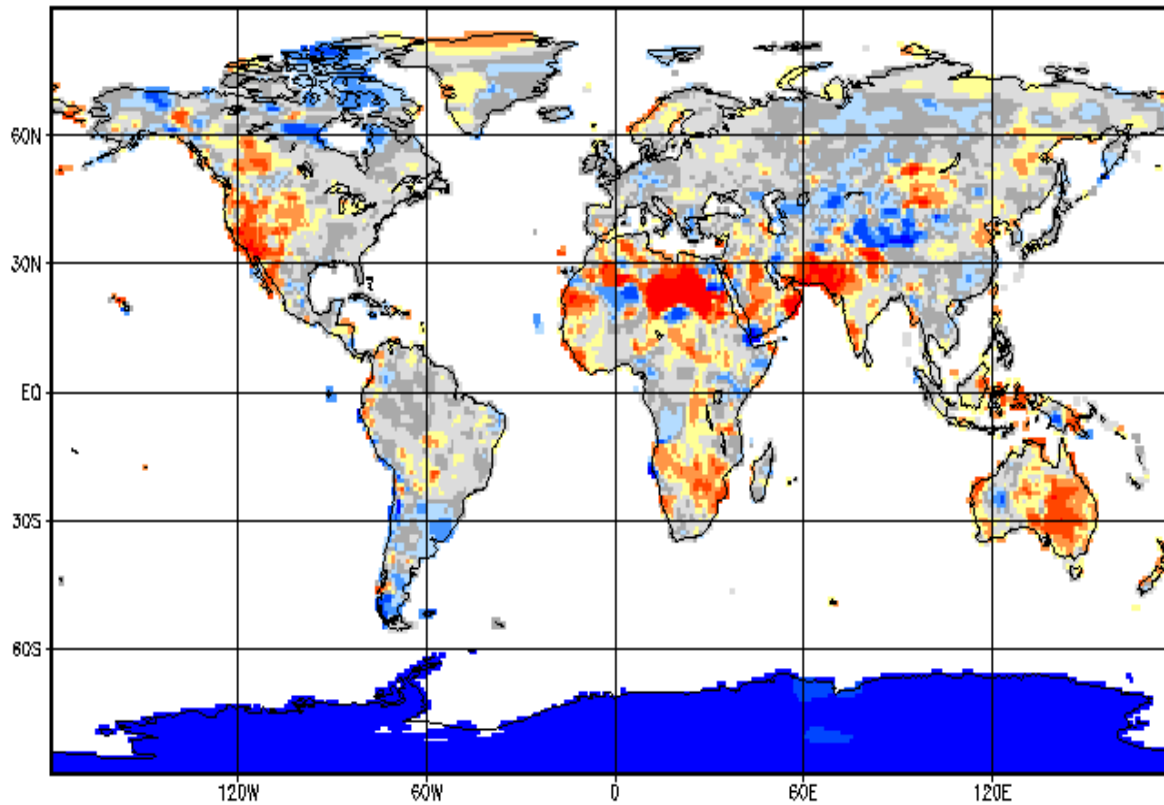
Abstract

This paper describes Australian science about, and policies to deal with, drought from a risk management perspective. Coverage includes a review of recent policies, the role that the Bureau of Rural Sciences (BRS) plays within the Commonwealth Department of Agriculture, Fisheries and Forestry-Australia in relation to drought, and Australian examples of seasonal forecasting tools and services.

http://www.drought.unl.edu/MONITOR/EWS/ch3_Laughlin.pdf

PRECIPITATION DEFICITS in 2002

GPCC Monitoring Product Gauge-Based Analysis 1.0 degree precipitation percentage of normals 61/90 for year (Jan - Dec) 2002



GPCC

FRACTION OF NORMAL (%)

**GLOBAL
PRECIPITATION
ANOMALY: 2002**

One Small Step to Address The Challenge

- Develop a process to **assess current drought preparedness.**
- **Assess preparedness to future results**
- Utilize results of assessments to **improve understanding and to reduce drought vulnerability or increase resiliency.**

The Players



With their Partnership Advisory Committee



Drought Preparedness Assessment Exercise

- A “war game” or simulation to assess the preparedness of organizations and regions to droughts of varying intensities.



Example

- **Host a retreat where a group of people responsible for drought response walk through a recent drought in cross sections:**
 - **A range of physical and social information at each cross section is provided**
- **Then Assess:**
 - **If they could respond more, or less, effectively now.**
 - **Could the response be different if advances in our knowledge could be provided earlier or in a new format.**
 - **If the same drought were to occur 30 years from now with anticipated physical and socio-economic trends would the current responses and preparedness be sufficient?**
 - **Would proactive adaptation and mitigation efforts be required?**

DROUGHT RESEARCH INITIATIVE

The objectives of DRI are:

- **To better understand the physical characteristics of and processes influencing Canadian Prairie droughts, and**
- **To contribute to their better prediction**
- **To contribute to societal concerns regarding drought**

Strategy:

- **Focus on the recent severe drought that began in 1999 and largely ended in 2005**

Score Card

- **At the end of the exercise the assessment produces a “Score Card” of relative readiness for a drought of equivalent intensity now and in the future.**
- **This “Score Card” approach can then open the dialogue as to the proactive investments that could have the highest value in the short term.**
- **It also helps condition the discussion as to:**
 - **The longer term investments that may be required,**
 - **The institutional adjustments that may need to be done, and**
 - **The areas that require further research or technical transfer.**

Factors To Consider In The Score Card

- Monitoring
- Reporting
- Forecasting
- Adaptation
- Mitigation
- Response
- Economic implications of proactive investment versus ad hoc response

Where Could this Go?

- Currently the approach is being developed
- As it is refined the types of droughts can be expanded to address **other droughts** and **multi-decadal** droughts that Sauchyn and others have identified as threats.
- It could become a standard part of Canada's adaptation activities as it addresses the public's concerns regarding longer term climate trends.
- The approach if institutionalized could support the efficient allocation of resources to reduce Canadians' vulnerability and enhance their resiliency to drought.

Internationally

- **Canada does not (and should not) address droughts in isolation.**
- **This mechanism could provide a basis for improving North America's drought monitoring activities.**
- **It could also provide a basis for common dialogue on cross-border drought preparation and responses with the United States and Mexico.**
- **It might provide the first step towards a more integrated approach such as the NOAA RISA program.**



Regional Integrated Sciences and Assessments

**Building
Bridges Between
Climate Sciences
and Society**

[http://
www.climate.noaa.gov/cp](http://www.climate.noaa.gov/cp)

Sustainable Decision Support

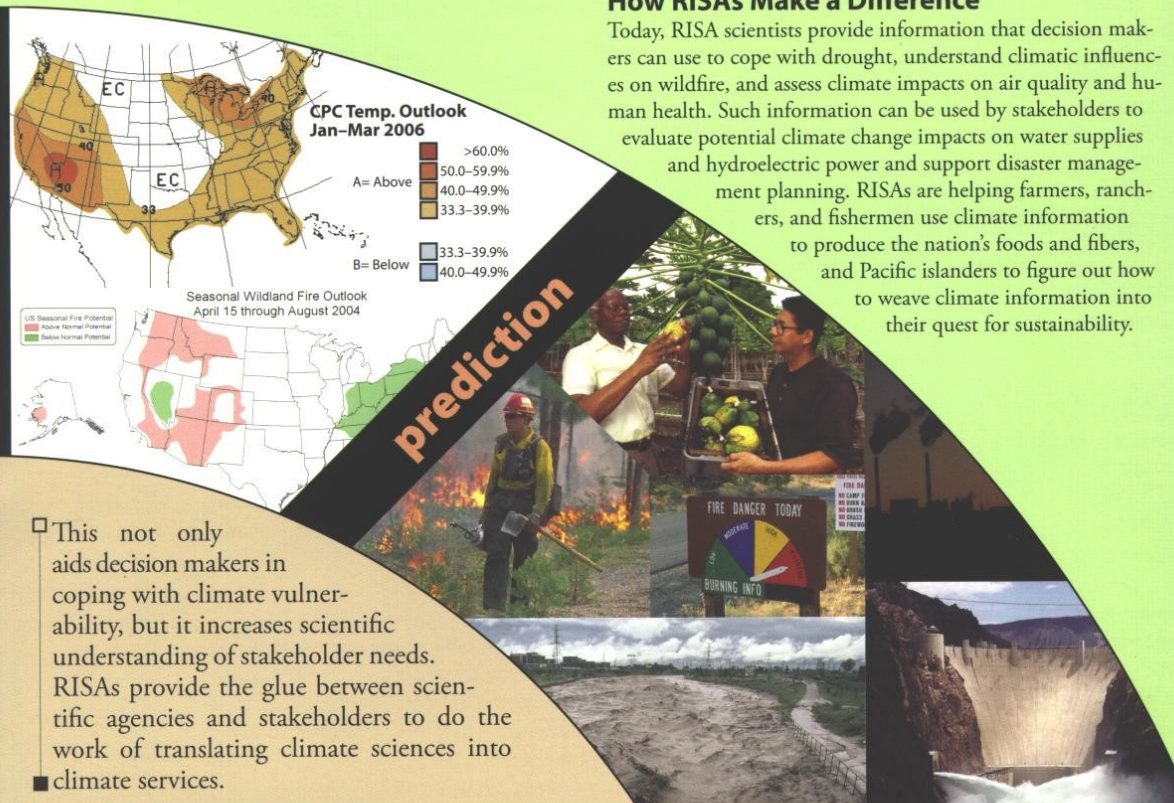
Climate information is just one of the many types of knowledge stakeholders need to make effective decisions. Helping people determine how to combine climate information with other types of knowledge is part of integrated assessments. Another part is making sure that decision support meets the needs of local, state, and federal agencies. The RISAs also build sustainable decision support by establishing long-term trust and open dialogue in close partnership with communities, the public and private sectors, and nonprofit organizations. Because they are based in universities and other scientific institutions, the RISAs offer opportunities for future scientists and decision makers to be trained in the production and use of integrated climate knowledge and ultimately to meet the ever-growing demand for climate knowledge in decision support.

Place-Based Integrated Climate Sciences

The RISA approach puts regional- and local-scale research front and center. This research is a primary part of building and nurturing effective climate services. Each of the RISA projects comprises experts from the biophysical and societal sciences who work with regional and/or local stakeholders to address important climate impact issues and information needs in their area. The RISAs link climate observations and predictions with vulnerability, institutional, and economic assessments. As a result they are creating a wealth of knowledge about who or what is vulnerable to climate at various time and spatial scales. In working with stakeholders and partners to create products that can help reduce vulnerability, the RISAs are building bridges that will sustain two-way flows of information between science and society.

How RISAs Make a Difference

Today, RISA scientists provide information that decision makers can use to cope with drought, understand climatic influences on wildfire, and assess climate impacts on air quality and human health. Such information can be used by stakeholders to evaluate potential climate change impacts on water supplies and hydroelectric power and support disaster management planning. RISAs are helping farmers, ranchers, and fishermen use climate information to produce the nation's foods and fibers, and Pacific islanders to figure out how to weave climate information into their quest for sustainability.



□ This not only aids decision makers in coping with climate vulnerability, but it increases scientific understanding of stakeholder needs. RISAs provide the glue between scientific agencies and stakeholders to do the work of translating climate sciences into climate services.

- Droughts are an inherent aspect of Canada's climate.
- Let's ensure that we are ready for them!

References

- Sauchyn, D.J. 2005. A 250-Year Climate and Human History of Prairie Drought. *In* Sauchyn, D.J., Khandekar, M, and Garnett, E.R. (eds.) "The Science , Impacts and Monitoring of Drought in Western Canada: Proceedings for the Canadian Prairie Drought Workshop", Calgary, Alberta, May 26-28, 2004.
- Wilhite, D.A. and R.S. Pulwarty. "Lessons Learned and the Road Ahead." Chapter 15, *Drought and Water Crises*, D.A. Wilhite Ed. Taylor and Francis, 2005.

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