Managing Drought Risk in a Changing Climate: *The Role of National Drought Policies*

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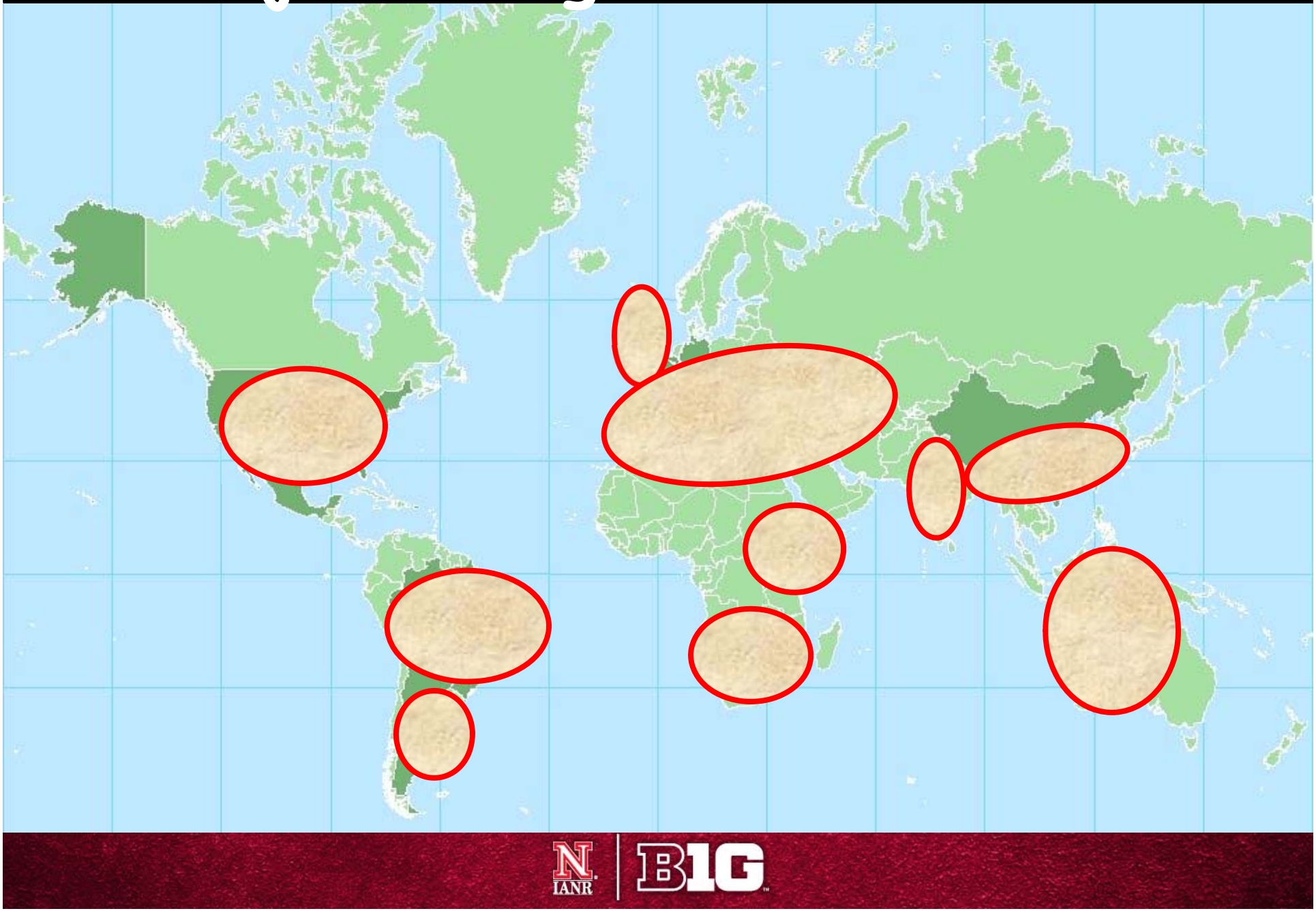
APEC Climate Symposium 2013: Regional Cooperation in Drought Prediction Science to Support Disaster Preparedness and Management (Jakarta, Indonesia)

Presentation Outline

- The **MANY FACES OF DROUGHT**
  - **Drought as hazard, characteristics, definition**
- Breaking the **HYDRO-ILLOGICAL CYCLE**
  - **Crisis management**
- Our **CHANGING CLIMATE—CHANGING VULNERABILITY**
- Building **SOCIETAL RESILIENCE**
  - **Drought monitoring and prediction, early warning/information systems**
  - **Vulnerability/risk/impact assessments**
  - **Mitigation and response measures**
- Moving towards a **POLICY FRAMEWORK** that enhances preparedness and risk reduction
  - **Compendium of best practices in support of NDMP**
  - **Regional Capacity Building Workshops**
  - **Integrated Drought Management Programme (IDMP)**

The Many Faces of Drought

Major Drought Areas—2012



Defining Drought

-Hundreds of definitions—application and region specific

Drought is a deficiency of **precipitation** (**intensity**) from expected or "normal" that extends over a season or longer period of time (**duration**) . . . . .

Meteorological Drought

and is insufficient to meet the demands of human activities and the environment (**impacts**).

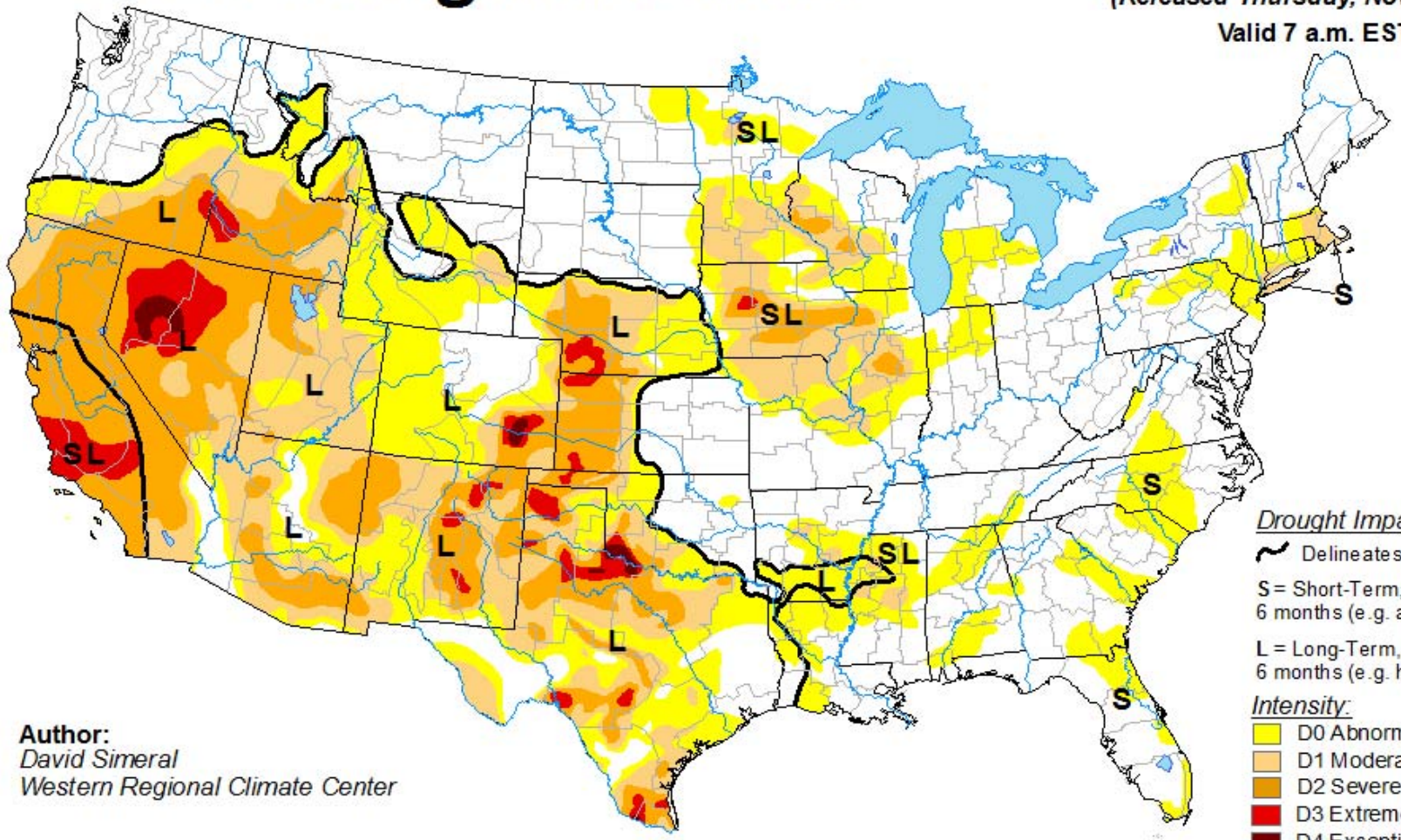
Agricultural, Hydrological and Socio-economic Drought

U.S. Drought Monitor

November 5, 2013

(Released Thursday, Nov. 7, 2013)

Valid 7 a.m. EST



Author:
David Simeral
Western Regional Climate Center

Drought Impact Types:

Delineates dominant impacts

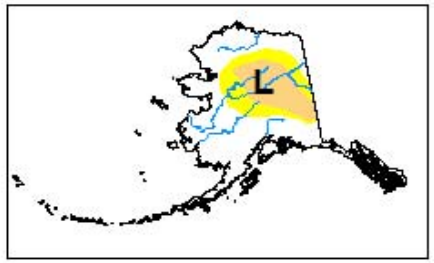
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

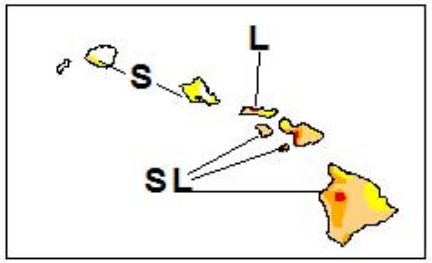
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

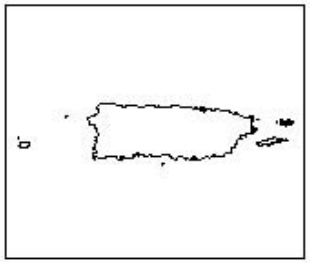
Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.





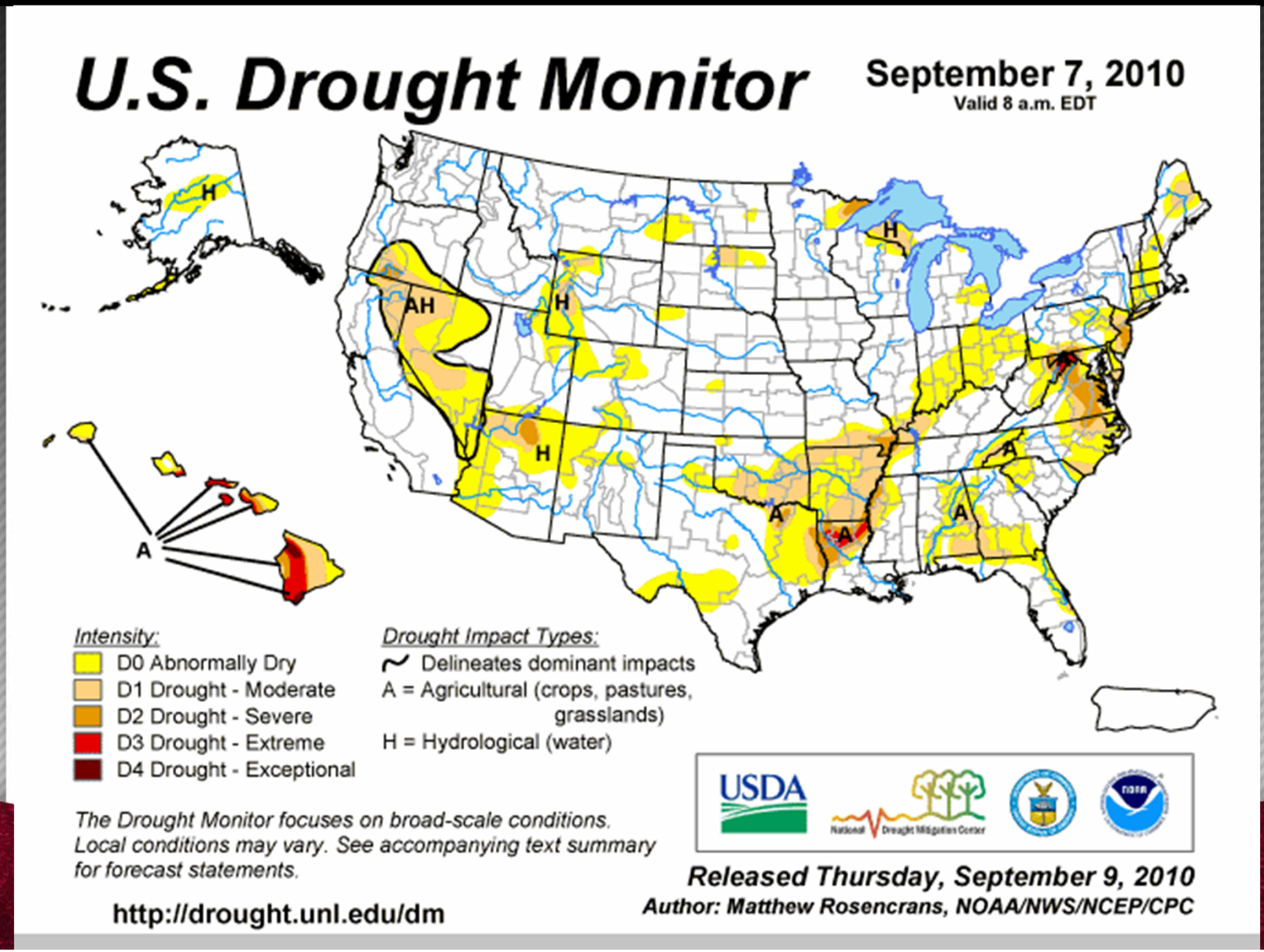


USDA

National Drought Mitigation Center

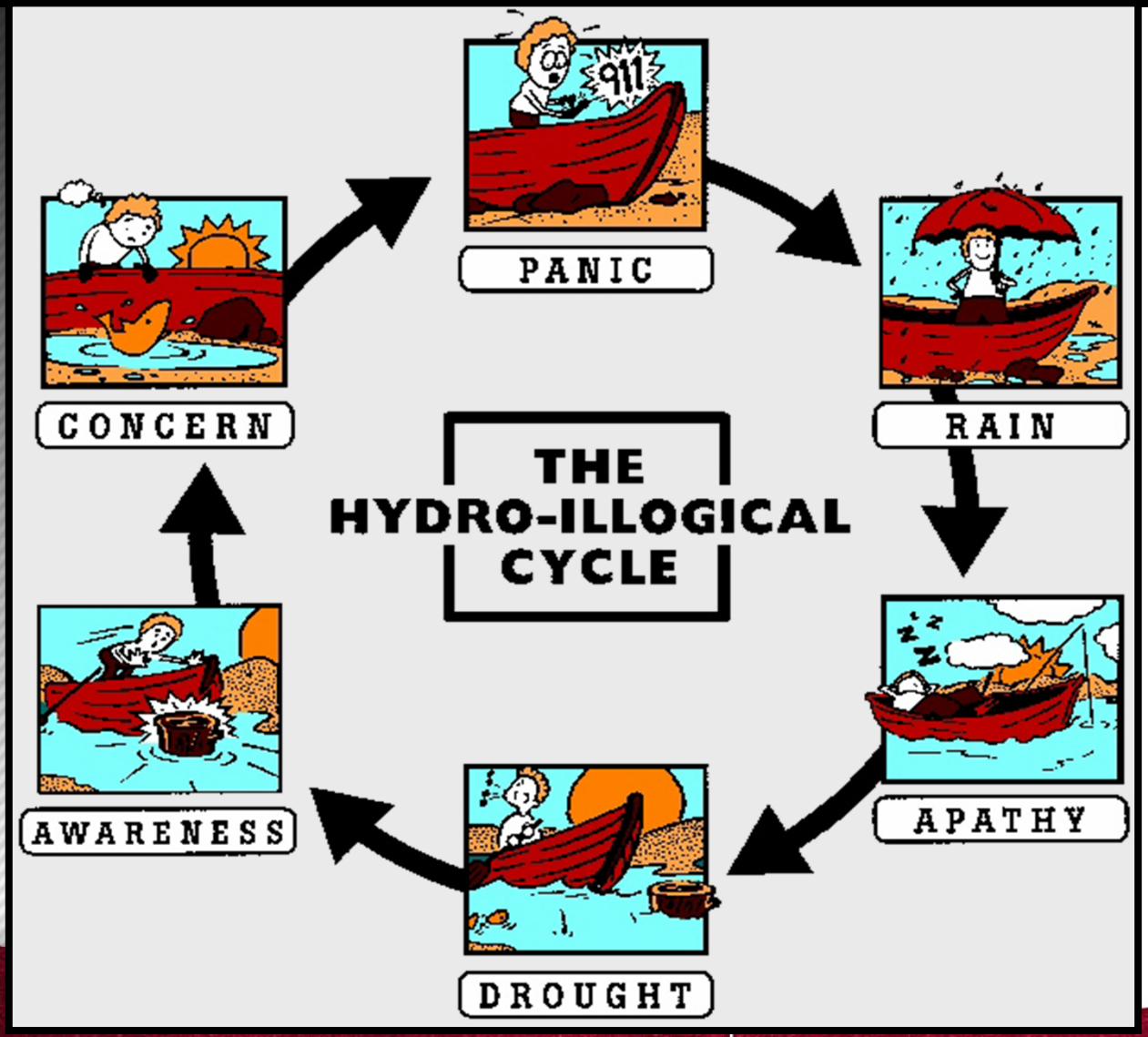
http://droughtmonitor.unl.edu/

3 Year Animation—USDM, 2010-2013



Breaking the Hydro-illogical Cycle:

An Institutional Challenge for Drought Management



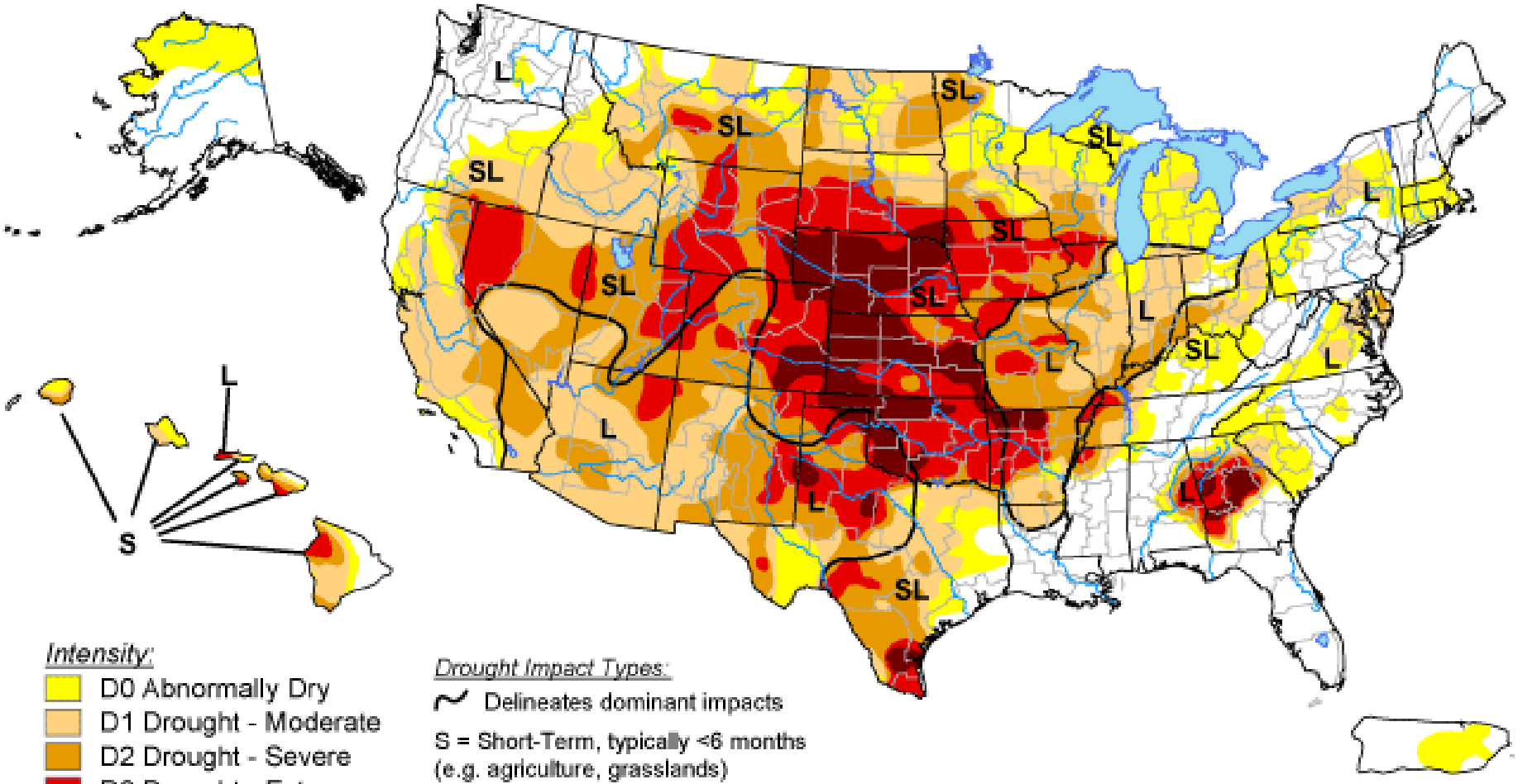
Crisis Management

If you do what you've always done, you'll get what you've always got.

We MUST adopt a new paradigm for drought management!

U.S. Drought Monitor

September 11, 2012
Valid 7 a.m. EDT



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http://droughtmonitor.unl.edu/

Released Thursday, September 13, 2012

Author: David Simeral, Western Regional Climate Center

Drought Disaster Designations

October 10, 2012

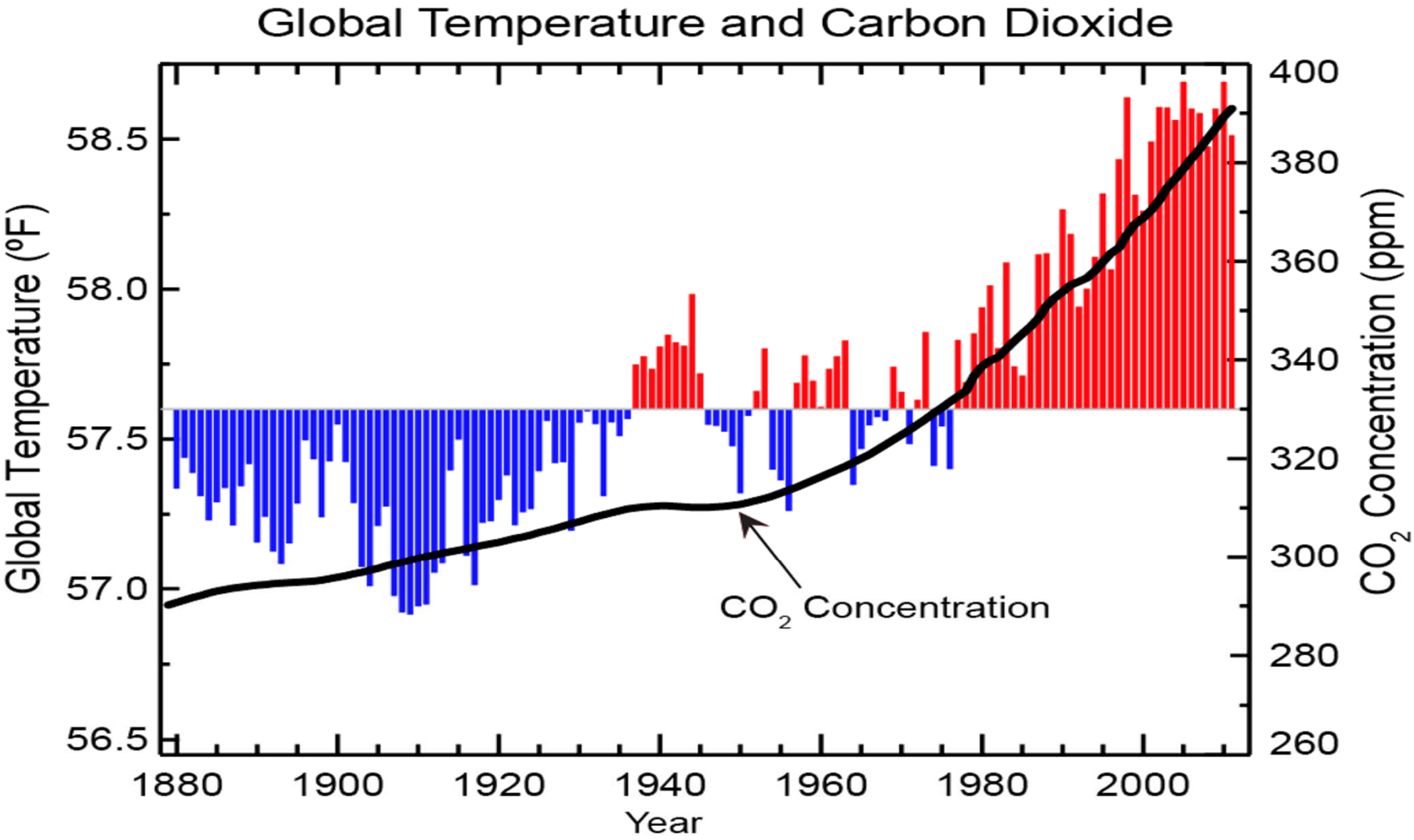
- 2012, $17.4 billion in crop insurance indemnities
- 2011-12, $28 billion in crop insurance indemnities
- $62 billion spent on U.S. disaster relief, 2011-12
- Total drought impacts ~ $35-70 billion, 2012
- Superstorm Sandy ~ $50 billion
- Total U.S. drought losses, 1980-2012 ~$250 billion
- Total European drought losses, 1982-2012 ~$100 billion

CRISIS MANAGEMENT

Emergency response has a place in drought risk management, but it can also lead to:

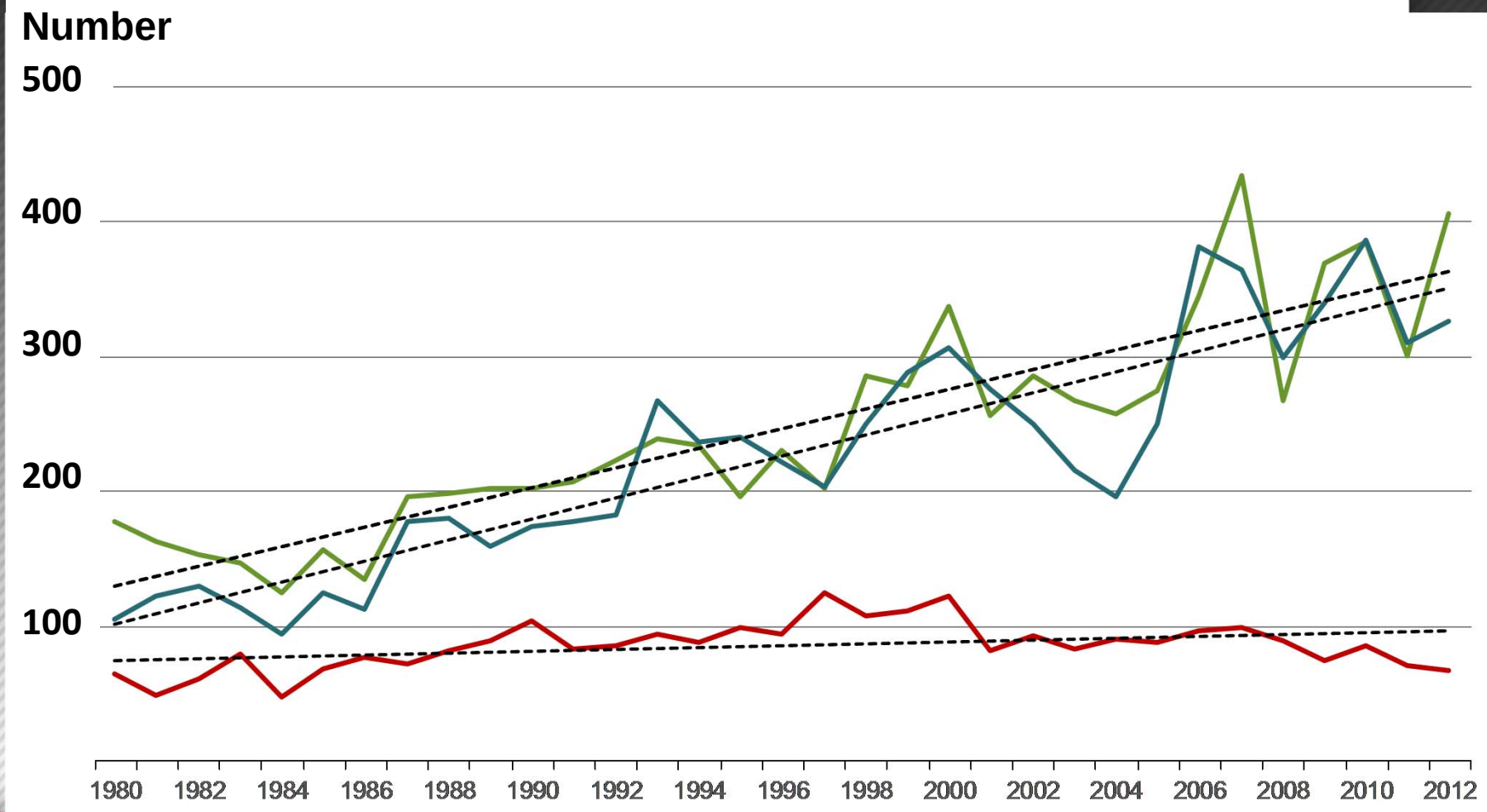
- **greater vulnerability/decreased resilience to future drought events**
- **increased reliance on government and donor interventions.**

Our Changing Climate



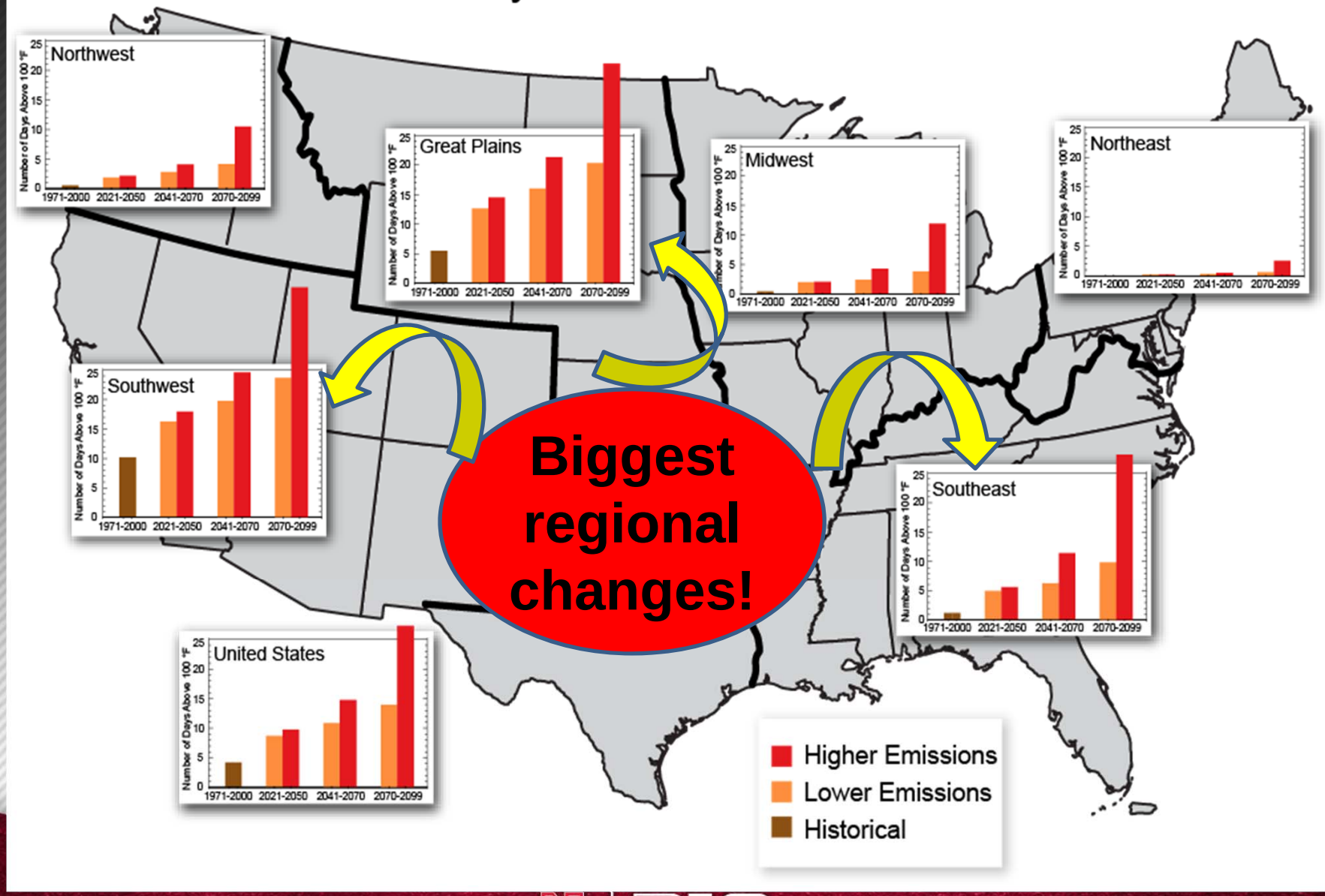
There is a close correlation between CO_2 and temperature that has been verified through many lines of research . This graph shows the relationship of temperature and CO_2 over the last 130 years.

Natural Catastrophes Worldwide
1980-2012



Source: Munich Re

Days Over 100°F



The Climate Challenge for Drought Management

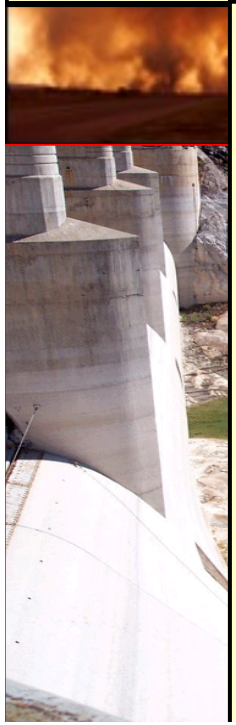
- Increasing mean temperature
- High temp. stress and heat waves/longer

Are droughts increasing in frequency, intensity and duration?

distribution and intensity
- Reduced soil moisture
- Changes in groundwater recharge
- Reduced runoff/stream flow resulting from reduced snowpack/sublimation

Changes in Societal Vulnerability

Drought impacts are more complex today as more economic sectors are affected, creating more conflicts between water users, i.e., *societal vulnerability is dramatically different and changing*.

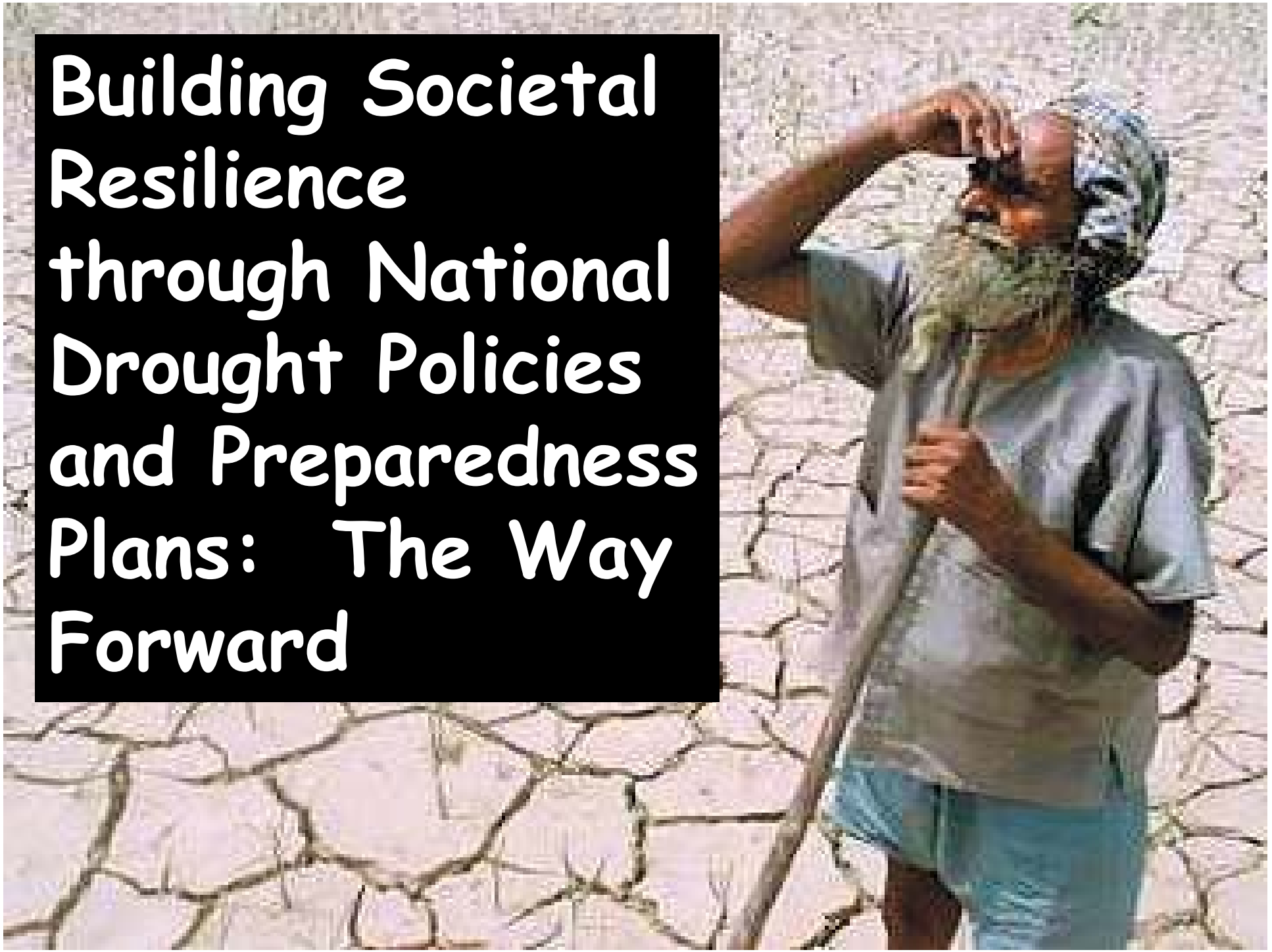


- Agricultural production
- Food security
- Energy
- Transportation
- Tourism/Recreation
- Forest/rangeland fires
- Municipal water
- Water quality/quantity
- Environment
- Ecosystem services
- Health

Reducing Societal Vulnerability

- Improve **drought awareness**
- Develop/improve monitoring, seasonal forecasts, early warning and **information delivery** systems
- Improve **decision support** tools
- Complete **risk assessments** of vulnerable sectors, population groups, regions
- Improve understanding and quantification of **drought impacts vs. mitigation costs**
- Develop and implement **drought preparedness plans**
- Create **national drought policies** based on the principles of risk reduction

Building Societal Resilience through National Drought Policies and Preparedness Plans: The Way Forward

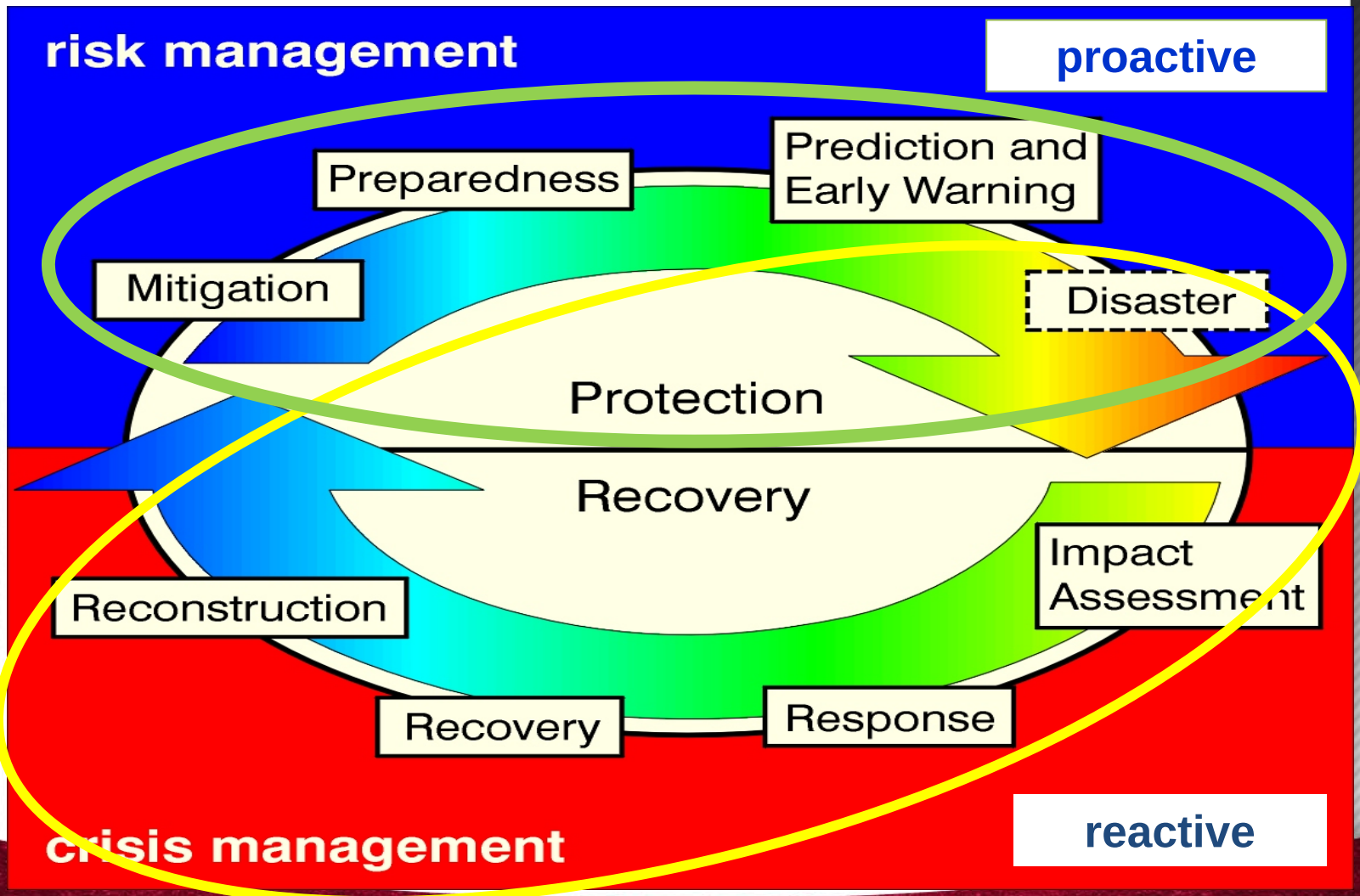


Types of Policy Responses

- Post-impact government interventions—relief measures (i.e., **crisis management**)
- Pre-impact government programs—mitigation measures to reduce vulnerability and impacts, including insurance programs
- Risk-based drought policies and preparedness plans, organizational frameworks and operational arrangements

The Cycle of Disaster Management

Risk management increases coping capacity, builds resilience.



Crisis management treats the symptoms, not the causes.

Hazard x Vulnerability = Risk

EXPOSURE

- Severity/Magnitude
  - Intensity/Duration
- Frequency
- Spatial extent
- Trends
  - Historical
  - Future
- Impacts
- Early warning

SOCIAL FACTORS

- Population growth
- Population shifts
- Urbanization
- Technology
- Land use changes
- Environmental degradation
- Water use trends
- Government policies
- Environmental awareness

RISK

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A drought policy should be broadly stated and . . .

- Establish a clear set of risk-based principles or guidelines to govern drought management.
- Consistent and equitable for all regions, population groups, and economic/social sectors.
- Consistent with the goals of sustainable development.
- Reflect regional differences in drought characteristics, vulnerability and impacts.

A drought policy should (continued)

- Promote the principles of risk management by encouraging development of
  - Early warning and delivery systems;
  - Reliable seasonal forecasts;
  - ***Preparedness plans*** at all levels of government, within river basins, and the private sector;
  - Mitigation actions that reduce drought impacts and the need for government intervention;
  - Coordinated emergency response that ensures targeted and timely relief, consistent with drought policy goals, during drought emergencies.

Key Elements of a Drought Mitigation Plan

- **Monitoring/early warning, prediction and information delivery systems**
  - Integrated monitoring of key indicators
    - Precipitation, temperature, soil moisture, streamflow, snowpack, groundwater, etc.
  - Use of appropriate indices
  - Reliable seasonal forecasts
  - Development/delivery of information and decision-support tools

Key Elements of a Drought Mitigation Plan

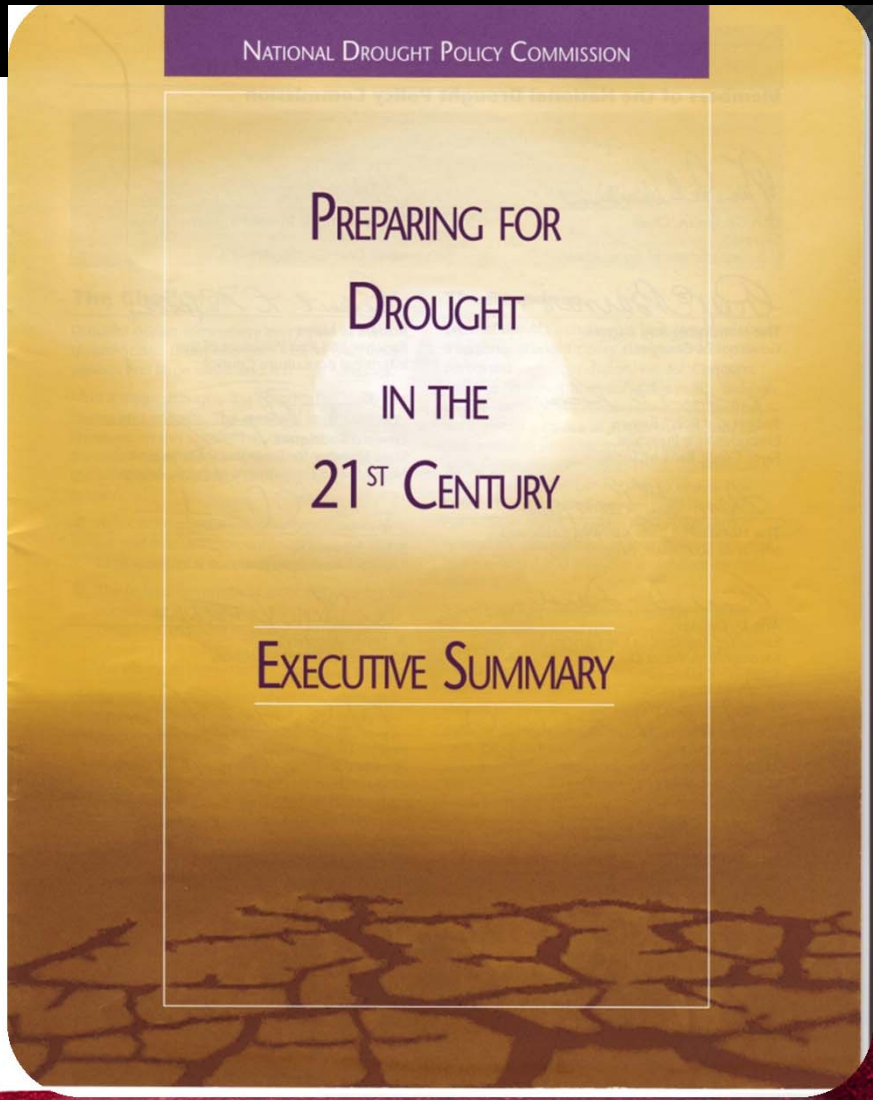
- **Risk and impact assessment**
  - Conduct of risk/vulnerability assessments
  - Monitoring/archiving of impacts/losses
- **Mitigation and response**
  - Proactive measures to increase coping capacity
  - Response measures that support the principles of drought risk reduction

U.S. National Drought Policy

National Drought Policy Act, 1998

National Drought Policy Commission

"We can reduce this nation's vulnerability to the impacts of drought by making preparedness the cornerstone of national drought policy."



WMO

UNCCD
United Nations Convention to Combat Desertification

FAO
FIAT PANIS

HIGH-LEVEL MEETING ON NATIONAL DROUGHT POLICY

(HMNDP)

TOWARDS MORE DROUGHT RESILIENT SOCIETIES

11-15 March 2013
CICG, Geneva

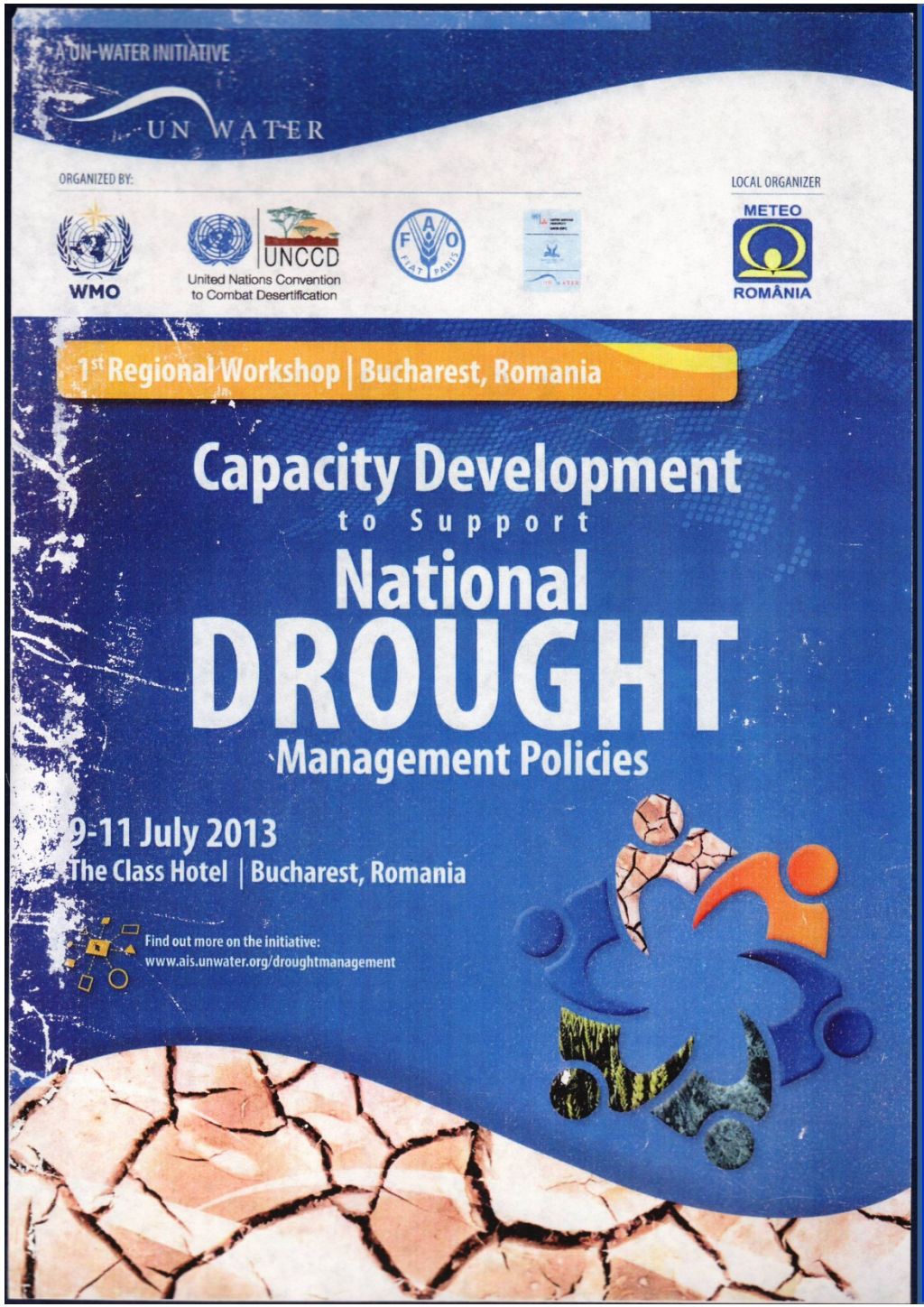
Final Report

National Drought Policy Goals

- Proactive mitigation and planning measures, risk management, public outreach and resource stewardship.
- Greater collaboration to enhance the national / regional / global observation networks and information delivery systems to improve public understanding of, and preparedness for, drought.
- Incorporation of comprehensive governmental and private insurance and financial strategies into drought preparedness plans.

National Drought Policy Goals

- Recognition of a safety net of emergency relief based on sound stewardship of natural resources and self-help at diverse governance levels.
- Coordination of drought programmes and response in an effective, efficient and customer-oriented manner.



A series of 4-5 capacity building workshops sponsored by WMO, FAO, UNCCD, and UN-Water (Eastern Europe, Latin America, Africa and Asia)

A UN-WATER INITIATIVE ORGANIZEI

WMO

United N
to Comb

Capacity Devel
National Droug

Agenda for the first regional workshop for
9-11July 2013
Bucharest, Roma

DAY I

8:30-09:00 Registration

9:00-12:00 Session 1: Opening Session/Country repc

9:00-10:15 **Session 1a**: Opening statements and introductor

- Opening statement(s) by Mrs. Elena Dumitru, S and Climate Change (5 minutes)
- Mr. Daniel Botanoiu, State Secretary, Ministry c minutes)
- Dr. Ion Sandu, Director General, National Mete minutes)
- Welcoming statements (Organizing partners) (1
- A roundtable introduction of participants and ex

10:15-10:45 Group Photograph/Coffee break

10:45-12:15 Session 1b: Setting the scene

10:45-11:15 Overview of the initiative and scope of the Regior

11:15-12:15 Key Note Address (Wilhite D.A) on "Risk based N challenges and opportunities"

12:15-13:30 Lunch

A UN-WATER INITIATIVE ORGANIZED BY:

WMO

UNCCD
United Nations Convention to Combat Desertification

FAO

UNW-DPC

UN WATER

Capacity Development to Support National Drought Management Policies

DRAFT

Agenda for the second regional workshop for "Latin America and the Caribbean" Countries

04-06 Dec 2013

Fortaleza, Brazil

DAY I

08:30-09:00 Registration

9:00-13:00 Session 1: Opening & Country reports

9:00-10:00 Session 1a: Opening statements

- Opening statement(s) by High-level authorities from the Gov't of Brazil (15 Minutes)
- Welcoming statement (**WMO**, on behalf of Organizing partners) (10 minutes)
- A roundtable introduction of participants and expectations (35 minutes)

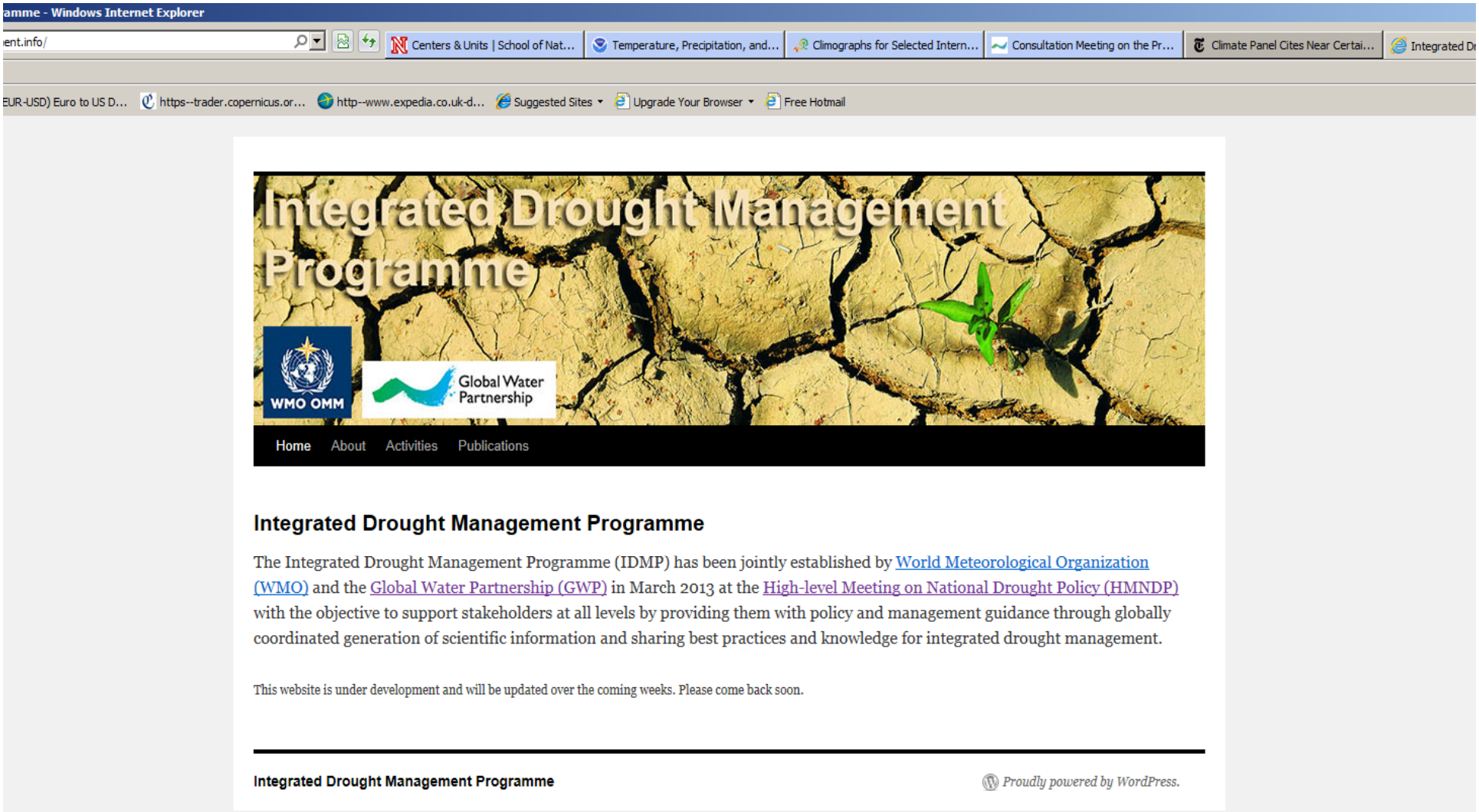
10:00-10:30 Session1b: Overview

- Overview of the initiative, objectives and scope of the Workshop (**UNW-DPC**)

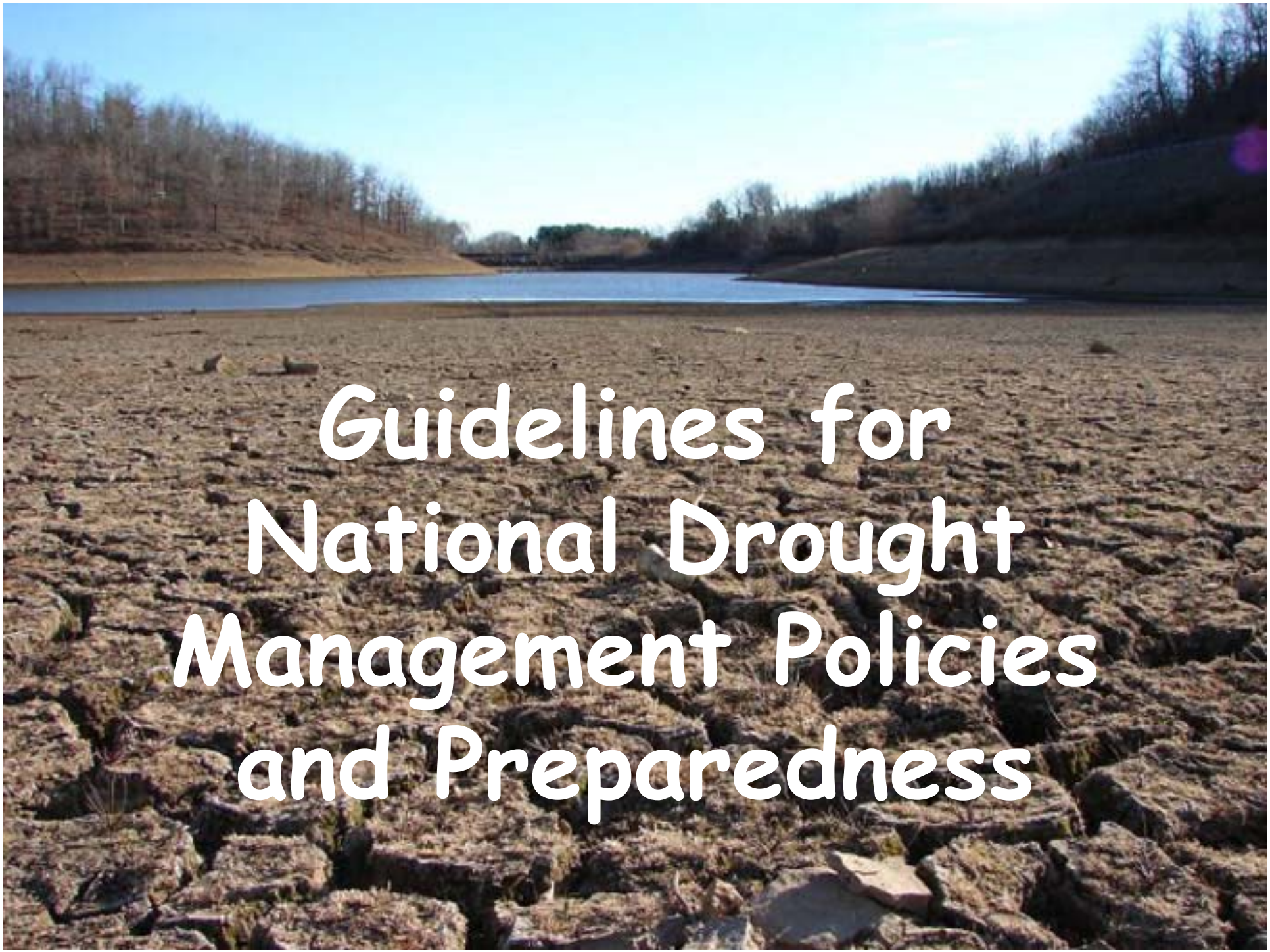
10:30-11:00 Group Photograph/Coffee and tea break

New initiative from GWP and WMO launched at HMNDP, March 2013.

Consultation meeting held a World Water Week, September 2013, Stockholm.



http://www.droughtmanagement.info/


Guidelines for
National Drought
Management Policies
and Preparedness

National Drought Policy: A 10-Step Process

Step 1	**Appoint** a national drought policy commission
Step 2	**State or define** the goals and objectives of a risk-based national drought management policy
Step 3	**Seek** stakeholder participation 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 a national drought management policy and preparedness plans (monitoring, early warning and prediction; risk and impact assessment; mitigation and response

National Drought Policy: A 10-Step Process

(continued)

Step 6	**Identify** research needs and **fill** institutional gaps
Step 7	**Integrate** science and policy aspects of drought management
Step 8	**Publicize** the national drought management policy and preparedness plans, **build** public awareness
Step 9	**Develop** education programs for all age and stakeholder groups
Step 10	**Evaluate, test** and **revise** drought management policy and supporting preparedness plans

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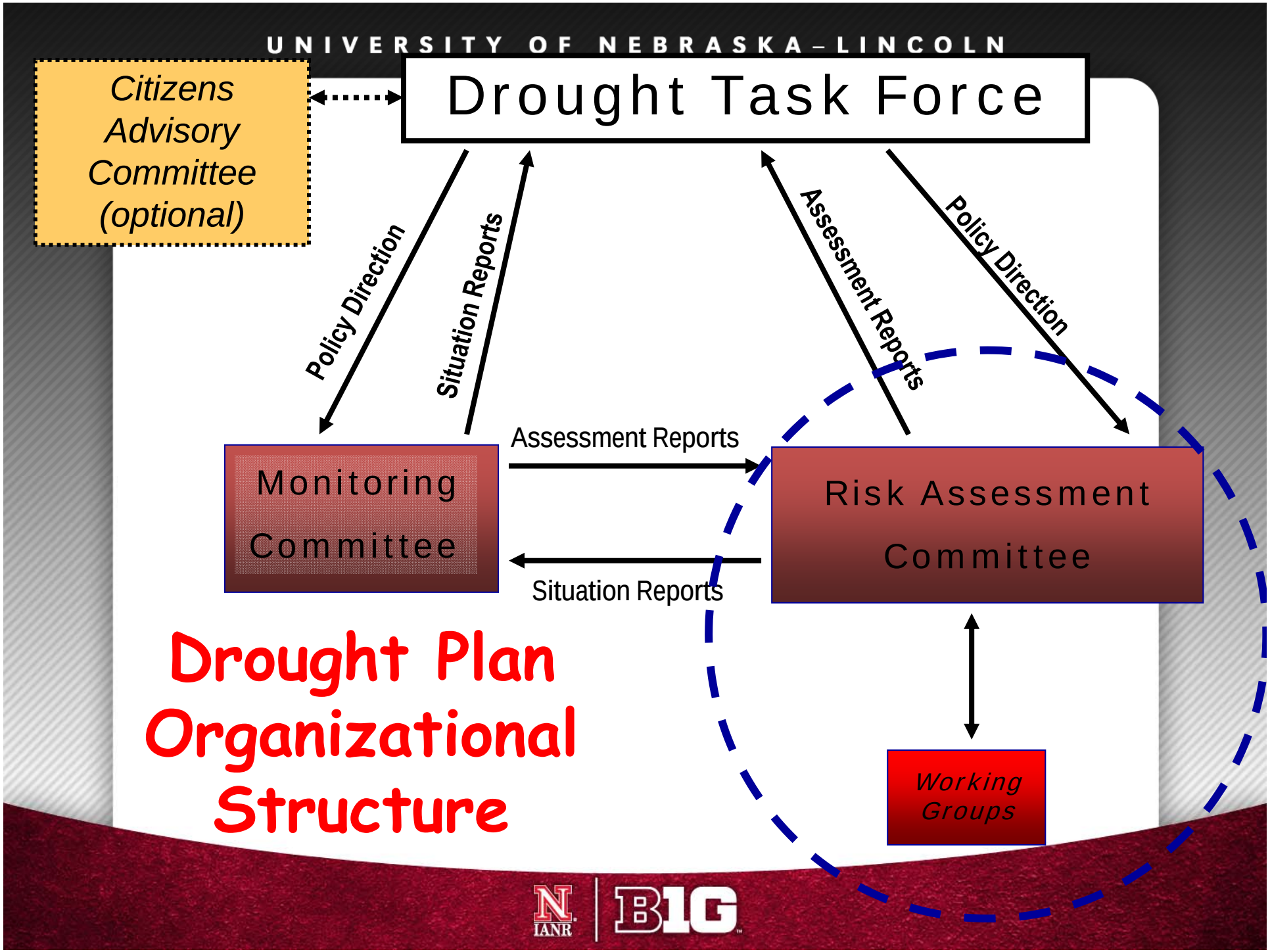

Drought Plan Organizational Structure

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Takeaway Messages

- Climate is changing—climate state and climate variability.
- Extreme climate events are increasing in frequency globally and locally, ***managing impacts critically important—we must increase our resilience to drought***.
- Time is ***NOW*** to change the **paradigm** from crisis to **drought risk management**.
- Time is ***NOW*** for all drought-prone nations to adopt **appropriate** drought policies to reduce the impacts of future drought episodes through risk-based management.

Thanks for your attention!

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