

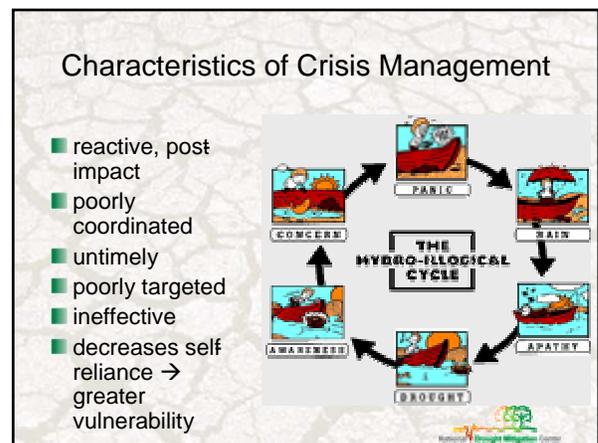
What are the key issues?

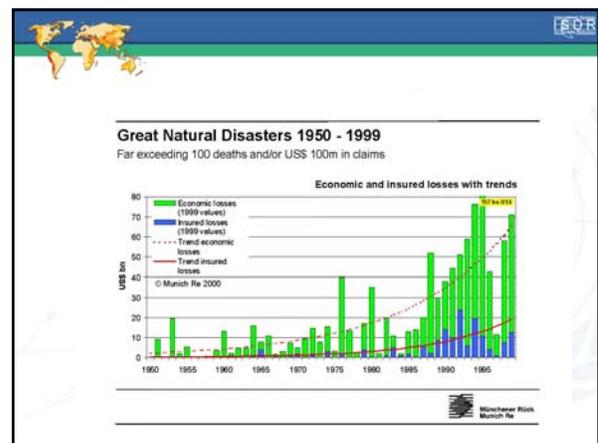
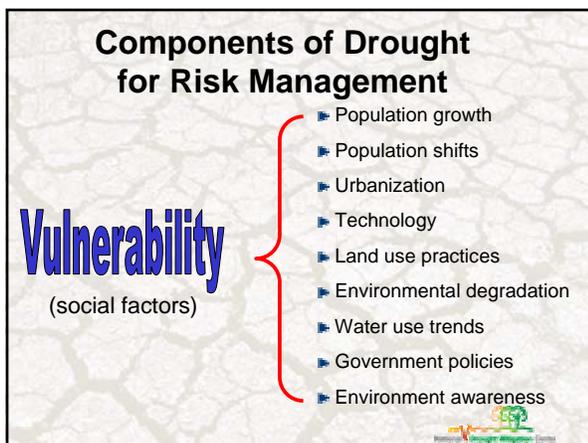
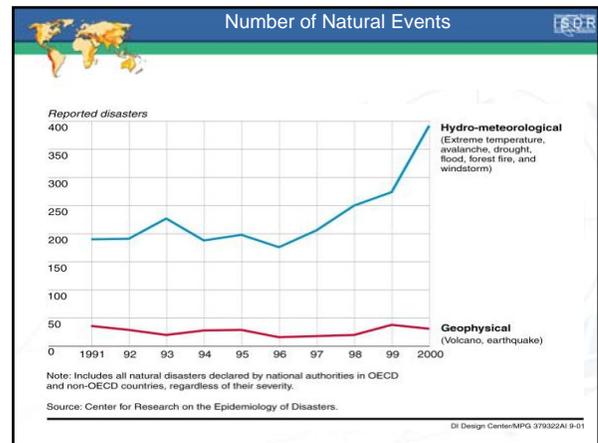
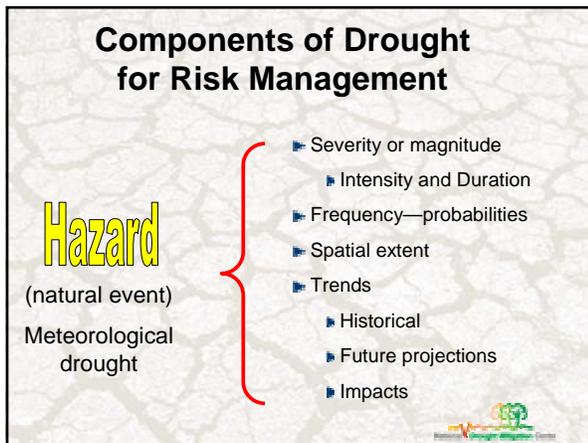
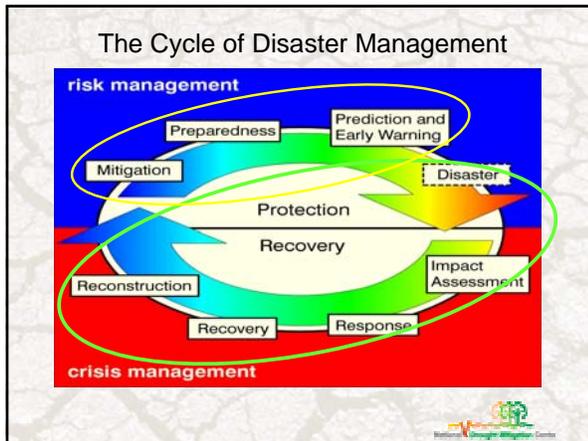
USDA National Drought Mitigation Center

Drought differs from other natural hazards

- Slow-onset, creeping phenomena (early warning systems, impact assessment, response)
- Absence of universal definition (leads to confusion and inaction)
- Severity is best described through multiple indicators and indices (early warning systems)
- Impacts are non-structural and spread over large areas (makes assessment and response difficult; mitigation actions less obvious)
- RESULT**, progress on drought preparedness has been slow

USDA National Drought Mitigation Center





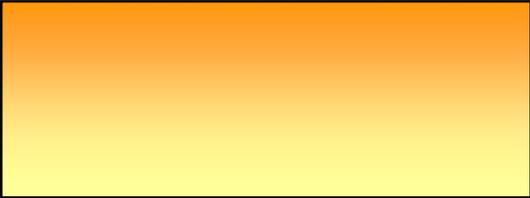
Economic Loss Estimates Caused by Drought During 2002

State	Estimate	Sector	Comments
Colorado	\$1.1 billion \$640 million \$460 million	Agriculture Crop losses Livestock	
	\$1.7 billion \$200 million \$800,000	Tourism Outfitters Fishing licenses	Summer only
Kansas	\$1.4 billion \$1.1 billion \$300 million	Agriculture Crop losses Livestock	
Missouri	\$460 million	Agriculture	
Montana	\$2.0 billion \$150 million	Agriculture Crop losses	RMA payments
Nebraska	\$1.2 billion	Agriculture	
North Carolina	\$398 million	Agriculture	Crop losses
	\$15-20 million	Municipalities	Water revenues

Economic Loss Estimates Caused by Drought During 2002

State	Estimate	Sector	Comments
South Carolina	\$84 million	Agriculture	Crop losses
	\$526 million \$276 million \$250 million	Timber Annual forest growth loss Southern pine beetle loss	
South Dakota	\$1.4 billion \$311 million \$123 million \$92 million	Agriculture Crop losses Corn losses Wheat losses	RMA payments RMA payments RMA payments
	\$23 million	Environmental	Missouri River
Utah	\$250 million	Agriculture	
Wyoming	\$14 million \$4 million \$2.8 million	Crop losses Sugar beet losses Forage losses	
	\$1.8 million \$161,538	Wildfire suppression Timber value loss	

National Drought Mitigation Center

Principal Activities of the NDMC

- Integrated Climate/Water Monitoring System**
 - Standardized Precipitation Index (SPI)
 - NDMC "Drought Watch" section of web site
 - U.S. Drought Monitor (USDA, NOAA, NDMC), 5 million hits 2002
 - Collaboration with other agencies
- Drought Information Clearinghouse**
 - Electronic textbook/portfolio
 - User hits (4 million hits in 2001)
 - User hits more than 10 million in 2002
 - 10% of sessions from international users
- Research**
 - Drought indices and drought risk assessment tools
 - Use of climate information in decision making
 - Drought planning methodologies
 - Risk/Vulnerability assessment

National Drought Mitigation Center

University of Nebraska-Lincoln

The National Drought Mitigation Center (NDMC) helps people and institutions develop and implement measures to reduce societal vulnerability to drought. The NDMC, based at the University of Nebraska-Lincoln, stresses preparation and risk management rather than crisis management.

- What is Drought?** An overview of drought • Climographs • Historical Palmer Drought Index maps and graphs • Drought & B. Niles • The Dust Bowl
- Planning for Drought** How (and why) to plan for drought • The 10-Step Planning Process • Generosity of drought planning contracts
- Monitoring Drought** How to select monitoring tools • The SPI, the U.S. Drought Monitor, and links to tools elsewhere on the web
- Understanding Your Risk** Understanding drought's impacts • Current and historical drought impacts in the United States and around the world
- Mitigating Drought** Putting a drought plan together • Evolving drought plans and studies • Drought mitigation tools/strategies • Water conservation

About the NDMC
Contact Information
What's New
Site Map
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Drought Network News
Publications

<http://drought.unl.edu>

Quick Links! For Media Other Drought-related Sites U.S. Drought Monitor Interim National Drought Council

Principal Activities of the NDMC

- Drought Planning Activities**
 - Facilitate drought plan development
 - Inform officials on drought planning and risk assessment methodologies
 - Provide technical assistance on drought monitoring, indices, triggers, mitigation actions
 - Review and evaluate drought plans
- Advise Policy Makers**
 - Federal and state agencies
 - Regional and national initiatives
 - White House Office of Science and Technology Policy
 - U.S. Congress
 - International organizations
 - Foreign governments

Principal Activities of the NDMC



Workshops and Seminars

- Regional drought contingency planning workshops
- National/regional conferences
- International training seminars
- International conferences



International Drought Mitigation Activities

- Country drought planning projects
- Country and regional projects
- International initiatives
- Regional networks on drought preparedness
- *Drought Network News*



Progress in Drought Planning: U.S. States

- Before early 1980s, states relied on federal government for assistance
- First state drought plans in early 1980s
- Emphasis on response planning from early 1980s to 1995
- Recent state plans in response to severe drought—shifting emphasis to risk management
- 35 states with drought plans; 4 states developing plans



Status of State Drought Planning April 2003



10-Step Drought Planning Process

- generic process, adaptable
- based on collective experiences of U.S. states and other countries
- risk management emphasis through application of mitigation actions
- steps are sequential but intended as a “checklist”
- component of integrated water resources management plan



Moving toward Drought Risk Management: Components of Drought Mitigation Plans

- Monitoring, early warning, and prediction
 - Climate indices and indicators, water supply assessments, forecasts, delivery and feedback systems
 - Foundation of a DEWS
- Risk and impact assessment
 - Who and what is at risk and why
- Mitigation and response
 - Pro-active programs and actions to reduce risks
 - Safety net/programs



Potential Drought Mitigation Actions

- Monitoring and assessment
- Legislation and public policy
- Water augmentation/reuse
- Public awareness/education
- Technical assistance to local areas



Potential Drought Mitigation Actions

- Demand reduction/water conservation
- Water use conflict resolution
- Drought planning
- Emergency response (but more proactive and not in conflict with policy objectives)



National Drought Preparedness Act of 2003

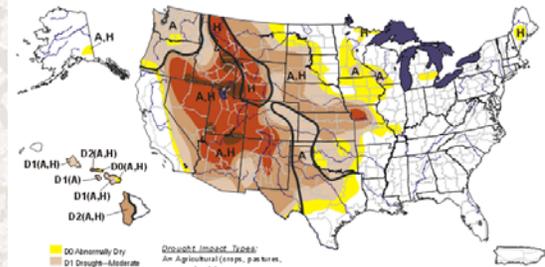
- Emphasis on risk management
- Improving drought preparedness at the local, state, tribal and federal level of government
- Enhancing coordination within the federal government
- Improving the nation's drought monitoring system



Conclusions



U.S. Drought Monitor August 12, 2003



Released Thursday, August 14, 2003
 http://drought.unl.edu/dm

Droughts . . .

- will continue to occur
- may increase in frequency and severity
- will result in greater economic, social, and environmental impacts
- increase demand for water resources
- result in greater conflicts between water users
- are challenging society to reexamine water allocations, compacts, and water rights
- require mitigation planning in order to reduce the impacts of future episodes



Thanks for your attention!

Visit the NDMC
<http://drought.unl.edu>

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