Drought Policy interfaces: from ideal to real

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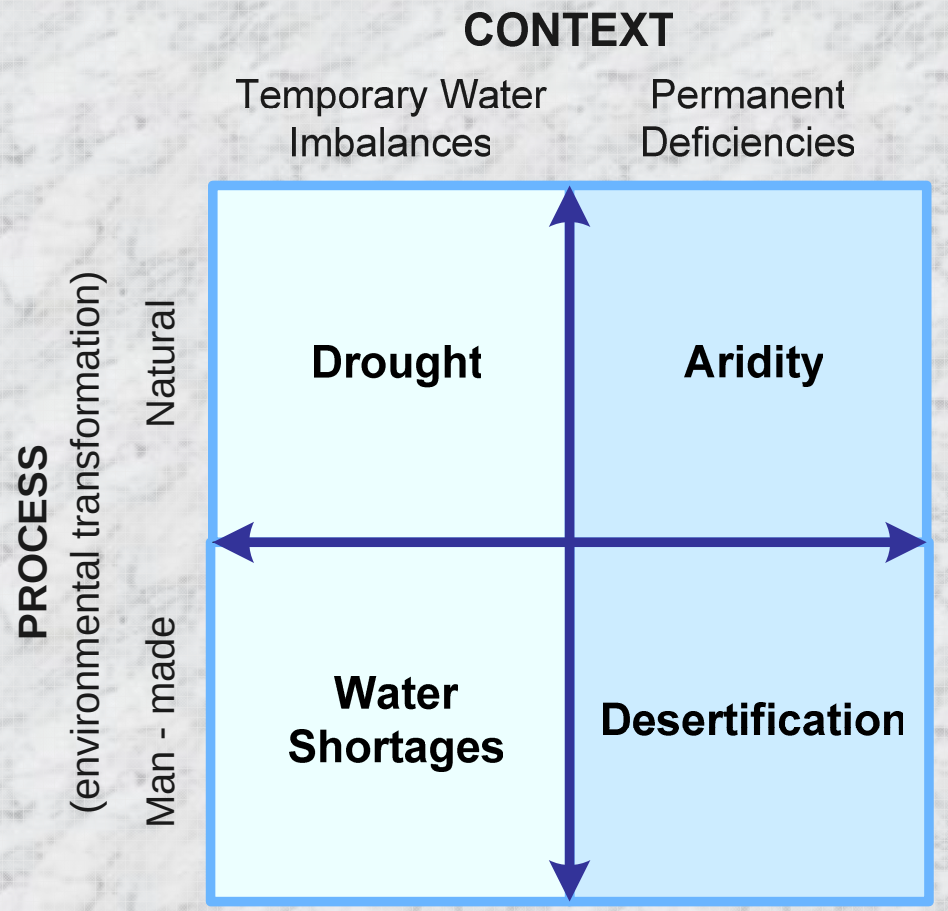
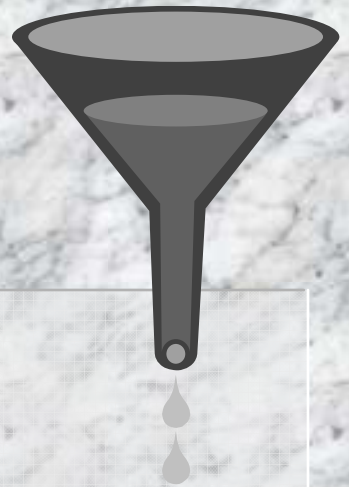
Water Deficiencies



adapted from
E.C. Vlachos

Drought



- a usually unexpected and unpredicted time period of abnormal dryness which affects water supply" (Grigg, N.S., 1988).
- The state of adverse and wide spread hydrological, environmental, social and economic impacts due to less than generally anticipated water quantities (Karavitis, C.A., 1992)

Crises

- Engineering Crisis

  Supply and Demand
- Ecological Crisis

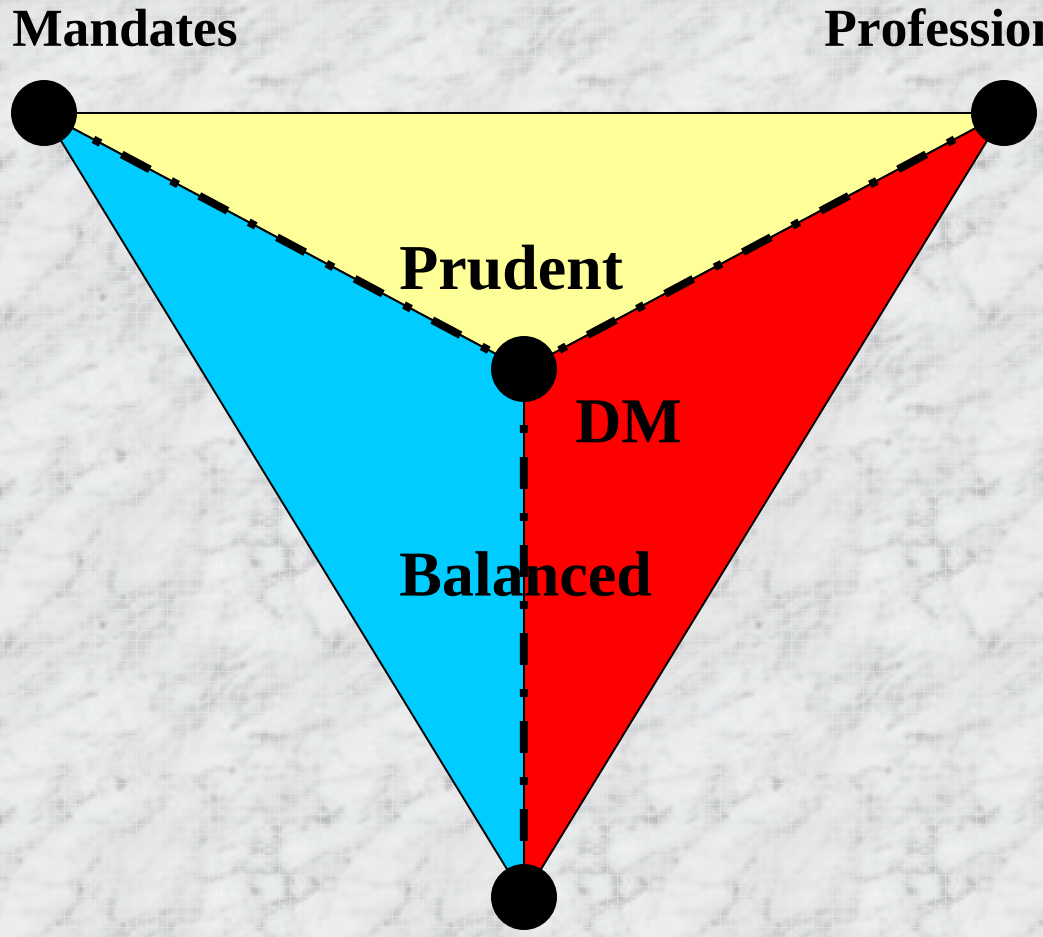
  Water Quality and Environment
- Methodological Crisis

  Data & DSS, Information - Judgement
- Organizational Crisis

  Capacity Building, Institutional mobilization & Coordination
- Perceptual Crisis

  Public Involvement & Participation

POLICY CHALLENGES

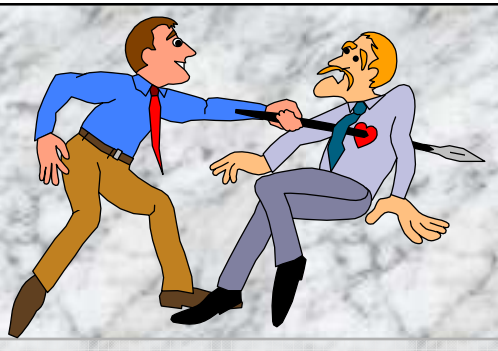


From
E.C.VLACHOS

Why are Drought Contingency policies Needed?

- Prevailing crisis management attitude
- Natural Hazards Emergency Response Procedures
- Protocols for Processes and Procedures
- Create a wider menu of options and alternatives

Challenges



- Significant Potential for Contestation and Conflict
- Water Management is Multi-Jurisdictional (Local, Sectorial, National)
- Competing and conflicting demands among a large number of stakeholders
- Facilitating Trade-off Decision Making
- Addressing the difficulties of Drought Beginning and Ending (drought index)

Contingency Planning

- Environmental Scanning
- Time horizon
- Risk Assessment

VULNERABILITY

- **Fragile Physical Environment** : environmental degradation, lack of ecosystem resilience, history of extreme hydrological events
- **Fragile Economy** economic inequalities/disparities, inadequate funding
- **Lack of Local Institutions** lack of social resilience, poor social protection marginalization, capacity for recuperability
- **Lack of Preparedness** inadequate warning systems, lack of training, lack of community mobilization

Drought Policy

- drought forecasting
- risk assessment and impact assessment
- drought contingency planning
- Mobilizing of relevant personnel and resources

Policy Criteria & Standards

- Economic Efficiency
- Equity
- Environmental/Ecological Sustainability

General 10-step Contingency Planning Process

1. Appoint a Drought Task Force
2. Define the Purpose and Objectives of the Drought Plan
3. Seek Stakeholder Participation and Resolve Conflict
4. Inventory Resources and Identify Groups at Risk
5. Develop Organizational Structure and Prepare Drought Plan
6. Integrate Science and Policy, Close Institutional Gaps
7. Publicize the Proposed Plan, Solicit Reaction
8. Implement the Plan
9. Develop Education Programs
10. Post-Drought Evaluation

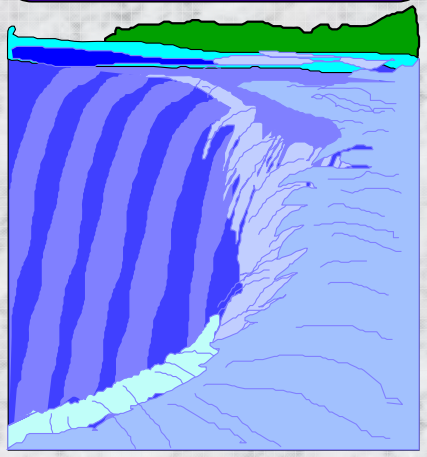
Integrated Drought Management Strategies

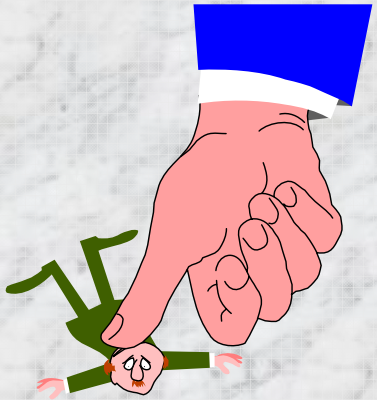
TACTICAL STATEGIES – MANAGEMENT OPTIONS

SUPPLY AUGMENTATION

DEMAND MANAGEMENT

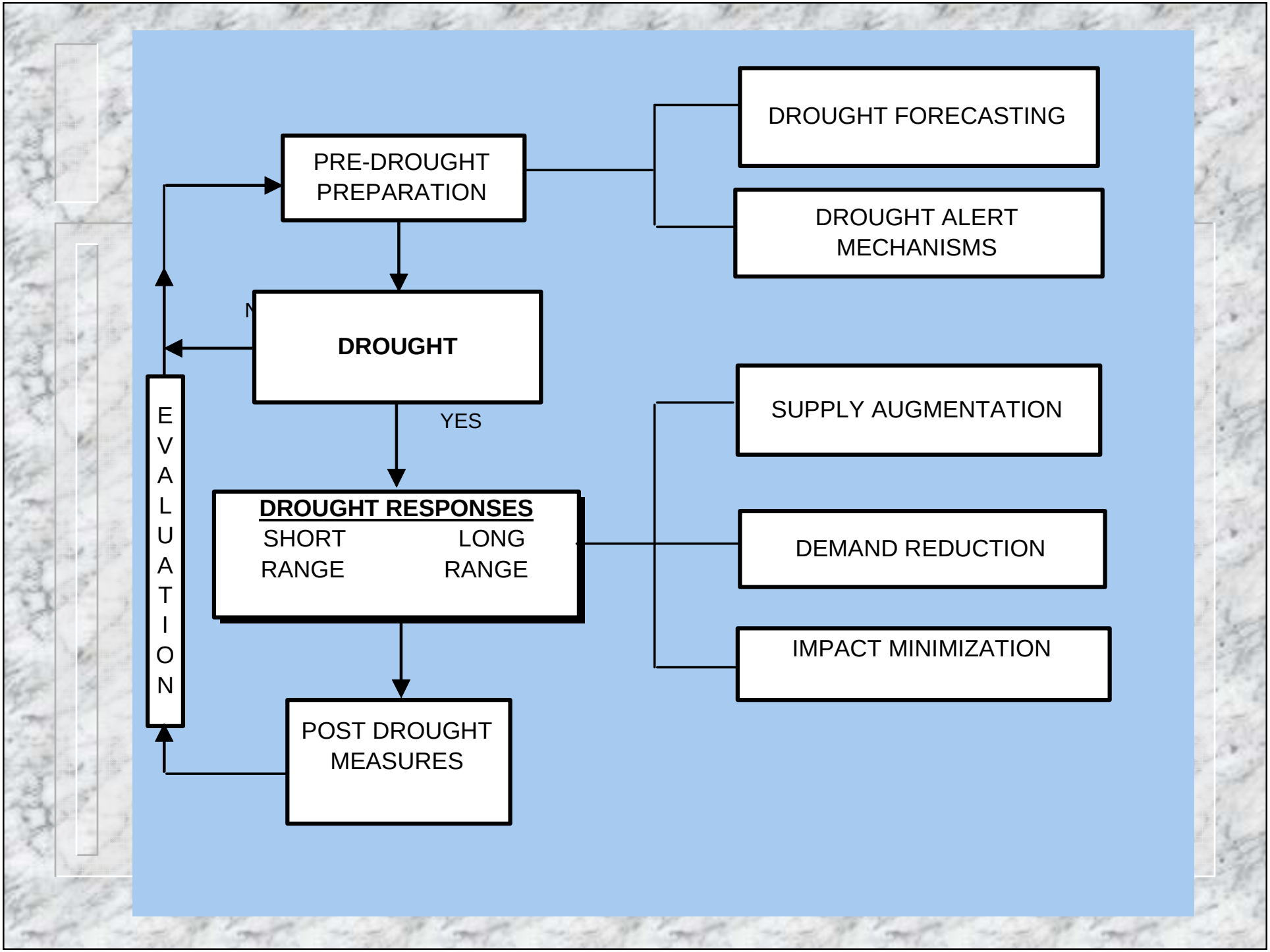
IMPACT MINIMIZATION





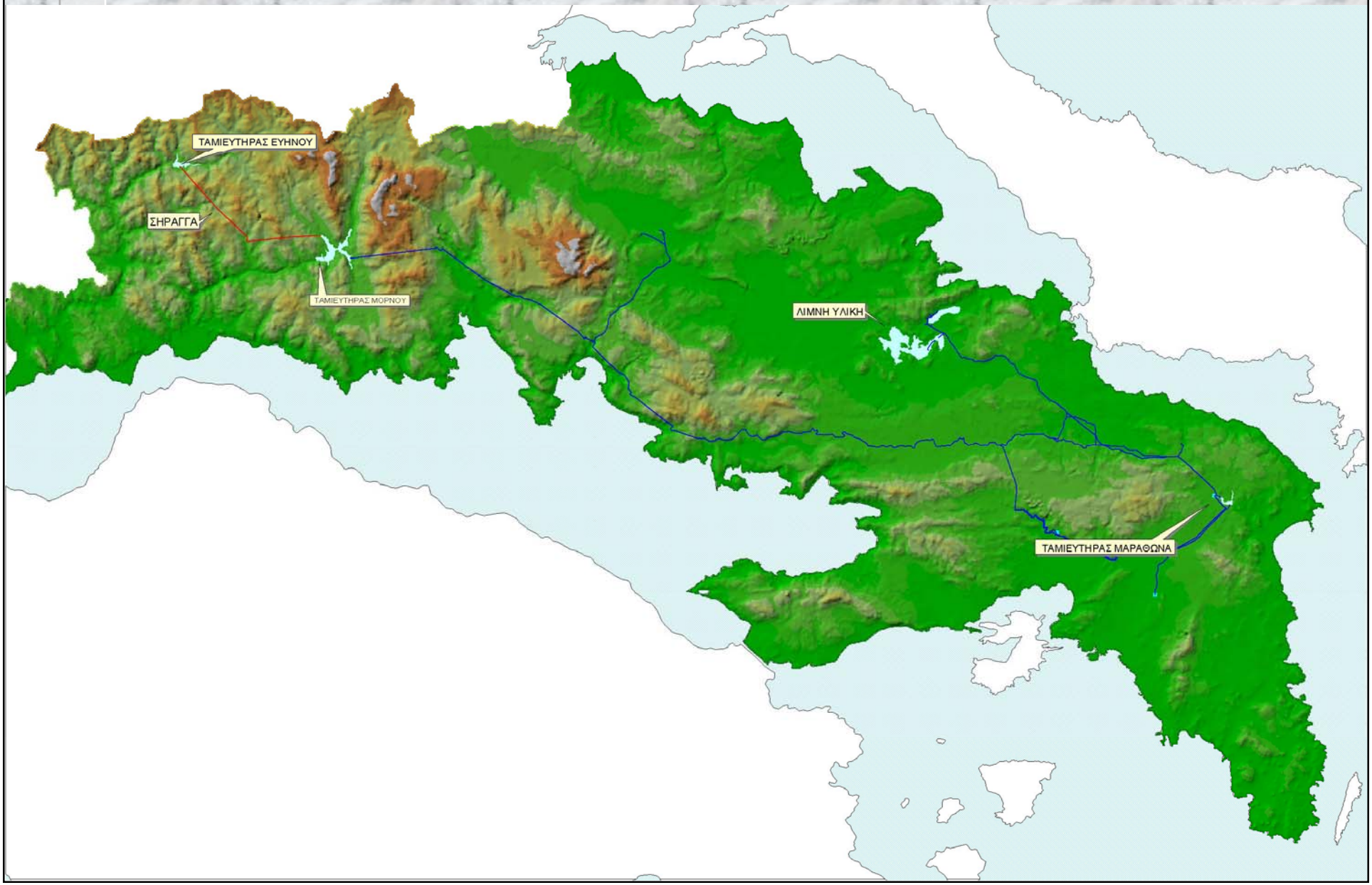
Protocols

- Process that Clearly Defines Local, Sectorial and National Roles
- Response Team Organization with Clearly Identified Leaders
- Accepted Procedures for Assessment and Response Options
- Accepted Procedures for Information Management and Performance Audits


PRE-DROUGHT PREPARATION
DROUGHT FORECASTING
DROUGHT ALERT MECHANISMS
DROUGHT
N
YES
EVALUATION
DROUGHT RESPONSES
SHORT RANGE
LONG RANGE
SUPPLY AUGMENTATION
DEMAND REDUCTION
IMPACT MINIMIZATION
POST DROUGHT MEASURES

Colorado River Basin-Athens

Athens water supply system



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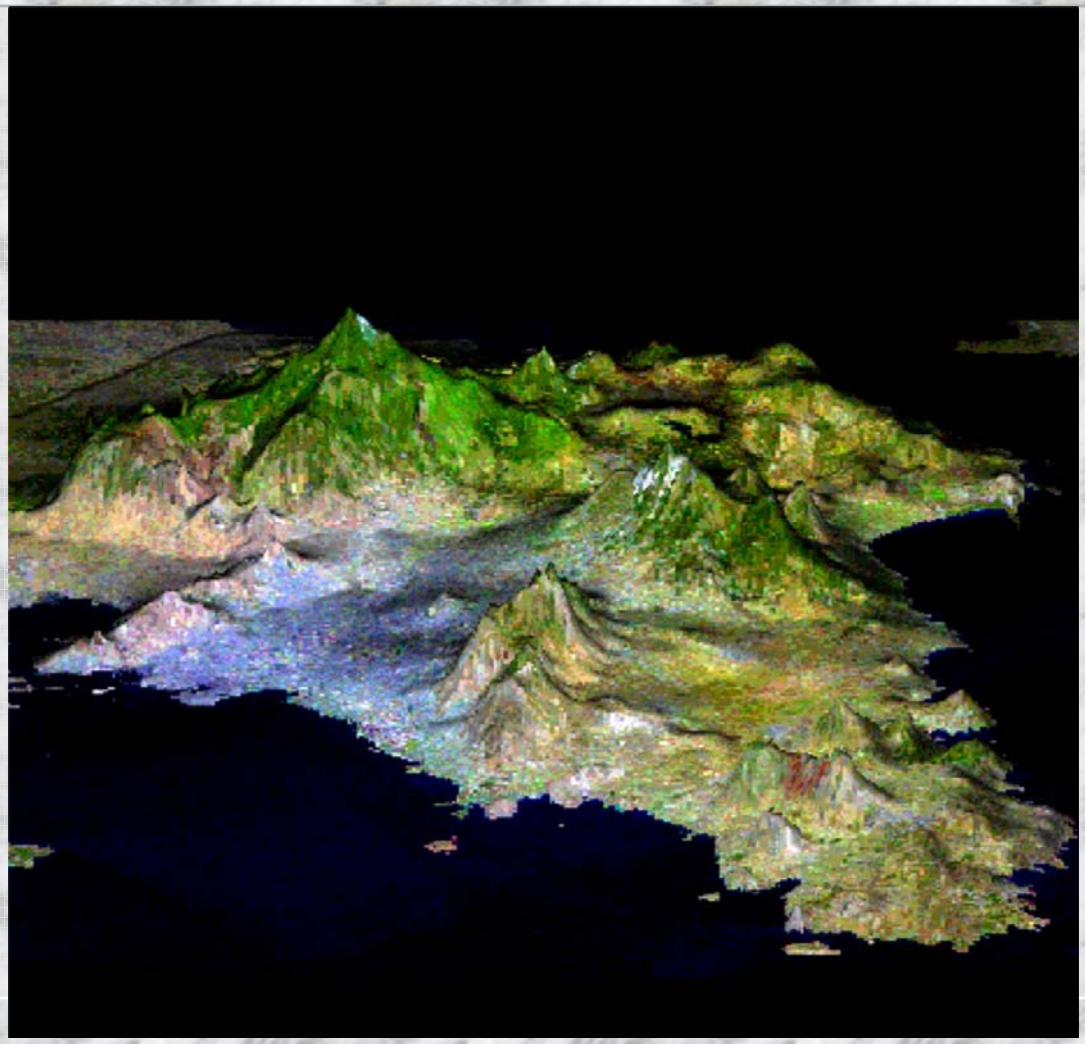
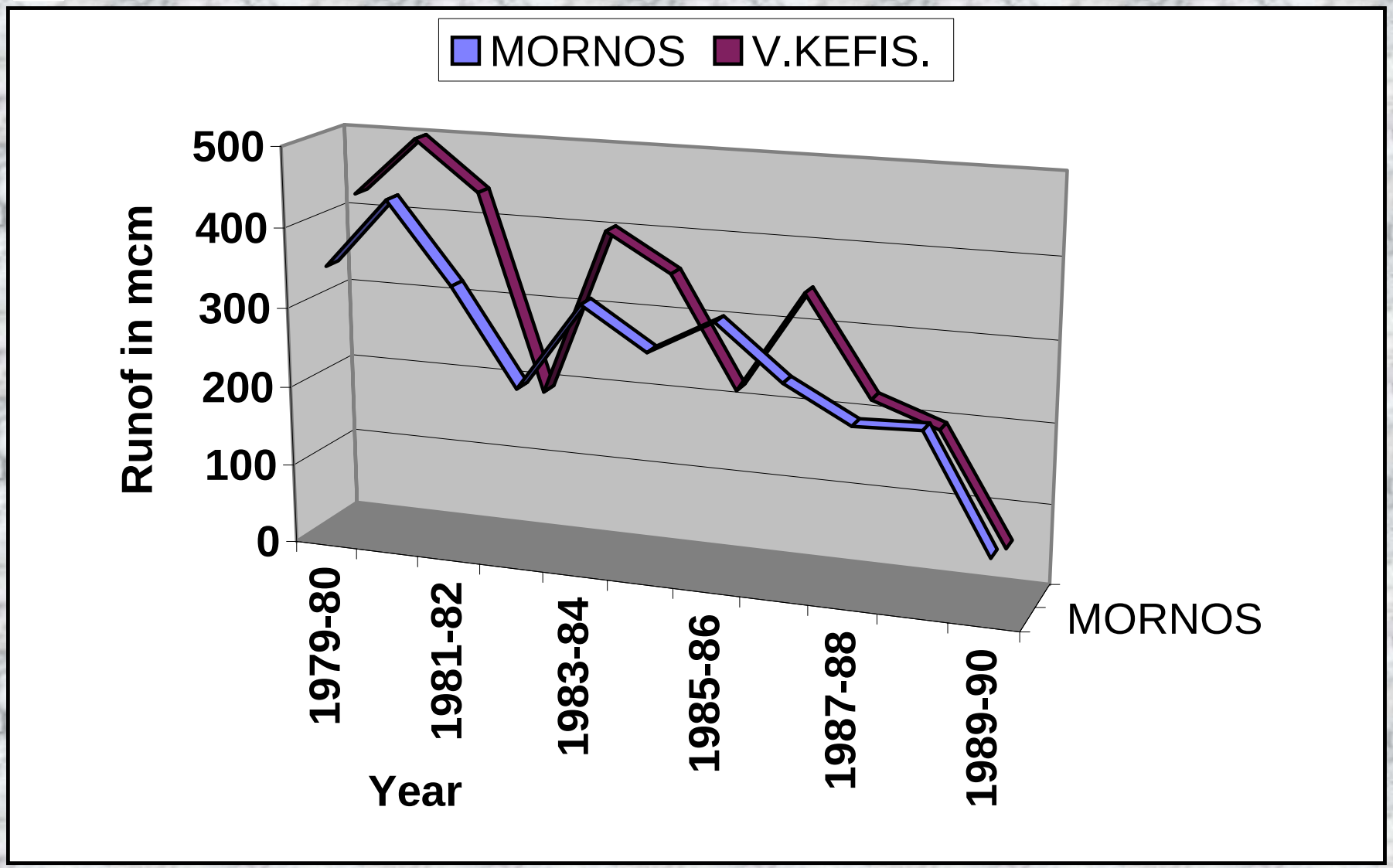
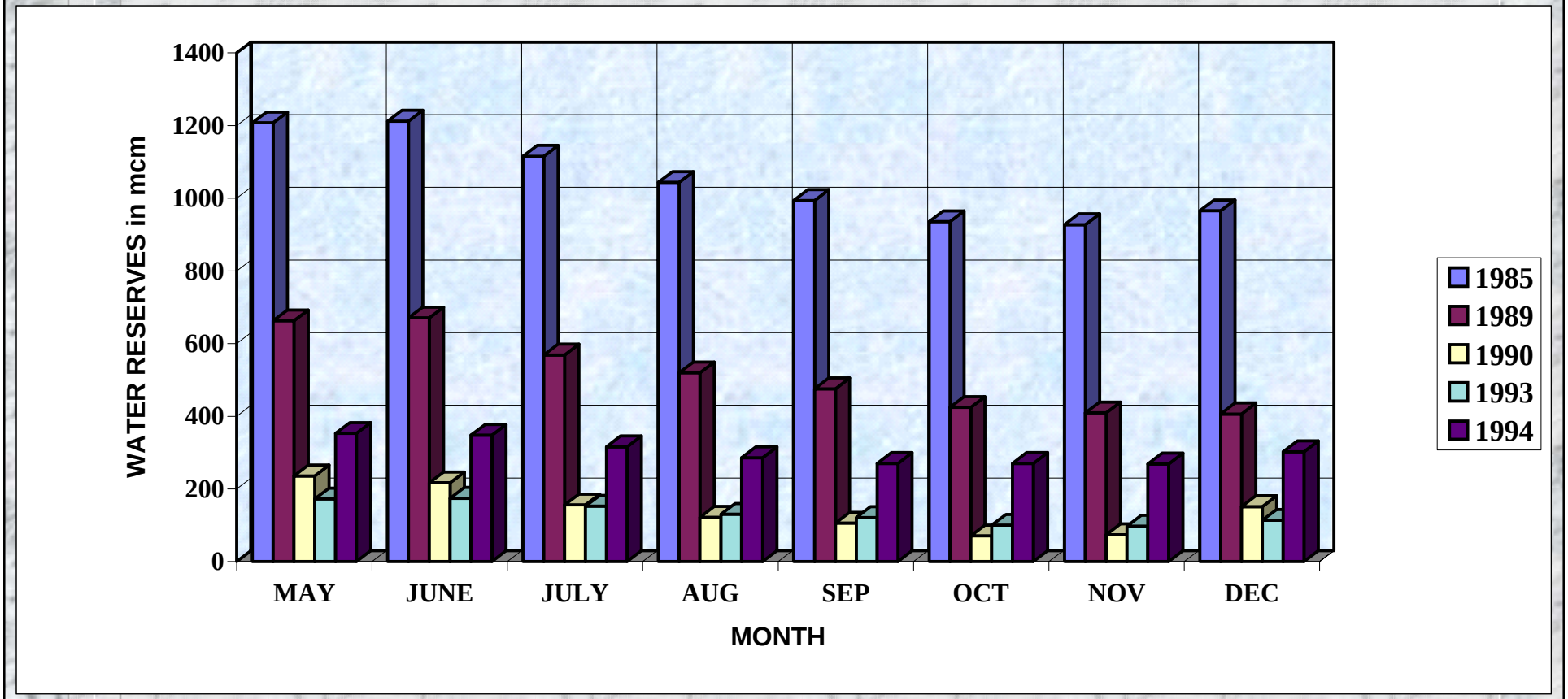


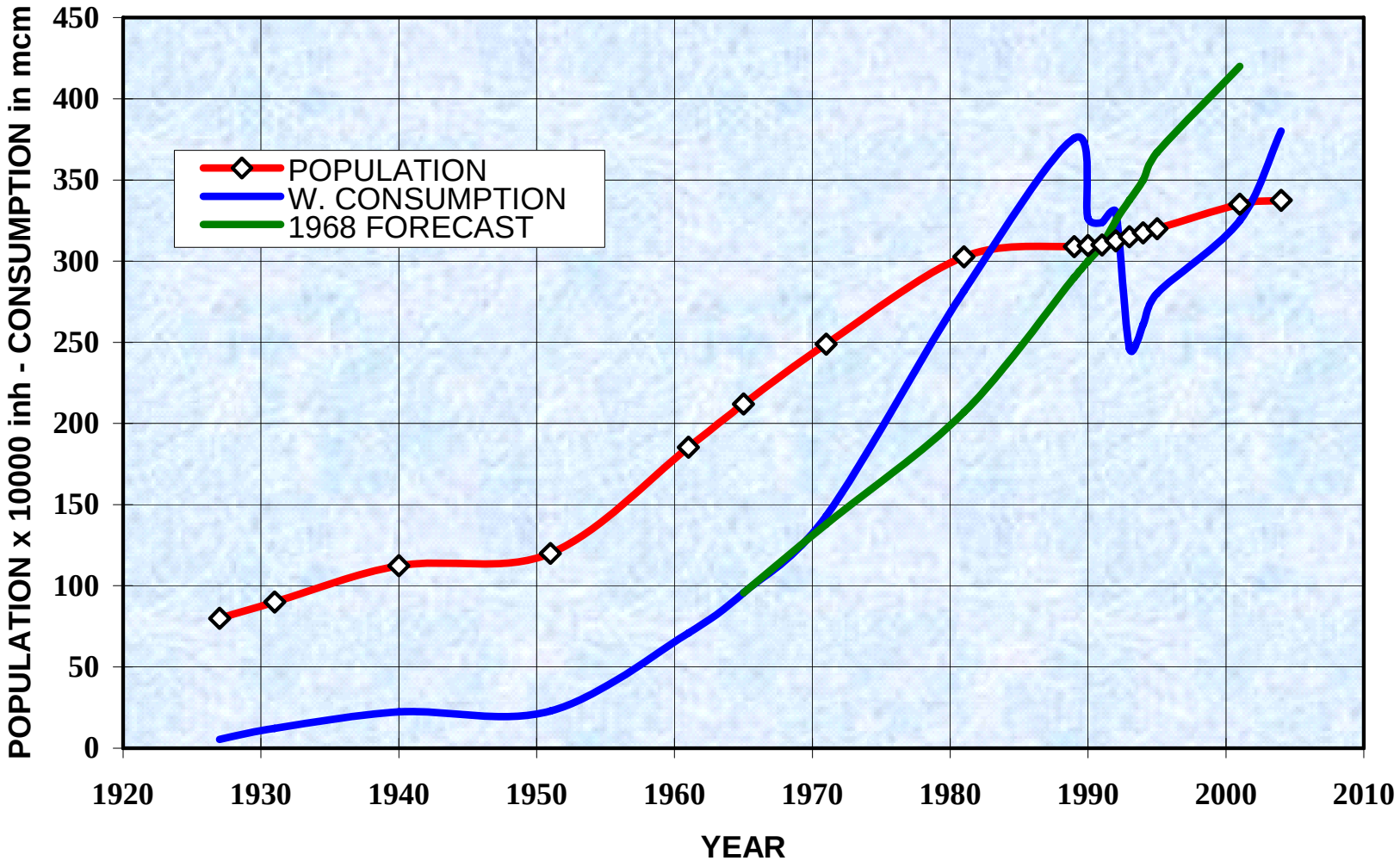
Hydrologic Drought



Athens water reserves



Athenian Drought

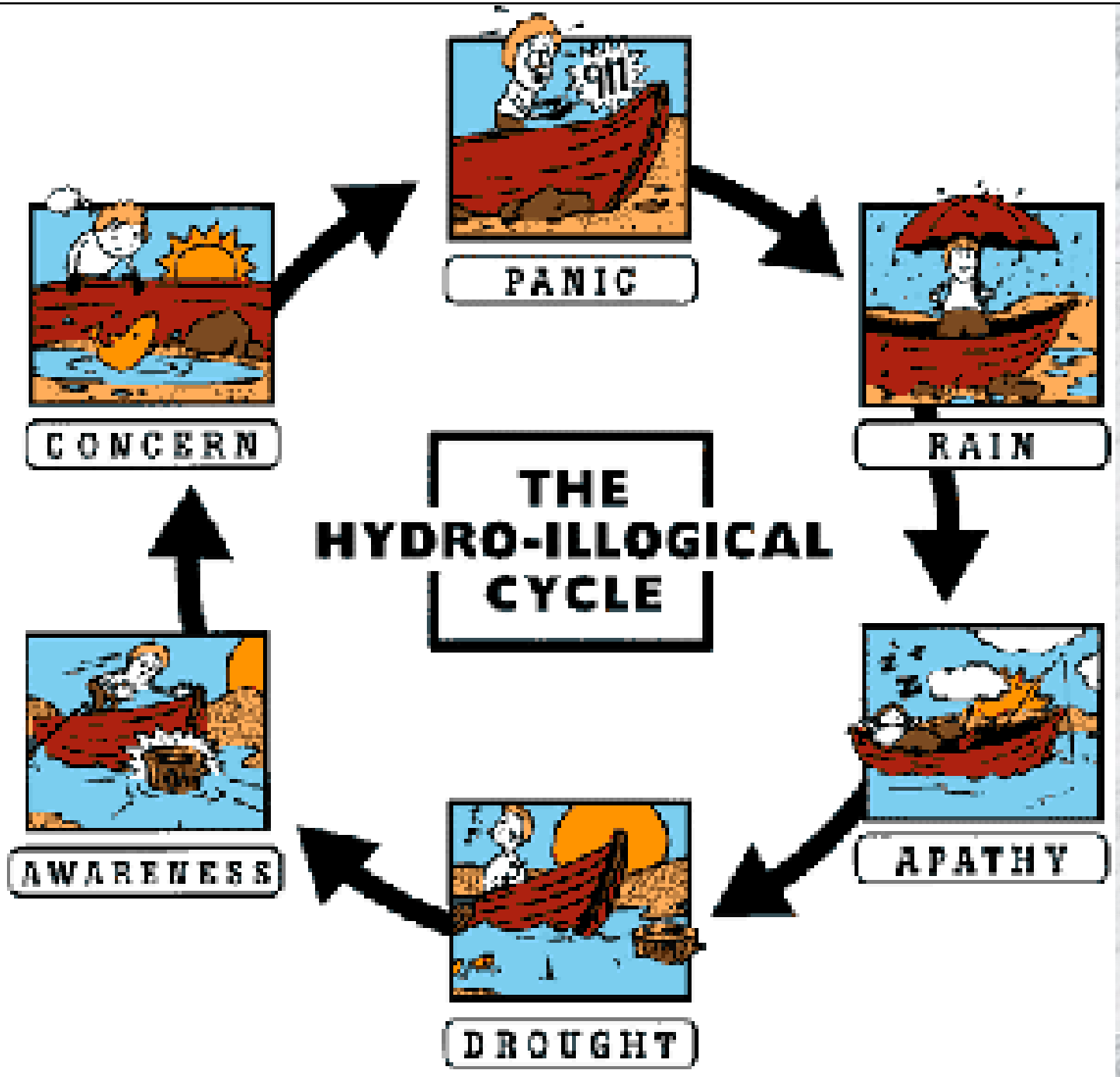


Premises of an "Ideal" Scheme

- Risk oriented/drought forecasting
- Anticipatory and Proactive Drought contingency planning
- Delineation of multiple alternatives
- Interdisciplinary orientation
- Based on timely, valid and reliable data supported by computer information technologies
- Existence of appropriate legal, institutional and economic foundations
- Efficient drought organization supported by effective water resources planning and management practices
- Efficient drought decision making process
- Timely and effective implementation of responses
- Evaluation of the selected and applied actions

Characteristics of the Real Scheme

- Absence of contingency planning
- Reactive and short range crisis management oriented
- Limited range of alternatives limited integration of experts, planners and decision-makers.
- Problematic data limited integration of computer information systems
- Inadequate legal and institutional framework
- Haphazard drought organization and mobilization
- Problematic water resources planning and management practices
- Centralized decision making process
- Haphazard implementation of responses
- Limited evaluation of the applied measures

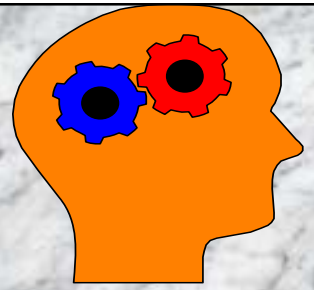

PANIC
RAIN
APATHY
DROUGHT
AWARENESS
CONCERN
THE HYDRO-ILLOGICAL CYCLE

NDMC

Conclusions

- Strive for Adaptive Policies That are Highly Structured *Yet* Flexible
- Practice with "Drought Drills" to Improve the Process
- Conduct the Post-Audits
- Regularly Update the Response Plan – Contingency Planning
- Interact With Other Agencies to Share Information
- Public participation – Capacity Building

Suggestions



- **The Need for New Paradigms**
  - Sustainability, heterarchy, co-evolution
- **The Understanding of New Contexts**
  - "Ccmplexity," interdependence, globalization
- **The Emergence of New Methodologies**
  - Cumulative, synergistic, diachronic impacts
  - Indicators, DSS, data-information, judgement
  - Computational prowess

Questions