

Conflict in Watershed Management: Beyond the Science and Technology to the Human Dimensions



Sandra S. Hodge, Ph.D.
State Public Policy Specialist
University of Missouri Extension

Robert Broz
State Water Quality Coordinator
University of Missouri Extension

John Tharp
Community Development/Water
Quality State Specialist
University of Missouri Extension

US EPA Region 7

Iowa State

CSREES

**Heartland Regional
Water Coordination
Initiative Partnership**

Kansas State

**Univ. of
Nebraska**

Univ. of Missouri

The Heartland Initiative ...

creates and strengthens **multi-state, multi-institutional partnerships and collaboration** to make **research, education and extension resources** of the land grant universities more **accessible to federal, state and local efforts** on regional priority water issues.

Addresses Water Quality Issues related to:

- Animal Manure Management
- Nutrient and Pesticide Management
- Community Involvement in Watershed Management (CIWM)

CIWM

Goal: through Community Development Processes, share and expand resources for working towards a regional implementation of a community process to build capacity for local watershed management.

Overarching Theme: The impact of Human Dimensions on participatory watershed management

Beyond the Science and Technology

Much of the conflict in the public issues around collaborative watershed management planning comes about because of the complexity of the **human dimensions** and NOT lack of science and technology.



Why are public issues associated with watershed management so complex?

Characteristics of Public Issues

CROSS
TRADITIONAL
BOUNDARIES

SOCIALLY
CONSTRUCTED

NO OPTIMAL
SOLUTION

Public Problems -- Cross Traditional Boundaries

1. Organizational and jurisdictional
2. Functional
3. Temporal and inter-generational
4. Interrelated web

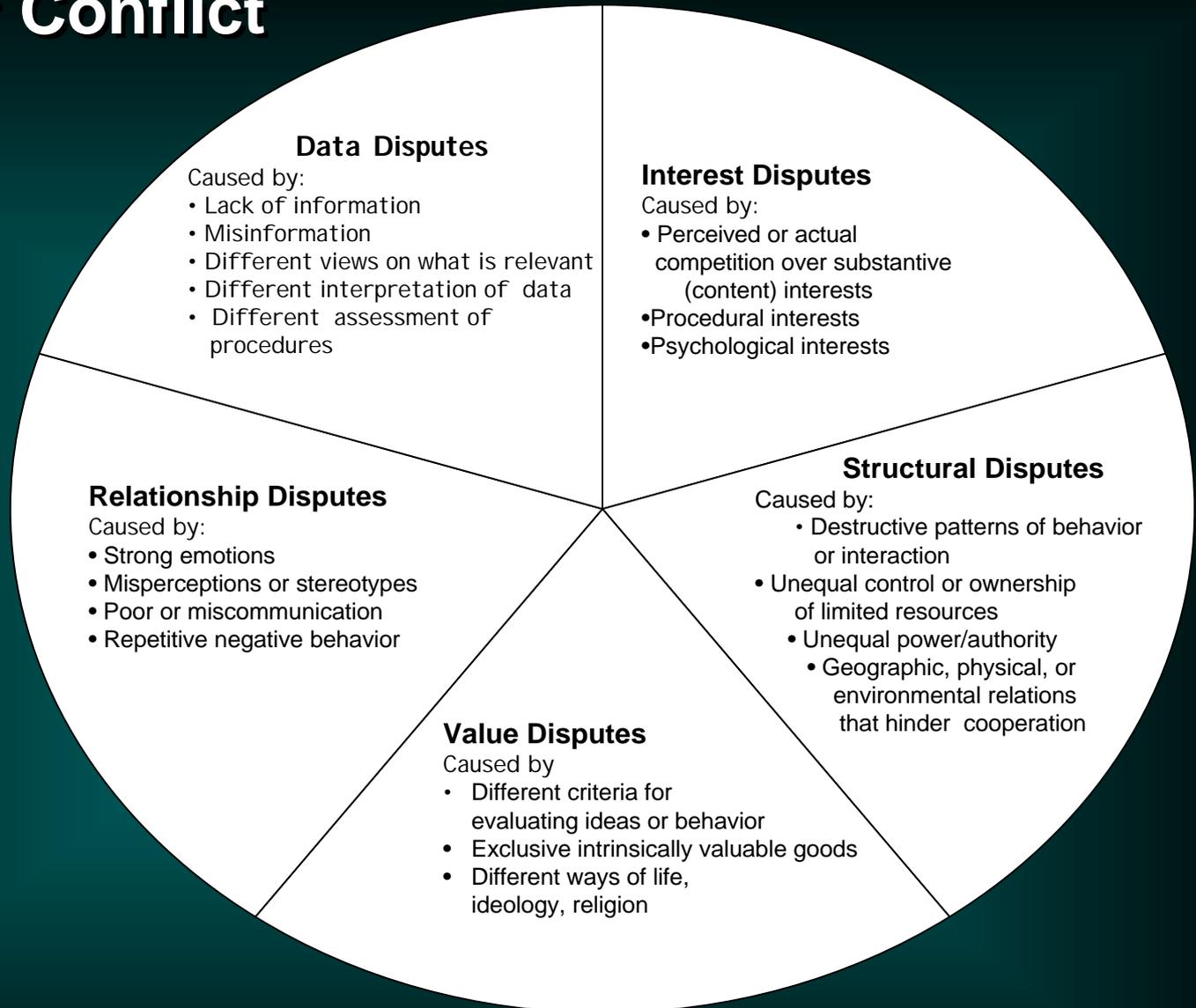
Public Problems -- Socially Constructed

1. Differing values, beliefs, cultural traditions and worldviews
2. Strategies for dealing with problem are based on people's definition and mental model about "cause and effect"
3. Goes beyond the scope of scientific and technical data

Public Problems -- No Optimal Solution

1. Intractable; never entirely solved
2. Technical remedy only is ineffective; requires deeper systemic changes

Circle of Conflict



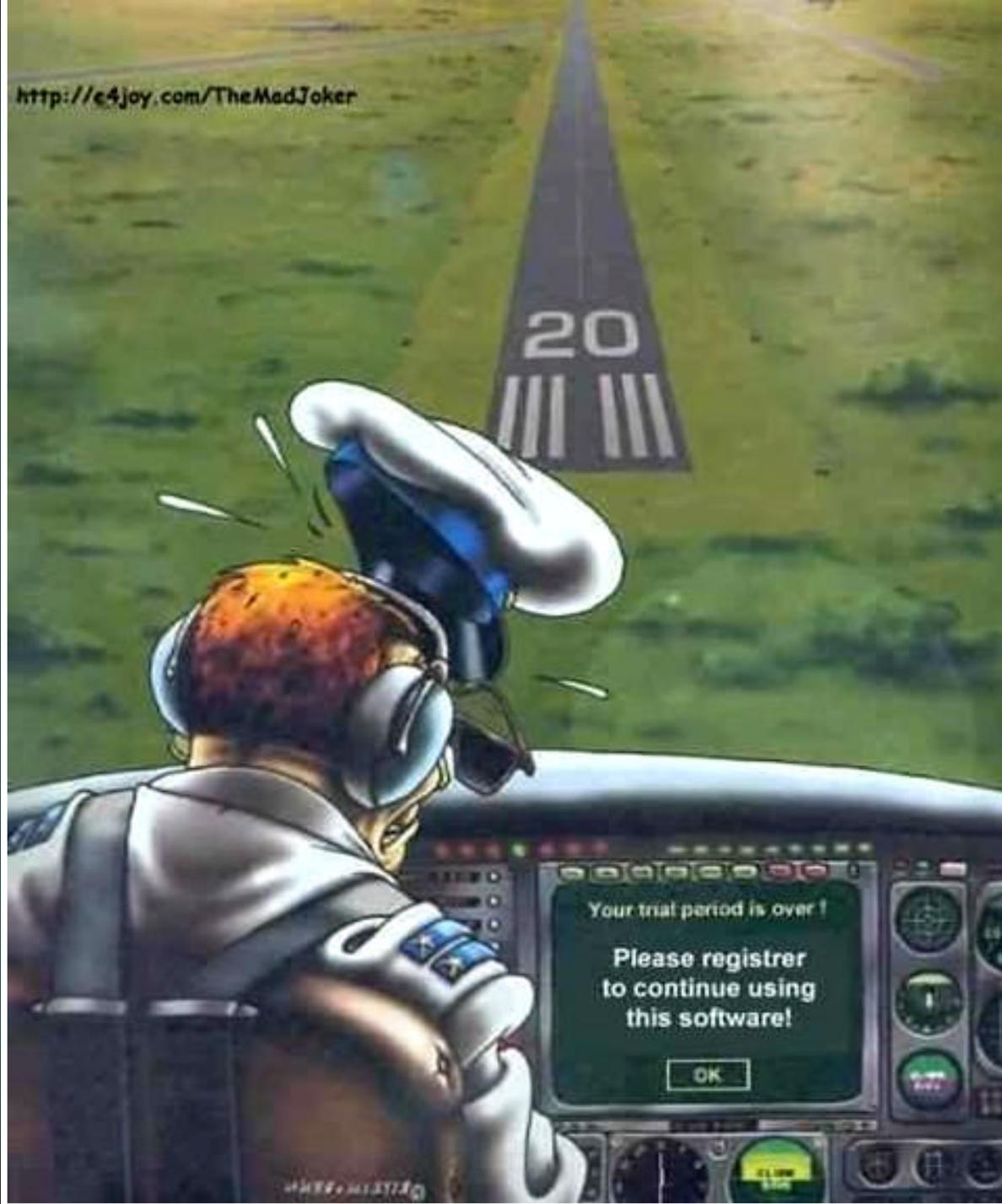
Three Types of Problems

	Type 1 Technical Problems	Type 2 Value Problems	Type 3 Wicked or Intractable Problems
Agreement on the definition of the problem	YES	YES	NO
Agreement on possible Solutions	YES	NO	NO

TYPE I PROBLEMS

- “How to” questions; usually technical in nature, solved by technical fixes.
- High levels of agreement on both the definition of the problem and possible solutions.
- Experts can solve the problem.
- Tend not to require much consideration of values and beliefs; may not require high levels of participation and involvement of the public

<http://e4joy.com/TheMadJoker>



Type II Problems

- Thought of as “value” problems in that solutions are less clear because value dimensions are present; difficult to find “reasonable solution”. Tendency to jump to technical solution
- Even though there may be general agreement on the definition of the problem, there is little or no agreement on potential solutions.



Type II Problems

- Not solved just by experts. Information alone isn't sufficient for decision-making. Involves values so must be solved by people who are going to implement the solutions or live with the outcomes.
- Type-II problems evoke the emotions and stubborn responses associated with worldviews, ideologies, and belief systems
- Atrazine
 - Effective- economical
 - Some farmers believe Atrazine is not the problem
 - Don't tell me how to manage my land

Confusions & Challenges

1. Many problems are both technical **AND** value driven.
 - Example: Atrazine in the water (technical). Value of environment over economics or behavior changes
2. People tend to not recognize, dismiss, or underplay value problems because they are harder and more difficult to deal with.
 - Example: SW Missouri – poultry litter run-off. Farmers feel they were being singled out
3. People often prefer to have an issue treated as if it were purely technical because then they don't have to own the problem or the solution.
 - Example: Water Quality. Regulations might be or specific practices implemented to protect water quality but both may lack consideration of social/economic impacts.

Type III Problems

- Often referred to as “wicked” or “intractable” because
 - multiple stakeholders
 - overlapping jurisdictions
 - powerful moral dimensions
 - deep histories.
- Large variety of stakeholders with differing perspectives; no agreement on what “the problem” actually is.
- Competing solutions create conflict among stakeholders when discussing “the problem.” (people come up with solutions instead of defining problem)
- No one has power over the whole situation. No one party is capable of both defining the problem so that everyone agrees on the problem and a solution.

Points to Think About

- Intractable problems are very rarely “solved.”
 - Slowly “tamed” as people begin to recognize the issues and work on resolving the conflict.
- Type II and Type III problems may involve contested technical information and scientific uncertainty, linked to divergent values
- Large public issue may involve aspects of TYPE I, II, III

In Summary

- Public problems do not respect conventional boundaries. No one sector – governmental, industrial, and civic – can “own” them.
- Technical remedies alone are insufficient.
- No one agency of government has full jurisdiction to solve them. No one locale can wall itself off and deal with them exclusively
- No one special interest group has the power to force a solution.
- No one discipline, or mental model, can fully explain them.

Challenges for Addressing the Complexity of Public Issues around Watershed Management

1. Complex public issues required shared power and shared leadership. Due to a variety of reasons, this is not a typical response to issues which arise in watershed management planning.
2. It is important to match the levels of conflict (such as Type I, II, III) to the approach. Trying to resolve a Type III problem, where the problem is not even agreed upon, with a technical solution won't work

Dealing with Conflict around Watershed Management Planning

CWIM activity:

Workshop on Understanding the Role of Conflict

- Sources and Value of Conflict
- When Science and Technical Information isn't enough
- Exploring Roles of Extension and Agencies in Managing or Mitigating Conflict
- Community Assessment Tools
- State Discussions of Where to Go From Here

Need to Understand the Human Dimensions

General comments from extension and resource professionals who attended the conflict training:

1. An increased recognition that public issues related to collaborative watershed management are complex and this complexity leads to conflicting values;
2. That regardless of the science and technology, values, beliefs and attitudes may take precedent in why people make the choices they do with regard to watershed management
3. It is critical to involve stakeholders during all phases of watershed planning to help mitigate conflict

Further impacts:

Resource professionals planned to

- add community development staff when planning projects;
- return to their respective regions and build a coalition of landowners for watershed management planning
- present the materials from the workshop at learning sessions with their own organizations.

Finally,

- Participants identified a further need for training in the area of conflict management and skill-building to address issues they face.
- More “hands-on” techniques to identify what is contributing to the conflict and then how to address it.
- They also cited a need to learn how to handle “difficult” participants in public meetings around conflict arising over watershed management planning.