

# **Criteria and Indicators for Effective Water Management Institutions**

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## **Why is Local Water Management Important?**

Water resources management at the basin level needs to be a cooperative effort.

Local water management in rural upstream areas is critical to basin concerns such as water quality and flood control.

Recent US Federal government initiatives to promote water quality imply increased efforts to reduce non-point source pollution.

Thus local water management institutions serve local needs as well as basin needs.

## **Why is Local Water Management Important?**

Local water management organizations (WMOs) are responsible for stewardship of water resources for local constituency needs, they should be stakeholder driven.

Local goals of water managers:

- i) Maintain secure quality potable water sources;
- ii) Promote drainage and flood control for local needs;
- iii) Provide services for irrigation, recreation, and nature conservation as required for local needs.

## **Why is Local Water Management Important?**

Basin wide water management objectives are of greater scale due to important population and economic activities in downstream main channel cities. Objectives include:

- \* maintain secure water supplies;
- \* prevent large scale flood damage;
- \* maintain water quality and meet State/Provincial and Federal water quality standards;
- \* promote environmental quality;
- \* promote regional economic development.

## **Why is Local Water Management Important?**

Local WMOs can contribute to basin wide initiatives by:

- \* providing diverse and varied responses and new ideas for implementing policies
- \* balancing top-down centralized initiatives with bottom-up responses
- \* ensuring public participation and facilitating public support
- \* collaborating with Federal government and state/provincial agencies

## **What is Interesting about the Red River Basin?**

Flood control and drainage remain a primary concern

Basin remains vulnerable to prolonged drought

Water quality is good – very good in the Basin

- \* few non-attainment zones
- \* pesticide and nitrate concentrations are low
- \* groundwater is mostly potable
- \* minimal impact of wastewater
- \* high levels of suspended sediments
- \* relatively free of invasive aquatic species

## **What is Interesting about the Red River Basin?**

The primary land use is agriculture, with good soils.

The physical geography of the Red River Basin is somewhat homogenous, but the different political constituencies and water laws make it an interesting case study of water management institutions.

Despite different priorities, there is cooperation in the basin to achieve common needs.

## **What do we know about WMOs?**

In the United States, WMOs

- \* are becoming more common
- \* can be characterized as citizen-based, agency based, or public-private
- \* many are supported by the Federal government
  - \* NRCS
  - \* EPA
- \* can facilitate non-point pollution control
- \* many are focused on non-point water pollution, recreation development, public education, and advocacy

## **What do we know about WMOs in the Red River Basin?**

Within Manitoba, Minnesota, and North Dakota there are a variety of WMOs. We have:  
watershed districts,  
water resource districts,  
soil and water conservation districts,  
conservation districts,  
resource conservation and development councils,  
tribal departments of natural resources  
lake associations,  
and a variety of agency based and citizen based  
WMOs.

## **What do we know about WMOs in the Red River Basin?**

There are a variety of different formats for these WMOs.

- \* In Minnesota, many WMOs are formed along watershed boundaries.
- \* In North Dakota the water resource boards correspond to counties.
- \* In Manitoba, groups of municipalities form conservation districts.
- \* In Minnesota and North Dakota many local WMOs have the power to tax.

## **What do we know about WMOs in the Red River Basin?**

There are a variety of different formats for these WMOs.

- \* There are a variety of joint-powers agreements that formalize collaboration between small WMOs for specific projects or purposes.
- \* Many WMOs, US conservations districts and ND water resource districts, have been formed under 1930s legislation.
- \* Many US WMOs receive Federal support especially from the NRCS.
- \* Most WMOs are engaged in public education.

## **What do we want to learn about WMOs in the Red River Basin?**

The variety of WMOs with different formats serving similar purposes leads to some simple questions:

- \* What is working?
- \* How can water management be improved by learning from other WMOs?
- \* Is more collaboration needed?
- \* How can WMOs collaborate better?
- \* Are local WMOs providing needed public participation for the establishment of water quality standards?

## **What do we want to learn about WMOs in the Red River Basin?**

The variety of WMOs with different formats serving similar purposes leads to some simple questions:

- \* Are WMOs changing with the times to meet evolving needs?
- \* Which WMOs can most effectively utilize increased support?
- \* How can extension programs and government assistance be modified to better improve WMOs? and water management?

## **What does the scientific literature say about WMOs?**

**Very little!!!**

More and more responsibility is being handed to local watershed management groups, especially under the US EPAs water quality program. But as of yet there has been little analysis of the characteristics of WMOs that can most effectively contribute to new initiatives.

This corresponds to research on irrigation water management, initial efforts focused on technical aspects and later efforts on understanding irrigation water user associations.

## **What does the scientific literature say about WMOs?**

A few studies have characterized WMOs in the US. But there has been little statistical analysis or evaluation.

Analysis of WMOs fits into the study of institutions which includes both economics and political science.

Institutions include informal norms, rules, laws, customs, and organizations. Many recent studies on institutional analysis have utilized Elinor Ostrom's (1990) use of the institutional analysis and development framework.

## **What are Criteria for Judging WMOs' Effectiveness?**

The Institutional Analysis and Development framework presents a number of criteria for analysis.

Among the Criteria

### ***Accountability***

WMOs should be accountable for their actions.

However too much effort at accountability might constrain efficiency. Indicators include:

- \* oversight
- \* open meetings
- \* public comment.

# What are Criteria for Judging WMOs' Effectiveness?

Among the Criteria

## *Adaptability*

WMOs should be capable of adapting to changing environments. They should be stable enough so the constituents and collaborators have good expectations of activities and responsibilities. However activities and responsibilities need to be updated periodically.

Indicators:

\* updated statement of purposes and plans

# What are Criteria for Judging WMOs' Effectiveness?

Among the Criteria

## *Equity*

Decision-making process should be fair and resources should be delivered equitably.

Indicators:

- \* services are paid for by beneficiaries
- \* democratic processes govern decision-making
- \* fair representation

## **What are Criteria for Judging WMOs' Effectiveness?**

Among the Criteria

### ***Efficiency***

For an economist, efficiency implies an allocation of resources to achieve an optimum outcome. This might not be pertinent to WMOs.

Administrative efficiency implies low administrative costs for desired outcomes. Since WMOs do not manufacture products this type of efficiency might be difficult to measure.

## **What are Criteria for Judging WMOs' Effectiveness?**

Among the Criteria

### *Efficiency*

An important component of efficiency are “transactions costs.”

In terms of WMOs these transactions costs are mostly the administrative costs of delivering services, conducting meetings, and promoting improved water management.

# What are Criteria for Judging WMOs' Effectiveness?

Among the Criteria

## *Outcomes and Products*

WMOs can't make it rain, can't make it stop raining, and can't make everyone happy. The physical measurement of water quantity or quality is a very indirect indicator of the WMOs' effectiveness. But activities, outcomes, and products are very legitimate criteria.

## **How do we proceed to learn more about WMOs and improve performance?**

NDSU researchers are initiating a three year project to learn more about the characteristics of effective WMOs.

This is a collaborative effort with researchers from NDSU, The University of Minnesota, The International Water Institute, and the USGS.

Stakeholder input is needed to further develop the criteria and indicators for “effectiveness.”

We will learn more about the WMOs, their objectives and plans. We will assess how objectives and plans have evolved.

## **How do we proceed to learn more about WMOs and improve performance?**

We will develop a survey instrument and conduct surveys in the summer of 2006.

We will assess preferences for alternative water management policies.

We will assess the use of current technical information and training material and provide input into the development of further training material.

## **How do we proceed to learn more about WMOs and improve performance?**

This research effort should serve the constituency of water users in the Red River Basin and beyond.

The research team will need the assistance of WMOs, government agencies, local political leaders, and assorted colleagues.

Your feedback is requested.

**ANY QUESTIONS OR COMMENTS**