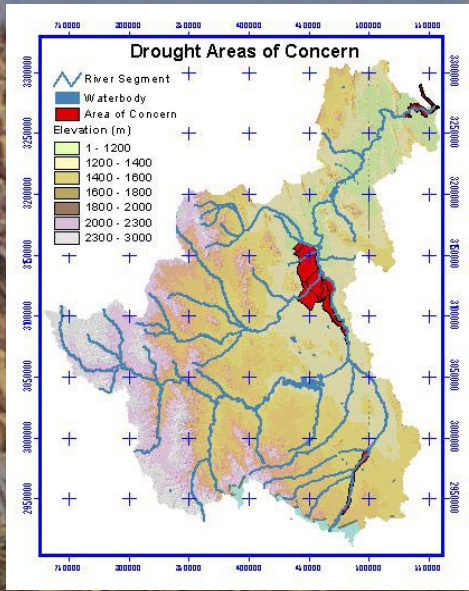


# WMDSS - A Case Study

In 2001, the Secretary of Urban Development and Ecology of the Government of Chihuahua, Mexico requested that DPRA assist the State with the Development of a management tool for the Rio Conchos watershed.

The watershed has been under stress from drought conditions that have been consistent over the last 10 years. The Conchos basin covers about 63,000 km<sup>2</sup> and its economic base is linked to agriculture, forestry and mining.

The watershed was subdivided into 122 hydrologic units and 89 river segments which have been entered into the DSS Information System along with all available hydrologic, agricultural, environmental, social, economic and legal information which was collected from a wide range of sources or modeled in a Geographic Information System (GIS).



WMDSS Developed by:



Since 1971, the focus of the firm has remained the same: consulting services for people and the environment. Our goal as consultants is to contribute to the enhancement of socially viable communities, improving corporate environmental responsibility and supporting organizations to manage transition and change.

[www.dpra.com](http://www.dpra.com)



**DSS Management Consultants Inc.** provides clients with the professional skills necessary to successfully tackle complex decisions and to efficiently and effectively translate decisions into actions "on the ground". Our expertise is focused on environmental conservation and protection and resource management questions.

[www.dsmgmt.com](http://www.dsmgmt.com)

For more information,  
please contact:

**Jim Micak**  
tel: 905.660.1060 ext.225  
email: [Jim.Micak@dpra.com](mailto:Jim.Micak@dpra.com)

**DPRA Inc.**  
Canadian Office  
7501 Keele Street  
Concord, Ontario  
Canada, L4K 1Y2



A Tool for Sustainability

The Watershed Management Decision Support System (WMDSS) is a powerful tool designed to determine the optimal allocation of water and land for human use (eg. agricultural, domestic and industrial uses) and the implicit economic value of the water for those uses.

Water pricing schemes, optimum allocation, conservation and infrastructure improvement benefits can all be efficiently examined using the WMDSS.

Traditional watershed management models use simulation to examine a few plausible scenarios among the infinite array of possibilities present. This traditional approach almost never identifies the optimal management option. The WMDSS is innovative in that it is based on an economic framework determining the best allocation of water, combining and analyzing multi-dimensional information in a single system modeled in a Geographic Information System.



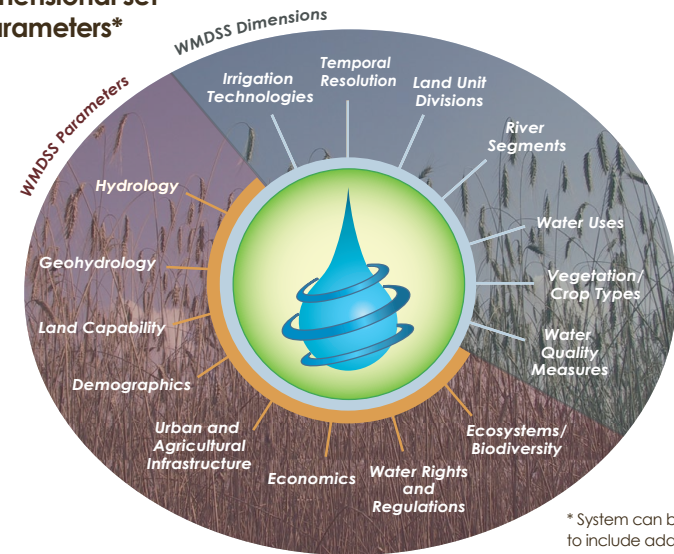
The WMDSS fully integrates surface and groundwater systems within an optimization framework to identify the allocation of water and land that best satisfies multiple resource objectives under various hydrologic, ecologic, social, regulatory and economic constraints.

The WMDSS builds on years of experience gained solving resource management problems relating to land, water and forests in many jurisdictions. Most recently, a version of the WMDSS has been developed for the Rio Conchos watershed in Chihuahua Mexico. More information about the Rio Conchos project is available on the WMDSS CD.

## What can the WMDSS do in your Watershed?

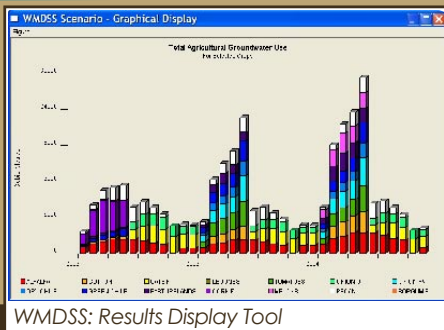
- Contribute positively and significantly to the principles of sustainable development
- Maximize economic efficiency
- Strengthen institutional capacity
- Encourage private sector involvement
- Improve health of the watershed ecosystem
- Coordinate and make improvements in agricultural systems and cropping decisions
- Communicate and promote awareness among local communities of water management issues

### The Multi-Dimensional set of System Parameters\*



\* System can be expanded to include additional parameters

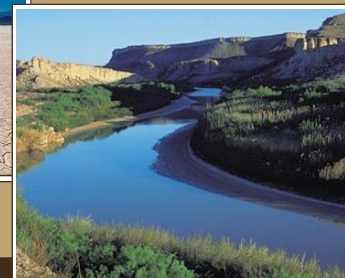
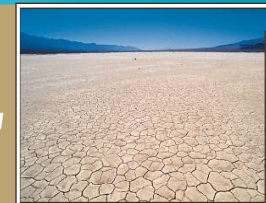
## Potential Users



The WMDSS has been developed within a Microsoft Windows environment, making it very user friendly. Users can include all organizational levels, including management and professionals.

## The WMDSS Facilitates:

- Improved Efficiency
- Effective Problem Solving
- Learning & Training
- Interpersonal Communication



The Rio Conchos, Mexico