



Environmental Considerations in IWRM: Concepts and Related Information Sources and Needs

Issues

- What environmental considerations are important in IWRPM?
- What information do we need to know about them?
- Do we have this information or how else do we obtain it?

Basic Considerations

The basin is the basic water management unit and most environmental impacts are within the basin context.

Social, administrative and political systems cut across basins and this may result in impacts outside the basin.

Water quality issues involving groundwater and atmospheric transfer may also involve different system boundaries.

A systematic perspective is therefore an important component of environmental considerations as well as the data needed to study them.

Environmental Impacts of Water Resource Management

- Catchment issues
- Biological impacts
- Up-downstream impacts
- Water quality issues

Catchment Issues

- Direct and indirect impact of water management projects on cover run-off and periodicity of flows
- Direct and indirect input of water management practices on sediment flow and deposition
- Changes in land use and land cover

Biological Impacts

- Direct impact on aquatic conditions - movement of fish, plants, creation of new ecologies
- Indirect impact on terrestrial and swampland ecosystems

Up-Downstream Impacts

- Changes in Water flow periodicity and amounts
- Changes in sediment flow periodicity and amounts
- Changes in biological transfers

Water Quality Issues

- Changes in input of terrestrial pollutants into water
- Changes in input of atmospheric pollutants into water
- Changes in groundwater quality

Data Issues

Using the report of a technical working group of
the Third Water Information Summit

1. Needs
2. Gaps
3. Barrier
4. Goals

Needs

<i>Class</i>	<i>Requirements</i>	<i>Process</i>
Basic Data	Data Standardization	Homogenize detail levels, scales, geo-referencing, etc.
	Deploy data in graphics, tables and text	Develop 'friendly' information systems
Information	Information about water quality, hydraulics, surface/groundwater Financing mechanisms for the construction of portals	Search information through the internet; use of models; Look for financial mechanisms in international organizations
	Real-time water information	Access to satellite systems through the internet
	Location of hyperlinks related to water resources	Access to portals that contain links to related themes
	Coordination/integration of public and private sectors for generation of information	Create participation mechanisms for data generation and deliver the necessary standards
Knowledge (know-how)	Need of Technology Transfer	Create inter-disciplinary groups at local, national and international level
	Water management knowledge	Obtain knowledge through basin organizations
	Introduction of benchmarking evaluation and access to web pages	Develop format for evaluation
	Need to create "water culture" among water users	Incorporate educational programs and promote awareness

Gaps

- **Indicators** for decision making which consider watershed health and sustainable and economically viable use of natural resources
- **Messages** to create awareness of water issues (to create a water culture)
- Interdisciplinary **models, expert systems and interinstitutional links** for integrated resource management approaches
- Current **state of science** for the understanding of natural processes

Barriers Identified

- Lack of standardization of data and information technologies
- Accessibility issues related to infostructure, information discovery and meaningful processing
- Insufficient data sharing agreements
- Cultural behaviors that inhibit collaboration among institutions
- Little motivation for traditional and new stakeholders to contribute to data gathering and management

Next Steps: Goals

- Understanding of diverse cultures of information and technologies
- Outreach to make target audiences aware
- Bridging gaps from **knowledge to action**
- Collecting and reporting “**success stories**”

Discussion

Needs, gaps, barriers and goals for environmental considerations might differ from those of water managers as depicted.

What might these differences be?

Website References

- Fourth Water Information Summit -
<http://www.waterweb.org/wis/wis4/>
- Fourth Inter-american Dialogue On Water Management
- <http://www.iwrn.net/dialogs/dialog-4/d4.html>
- Waterweb.Org - <http://www.waterweb.org/>
- IWRN - <http://www.iwrn.net/>
- Dialog-Agua-L Mailing List -
<http://www.ces.fau.edu/online/index.html#dialog-agua-l>
- Global Water Information Network -
<http://www.shared.de/gwp/>