

Regional Approaches to Water Resource Management



West Virginia Water Resources Training Workshops

Presented by the Interstate Commission on the
Potomac River Basin

Sponsored by the West Virginia Department of
Environmental Protection

With funding from the American Reinvestment
& Recovery Act



Outline

- Water resource management
- *Regional* water resource management
- Integrated Water Resource Management (IWRM)
- Benefits
- *Review* Parking Lot
- Practical Exercise



Water Resource Management

- Connection of water as a physical resource to how we use it to meet our needs
- In the context of economics, politics, and environmental protection
- Common approaches
 - Issue-based
 - Watershed perspective

What do we manage?

- Land
 - Physical changes
 - Pollution
 - Ecosystem alteration
 - Land use/land cover
- Water
 - Physical changes to streambeds
 - Flow alteration
 - Extraction/diversion
 - infiltration

USES?



Regional Issues

- Consumptive use
- Water quality
- Water use
 - Drinking water
 - Industry
 - Agriculture
- Wastewater treatment
- Environmental protection
- Recreational activities



Regional Water Resource Management

- Water does not adhere to political boundaries
- Tackle problems that face multiple stakeholders
- Water and pollution flow downstream
- Same resource, different uses for it
- *EXAMPLE:* Adjacent municipal areas consider joint zoning and water resources planning, development and management



Watershed Approach

- Look at watershed, not one location or one problem
- Take inventory of resources, threats to use, stakeholders, regulations, management goals
- Include all waters and water uses/users

Integrated Water Resource Management

- The practice of making decisions and taking actions while considering multiple viewpoints of how water should be managed.
 - Decisions and actions relate to situations such as river basin planning, organization of task forces, planning of new capital facilities, controlling reservoir releases, regulating floodplains, and developing new laws and regulations.
 - Need for multiple viewpoints is caused by competition for water and by complex institutional constraints.
 - Decision-making process is often lengthy and involves many participants.

Benefits

- Coordinate approach to flooding and droughts
 - Water supply, water quality, transportation, land use planning, stormwater and flooding
- Meet multiple goals
 - Clean drinking water and stream restoration
 - Recreational uses (i.e. whitewater rafting, angling)
 - Social, economic, environmental
 - Weigh costs and benefits

Benefits

- Leverage individual efforts
- Identify trouble spots
 - pollution, unsustainable use
- Multiple perspectives and approaches

Necessities in regional planning

- Include all stakeholders
- Transparency in the process
- Identify and agree on goal(s)
- Set timeline
- Use information that is trusted by all parties
- Define group structure and decision-making process
- Define indicators of success
- Adaptive management plan (science and policy)
- Data



DATA, DATA, DATA

- How much water, where, when
 - Factors for managing flows, 7Q10
- Demographics
- Water use
 - How much
 - Where from
 - What purpose: water supply, industry, recreation
- Projected use
 - When, from where, how much
- How much storage do you have?
 - Timing, quantity
- Wastewater
 - How much
 - Where does it go
 - What's in it
- Areas of special importance
 - Wetlands
 - Floodplains
 - Public lands
 - Source water area
- Land use/land cover
 - Current
 - Future
 - Runoff potential
- Climate
 - Temperature
 - Precipitation
 - Evaporation
- Soil type
- Water quality
- Potential sources of pollution
 - NPDES permits
 - Stormwater, CSOs
 - Point source
 - Non-point source
 - TMDLs
- Regulatory context
 - Designated uses
 - Water quality standards
 - Drinking water standards
 - Wastewater treatment standards