INNOVATIVE APPROACHES TO MONITORING FOR TRANSBOUNDARY WATER GOVERNANCE

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Management of Transboundary Waters

• One of the greatest challenges facing the world today
• Over 260 transboundary basins shared by 2 or more countries worldwide
  – Comprise over 50% of Earth’s surface
  – Contain 40% of global population
  – Include 145 different nations
• Approach Integrated Water Resources Management (IWRM)
Elements of Transboundary Water Governance

• International water law
  – Cooperation, equitable use, obligation not to cause harm, exchange of data and information, emergency notification

• Transboundary organizations
  – International Joint Commission, Nile Basin Initiative, Mekong River Commission

• Transboundary water treaties and agreements
  – Bilateral, multilateral
  – Basin-wide, sub-basin
  – Duty to inform Implementation of joint programs
Weaknesses of Existing Transboundary Water Governance

- Gaps between policy, plans and practice
- Difficult to achieve consensus in decision making
- Agencies involved are overextended, under-resourced
- Lack of funding
- Countries have different scientific and political approaches, and ambition levels
- Transboundary agreements too narrow in scope
- Water quality overlooked
- Agricultural effects overlooked in developing countries
- Lack of authority and enforcement powers
- Too much talk, not enough action
- Lack of public awareness of activities and achievements
- Information production lags information needs
Many transboundary organizations have reached stagnation
Must evolve and make use of emerging technology to improve management of watersheds
“Can’t manage what you can’t measure”
Wide spectrum of data required to support informed decision making
Science based assessments can:
  – Identify top priorities and focus political will
  – Reduce tensions between conflicting resource interests
  – Effect transitioning from water conflict to cooperation
Emerging Technologies in Transboundary Water Governance

- In-situ, real-time water monitoring technologies
- Water related indices
- Earth Observation (EO) remote sensing technologies
- Communication and network technologies

Example of integrated use of emerging water monitoring technologies
- Nile Basin, Egypt
Emerging Technology use in Egypt

• Real-time water monitoring
  – 4 real time stations (quantity and quality)
  – Integrated water monitoring, warning and reporting
  – Pro-active approach
  – Protect water resources from threats
  – Take immediate corrective action

• Egyptian Water Quality Index
  – Meet information needs of decision makers
  – Suitability of water for various water uses
Emerging Technology use in Egypt

• Earth Observation
  – Status, changes in environment
  – Extend point measurements over larger areas
  – Water quality of Lake Manzalah
  – Integrated with real time data

• Communication and network technologies
  – Allows for in-situ, remote monitoring
Lessons of Emerging Technology use in Egypt

•Holistic approach that is inherently proactive
•Data generated in real time and over the entire basin
•Encompasses different aspects of IWRM
  – Data collection, early warning, analysis, reporting, response, mitigation
•Integrated use of technology to meet water resources security and management needs of Egypt
•Innovative monitoring approach that should be expanded
•Applicable to any transboundary basin under pressure
Summary and Thank You

- Conventional approach stands alone monitoring programs in parallel
- Innovative approach uses emerging technologies to create a network interlinking all aspects of monitoring
- New uses for technology and linkages in how technologies can be used together continually being found
- Innovative approach makes watershed come alive characteristics, behaviour and responses
- Information needs of IWRM should be met in a manner as integrated, comprehensive and adaptive as the concept itself
- IWRM should also stand for Integrated Water Resources Monitoring