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Markets in Watershed Services

Four Important Design Issues

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Four Issues

- **Are the Drivers of the Market Adequate?**
- **Is the Design Appropriate for the Buyers & Sellers?**
- **Are Rights to the Services Adequately Defined?**
- **How Can New Institutions Enhance the Market?**



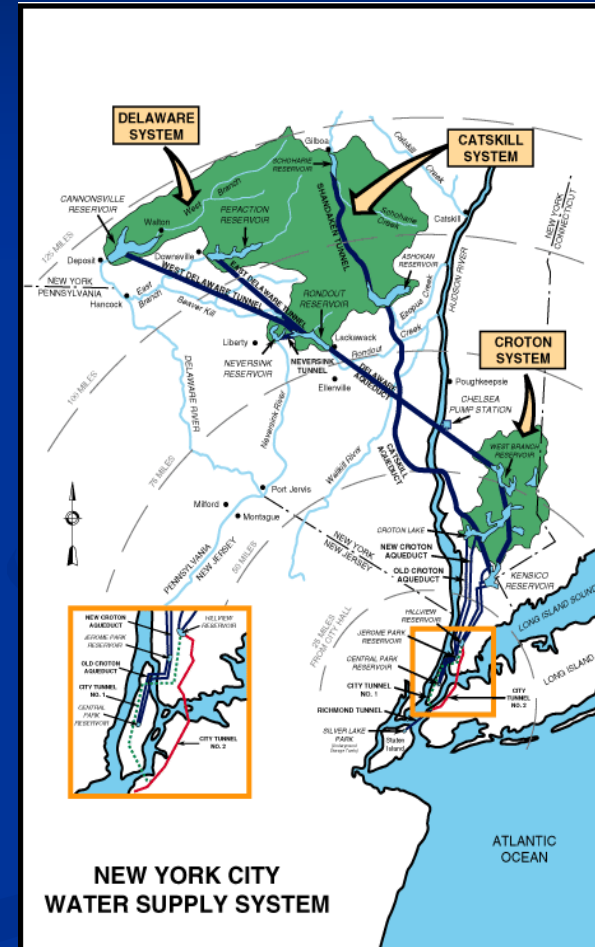
1. Are the Market Drivers Adequate?

- Failure to Understand Risk
 - Ignorance
 - Myopia
 - Optimism
- Failure to Identify Natural Solutions
- Inability to Value Natural Solutions
- Free Riding
- Lack of Funding



To What Extent Is the Catskills Replicable?

- **New York City**
 - Delaware & Catskills Watersheds
 - Filtration Facility
 - \$6 billion capital cost
 - \$300 million operating costs
 - Watershed Preservation
 - \$1.5 billion cost
- **EPA Surface Water Treatment Rule**
 - Encourages non-filtering suppliers to protect watershed
- **97% already filter**



Study of California Water Suppliers

(Postel & Thompson 2005)

- All Suppliers with > 50,000 Customers
- Findings
 - Few have acquired new land in the last decade
 - Only small acquisitions
 - Many utilize land in manner that undercuts water quality
 - E.g., logging
 - Difficult to assess and value



Potential Drivers

- **Regulatory Requirements/Standards**
 - Safe Drinking Water Act
 - Clean Water Act
 - Endangered Species Act
- **Environmental Impact/Risk Analyses**
 - California Drinking Water Source Analyses
- **Certification Programs**
- **Governmental Financial Support**

2. Carefully Consider the Uniqueness of Buyers and Sellers



■ Illustration

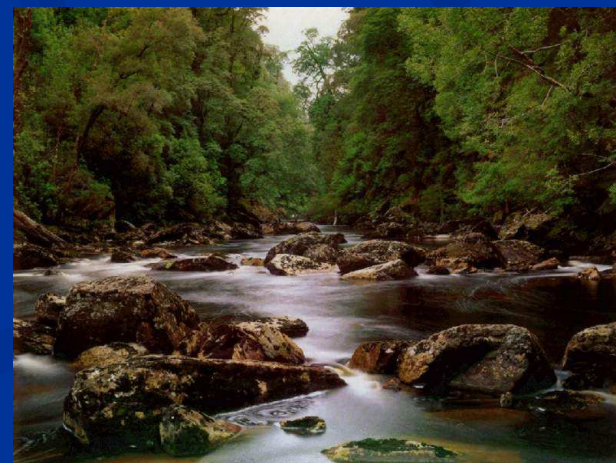
- Some U.S. Investor-Owned Utilities Are Selling Watershed Lands
 - Why?
- Public Utility Regulation
 - Rate Base x Rate of Return
 - Land Valued at Original Cost
 - Economic Incentive to Sell Appreciated Land
 - Public Utilities Sometimes Support

■ Considerations

- Motivations
- Constraints
- Information Networks

3. Defining the Rights

- **Creation**
 - E.g., rights to groundwater recharge
 - E.g., rights to instream flows
- **Assignment**
 - E.g., water district rights
- **Additive to Regulatory Requirements**
 - E.g., California instream flow rights
- **Security**
 - Regulatory Assurance



4. New Institutions

- *Conservation Districts*
 - California Study
 - Sometimes undermine responsibility for water quality
- *Ecosystem Service Districts*
 - Buyers
 - Overcome free riders
 - Aggregation (of demand)
 - Sellers
 - Knowledge transfer
 - Technical assistance
 - Aggregation (of supply)

