

Economics and Water

Overview

There are countless economics lessons that can be learned through an exploration of key water issues. Furthermore, understanding the economics behind water is critical to understanding water management strategies, access to water, pollution, development and many other important water-related issues.

Production and Consumption

During the twentieth century, global freshwater consumption increased at twice the rate of population growth. As of 2000, one third of the world's population was living in countries that are considered to be "water stressed" – where consumption exceeds 20% of total water supply. This is largely because water is not just used for drinking; it is used for food production, energy, manufacturing and a number of other industries. A recent report released by the Pacific Institute identifies water-related risks specific to eight key industries, including electric power, technology, beverage companies, agriculture, apparel, biotechnology and pharmaceutical, forest products, and metals and mining companies.

- How has production and consumption of water changed over time and place? Analyze these changes in terms of economic development level, access to capital and technology, political and economic control and possible environmental and cultural factors.
- How did industrialization and urbanization impact consumption of water?
- What are some different approaches to water management (public, private, communal etc.) and how they have fared throughout history? What effect do the different approaches have on scarcity, accessibility, and price?
- Is water an elastic good? How does this affect supply and demand (and therefore price)?
- What industries are most affected by the water crisis? How can economic incentives be used to address the water crisis in these industries?

Scarcity

Almost one fifth of the world's population (about 1.2 billion people) lives in areas where the water is physically scarce. One quarter of the global population also live in developing countries that face water shortages due to a lack of infrastructure to fetch water from rivers and aquifers. The situation is getting worse as needs for water rise along with population growth, urbanization and increases in household and industrial uses.

- What is water scarcity and why does it exist? How is water scarcity similar to or different from other types of economic scarcity?
- How does the availability or scarcity of the world's water resources affect the price of water in different locations worldwide?
- How does supply and demand for water resources affect the price of water in places where water is plentiful vs. where water is scarce?
- How do transnational corporations (TNCs) and other companies affect the supply and demand for water in different locations?

Microeconomic Issues

- What are the pros and cons to privatization of water?
- In situations where water has been privatized, how is price affected differently by monopolies vs. competition between companies?
- How is the price of water dictated by accessibility, demand, and location in a free market economy?
- How have water stress and water scarcity led to entrepreneurship?
- How has collective bargaining been used in conflicts over access to water and privatization?
- How can governments assure access to clean water if it is privatized? How does this affect the market for water in these cases?
- What are some possible externalities associated with water use?

Macroeconomic Issues

- When a government intervenes to prevent negative externalities that could hinder people's access to adequate water supplies, how are other industries affected?
- What are the benefits and costs incurred when water is sold in a free market? Should water be treated as a commodity that can be bought and sold?
- How might GDP and access to adequate water resources in a country be related?
- How is an investment in water sanitation an investment in human capital and how can it be used to break the poverty cycle?
- What is the role of government subsidies in water conservation and use?

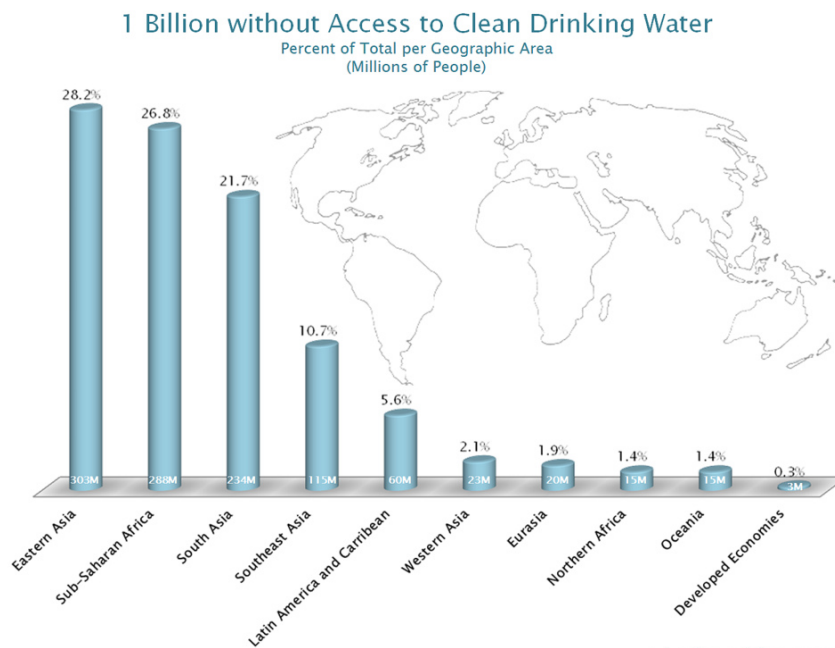
International Econ and Development

- How has globalization affected competition for the world's water resources?
- How have the World Bank and IMF attempted to help with the water crisis?
- How have the actions of international monetary institutions actions affected access to water in various parts of the world?
- How are water and sanitation connected to economic development and the poverty cycle? Compare access to water and sanitation in lesser developed countries (LDCs) to developed countries.
- How is water factored into the Human Development Index (HDI)?
- How can a small investment in water sanitation produce large savings elsewhere?
- How does access to waterways and trade routes impact a country's economic development?
- How has globalization affected competition for control of international waterways?

Possible Topics

- Comparison of privatization models in various countries:
 - Bolivia, South Africa, Chile, Australia
- What are the biggest water companies in the world and how do they operate?
- “British” model vs. “French” model – strengths and weaknesses
- Cost-benefit analysis of the bottled water industry. How do corporations that bottle water or use it for their products affect economic development in the countries where they operate?
 - Coca Cola in India

- What countries are facing great water deficits? What are the issues plaguing these communities because of this water shortage (fires, migration, growing deserts)? How are some countries dealing with water scarcity? What lessons could other needy countries learn?
- How have urbanization and industrialization played a role in access/rights to water?
- Impact of investment in water infrastructure and/or sanitation on GDP & development
 - Flood and drought prevention - Kenya
 - Sanitation - Ghana, Cambodia, Bangladesh, Tanzania and Uganda
- Entrepreneurship, public-private partnerships –examples of innovative models
- What is the role of water in the UN Millennium Development Goals? What is being done to achieve the goals in various countries? What still needs to happen & how?
- World Bank projects - Lesotho, Iraq, Vietnam, Kazakhstan



Lesson Plans

Is the Price Right?

<http://pbskids.org/dontbuyit/teachersguide/isthepriceright.html>

Introduces students to a variety of products and the reason for their retail price tags. After students play this game, consider the many reasons why retail prices are so much higher than the manufacturing costs of the items, such as marketing, packaging, shipment of goods and profit margins.

Thirst – Lesson Plan

http://www.pbs.org/pov/film-files/pov_thirst_lessonplan_lesson_plan_0.pdf



This lesson aims to engage students in an exploration of water privatization issues and the debate between publicly and privately held resources using the film Thirst.

Waterworks: Public or Private?

<http://www.ecologycenter.org/tfs/pdf/2002winter/waterworks.pdf>

Students will explore the history and present state of water systems in the U.S., and the current global trend towards privatization, as well as the pros and cons to privatization. Students also analyze a variety of water privatization schemes to solve the water system problems at a fictional high school.

Water, Water Everywhere

<http://school.discoveryeducation.com/lessonplans/activities/watereverywhere/>

Students will explore the connection between population growth and water scarcity.

Online Resources

World Business Council for Sustainable Development

<http://www.wbcSD.org/templates/TemplateWBCSD5/layout.asp?type=p&MenuId=ODI&doOpen=1&ClickMenu=LeftMenu>

The WBCSD is a CEO-led group of over 200 companies committed to conducting business in a way that promotes sustainable development. Their website shows the organization's business-oriented view on water issues, international news related to water, and access to publications about the business of water.

United Nations World Water Development Report

<http://www.unesco.org/water/wwap/wwdr> ('Water in a Changing World')

The United Nations' 2007 report on the state of the world's freshwater resources. The report provides a thorough overview of many of the problems and solutions associated with the water crisis by placing an emphasis on sustainable long-term economic and human development.

World Health Organization – Water, Health, and Economics

http://www.who.int/water_sanitation_health/economic/en/

Shows the relationship between water issues and economic development through analysis of case studies and answers to FAQ's about water, health, and economics.

World Bank

www.worldbank.org/water

The World Bank uses lending operations and other global programs to combat the water crisis. Website provides access to statistics, publications, and information about the World Bank's strategies for tackling the crisis.

Water at USAID

http://www.usaid.gov/our_work/environment/water/index.html

USAID is an independent federal program that provides development assistance to governments and individuals around the world. Their work with water focuses on promoting environmentally sustainable agriculture alongside economic development.



Organization for Economic Cooperation and Development – Water

http://www.oecd.org/document/47/0,3343,en_2649_34285_36146415_1_1_1_1,00.html

In-depth analysis of the policy concerns and economic problems caused by water scarcity. OECD focuses on problems as they relate to member countries, all of which participated in the World Water Forum in Istanbul, Turkey in March 2009.

Circle of Blue

<http://www.circleofblue.org/waternews/category/business/economics/>

Archived publications and reports about the business of water.

Current Events and Articles

Global Food System ‘Must Change’

<http://news.bbc.co.uk/2/hi/science/nature/7347239.stm>

The BBC reports on the World Bank’s 2007 statement that current world agriculture cannot sustain current food and water demands for long.

The Economics of Water: A Guest Post

<http://freakonomics.blogs.nytimes.com/2008/09/09/the-economics-of-clean-water-a-guest-post/>

David Zetland, author of the aguanomics blog that has appeared in *Forbes.com*, on the basic economic principles behind the business of water.

Clean Water First: Economic Planning in India

<http://economix.blogs.nytimes.com/2009/06/02/clean-water-first-economic-planning-in-india/>

A Harvard economics professor explains why the Indian government should focus first and foremost on providing its citizens with clean water.

Water and the Economic Crisis

http://www.oecd.org/document/41/0,3343,en_2649_34487_42372649_1_1_1_1,00.html

The OECD’s diagnosis of the 2008 economic crisis and its effect on water issues.

Water Scarcity and the Western Oil Shales

<http://greeninc.blogs.nytimes.com/2009/06/09/water-scarcity-and-the-western-oil-shales/>

The New York Times’ environmental blogger on how water scarcity affects the oil industry.

Beneath Booming Cities, China’s Future Is Drying Up

<http://www.nytimes.com/2007/09/28/world/asia/28water.html>

As China’s major cities continue to grow at unprecedented rates, water resources are being depleted even faster.

Inadequate Sanitation Denting GDP

<http://www.ipsnews.net/news.asp?idnews=47487>

Article about the cost of poor sanitation and hygiene costs in the Lao People’s Democratic Republic.



Videos

Thirst – 62min

<http://www.thirstthemovie.org/> - available for purchase or through World Savvy

Is water part of a shared "commons," a human right for all people? Or is it a commodity to be bought, sold, and traded in a global marketplace? "Thirst" tells the stories of communities in Bolivia, India, and the United States that are asking these fundamental questions.

Leasing the Rain -19:58min

<http://www.pbs.org/frontlineworld/stories/bolivia/>

A PBS correspondent in Bolivia analyzes the politics and economics of a deal that privatized water in the Bolivian city of Cochabamba and incited riots and deadly protests.

Water Shortages Threaten Industries –3min

<http://video.aol.com/video-detail/water-shortages-threaten-industries/2377089601>

A MarketWatch video that shows how water shortages and sanitation in the U.S., Europe, India, and China significantly affect business in eight different industries.

The Play Pump – 6:48min

http://www.pbs.org/frontlineworld/rough/2005/10/south_africa_th.html

In South Africa, where over 5 million people have no access to adequately clean water, one entrepreneur has discovered an ingenious way to solve a town's water woes.

SecureWater – 24:40min

http://www.thewaterchannel.tv/index.php?option=com_hwdvideoshare&task=viewvideo&Itemid=53&video_id=176

The recent introduction of demand-based approaches to water supply development marks a major shift in policy. The central challenge for interveners is understanding the nature of demand for water, including the role and importance of water access in different livelihood activities. An understanding of the cost of this access for poor households is key to ensuring a balance between financial sustainability and the achievement of poverty reduction objectives.