Aral Sea Affairs

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Aral Sea Affairs: components

- Aral Sea science
- Aral Sea impacts
- Aral Sea policy & law
- Aral Sea politics
- Aral Sea economics
- Aral Sea ethics
Aral Science

• The science of the Aral basin is quite easy to understand, as complex as its components and their interactions might be

• The hydrologic balance has been disrupted by human activities

• More water is leaving the system’s water collector (the Aral Sea) than is going into it.

• This is a process that has been intensified since 1960 (a key turning point for the sea)
The Aral Sea becomes the Aralkum

Glantz photo, 1995. Karakalpak fishing village

http://www.ecplanet.com/canale/ecologia-6/acqua-139/0/0/10395/it/ecplanet.rxdf
The Aral Sea Setting

• The Aral is really a lake by definition of its characteristics
• It is fed primarily by Central Asia’s two major rivers, Amu Darya and Syr Darya
• It has varied in level over its 35 thousand year history (recent times)
• Its level in 1960 was about 53 m above mean sea level
• Its salinity was about 4 percent
• It had several endemic species of fish & wildlife
Aral Political Setting

- The region fell under Soviet control in the mid 1920s, until 1991 when the USSR fell apart
- Borders were rather arbitrarily drawn
- Climate is excellent for widespread cotton production
  - Adequate sunlight; fertile sands; irrigation water; engineering skills; political determinism from Moscow’s Politburo
- The sea was seen since 1908 (tsarist times) as a useless body of water in a water-short desert setting
- Tzinzerling created a scenario for the levels of the sea for various levels of water withdrawals from the rivers. His work was ignored
  - His scenarios proved to be quite accurate
Cotton was (and is) king in Soviet Central Asia

Turkmen postage, 1933; cotton

Uzbek stamp, 1957. cotton

Cotton factory, 1999. Uzbekistan
Aral Impacts on ecology and society

• On ecology
  – Rich flora and fauna
  – Rich delta environment (terrestrial and aquatic)
  – Rich stream ecology
  – Steady upstream water supply from seasonal glacier melt

• On society
  – Abundance of river water and sea level
  – Fertile but dry soils
  – Productive environment for settlements and livelihoods
  – Sustainable balance of its regional water cycle
Societal Impacts on the Aral

- Streamflow diversions (rob the sea of water)
- Karakum Canal diversion from Amu darya
- Drying out and recession of the circum-Aral shoreline
- Major loss of flora and fauna (land and lake)
- Drying out of the delta
- Increase in lake salinity (like open ocean now)
- Decrease in biodiversity
- Loss or wetlands
- Etc.
From a UN FAO report, 1997

• Key farming blunders in the Aral Basin
• Discharge of highly mineralized, pesticide-rich return flows into main rivers
• Use of unlined irrigation canals leads to waste and seepage of salts into groundwater
• Waterlogged fields lead to salty groundwater and salt runoff
• No drainage network to remove unwanted water and chemicals from the fields

The Shrinking of the Aral Sea: Socio-Economic Impacts

Creeping Environmental Problems and Sustainable Development in the Aral Sea Basin

Edited by Michael H. Glantz
Aral Policy & Law

- **Soviet period**
  - Politburo Decisions
    - to expand cotton production
    - to construct Karakum Canal
    - to let the sea level decline
  - Cost benefit done for Aral sea water
    - Value of use of water for fish or for cotton
- **Post-Soviet period**
  - Continued dependence on cotton production, despite efforts to use water more efficiently
  - Increases in the amount of water diversions
  - Grow rice
  - Presidential Interstate declarations to fix the Aral crisis
  - National policies compete for water
  - Inter-state conflict over water amounts and releases
  - Upstream-downstream conflicts increase
  - Afghanistan seeks to increase diversion from the Amu Darya
Aral Basin Politics

- Interstate rivalries and ethnic rivalries
- Upstream vs. downstream states
- Disproportionate diversion to the Karakum Canal by Turkmenistan
- Water for cotton vs. other uses
- Afghanistan joins the former Central Asian republics
- Authoritarian governments
- Reduce diversions to refill the sea at some level
- Kazakhstan to save the Little Aral (in the north)
Aral Economics

- Breakup of USSR into 5 separate economies; increase in regional rivalries
  - Kyrgyzstan vs. Uzbekistan, water for irrigation vs. heating
- Uzbekistan economy dependent on cotton production
- Turkmenistan economy dependent on canal diversions
- Loss of commercial fisheries
- Saving the Amu darya delta to regain its productivity
Cotton production requires water, fertilizers, pesticides
Aral Ethics & Equity

• Upstream vs. downstream users
• Treatment of the Karakalpak people
• Who speaks on behalf of nature? The deltas? or Fish? or the Sea? or Minorities? or the people at risk to adverse health impacts?
• Water sharing: should it be based on per capita? On historical use levels?
• The former Soviet republics are really part of a Greater Central Asia Afghanistan is 17 percent of the Aral Basin what proportion of water should go to Afghanistan?
Concluding comments

• US Vice President Gore called the Aral crisis the worst human made environmental disaster of the 20th century

• The Aral Sea crisis is an example of a creeping environmental problem
  • It developed over 60 years!

• Short term economic gain often wins out over longer term environmental degradation
  • 1 cu. m of water on sands is worth 100 times more than keeping a fish alive (a Soviet researcher’s calculation)

• AND … now there is Lake Chad in Africa
The Peace Bridge Initiative, 2003-04

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DRAFT of thoughts
July 16, 2003
Capacity Building by Proxy:
development in real time

• What? The idea of capacity building by proxy is to build human educational capacity in climate- and water-related issues
• Who? The goal is to use local expertise in developing countries to educate and train others in the region
• Why? It is a direct approach to developing human capacity in a lesser developed region using the experience and expertise already in place in a relatively more developed country
• Where? A prototype activity for capacity building by proxy will be undertaken between Uzbekistan and Afghanistan
• When? To begin in August 2003 and end in September 2004
Capacity building by proxy along the Afghan-Uzbek border

• How?
  The Amudarya forms the border between Afghanistan and Uzbekistan

  • The Peace Bridge at Termez, Uzbekistan crosses the Amudarya
    – The Peace Bridge is the symbol for this activity; one must build a bridge from two sides
  • Termez State University is 70 km from Mazar I Sharif, in northern Afghanistan
  • The vicechancellor of Termez State University proposed working with those counterparts in northern Afghanistan on water- and climate-related issues including water and air pollution
  • The idea to work cross-border was the vice chancellor’s
  • I then proposed using Uzbekistan human capacity to help build similar capacity in northern Afghanistan
  • We can provide some guidance, funding and direct support to the Uzbek counterparts who can follow a capacity building plan for Afghanistan
Capacity building partnerships

• Who?

• Dr. Rashin Kulmatov, Vice Rector, Termez State University, Termez, Uzbekistan
• Professor (TBD), Mazar I Sharif University, Afghanistan
• Dr. Michael H. Glantz, NCAR, Boulder, Colorado
• Dr. Zafar Adeel, UNU Water, Environment and Health Center, McMaster University, Hamilton, Ontario, Canada
• Dr. Y. Shadimetov, ECOSAN Director, Uzbekistan (he opened a branch of ECOSAN in Balkh University in northern Afghanistan)
• Others in Uzbekistan, Afghanistan, UN organizations and elsewhere