Aral Sea Affairs

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Aral Sea

LakeNet Explorer

www.worldlakes.org

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.**

July - September, 1989

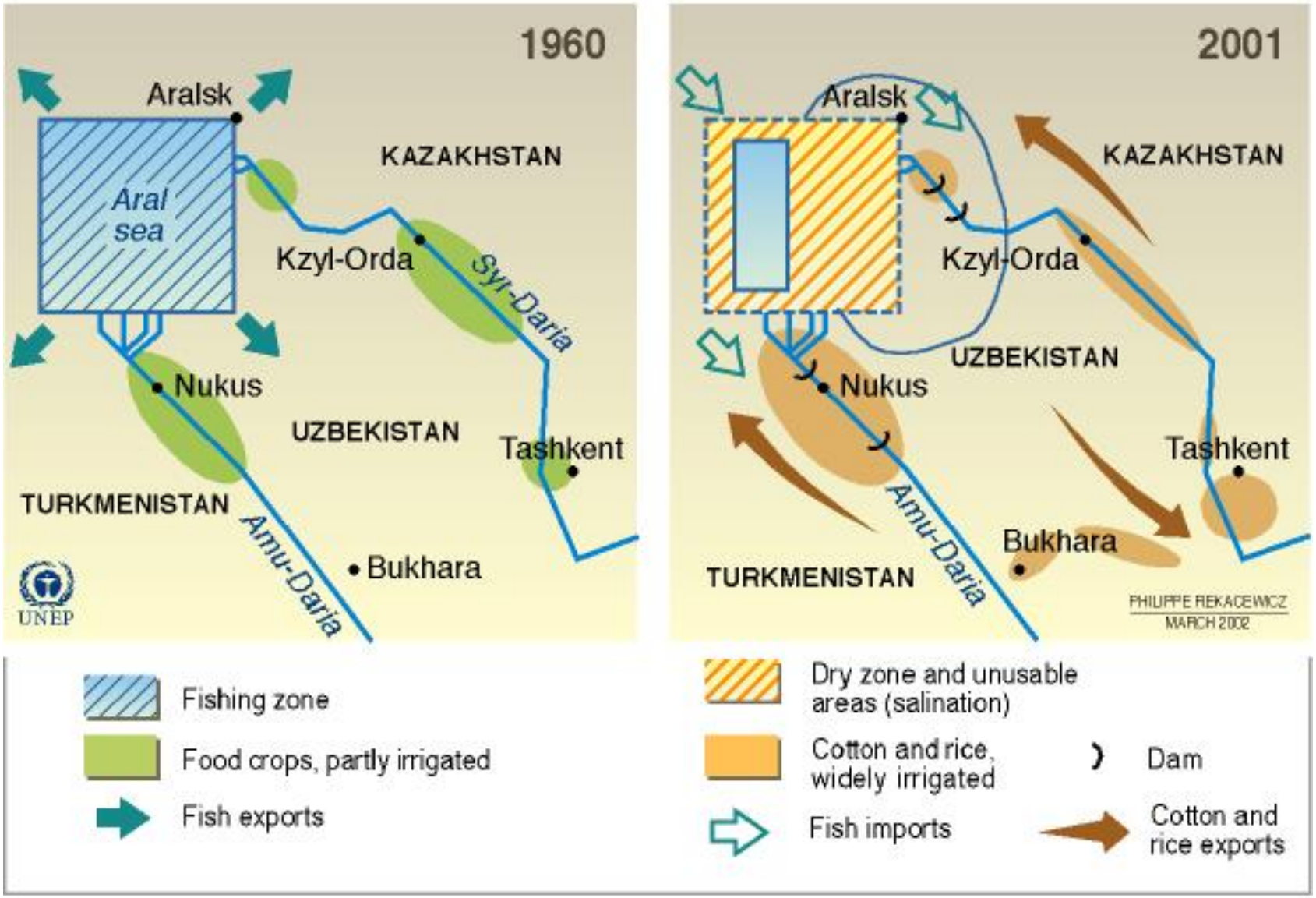
August 12, 2003

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

- **www.fao.org/NEWS/ 1997/970104-e.htm**

The Shrinking of the Aral Sea: Socio-Economic Impacts



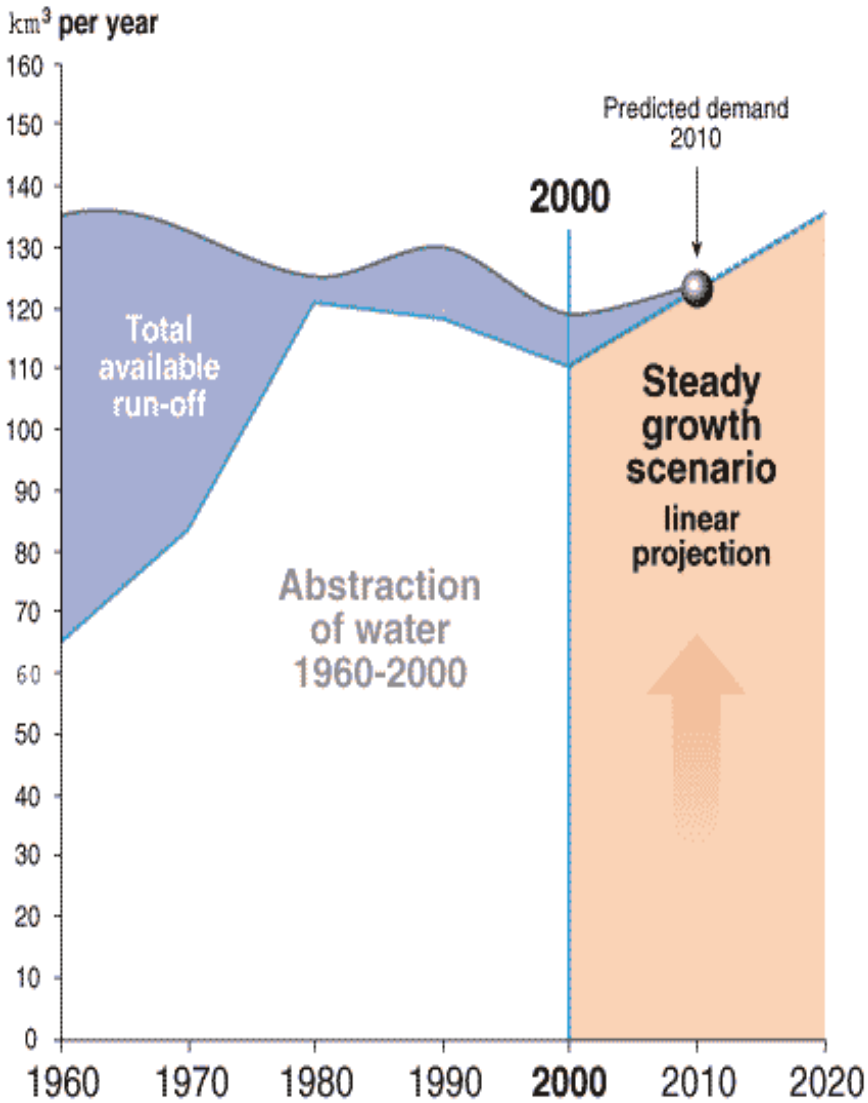
Source: Philippe Rekacewicz, *An Assassinated Sea*, in Histoire-Géographie, initiation économique, page 333, Classe de Troisième, Hatier, Paris, 1993 (data updated in 2002); *L'état du Monde*, 1992 and 2001 editions, La Découverte, Paris.

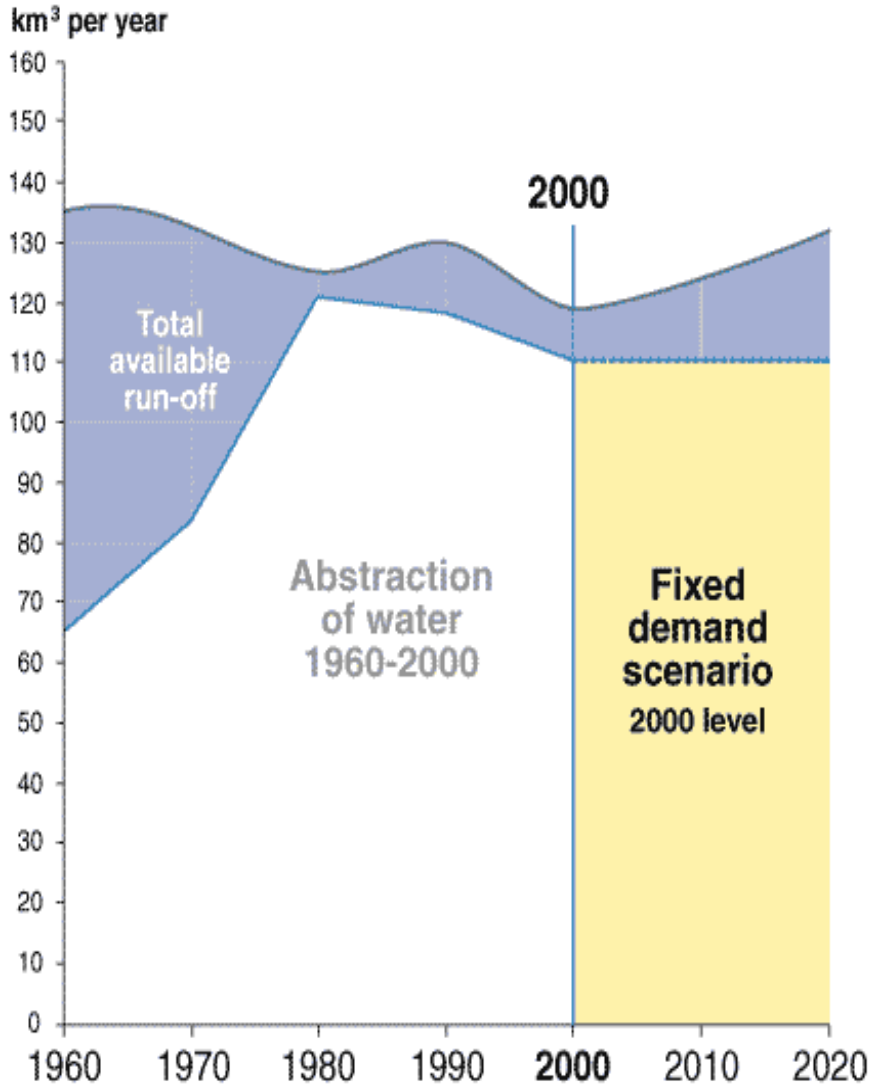
Creeping Environmental Problems and Sustainable Development in the Aral Sea Basin

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**





http://enrin.grida.no/aral/msg_e.htm

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
    - 1cu. 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

Michael H. Glantz
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NCAR
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 Afrighanistan 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, McMasters 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**