

Draft Case Exercise
P. Conway
27 March 2009

**The Rising Sea Lifts all Boats:
Policies to rescue the Aral Sea**
(A two-part case)

Goal for use in an Introductory or Micro course:

Students should be able to

- (1) identify the scarce resource in this example;
- (2) describe the assignment of property rights to the water in the Soviet plan;
- (3) derive a policy or market mechanism that will allocate this water optimally.

Background “readings” for Part A:

D. Hinrichsen: Requiem for a Dying Sea, 2004 (aralrequiem.pdf).

H. Nurton, “The Aral Sea” videoclip,

<http://www.gatm.org.uk/geographyatthemovies/rivers.html>, then page down to “The Aral Sea”.

Graphic: SD_AD.png

CAWaterInfo: Water Resources of the Aral Sea Basin.

http://www.cawater-info.net/aral/water_e.htm

Background “readings” for Part B:

World Bank: Miraculous Catch in Kazakhstan’s Northern Aral Sea,

<http://go.worldbank.org/J4UFHM4SQ1>

NASA visuals: <http://earthobservatory.nasa.gov/IOTD/view.php?id=9036>

I. Greenberg (New York Times): As a Sea Rises, So Do Hopes for Fish, Jobs and Riches. http://www.nytimes.com/2006/04/06/world/asia/06aral.html?_r=1

Earth Snapshot. The Shrinking of the Aral Sea.

<http://www.eosnap.com/?tag=amu-darya-river>

Prior (or posterior) study.

The students should understand, or should be expected to derive within this case, the definition of social marginal cost. They should also be familiar with (or be prompted to derive) the Coase Theorem argument for efficiency.

Case Document, Part A:

Separate documents for seven negotiating parties: Afghanistan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan, Kazakhstan and World Bank. Each will include the information on Water Resources from CAWaterInfo.

Each will be asked to answer the following questions:

- (1) Who owned the water of these two rivers during the Soviet days?
- (2) Who owns the water at present?
- (3) How can we measure the value of this water to our country?

Each will also be asked to come up with a treaty or market mechanism that will allocate the water efficiently among the negotiating parties.

Then, we'll have a role play in which the six groups (with World Bank as moderator) attempt to reach an efficient solution.

Case Document, Part B:

Every negotiating group will receive the information in the background “readings”. Each group will be asked to contrast the outcomes observed for the “North Aral” from the outcomes for the “South Aral”, and the outcomes for 2006 with the outcomes for 2009. (They can be given a matrix to fill in.)

As a group, they can answer two questions:

- (1) What led to the improved outcome for the North Aral Sea in 2006? Can it be duplicated for the South Aral Sea?
- (2) Why do the results for 2009 seem to contradict the 2006 outcomes, even for the North Aral Sea?

This result can then be related to the Coase Theorem – is it more applicable in one region rather than another?

Active-learning Techniques to be applied here.

(1) The preparation for negotiation should be done in small groups in the classroom. With detailed instructions and a chance to prepare before class, the groups should be able to come up with negotiating positions. If they do not propose a market mechanism, the instructor can suggest one as an alternative.

(2) The negotiation will be a role play. Students will be urged to use economic arguments to advance their positions.

(3) The discussion for Part B can be done in plenary, or in small groups.