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### **The Aral Sea Disaster**

*Teaching Water: Global Perspectives on a Resource in Crisis*

August 5-8, 2013, Harvard University

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**Time Tag:** 2:56—3:40

Outline of Presentation

#### **Key Content**

Overview: The Aral Sea Disaster: What happened? Why did this happen? What is being done?

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**Time Tag:** 3:41—6:15

Background on Aral Sea Geography

#### **Key Content**

Aral Sea, once the 4<sup>th</sup> largest fresh water lake in the world, lies in modern-day Kazakhstan and Uzbekistan in Central Asia.

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**Time Tag:** 6:45—10:40

What Happened to the Aral Sea?

#### **Key Content**

Google earth imagery showing impact of the desertification of the Aral Sea (Min 7:30)

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**Time Tag:** 10:40—19:14

Aral Sea as an example of a human-made disaster

#### **Key Content**

References Live Earth Video and Al-Jazeera video.

Irrigation projects severely depleted incoming fresh water to Aral Sea (12:30-15:00)

Impact of the cotton monoculture on desertification (15:00—16:43)

Use of pesticides during the Soviet times and their impact today (16:43—18:15)

Impact of hydrology of the Aral Sea basin: no outlet to the Ocean or other body of water (18:15—19:14)

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**Time Tag:** 19:14—29:09

Brief History of the Aral Sea Disaster

### **Key Content**

The Great Game: how the Russians incorporated Central Asian territory into their expanding empire (19:50—21:01)

During the American Civil War it was impossible to get cotton from the Southern states; the Russian empire saw an economic opportunity here to provide cotton to the US and Central Asia quickly became a cotton monoculture (21:01—21:51)

In the Soviet period, the government cemented this monoculture and cotton production became Central Asia's contribution to the developing agricultural/industrial complex under socialism (21:51—24:09)

The Karakum Canal (started in 1954 but only finished in 1988) diverts water from the Amu Darya River and allows a naturally desert environment to produce agriculture (24:09—25:18)

The collapse of the USSR and the creation of 5 new nations within Central Asian region means that new states are vying for water resources in this desert environment (25:18—27:09)

After the collapse of the USSR the international community discovers that the USSR used a small island of land within the Aral Sea to conduct biological weapons testing. (27:29—29:09)

### **Viewing Questions**

*The push away from nomadic herding and towards agricultural production had a very large impact on the Aral Sea catastrophe. Should desert regions remain desert regions despite advances in technology that would allow for agricultural development? What if this advancement comes at a great cost?*

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**Time Tag:** (29:09—52:18)

Effects on Local Population

### **Key Content**

Diminished resources—lack of fishing and canning opportunities has a clear economic impact but also a cultural impact on Aral Sea communities. (29:09-32:00)

Increased migration, especially amongst young men, and a rise in the trafficking of females. (32:00—34:06)

Health issues: residual pollutants carried by wind throughout region resulting in increased respiratory illness, higher rates of infertility and infant mortality. (34:06-37:29)

Climate change: the Aral Sea acted as a natural climate regulating mechanism. Without it, summers are warmer and winters are colder (37:29-39:12)

### **Viewing Questions**

*How does the disappearance of the Aral Sea contribute to climate change?*

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**Time Tag:** (39:13—52:18)

Why Did this Happen?

**Key Content**

Human-environmental interactions; proximate causes versus ultimate causes; creeping environmental problems vs. sudden problems: (39:13—46:50)

The Aral Sea as a natural process—this is not the first time the Aral Sea has faced disaster (46:50—49:40)

Salinity changes over time help researchers better understand the complex changes that have faced the Aral Sea over thousands of years (49:40—52:18)

*(Image showing population movements over time and the related assumption of how the Aral Sea and its tributaries changed over time: 50:20)*

**Viewing Questions**

*Why did the Soviets do nothing to stop the deterioration of the Sea?*

*What can archaeologists tell us about the history and development of the Aral Sea?*

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**Time Tag:** (52:18—57:00)

What is Being Done?

**Key Content**

Restoration efforts in the North Aral Sea (Kazakhstan)

Improvements in South Aral Sea

Use of local plant species to stop toxic dust storms

**Viewing Questions**

*Who should bear the bulk of the (financial) responsibility to combat the Aral Sea disaster? The nations where the Aral Sea is geographically located (Kazakhstan/Uzbekistan)? The nations that use and divert water from tributary rivers leading to the Aral Sea (other Central Asian nations)? Russia, as the majority country that made up the now deceased USSR? The International Community?*

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**Time Tag:** (59:50—1:09)

Question and Answer from the Audience