Aral Sea Basin Panel – Summary
Krishna Vadrevu (University of Maryland College Park)

15:30 – Panel 1: Aral Sea Basin Issues
Panel Moderator: Garik Gutman (NASA HQ, USA)
Rapporteur: Krishna Vadrevu (U. Maryland, USA)

Panelists :

- *Rashid Kulmatov (National University of Uzbekistan, Uzbekistan);*
- *Polat Reimov (GIS Center at Karakalpak State University, Uzbekistan);*
- Peter Zavialov (Russian Academy of Sciences, Institute of Oceanology);
- Victor Dukhovny (Interstate Commission for Water Cooperation, Tashkent);

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Rashid Kulmatov provided an overview on land and water resource potential of Aral Sea Basin including Trans-boundary water Issues

•All countries of the Aral Sea Basin are using furrow and flood irrigation methods. These are unsustainable and leading to a great loss of water through evaporation and filtration.

•The losses due to evaporation and filtration are estimated to be about 40% due to the poor development of the irrigation networks and ineffective water management,

•The cotton-monoculture has been the main reason for the ecological problems in the region; The area under cereal production (wheat, rice, maize and others) increased from 12% to 77%; Wheat became the dominant crop in the region, which covers about 30% of total irrigated area.

•Following international laws on Transboundary Water Issues through cooperation is the only way to solve Water Resource Problems in the region. In particular, countries located in the upstream areas should cooperate and follow the norms.

Polat Reimov provided an overview on GIS Center activities at Institute of Geography, Karakalpak State University, Uzbekistan

- For many years, Institute of Geography is involved in creating digital databases for the Aral Sea Basin known as ARAL GIS.
- Their database includes:
  - -geobotanical data;
  - -landscape classification maps;
  - -ecological maps,
  - -drainage networks
  - -geomorphological databases, etc.

- Mapping of forests and delta including riparian forests, protected areas, landscape characteristics, soils, etc., are being developed and frequently updated.
- For land cover changes, time-series analysis is important; Based on the spectral signatures, automated analysis of textures has been developed to capture landscape transformations.
- The database are quite useful for water/natural resource management in the region.

Panel Discussion

-Replenishing ARAL basin to its original state seems almost impossible and has lot of challenges.

-Using Wetlands as mitigation measure seems to offer a good solution;

-Building reservoirs in plain areas is challenging and require lot of money. There long-term and most critical issue in this region is the salinization problem;

-Monoculture of cotton should be discouraged and multiple crop rotations with legumes should be encouraged including drip irrigation;

- Use of modern technologies, such as drip irrigation, are important for mitigating the water loss and increase water use efficiency. Investing further in data collection and compilation is a key to understanding and addressing the problem.

-Capacity building important to address regional issues; local expertise is insufficient to understand the whole process and attack the problem effectively.

-Population increase seems to be one of the main drivers.

- The only way to prevent further loss and address restoration is through Regional Cooperation.