

## ARAL SEA BASIN WATER MANAGEMENT PROSPECTS

“Towards Sustainable Development of the Aral Sea Basin”



### **REPORT OF THE ROUND TABLE**

UNESCO-IHE, Delft, the Netherlands  
December 16, 2016

## **Aral Sea Basin Water Management Prospects: "Towards Sustainable Development of the Aral Sea Basin"**

**Report of the roundtable at UNESCO-IHE, Delft, The Netherlands on December 16<sup>th</sup>, 2016**

### **Introduction**

The disappearance of the Aral Sea, as a consequence of overexploitation of water for irrigated agriculture in the Aral Sea Basin, is considered one of the largest environmental catastrophes of our time. Development of international cooperation in the Aral Sea Basin to mitigate consequences of water scarcity and solve transboundary surface and ground-water management issues now is the joint agenda and effort of the countries in the region in cooperation with the international community.

In order to *"discuss the current state of cooperation and identify actions aimed at improving a balanced environmental and socio-economic development in the Basin"* a round table was held on December 16, 2016 at the UNESCO-IHE Institute for Water Education at Delft, the Netherlands. New concepts and tools coming from recent developments in water diplomacy have served as a framework to facilitate exploration of these future transboundary water management options. The Roundtable was organised by the International Groundwater Resources Assessment Centre (IGRAC) in cooperation with the UNESCO-IHE in the framework of an international training course on "Preventive Diplomacy for Transboundary Water Management" with focus on Central Asia. The agenda of the round table is added to this report as annex 1. A list of participants is added as annex 2. The presentations and the interviews with participants will shortly become available from IGRAC at [www.un-igrac.org](http://www.un-igrac.org).

### **Summary of Presentations**

#### ***Aral Sea: Past and Future***

The first presentation by Mr. Vadim Sokolov takes the history of the drying out of the Aral Sea as a starting point for the approach to investigate new river basin management policies for the future. From a situation where the Aral Sea was one of the largest inland lakes in the world it has changed into a new desert in Central Asia (Aral-Kum) that is impacting the region with salt laden sand storms and related hazards. Only efforts made to stabilize the Northern Part of the Aral Sea (the Small Sea) and restoration of wetland functions in the deltas of the Amudarya and Syrdarya remind of the valuable ecosystem that once existed.

A main conclusion from this history is that a regionally coordinated effort is required for restoring a stable water and environment system for which international leadership by organizations such as for example the UN and IFAS is a necessity. Since their independence the Central Asian States have taken on this challenge through the development of regional, high level commissions and institutions such as the IFAS and ICWC and by a number of agreements and conventions aiming at solving the "Aral Sea Crises". In their "program of

measures to eliminate the consequences of the drying Aral Sea disaster" circulated to the 68th UN General Assembly session in 2013, the countries of the region concluded that the crises should be solved under the framework set by the IFAS and under cooperation with the international global community.

This vision was further elaborated during the international conference "Development of Cooperation in the Aral Sea Basin to Mitigate Consequences of the Environmental Catastrophe" of 29 October 2014 in Urgench, Uzbekistan. This conference identified and agreed on a program of some 30 different projects with a total investment plan of some 1.9 billion US\$ in concessional loans and about 1 billion US\$ in grants and technical assistance. It could be concluded that a new Aral Sea Basin Program (ASBP-4) should be based on any still incomplete activities under the ongoing ASBP-3 and new initiatives coming out of the 2013 agreements. The existing Regional Framework Convention on Environmental Issues of Central Asia can serve as a policy framework and water should be the lead theme for regional cooperation. All this in service of a population of about 65 million in 2030 and possibly growing towards 80 million by the year 2050.

### ***Ground Water***

IGRAC director Neno Kukuric presented IGRAC and the activities of the research centre with a focus on Central Asia. Groundwater and especially groundwater in Central Asia is a rather unknown and therefore undervalued resource in the water management debate in Central Asia. An important task at hand is therefore to make groundwater visible, with an emphasis on transboundary aquifers and their management. IGRAC participated in the Aral Sea conference in Urgench and it is regularly active in the Central Asia region since 2006. Recently, IGRAC presented its activities and capacities in this field of groundwater assessment and monitoring to the wide audience at the Central Asia Water Future Forum organized by the World Bank in Almaty (September 2016). A good introduction to groundwater is presented in the film "Groundwater; the Hidden Resource" showing through [www.un-igrac.org](http://www.un-igrac.org)

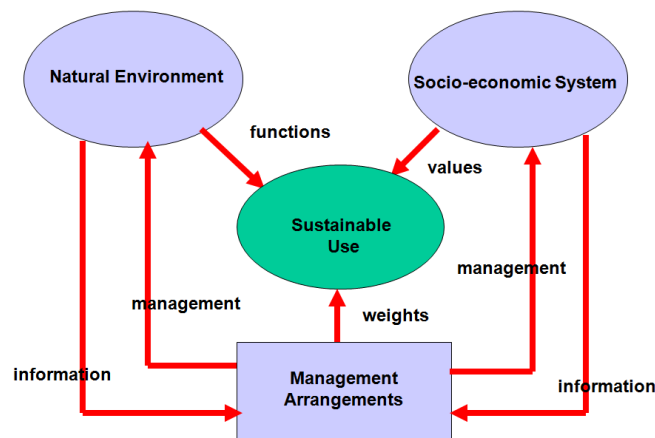
IGRAC's basic information tool is the Global Groundwater Information System (GGIS), which is an interactive, web-based portal to groundwater related information and knowledge. The main objective of this system is to assist in collecting, analyzing and disseminating information on groundwater resources globally, to water experts, decision makers as well as general public. Key to the functioning of such a system and to its maintenance and upgrading is to engage local capacity for groundwater assessment and monitoring, for which an international network under the coordination and guidance of IGRAC does exist. GGIS development is therefore based on methodologies applied during various projects that made use of this platform. Similar assessments can be performed for any transboundary aquifer. The GGIS is a generic information management system and new modules can be developed to serve specific project needs.

Under the framework of GGIS, IGRAC disposes of a number of additional groundwater assessment and monitoring tools, that contribute to its function as a custodian of international transboundary groundwater data. Important other activities to be mentioned are the Transboundary Waters Assessment Programme (TWAP) with a regularly updated map showing the transboundary aquifers of the world. There is also an Information Management System (IMS), which IGRAC developed for data collection and analysis done for the GGRETA project. The main objective of this GGRETA IMS is to provide users an online platform to consistently collect, organise, analyse and disseminate the information collected

for the transboundary aquifers' assessment that has been carried out in the case study areas in Central America, Southern Africa and Central Asia. The availability of a common information system facilitates cooperation between shared aquifer states and provides a tool to all stakeholders involved in the governance of the aquifer. One of these case study locations is the Pretashkent Aquifer, which is located on the territory of Uzbekistan and Kazakhstan in Central Asia.

**Water Diplomacy and Conflicts Prevention: Case Study Central Asia**

In his presentation Joop de Schutter developed a vision on future geo-political perspectives that will come out of future water and water diplomacy development scenarios for the Central Asia (Aral Sea Basin) Region. In order to keep water resources as a source of common and shared interest to serve to prevent and mitigate conflicts and promote security everyone in the region should understand and adopt the principles of integrated water resources and environmental management (IWRM). Although various definitions for IWRM exist, a very straightforward definition and framework comes from the OECD 1995<sup>1</sup>, which is the basis of a widely applicable function value approach. The definition states that water management and governance should be centered around the conviction that socio-cultural, socio-economic, biophysical and technological processes around water systems are intrinsically linked according to the following figure:



The natural environment is producing functions that are valued by the socio-economic system under physical and non-physical management arrangements that balance the system to arrive at a situation of sustainable use. Water management and water diplomacy for transboundary waters allocation and management, including the waters of Central Asia, have developed on the basis of these principles over the last decades, including development of the Aral Sea Basin management model (ASBmm at [www.sic.icwc-aral.uz](http://www.sic.icwc-aral.uz)).

The opening up of the Central Asia Region to the outside world goes back centuries, with the Silk Road as arguably one of the most important and influential historic developments. Moreover, with the current ideas for a new silk road, the history of developing an overland linkage between China and Europe seems to repeat itself. The large scale irrigation development under USSR rule has been equally influential, especially with regard to basin wide water management practices, and has been a main cause for the current water scarcity situation around the basin. One specific trigger for controversy over water allocation and management in the region - that obtained a boost with the independency of the individual countries - is the water, food energy nexus debate. Whereas in the past the common policies

<sup>1</sup> Koudstaal and Slootweg, 1995

(with irrigated agriculture as a basic priority) ruled water management and allocation, in the current situation national priorities define the agenda's. On the other hand, the commonly agreed principle remains, that only regional cooperation, on the basis of shared benefits should guide water allocation and management for the region. The problem is to develop the capacity that is necessary to perform the required assessment and analysis of water management practices for the basin on the basis of agreed system performance indicators on the one hand and organize the regional debate and diplomatic process on the other. All this should be done under agreed conditions of change and urgency such as:

- Population Growth and Food Security
- Economic Growth and Growing Energy Demand
- Dam Safety / Water System Stability
- Climate Change
- Water Use Efficiency and Water Resource Valuation
- Geopolitical Importance of the Region for the International Community

Due to the activities of regional science institutions and the wider academic community, a well designed and functional database and set of models and tools for analysis of water planning and management for the region is available ([www.cawater-info.net](http://www.cawater-info.net)). With this scientific foundation, valuable information can be made available to decision makers and planners based on different future scenarios for physical and non-physical conditions. The Aral Sea Basin management model (ASBmm) may serve as a tool to analyze a business as usual scenario and various user scenario's including construction of new upstream dams and HPP's, changed cropping patterns and changing agriculture policy scenarios. All these scenario's show that especially climate change, with retreating glaciers as a consequence will cause a major impact to water availability (and scarcity) and should, even in the short term, cause the countries to come together and agree on a common strategy for future water management and sharing in the future.

Another, and possibly even more fundamental role is envisaged for water diplomacy to play in the future water allocation and management debate<sup>2</sup> for the region. A central factor of influence is the Sjanghai Corporation (SCO) in combination with the development of regional energy development policies resulting for example in exploitation of fossil fuels on the one hand and the Casa 1000 project on the other. Both China and Russia play a prominent role evidenced by agreements and plans for construction of pipelines for oil and gas and by the proposed energy distribution networks under Casa 1000. In order not to lose central control in these debates it is of utmost importance for the Central Asian Governments and Institutions to have their own research and analysis capacity available to guard balanced interest approaches between and within the countries and sectors (water, food, energy, environment). The development of this enhanced regional capacity, based on participation by the region's leading scientific institutions and academicians, should be the central issue for the starting of capacity development programs under the proposed ASBP-4.

### ***Discussion***

As a result of the presentations a lively discussion developed with valuable contributions related to both pre-identified questions about the analysis of the problem as well as about suggestions for the way forward. With regard to the problems facing the region there was

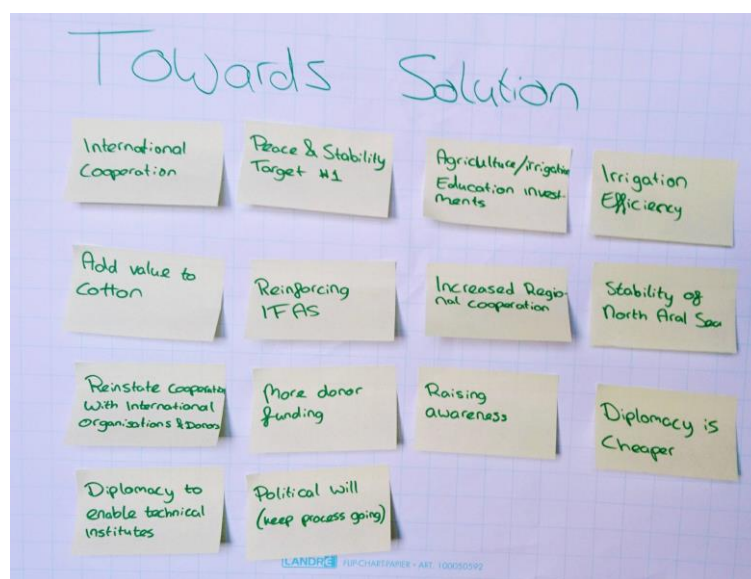
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<sup>2</sup> Statements by the presidents of Turkmenistan (2015) and Tajikistan (2009) at the World Water Forums of 2015 and 2009.

no argument that climate change, population growth, desertification, (rural) poverty and health are among the main and best understood triggers for change. Perhaps of a different character and requiring a different approach are issues related to geo-political and regional energy policy developments, where issues become more complex and sensitive.

There is consensus about the fact that regional cooperation for peace and stability should be the lead policy theme. Reinforcing regional (international) institutions such as IFAS and ICWC should be a priority next to agreed initiatives such as increased water efficiency of irrigated agriculture practices, development of value added agriculture practices (especially cotton), and stable ecosystems (e.g. wetland functions in the delta's and the small sea). There is strong consensus that international cooperation is needed including scientific cooperation and provision of more international donor financing (because of the international character of the problems). Awareness raising (on efficient water use and the urgency of the problem) among the population of the region on all levels is considered a basic condition for all efforts planned and results to be achieved.

In order to start or re-start this international cooperation much can be learned from recent examples such as university cooperation under the EU Erasmus Mundus Program (for example WUR and TIIM Tashkent), the development of the German Kazakh University and bilateral cooperation programs such as between German and Swiss Universities and Scientific Institutions and their Central Asia counterparts or between UNESCO-IHE and SIC-ICWC and others. Experiences about international water cooperation under the EU Water Framework Directive and those from basin organizations such as NBI, Mekong, etc. can be very instrumental as well. Capacity building programs should moreover aim at both the technical, analytical policy analysis aspects of the issues at hand as well as at the legal and diplomatic aspects, similar to what is practiced in river basin management courses at UNESCO-IHE for example. The programs should basically aim at establishing a permanent education and research capacity in the region for which the option of developing an open faculty in Uzbekistan (in cooperation with selected regional universities and institutions) in cooperation with UNESCO-IHE (and selected Dutch institutions) was mentioned as one very promising option. The round table concluded that follow up will be sought in cooperation with IFAS and with assistance of embassies of Aral Sea countries in The Netherlands.



## Annex 1: Round Table Programme Outline

| <i>Time</i>   | <i>Topic</i>                              | <i>By</i>        |
|---|---|------------------|
| <b>14:00-17:00</b>  |   |                  |
| 14:00-14:05   | Welcome                                   | UNESCO-IHE       |
| 14:05-14:10   | Opening Remarks                           | IGRAC            |
| 14:10-14:30   | Aral Sea: Past and Future                 | Vadim Sokolov    |
| 14:30-14:50   | Aral Sea Basin Groundwaters               | Neno Kukuric     |
| 14:50-15:20   | Water Diplomacy / Case Study Central Asia | Joop de Schutter |
| <b>Coffee Break 15:20 - 15:50</b>   |   |                  |
| <p><b>Inventory of reactions from the round table and Q&amp;A:</b></p> <p><b>Round 1 (problem analysis).</b></p> <ul style="list-style-type: none"> <li>• How would you describe the current state of affairs of water allocation and use between countries and sectors. What are prominent changes (turning points) from the (recent) past. Which key features (e.g. culture, ethnicity, political economy, finance, etc.) do you see that influence the current regional water allocation problems the most?</li> <li>• What are the main issues to tackle in the diplomatic process and what would be a good outcome for the regional diplomatic process in the future. What sort of events and (physical, institutional, political) system responses could stand in the way of such a development.</li> <li>• Do you think that there is a need for cooperation with external expert institutions and what should be the (planning and research) questions to ask them. How, if required, should external actors change their approach.</li> </ul> <p><b>Round 2 (towards solutions)</b></p> <ol style="list-style-type: none"> <li>1. How should the regional society at large (the socio-economic system) and the regional international governance structure react and change in response to the required regional transboundary river basin cooperation. What is to be expected from water system internal (water managers, water users, etc.) and system external (government structures) leadership related to the required adaptation of the system. "do not ask what the region can do for you, but ask what you can do for the region".</li> <li>2. What sort of technical and institutional breakthroughs would be required (or can be expected) and what influence would they have on the way the various (national, regional, international, global) stakeholders function within and with the water resources system of Central Asia.</li> <li>3. What could and would be the role of the private (agriculture, industry, energy, services, etc.) sector (business) be in a sustainable development scenario;</li> </ol> |   |                  |
| <p><b>SUMMARY</b></p> <p>Final discussion with summary of reactions and suggestions to the meeting results inspired by the UNESCO-IHP "from Potential Conflict to Cooperation Potential" water diplomacy principle. Suggested follow up initiatives clustered as for example during the last EECCA NWO (Eastern Europe, Caucasus and Central Asia Network of Water Management Organization) meeting :</p>   |   |                  |

- Basic elements (physical, institutional, legal, etc.) and conditions for transboundary river basin cooperation in Central Asia
- Sustainable (surface- and ground-) water management and implementation of information communication technologies (ICT) on basin level
- Increased irrigated agriculture efficiency and resilience. Application of advanced technologies in irrigated agriculture.
- Adaptation of river basin management under conditions of climate change and anthropogenic impacts. Increased water security.
- Research and capacity development related to practical applications for the water-food-energy nexus (as a shared basic planning and decision making framework)
- Towards a new generation of "water leaders" among water professionals.

***Reception and Dinner 17:00 --***



## **Annex 2: List of Participants**

### **Participants of the workshop on water diplomacy**

|                        |            |
|------------------------|------------|
| Mr Serik Bekmaganbetov | Kazakhstan |
| Mr Musilim Zhiyenbayev | Kazakhstan |
| Mr Nabijon Kuvondikov  | Uzbekistan |
| Mr Gaffarov Odiljon    | Uzbekistan |

### **International organisations**

|                          |                      |
|--------------------------|----------------------|
| Ms Christina Leb         | World Bank           |
| Ms Martina Klimesova     | SIWI                 |
| Mr Vadim Sokolov         | IFAS                 |
| Mr Normuhammad Sheraliev | IFAS                 |
| Mr Steve Brown           | Rotary International |
| Ms Pam Russell           | Rotary International |
| Mr Suren Gevinian        | UNESCO-IHP           |

### **From the Netherlands**

|                     |                 |
|---------------------|-----------------|
| Mr Thijs Stoffelen  | WUR             |
| Mr Wybe Douma       | Asser Institute |
| Mr Shreedhar Maskey | UNESCO-IHE      |
| Ms Zaki Shubber     | UNESCO-IHE      |

### **Embassies**

|                        |            |
|------------------------|------------|
| HE Mr Vladimir Novrov  | Uzbekistan |
| Mr Manuchehr Shoev     | Tajikistan |
| Mr Ulan Mukhamedchenov | Kazakhstan |
| Mr Nodir Ganiev        | Uzbekistan |

### **Dutch Ministries**

|                     |              |
|---------------------|--------------|
| Mr Niels Vlaanderen | Ministry I&M |
| Ms Tineke Roholl    | MFA / IGG    |

### **IGRAC**

|                     |                  |
|---------------------|------------------|
| Mr Joop de Schutter | IGRAC/Consultant |
| Mr Neno Kukurić     | IGRAC            |