Roundtable of reflection on the transboundary collaboration regarding the Senegalese-Mauritanian Aquifer
6-7th Feb. 2019, Geneva, Switzerland

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Presentation Plan

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Introduction

- The Gambia is blessed with abundant water resources, and comprises seasonal rains, ephemeral ponds and depression storage, inflows the River Gambia and two aquifer systems underlying the entire country.
- 90 % of the territory lies in the Gambia River Basin, particularly over Senegal and Guinea.
- The country is further distinguished by its location in the central part of the coastal sedimentary basin known as the Mauritania-Senegal-Gambia-Guinea-Guinea Bissau basin which add up to make The Gambia a focal point of extensive regional surface and groundwater systems.
- These water resources provide a basis for sustaining life and promoting the socioeconomic development that the country greatly needs.
- Currently, it is estimated that over 1.9 million people depend on groundwater resources in particular for their drinking water supply.

Current knowledge on the aquifer and the areas to be explored in priority

Named Aquifers	General Description	Water quantity issues	Water quality issues	Recharge
Shallow Sand Aquifer (SSA	SSA is composed predominantly fine to coarse sand, found and exploited across the extent of Gambia. subdivided into 2 units: Phreatic aquifer: comprises the Holocene sediments, and Semi-confined aquifer: comprises the underlying Pliocene sediments. The two aquifers are separated by a 15-30 m clay-silt layer . Yields generally in the range of 1-30 l/s. Hydraulic conductivity and transmissivity generally ranges from 5-30 m/d and 100-10000 m^2/d, respectively. Boreholes are generally drilled to depths of 35-100 m.	Groundwater abstraction is significantly less than recharge and water levels fully recover during the wet season	There are no major groundwater quality issues. Isolated instances of elevated iron concentrations have been reported.	When mean annual precipitation is above 900 mm, recharge is generally in the range of 250 – 300 mm. This is a result of direct infiltration.

Current knowledge on the aquifer and the areas to be explored in priority,

Named Aquifers	General Description	Water quantity issues	Water quality issues	Recharge
Deep Sandstone Aquifer (DSA)	DSA comprises mainly unconsolidated sands and loosely consolidated sandstones, typically at depths of 250-450m. Groundwater in the DSA is confined, and is very old water of 'fossil' origin, between 4000 and 40000 years old. Exploitation of the DSA would require deep boreholes (up to 380 m), and potential yields have been estimated at 40 l/s.	Storage in the DSA has been estimated at 650,000 M cubic metres, of which only 80,000 M cubic metres is thought to be potable.	In the east of Gambia, groundwater in the DSA is potable, but in the west the old confined groundwater is typically highly mineralized, with total dissolved solids in the range 1000 to 2000 mg/l, and fluoride concentrations between 2 and 5 mg/l. If required, highly mineralized water in the western parts of the DSA could be abstracted and mixed with groundwater from the SSA at a ratio of 2:1 to expand the exploitable water	There is no appreciable modern recharge to the DSA.

Challenges pertaining to the management of the aquifer in terms of quality and quantity of the resource

Causes of water quality degradation

- **Urbanization**
- : (a) leaky sanitary facilities and pit latrines;
- (b) on-site sanitation systems in vicinity of groundwater abstraction points;
- (c) solid waste dumpsites and landfills;
- (d) unlined drainage ditches;
- (e) quarries/sand mining.
- (f) Agricultural practice

Past and on-going initiatives, and planned projects with respect to use of the aquifer resources

- Creation and establishment of institutions:
  - OMVG
  - OMVS

- Sambangalou Dam project:
  - Hydro-electricity generation and
  - Expanded irrigation programmes

Challenges regarding current and future plans for using aquifer resources

- Adequate water supply for expanded irrigation programmes for increase food security, poverty reduction, energy security,
- Climate change and variability resilient development,
- Integrated coordination, development, management and equitable utilisation of the aquifer,
- Peaceful co-existence between riparian states

Benefits of strengthened cooperation on management of shared transboundary aquifer (from the point of view of stakeholders)

- Targeted support for enhancing national capacities in transboundary water resources development and management including water laws as part of the mix with a focus on achieving water security,
- Continued support for UNECE 92 and UN 97 water conventions ratification and implementation processes,
- Renewed national and regional focus on the duty to cooperate in developing and managing the shared water resources,
- Reduce poverty and improve livelihoods for stakeholders,
- Reduce potential risk of conflict between riparian states

APPRECIATION

- **On behalf of the Ministry of Fisheries, Water Resources And National Assembly Matters and the entire Country of The Gambia we wish to thank UNECE, and the Geneva Water Hub and all other Donors for supporting the roundtable of reflection on the Senegalese-Mauritania Aquifer.**

THANK YOU