

## **Saharan Aquatic Ecosystems: Environmental Challenges and Mining Prospects**

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The Sebkhass and Chotts are continental endorheic basins and they occur frequently in desert areas (Sahara), obeying under severe climatic conditions as well as significant variation of temperatures and evaporation rates between different seasons. Winter is characterized by a temperature that can reach 0°C and exceeds 50°C during the summer period. The rate of evaporation is extremely important, especially during summer (exceeding 400 mm). These depressions highlight a particular topography, where altitudes can exceed 37 m below sea level, thus contributing in the input of an important quantity of water, with diverse chemical compositions. The feeding of these aquatic environments is through the discharge of groundwater, surface water (drainage and sometimes wastewater) and rainwater. These conditions make it possible to follow the evolution of filling of these basins during the following months: December, January and February, whereas the evaporation processes begin with the increase of temperature by the month of March. The process of crystallization of evaporitic minerals is also started (calcite, gypsum, halite,...). Isothermal evaporation of Chott Baghdad brines shows an evaporitic sequence as the following: gypsum → Halite → Picromerite → Epsomite → Sylvite.

These areas are characterized by economic concentrations of several chemical elements such as: Na, Cl, K, Mg, Li, etc. On the other hand, the Saharan aquatic ecosystems are very weak and are dramatically degraded. Sebkhass and Chotts are used as outlets for sewage, drainage and sometimes for the industrial water, contributing in the degradation of these environments. The present work aims at the diagnosis of the state of the environment and the mining potentialities of Sebkhass and Chotts in the Algerian Sahara.

### **References**

- Bellaoueur, A., 2017. Contribution à l'étude des indices de dégradation et de quelques éléments en traces dans les écosystèmes lacustres (sebkhass et chotts) dans le Bas Sahara algérien. *Thèse de Doctorat*, Université Kasdi Merbah, Ouargla.
- Hacini, M., 2006. Géochimie des sels et des saumures et calcul des vitesses de précipitation de quelques minéraux évaporitiques. *Thèse de Doctorat*, Université Badji Mokhtar, Annaba, 200p.
- Hacini, M., Kherici, K.N., Oelkers, E.H., 2008. Mineral precipitation rates during the complete evaporation of the Merouane Chott ephemeral lake. *Geochim. Cosmochim. Acta*, 72, 1583-1597.
- Zatout, A., 2017. Etude géochimique et minière de lithium dans les sebkhass et chotts dans le Bas Sahara algérien. *Thèse de Doctorat*, Université Kasdi Merbah, Ouargla.