

## **Geophysical Approach in the Geological Characterization of a Dam Site: Case of the Chebabta-Dam, Meskiana, Oum El-Bouaghi**

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**Abstract :** Meskiana Area is characterized by a semi-arid climate where the water supply for irrigation and industry is not sufficient as the priority goes for domestic use. To meet the increasing population growth and development, the authorities have considered building a new water retaining structure on some major temporary water streams. For this purpose Chebabta site on Oued Meskiana was chosen as the future dam site. It is large enough to store the desired volume of water. This study comes to investigate the conditions of the site and the adequacy of the ground as a foundation for the projected dam. The conditions of the site include the geological structure and mainly the presence of discontinuities in the formation on which the dam will be built, the nature of the lithologies under the foundation and the future lake, and the presence of any hazard. This site characterization is usually carried out using different methods in order to highlight any underground buried problematic structure. In this context, the different geophysical technics remain the most used ones. Three geophysical methods were used in the case of the Chebabta dam site, namely, electric survey, seismic refraction, and tomography. The choice of the technics and the location of the scan line was made on the basis of the available geological data. In this sense, profiles have been established on both banks of Oued Meskiana. The obtained results have allowed a better characterization of the geological structure, defining the limit between the surface cover and the bedrock, which is, in other words, the limit between the weathered zone and the bedrock. Their respective thicknesses were also determined by seismic refraction and electrical resistivity sounding. However, the tomography imaging technic has succeeded in positioning a fault structure passing through the right bank of the wadi.

**Keywords :** dam site, fault, geophysic, investigation, Meskiana

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