

## **Environmental heritage of oil shale mining in Brazil**

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Oil shale mining is completing 34 years of activities in Sao Mateus do Sul, Parana State, Brazil, where about 5.000.000 square meters of a total of 6.800.000 square meters of mined areas have been reclaimed and are submitted to continuous environmental evaluations. The evaluation data help to establish the criteria of reclamation methods developed in order to assure appropriate residue disposal, including city garbage, and restoration of soil fertility, basic conditions required for agricultural use or forestry purpose. Most of the environmental impacts of an open pit mine can be suppressed by reclamation, although others will stay for a long time. One of the longer-term effects is related to the underground water level, which is depleted after demobilization of all materials in the mine, from about 8 meters before mining to 35 meters deep in mined areas. Ground waters in disturbed areas are characterized by the presence of high content of dissolved salts, including sulfate, calcium, magnesium, sodium and iron. Constructed ponds or wetlands demonstrated to be a good practice to stabilize oil shale mining effluents by natural water depuration before discharge into the natural drainage.