

## Two case studies of site reclamation and environmental pollution control: Iron ore and/or Phosphorite (North-east of Algeria)

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Ore is an economic concept, generally defined by "technically exploitable and economically profitable mineral concentration".

**Max**

**Ore = useful mineral + gangue**

**0**

So regardless of the unit value and degree of technicality of the mining company, the ideal solution for greater profitability is to recover harmful materials (sterile, gangue, rejects, etc.). And the "gangue" should be kept to a minimum for maximum gain.

Mineral resources are non-renewable and limited

Cut off grade is dependable on technology

We must exploit materials previously considered as undesirable in early mining stages for two interests



### Environmental

By eliminating sources of pollution

### Economical

Marketing of an additional product

The organic extractive means represent better variants in the face of the environmental and economic constraints of mining wastes

**Phytoextraction**

**Biotechnology**

These two methods are adopted thanks to their green principles, efficiency and yield.

**Ouenza**

**50 millions tons of iron wastes**

weight yield of the treatment process estimated at 50%, approximately **25 millions tons.**

**2 241 250 000 US dollars**

**Djebel Onk**

**80 millions tons of phosphorus wastes**

weight yield of the treatment process estimated at 73%, approximately **24 millions tons.**

**1 725 720 000 US dollars**

At Jebel Onk mine, several mountains of tailings can be observed around the complex and over great distances elsewhere.

Table 1: Results of heavy metal analyzes in the five main particle classes

Waste	Fe (mg/l)	Zn (mg/l)	Pb (mg/l)	Cu (mg/l)	Cd (mg/l)
+15 mm	1,950	1,879	1,212	0,024	0,097
+1 mm	1,880	1,828	1,230	0,025	0,105
+0.8 mm	1,930	1,436	1,305	0,025	0,068
Fines TSV	1,670	1,507	1,305	0,023	0,070
Sludge	3,980	2,148	1,274	0,034	0,116