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# Recycling

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## WEEE-ReStraM - Recycling of strategic metals from wastes of electric and electronic equipments

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The developed countries face a persistent concern about the supply of certain strategic metals, which are essential to the development of innovative high-tech industries, and particularly those associated with green energy. The recent political crisis caused by China towards the Japan putting the rare earth elements supply in balance (95% of the world's needs) did that amplify those concerns. The fundamental issue is to ensure the supply of industries manufacturing for which these chemical compounds made from rare metals and alloys are indispensable, even though their availability shows vulnerabilities at different levels of their supply chain. In this context, the European Union released its report 'Critical raw materials for the EU' that identifies 20 metals described as strategic for the European economy as a whole. Among these strategic metals contained in different electronic devices of certain WEEE categories are a priority target of growing and becoming interest. The new technologies that use more strategic metals (SM) contribute to growing and sustainable demand, at the time, of these substances. Europe is one of the most important regions of SM consumption through its industries with high added values. In the last decades, Europe has also accumulated the consumer goods that arrived at end of life, and are considered as secondary resources which SM including rare earth elements (REEs) can be extracted. The development of a specific sector to recover these metals must therefore become a priority. The main objective of this work is the implementation of effective techniques of recovery, treatment and valorization of WEEE. In this presentation, I will present the results of recovery of REEs from permanent magnets in hard disk drives, French project (Extrade).

### Biography

Nour-Eddine Menad has completed his PhD from National School of Geology of Nancy (France) and worked as Associate Professor at Technical University of Lulea (Sweden). He is scientific expert on process development on recycling of industrial wastes. He has published more than 100 papers in reputed journals and conferences, 4 patents and is in the board committee of *Edorium Journal of Waste Management*. At the moment, he is working at BRGM (Bureau de recherch e G eologique et mini re) on development of separation techniques applied on the urban mine to recover strategic metals.

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