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# Recycling

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## Takashi Nakamura

Tohoku University, Japan

### Urban mining development of critical metals from WEEE

Word of “Urban mining” is one of important message to achieve a sustainable development in future. If any recovery system is not taken into consideration, critical metals will dissipate all over the land in the future. In the case of WEEE, however when Cu, Au and Ag are collected for recycling, rare metals can also be gathered with them. If critical metals are separated from WEEE by proper technique and are accumulated for reservation, we can consider them as resources. A possibility of critical metals recycling was shown in this presentation that could have a self-supporting economical system by devising the collection system and by changing the recycling system related with a commercial transaction. WEEE are dismantled and crushed to various parts in first step after collecting. There are many methods for dismantling such as hand-picking and for crushing such as shredding. Sorting techniques are applied to separate each material for example iron & steels, non-ferrous alloys including aluminum and copper and plastics. These sorting techniques are not only real sorting processes but include gravity separation, magnetic separation and so on which are mainly used for processing of old minerals. Also in the case of metallurgical production with its intrinsic potential of smelting, extraction, enrichment and separation methods, related technology and process flow sheets each with their own selectivity and yield play an important role in the context of minor rare metals.

### Biography

Takashi Nakamura completed his MSc in Metallurgy from Kyushu University, Japan in 1974, PhD in Metallurgy in 1979 from the same university. He became Lecturer in Kyushu Institute of Technology (1977), Associate Professor (1981) and Professor (1991). In 1998, he was appointed as a Professor at Institute for Advanced Materials Processing, Tohoku University and from 2001 to till date he is a Professor at Institute of Multidisciplinary Research for Advanced Materials, Tohoku University.

[ntakashi@tagen.tohoku.ac.jp](mailto:ntakashi@tagen.tohoku.ac.jp)

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