Concentrations of Cd, Hg, Pb, Cr, Fe, Co, Ni, Cu, Zn, Mo and As were determined in soils and leaves of plants from refuse dumpsites and background soils in two cities, a municipality and a rural community in Ghana, using a Ther moFinnigan Element 2 high resolution inductively coupled plasma mass spectrometric (HR-ICP-MS) instrument. The refuse dump soils were classified between 'Uncontaminated to Moderate' and 'Strongly Contaminated'. Pollu tion levels for Cd (I geo = 2.06–2.40) and Zn (I geo = 2.95–3.36) were higher than of the other metals. The refuse dump soil from the rural community was the least polluted with the metals. Fe and Ni loads in plants from the refuse dump soils in the cities and the municipality were beyond the normal ranges of 40–500 µg/g (Fe) and 0.02–5.00 µg/ g (Ni). Transfer ratios for Cd, Hg, Cu, Zn and Pb and Fe of plants from the background soils were higher than those from the refuse dump soils, which might be due to the higher levels of organic matter, pH, phosphate, Ca and Mg in the refuse dump soils. Keywords: metal; refuse dump soil; Geoaccumulation index(I geo); transfer ratio