# Actual condition of mercury contamination by artisanal small-scale gold mining in Philippines

H. Shibata[1], C. Takenaka[1], T. Tomiyasu[2], S. Murao[3] and K. Sera[4]

[1]Graduate School of Bioagricultural Sciences, Nagoya University
Furo-cho, Chikusa, Nagoya 464-8601, Japan

[2]Department of Earth and Environmental Sciences, Faculty of Science, Kagoshima University
1-21-35 Korimoto, Kagoshima-city Kagoshima 890-8580, Japan

[3]National Institute of Advanced Industrial Science and Technology
1-1-1 Higashi, Tsukuba, Ibaraki 305-8567, Japan

[4]Cyclotron Research Center, Iwate Medical University
348-58 Tomegamori, Takizawa, Iwate 020-0603, Japan

## Abstract

ASGM (Artisanal Small-Scale Gold Mining) is the most serious source of mercury (Hg) pollution in the world. In order to clarify the dispersion process of Hg emitted from ASGM to the environment, we analyzed Hg concentrations in plants, soils and human hairs collected from Camarines Norte, Philippines. In this paper, we focus on the results of hair analysis. Hair sampling was conducted for women older than 18, and element concentrations in hair were analyzed by PIXE(Particle Induced X-ray Emission). In addition to hair analysis, we conducted a survey using questionnaire about individual and household information, dietary habits and knowledge about mercury at the same time as the hair sampling. The Hg concentrations in hair did not depend on the residential area, ASGM area or non-ASGM area. However, from the results of the questionnaire, we found that people who eat fish almost every day showed higher Hg concentration of hair than those who do not eat fish so much, although there was no relation with vegetable intake. In addition, the method and person for obtaining fish also related with the Hg concentration of hair. To clarify the Hg contamination process to human, further investigation focused on fish, such as species, fishing area, season, so on, should be necessary.