

## On the water quality of springs in the western part of Musashino upland

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In the urbanized area like in and around Tokyo Metropolitan district, the depletion of the amount of discharge of spring water and the changes in water qualities are caused by the changes in land use.

In this study, the author carried out the studied on the changes in water quality of spring water in the western part of Musashino upland, in tokyo metropolitan aria and intended to clarify the effects of the changes in land use. As a first step, the author attempts to investigate the relationship between changes in spring water quality and land use in the area from 1960s to 2010s.

The geomorphology of the study area consists of river terraces formed by the Tama River. For their geological structure, Tachikawa terrace and Aoyagi terrace are mainly formed by Tachikawa loam and gravel, Haijima terrace, lower than Aoyagi terrace, is formed by a gravel layer.

In this study, the author surveyed the spring water near the cliff terrace of Aoyagi and Haijima terraces. The field survey was carried out during the summer of 2011. The results are summarized in the graphs in chronological order to the data obtained in this survey and the data in published document.

From the results, the changes in the concentrations of major component in water qualities were lowered. The concentration of  $\text{Cl}^-$  is also declined, for example, the concentration of  $\text{Cl}^-$ , Suwa Shintoshrine of spring in Akishima city, was 31.5mg/l in 1968 summer, 5.7mg/l in 2011 summer.

In the Tama district, including the western part of Musashino upland are, almost no facilities for sewage treatment up to 1975, so sewage directly percolate in the hole, digging in the ground (EPA of TMD, Tokyo, 1980). Recently, sewage treatment facilities were constructed and such non-hygienic systems were disappeared.

Changes in land use in this area, such as the periods; (a) farmland, (b) changing from farmland to residential land, (c) sewerage system equipped in the residential area.

Form the results of the study on water quality of spring water, changes in water quality of spring water is strongly affected from the sewerage system and land use on the terraces of the western Musashino upland.

Keywords: musashino upland, land use, spring water, secular change