

# A study on the river environment of Shingashi River Basin and regional design based on its water environment

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## 1. Introduction

After the high-growth period of the Japanese economy, Water environment was changed largely by urbanization of Saitama prefecture and Tama area in the suburbs of Tokyo. In 1980s, there were many rivers with the highest BOD value at public waters the basin of the Shingashi River, which flows from Kawagoe city, Saitama prefecture to Kita Ward, Tokyo, and joins the Sumida River. In recent years, BOD value meets an environmental standard; however, water observation has not been performed in detail at upper tributaries of Shingashi River Basin. Therefore, We have examined water quality of the basin and revealed the traits of its water quality, which would not be found from only the measure points of water quality at public waters. Moreover, we have analyzed residents' landscape recognitions by using an elementary school song, and conducted an attitude survey on their nearby rivers to them. After that, we have examined the relationship between the residents and rivers, and considered regional design based on the water environment.

## 2. Brief overview of study region

Many tributaries in the basin flows from the springs in Musashino-Plateau. On the other hand, the trunk of the Shingashi River flows through low-lying land. The use of this river has been popular from long ago, this river connected Asakusa and Kawagoe with shipping for the 300 years from the Edo era to the early Showa era The connection between Saitama prefecture and Tokyo is still close using a river, and watershed management s such as flood control and water utilization are performed beyond the boundaries of the local governments.

## 3. Method

In the study, detailed field observations were made at 88 spots of the trunk and the tributaries in May 2008. Major spots were observed in June and August and the results were compared seasonally. Main field study items are EC,WT,DO,pH,NO<sub>3</sub><sup>-</sup>,Alkalinity, and main dissolved components were analyzed at 40 spots of the area observed in May. Then, The connection of the residents and the river was considered by the analysis of the result of questionnaire survey to the residents and landscape recognitions using an elementary school song.

## 4. Result

As a result of the field surveys, the Water quality of Shingashi River was not still improved at the upper tributaries. The density of Na<sup>+</sup> and Cl<sup>-</sup> was high there, and the density of NO<sub>3</sub><sup>-</sup> in Furo River Basin and Nobitome canal was also high. Moreover, tributaries were affected by domestic wastewater, and Furo River Basin and Nobitome canal ware influenced by the high fertilizer nitrogen load of tea and spinach. A citizens group around the Shingashi River basin was trying to do the regional design based on the water environment as a trial. This movement showed residents' high consciousness to the river. This is also understandable from the result of the questionnaire survey to the residents. The survey showed that citizens groups were active in the basin of favorable rivers, and trying to make nature-friendly rivers with the participation of residents.

## 5. Conclusion

This study showed the taste of water contamination at the upper tributaries which were subject to the influence of fertilization and discharged water. In addition, It was found that there were age areal differences among the residents' landscape recognitions. Moreover, in the area where the development of water activities is underway with the participation of residents, residents' consciousness to neighbor rivers was high, and their activity was also active. As a result, for the preservation of the water environment, it is necessary to have an argument at entire level s beyond areas, tributaries and footings.

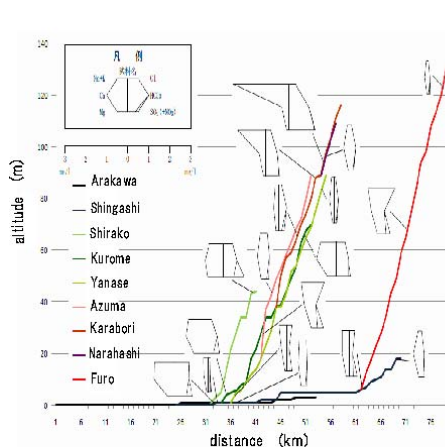


Fig.1 Profile and Water quality

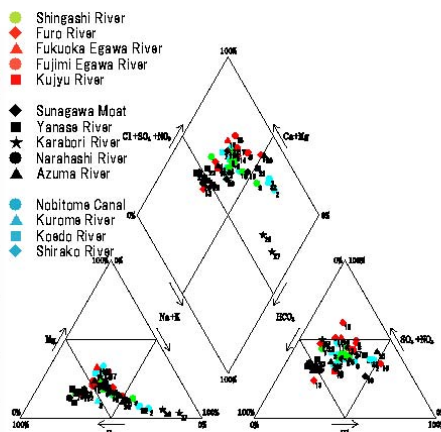


Fig.2 Trilinear diagram

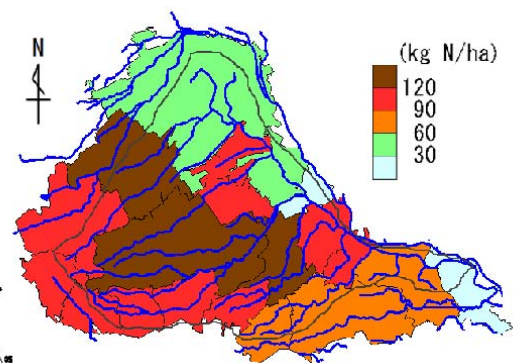


Fig.3 Nitrogen fertilization load