

Water Environment Conservation Laboratory

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Laboratory URL	http://www.wq.ace.tut.ac.jp/
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The main topics of this laboratory are quantification of pollution sources by monitoring and modelling, and development of approach for pollution control.

Theme 1 ► Development of the nutrients runoff model

The runoff of nutrients from drainage basins occurs not only from point sources such as factories and sewers, but also from plane sources such as forests and agricultural urban regions. There are a number of closed water areas, such as the Mikawa Bay, that have seen no improvement in water quality even with a reduction in runoff load from point sources, and therefore calculation of nutrient runoff load from plane sources is becoming more important. Based in actually observed data, we are working to create a model that can be used for high accuracy calculation of the nutrient runoff load in order to validate nutrient reduction effects etc.



Gold mining site

Theme 2 ► Survey on mercury contamination in the environment

In Indonesia and other regions in South-East Asia as well as Amazon basin, small-scale gold mining is common among the residents of the region. The mercury used for refining the gold is then released into the river without any processing. As a result of the biological concentration through the ecosystem of the river, the mercury contaminates the fish that the people living along the river eat, posing a threat to their health. In the regions where gold mining takes place actively, we are seeking to investigate the volumes of mercury contained in the river water and silt, and the effects this is having on fish and people to reveal the current state of mercury contamination.



Runoff from agricultural field

Theme 3 ► Development of measurement method for bio-available phosphorus and analysis of environmental fate

Phosphorus is a major cause of eutrophication, and a large volume of suspended phosphorus runs off in rainfall. This increases the ratio of suspended phosphorus, but as suspended phosphorus includes phosphorus derived from mineral, it is important to measure bio-available phosphorus. Along with the development of a method for testing a large number of samples in a short space of time, we will also make clear the runoff characteristics of bio-available phosphorus from a drainage basin.

Theme 4 ► Runoff analysis of contaminants from agricultural fields

A large amount of nitrogen and phosphorus applied through fertilizer are transported from agricultural fields to lakes and basins during rain events. We are investigating the loading and fate of contaminants in aquatic systems as well as the strategies for reduction of the contaminant loading.