

主 論 文 要 旨

論文題名 **Runoff characteristics of pollutants and their management methodologies in a basin with paddy fields**

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主論文要旨

Pollutant is flushed out by the rain water from non-point source. PAHs(Polycyclic Aromatic Hydrocarbons) were observed in urban area. It has hazardous for human. This study aims obtaining runoff characteristics of pollutants and considering operate efficiency at River water treatment facility.

Surveys on pollutant runoff from the paddy fields around Lake Biwa were done for 3 years from 2007 to 2009 during farming periods. It was also shown that pollutant loads in the ploughing and planting period occupied a large ratio for 80-95% in total removed loads in SS.

Surveys were done at River water treatment facility. This facility was constructed by combining a pre-treatment facility, a stormwater retention pond and a vegetation pond. Surveys on pollutant runoff were done for dry weather periods and storm events. As a result of discussions through the surveys, it was shown that pollutant removal efficiencies of the treatment facility are not clear during dry weather periods, but they are remarkable during storm events especially in the stormwater retention pond for particulate pollutants. It was also shown that removed pollutant loads in the stormwater retention pond occupied a large ratio for 26-74% in total removed loads in the treatment facility, but these efficiencies depended upon pollutant physical and chemical properties.

A simulation model was built for improving operates efficiency at a stormwater retention pond. Authors have monitored water quantity and quality into/out of the retention pond during storm events for four years, and developed a simulation model from the surveyed data. As a result of discussion on simulation results using the model, it was shown that stormwater retention had enough possibility to control pollutant runoff during storm events if correct operation was done. It was also shown that the simulation model was available for examining an optimal operation of the stormwater retention pond.