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Improvement of the algal growth-related water quality management for Drinking Water Safety

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We studied algal growth pattern of the Juam lake which is the drinking water reservoir for the Gwangju municipality. For the effective management of the drinking water sources, it is recommended that a lake maintained as a drinking water source, should not be controlled according to waterfront basis as a unit but the whole watershed should be taken into consideration. The non-point sources within the watershed should be regulated to reduce nutrient load into the water body to limit algal growth. The hydrological control and management found out to be indispensible for the watershed management in terms of algal growth control. The degraded water quality thereby can be improved for example by regulating timely flushing out from the reservoir to maintain water source of less algal mass. The detailed measures however should be set up and run considering its respective conditions. It is important nevertheless to continue this type of research for the rational management of the drinking water sources since the watershed environments were found to be dynamic and prone to change to any subtle impact on the environment. To ensure accurate measurement, it is recommended to take mean value of the water layer with 0-5m depth measured at different depths on site in order to complement or define the data produced in the laboratory for the surface layer. To assess the effect of the algae in the sample on the overall water quality, the filtered water sample can be analyzed at the same time and compared the result with that of the original sample. Each drinking water source should be managed separately when selecting the depth for withdrawing considering the result found in this research. In general, however, it is recommended to move the water drawing point farther than the current point from the dam where the disturbance caused by dam can be removed.