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The role of citizen science as a tool of public information in water quality management in the Brantas catchment, Indonesia

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Water quality in the rivers and tributaries of the Brantas catchment (about 12.000 km^2) is deteriorating due to various reasons, including rapid economic development, insufficient domestic water treatment and waste management, and industrial pollution. Various parameters measured by agencies involved in water resource development and management and environmental management consistently demonstrate exceedance of the local water quality standards. Between the different agencies, water quality data are available – intermittently from 2009 until 2019 at 104 locations, but generally on a monthly basis. Still, opportunities to improve data availability are apparent, both to increase the amount and representability of the data sets. The opportunity to expand available data via citizen science is simultaneously an opportunity to provide education on water stewardship and empower citizens to participate in water quality management. We plan to involve people from eight communities living close to the river and researchers from two local universities in a citizen-science campaign. The community members would sample weekly at 10 locations, from upstream to downstream of the catchment. We will use probes and test strips to measure the temperature, electrical conductivity, pH, nitrate, phosphate, ammonia, iron, and dissolved oxygen. The results will potentially be combined with the data from government agencies to construct an integrated water quality data set to improve decision making and the quality of community engagement in water resource management.