

Erosion vulnerability in the Zarati Subwatershed and its impact of water quality

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Overview

The objective of this research was to identify areas vulnerable to erosion in the Zarati subwatershed that could be contributing to the high sediment load in the local water treatment facility and causing severe damage to the treatment equipment. The project focused on the area of Penonomé in central Panamá. The assessment of erosion was based on two GIS models: the Revised Universal Soil Loss Equation (RUSLE), and the Nonpoint source pollution and erosion comparison tool (N-SPECT). Results were generated by overlaying datasets of precipitation, type of soil, land cover land use, and slope. Surveys and field visits were used to validate the models.

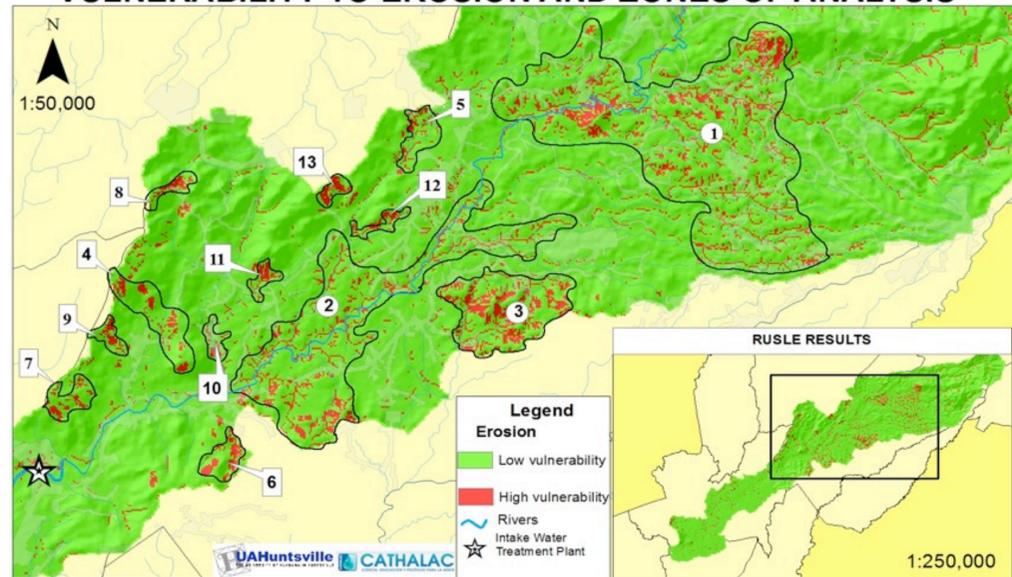
Key Findings

The areas of high vulnerability are mainly located in the middle area of the subwatershed and the evaluation of the position of the intake indicated that its location is favorable because it is not located in the area of sediment accumulation estimated by the N-SPECT. The overall results demonstrate that the problems of production of the treatment plant are not only related to the vulnerability to erosion of the subwatershed due to heavy rains, but also, to a series of circumstances that increase the level of complexity of the problem.

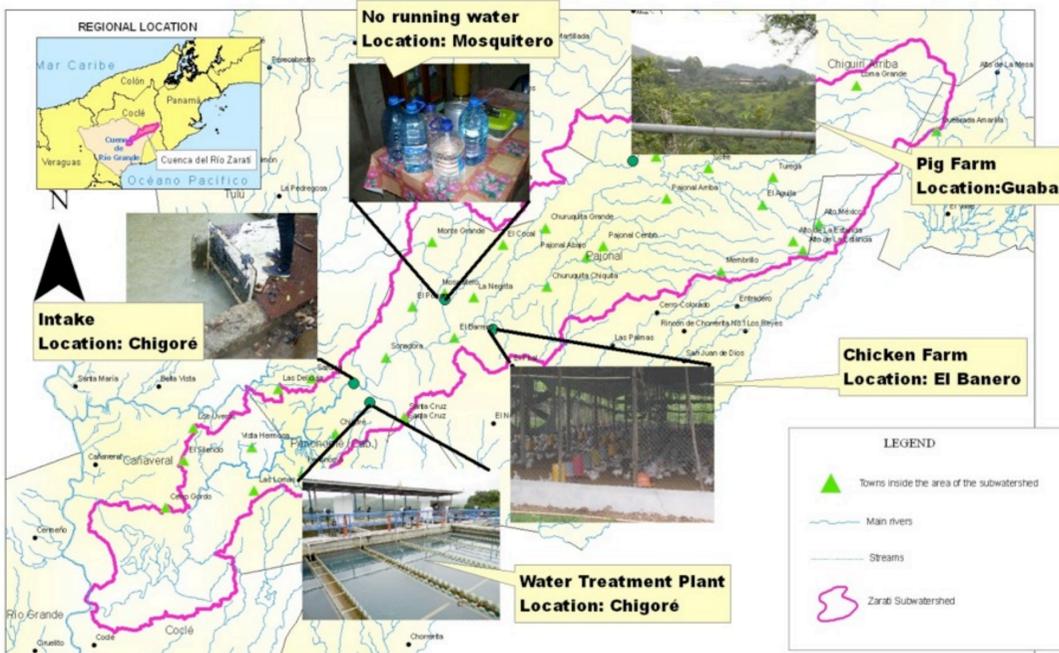
Impact

Some of the communities of the Zarati subwatershed do not have running water, fresh or clean water on a daily basis. The community of Penomome continues to have water outages for days on end when storms come through. When this happens there can be serious health concerns for the community being affected.

VULNERABILITY TO EROSION AND ZONES OF ANALYSIS



ZARATI SUBWATERSHED LOCATION



Explanation

This research can be beneficial in a way that a GIS tool could be used to see the landscape from another vantage point.

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