# Sand, Land, and Band: Assessing sediment yield response to land use land cover change in Nagtipunan Watershed, Quirino Province using satellite-derived data

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*Abstract*

Land use and land cover (LULC) change is a key pressure of soil erosion and sediment transport in watersheds. Quantifying its impact in Philippine watersheds remains understudied due to limited sediment monitoring data. Remote sensing provides a viable alternative to in situ total suspended solids (TSS) or suspended sediment concentration (SSC) measurements, offering improved spatial and temporal coverage. Satellite-derived TSS/SSC can serve as proxy sediment inputs for watershed models such as the Soil and Water Assessment Tool (SWAT). The Nagtipunan watershed in Quirino Province is exposed to year-round climatological stress and undergoes LULC change driven by anthropogenic pressures (deforestation, upland agriculture, mining activities). This study aims to examine the influence of the ongoing LULC change on the sediment yield of Nagtipunan watershed using images from Landsat-5, 7, 8, and 9. The findings will support evidence-based watershed management and inform land-use planning efforts to reduce erosion and sedimentation impacts.

Keywords: *Land Use/Land Cover Change, Sediment Monitoring, Remote Sensing, TSS, SSC, Landsat, SWAT*