

River sediment monitoring for baseline and change characterisation: a new management tool for the Ramu River Communities in Papua New Guinea

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Abstract The 18 719-km² Ramu drainage basin has a water quality regime largely unaffected by mining operations. The Ramu River Communities believe that this may change over the coming months and years, and have initiated their own state-of-the-art monitoring of the main river. These observations have centred on high-frequency (10-minute) observations of turbidity and flow giving possibly the first such annual data at this sampling frequency on New Guinea Island. The first year of monitoring has demonstrated a marked seasonality in the delivery of suspended sediment from the 5866 km² Upper Ramu basin, with considerably more natural variability in response within the 6-month wet season. Were new mining operations to release fine sediment (contaminated with heavy metals) into the watercourses of the Upper Ramu, then such shifts in the sediment signal may be more identifiable within the dry season. With evidence of an increase in fine sediment load, the Ramu Communities would have a more robust case to request increased monitoring of heavy metal levels within the Ramu, and if necessary to request improvements to the erosion and drainage management of mine areas.

Key words mining; Papua New Guinea; Ramu; suspended sediment; turbidity
