

## **Nutrient Transport by Small Floodplain Rivers: Their Importance and Contribution to Land-to-Ocean Fluxes**

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The Indo-Gangetic fertile floodplain is networked by small rain fed rivers. However, these small floodplain rivers are rarely studied because they have a smaller catchment area (~1000-10000 km<sup>2</sup>) and volume of discharge (<100 m<sup>3</sup>/s). As a result, how these rivers impact the dissolved chemical load of large river systems are not well constrained. To fill this gap we have monitored Dissolved Inorganic Nitrogen (DIN: NO<sub>3</sub><sup>-</sup>+NO<sub>2</sub><sup>-</sup>+NH<sub>4</sub><sup>+</sup>) and orthophosphate (PO<sub>4</sub><sup>3-</sup>) load of a small flood plain river, the Pandu River for one year between February 2015 and April 2016. Time series water samples were collected every month, and NH<sub>4</sub><sup>+</sup>, SiO<sub>2</sub>, NO<sub>2</sub><sup>-</sup>, and PO<sub>4</sub><sup>3-</sup> concentrations were measured using a Seal Analytical Continuous-Flow Auto Analyser at the Indian Institute of Technology Kanpur. Our calculation shows that Pandu River exports 640±9 tonne/yr of DIN and 184±5 tonne/year of PO<sub>4</sub><sup>3-</sup> to the Ganges River, which accounts for 0.53% and 0.25% of the total DIN and PO<sub>4</sub><sup>3-</sup> fluxes into Bay of Bengal. Our calculations further shows that the small floodplain rivers in the Indo-Gangetic floodplain collectively could contribute ~48% and ~17% of the DIN and PO<sub>4</sub><sup>3-</sup> fluxes that the Ganges River exports to Bay of Bengal. Therefore runoff from small floodplain river is an important process that controls the dissolved nutrient budget of large river systems<sup>1</sup>, and they must be better monitored to address future challenges in river basin management.

<sup>1</sup>Sen, I.S., Ranjan, S., Boral, S., Tandon, S.K., Small But Important –The Role of Small Floodplain Tributaries to River Nutrient Budget, Nature Scientific Reports (revision)