**Supplementary file**

**Spatio-temporal characterization of nutrient and organic pollution along with nutrient-chlorophyll-a dynamics in the Geum River**

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 Fig. S1. Total and seasonal rainfall pattern of the studied area.



Fig. S2. Biodegradability Index in the Geum River. (BOD: biological oxygen demand, COD: chemical oxygen demand, Spring: Mar-May, Summer: Jun-Aug, Fall: Sep-Nov, Winter: Dec-Feb).



Fig. S3. Associations among suspended solids with total nitrogen (TN) and total phosphorus (TP)

Table S1. WQI range, status, and possible usage of the water sample (Brown et al.1972)

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| Water quality index (WQI) | Water quality status (WQS) | Possible usage |
| 0-25 | Excellent | Drinking, irrigation and industrial |
| 26-50 | Good | Drinking, irrigation and industrial |
| 51-75 | Poor | Irrigation and industrial |
| 76-100 | Very poor | Irrigation |
| Above 100 | Unsuitable for drinking and fish culture | Proper treatment required before use |