

# **A Study on Nitrogen Emission from Agricultural Lands and Eutrophication on Nearby Surface Waterbody as an Impact**

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## **Abstract**

The use of agricultural fertilizer has been increasing to boost up the agricultural production to ensure the food security of large growing population of Bangladesh. The increased fertilization results into continuous degradation of water quality of the nearby water bodies. A study was conducted to determine the emission of nitrogen from agricultural lands and its impact as eutrophication using analytical techniques. The hydro-meteorological data were collected from the nearest meteorological station and water quality of the waterbody on certain parameters have been monitored by using DataSonde 4a, a water quality measuring instrument. The water and material balance approaches in combination with Geographic Information System (GIS) have been used to determine the agricultural runoff and thereby the amount of nitrogen released from the agricultural lands which is ultimately added into the waterbody. The study result reveals that about 5.35% (about 9 kg/ha) of nitrogen has been released from agricultural lands against an application of 356 kg/ha of nitrogen in a year. The nitrogen and phosphorus content in water, low N/P ratio, low seechi depth and plankton species diversity indicate that the water body remains eutrophic in nature throughout the year.

**Keywords:** nitrogen emission, agricultural lands, GIS