

# THE DIFFERENCE BETWEEN TWO PONDS'S ENVIRONMENTAL BALANCE IS SEEN IN PRIMARY PRODUCTIVITY AND PLANKTON'S WATER QUALITY

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## ABSTRACT

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#### Abstract

This study was designed to determine the diversity of environmental balance exposed to primary productivity, abundance of plankton, diversity of plankton, diversity index, dominance index, and saprobic index in Embung Potorono and Embung Imogiri in Special Region of Yogyakarta. This research was done in the month of February until July 2021. The type and design of this research is descriptive exploratory. The method that used in this research is observation in 2 pond, each pond covered by 5 stationary (4 in the edge and 1 centre of pond). Data observation was repeated five times, next environmental physical conditions measurement was carried out which covers sunlight intensity, water temperature, water depth, and water turbidity. While on chemical quality consist of pH, DO, BOD<sub>5</sub>, COD, Calcium, Potassium, Magnesium, Fe, Sulfate, Phosphate (PO<sub>4</sub>), Nitrate (NO<sub>3</sub>-N); and KMnO<sub>4</sub>. Plankton species which is obtained was identified by plankton identification books. Water quality can be determined by primary productivity, abundance of plankton, diversity index, dominance index, and saprobic index. Water physical and quality was referenced by government regulations 82th on 2001 about water management and pollution control. The goals that will be achieved is knowing by water quality from plankton and physicochemical properties of water.

Based on result, primary productivity value on Embung Potorono has around 70,825 (mesotrophic) and primary productivity value on Imogiri's pond has around 48,045 (oligotrophic). Embung Potorono has abundance of plankton value worth 1.055,3 individual/Liter whereas Embung Imogiri has abundance of plankton value worth 2.084,4 individual/Liter. Plankton diversity index in Embung Potorono counted around 2,50 - 3,03 (currently) and plankton diversity index in Embung Imogiri counted around 2,26 - 2,50 (currently). Dominance index value in Embung Potorono counted 0,092 average (Low). And dominance index value in Embung Imogiri counted 0,15 average (Low). Saprobian index value in Embung Potorono counted 0,58 average ( $\beta$ -Mesosaprobic). Saprobian index value in Embung Imogiri counted a 0,398 average ( $\beta/\alpha$  - Mesosaprobic).

**Keyword :** Embung/Pond, Plankton, Water quality

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