

# Gold water treatment, waste monitoring, and management with the fitoremediation method

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**Abstract.** Gold processing activities along the Ciherang river use Mercury. Monitoring and managing the impact of gold processing activities on the environment by the standard quality of wastewater quality of the Ministry of Environment No.202 Th.2004 concerning Wastewater Quality Standards for Gold and or Copper Ore Processing Activities. Monitoring the quality of wastewater flowing into the river by observing water pH, TDS, and mercury content. Environmental management is carried out by reducing the mercury metal content in wastewater, with the phytoremediation method using *Eichhornia Crassipes*. Monitoring is carried out at five different locations, wastewater out of gold processing, 2 locations at the settling pond, and 2 locations at the river water. The results showed an increase in mercury content in settling pond 2, 0.525 mg / L, and settling pond 3, 0.00903 mg / L. The environmental management with the Fitoremediation method day 0 Hg levels of 0.06284 mg / L, day 4 Hg levels produced to 0.01203 mg / L, day eight the value of Hg levels 0.114 mg / L, the 12th day the value of the resulting Hg 0.01267 mg / L

## 1. Introduction

With the existence of several gold mining sites in the district Kutawaringin, Bandung, which in its processing using the settling pond. From a previous study entitled "Analysis of Wastewater Treatment Results of the Multipurpose Cooperative Gold Cooperative in Kutawaringin Village, Kutawaringin District, Bandung Regency, West Java Province [1]. It can be proven that to clean or reduce the concentration of mercury in wastewater resulting from gold processing, treatment can be used in the form of water hyacinth (*Eichhornia Crassipes*). The treatment using by high mercury concentrations or not in accordance with the quality standards of wastewater in settling ponds can occur a significant decrease so that when flowed into the river the concentrations contained in treated water are in accordance with water quality standards waste and will not harm the surrounding environment and public health. It needs the study of the implementation of phytoremediation using *Eichhornia Crassipes* on the settling pond before flowing into the river. In order to be suitable with the quality of the water, which has been regulated by Decree of the Minister of Environment No. 202 the year 2004 on The Quality of The Wastewater for Gold/Copper Ore Mining Activities and Decree of the Minister of Environment No. 5 the year 2014 about Quality of Wastewater.

To prevent high-concentration Mercury flowing into the river and the spread of diseases caused by high mercury concentrations, one of the methods to reduce it by using water hyacinth. This type of plant able to absorb heavy metals. The density of *Eichhornia Crassipes* depends on the size and measurement

