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DEMARCATIION OF PROTECTION PERIMETERS FOR SURFACE WATERS OF TAABO (IVORY COAST) WATERSHED USING GIS AND MULTICRITERIA ANALYSIS

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Abstract

The lake system of Taabo watershed contributes at 35% in the country electrification. Besides this use, water is also used in agriculture, fishing and for drinking water. The increasing human activities in its basin led to siltation of Kossou's Lake and eutrophication of 26% of Taabo's Lake total area. However, no study has yet been performed to protect or prevent this resource against pollution. This study is the first in Ivory Coast intending to delineate three protection areas around the watershed lakes. It tries firstly to define all parameters involved in the surface water intrinsic vulnerability. Their integration in multicriteria analysis coupled to use of Geographic Information System (GIS) has then used to delineate protection area around the basin lakes. Three zones were proposed: (1) the immediate protection zone, with a radius of 2000 m around the lake including water, its islands and coastal strip; (2) the near protection perimeter, limited to intense vulnerability zones in the immediate sub-basins of lake; (3) the distance protection perimeter has been estimated to the whole catchment in order to take into account diffuse pollution. As conclusion of protection perimeters elaboration, assistance must be provided for restoring quality and quantity of basin water.

Key words: eutrophication, GIS, lake, multicriteria analysis, protection perimeter

Received: August, 2012; Revised final: November, 2012; Accepted: December, 2012

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