

## Finite Dynamic Programming to Decision Making in the Use of Industrial Residual Water Treatment Plants

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**Abstract :** This paper presents the application of finite dynamic programming, specifically the "Markov Chain" model, as part of the decision making process of a company in the cosmetics sector located in the vicinity of Bogota DC. The objective of this process was to decide whether the company should completely reconstruct its waste water treatment plant or instead optimize the plant through the addition of equipment. The goal of both of these options was to make the required improvements in order to comply with parameters established by national legislation regarding the treatment of waste before it is released into the environment. This technique will allow the company to select the best option and implement a solution for the processing of waste to minimize environmental damage and the acquisition and implementation costs.

**Keywords :** decision making, markov chain, optimization, waste water

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