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A MODELING APPROACH TO EXPLAIN THE IMPACT ON THE
BATTICALOA LAGOON BY THE UNNICHCHAI TANK

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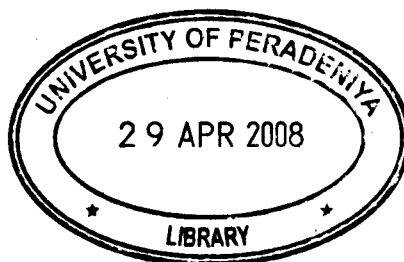
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Abstract

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Negative anthropogenic activity elicits adverse changes in the natural system of the lagoon environment of the Batticaloa lagoon. One of such anthropogenic influence is the impact of water that is expelled from the Unnichchai tank which is connected to the lagoon. This input of the water from the Unnichchai tank in the forms of issued and spilled water are suspected to be creating significant changes in the geophysical status of the lagoon that could induce dynamic changes in the lagoon system dynamics.

Modeling of the Batticaloa lagoon was done in order to explain the impact on the Batticaloa Lagoon by the Unnichchai Tank. This was done in the form of a simulation modeling exercise, where a simulation model (UnTIL Version 1) of the said system was developed and (plausible) scenarios of the tank's influences on the lagoon (including management options) were tested. The commercially available software STELLA® Version 7.0.3 was used to develop the simulation model. The Unnichchai tank inputs of issued water, spilled water and direct rainfall were fed in to the UnTIL Version 1. And the modeling was done in two steps to validate the model,

- Backward modeling 2005 to 2006 and compare with actual value
- Forward modeling up to 2010

The results obtained as such lead to the conclusion that this irrigation tank impacts on the lagoon's system dynamics. As such, the overall result of the modeling exercise indicated that the Unnichchai irrigation tank alters the lagoon's system dynamics (on the long run), which necessitates effective action be taken in terms of synergistic irrigation and lagoon management so that an efficient environmental strategy to maintain the lagoon system can be derived.

