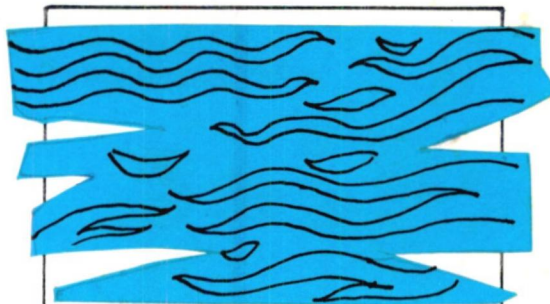


**ENVIRONMENTAL IMPACTS OF
PROPOSED
BADDEGEDARA IMPOUNDING
RESERVOIR**

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ENVIRONMENTAL IMPACTS OF PROPOSED BADDEGEDARA IMPOUNDING RESERVOIR

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P. Y. D. DE SILVA

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Department of Civil Engineering
University of Moratuwa
Sri Lanka

June 1998

**ENVIRONMENTAL IMPACTS OF PROPOSED
BADDEGEDARA IMPOUNDING RESERVOIR**

**BY
PATABENDIGE YATILA DUMINDRA DE SILVA**

**Thesis Submitted in Partial Fulfilment of
The Requirement for the Degree of
Master of Engineering
in
Environmental Engineering and Management**

**Department of Civil Engineering
University of Moratuwa
Sri Lanka**

June 1998

**This Thesis has not been previously presented
in whole or part to any University or
Institution for a higher Degree**



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P. Y. D. DE SILVA

June 1998

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ABSTRACT

This research study, "Environmental Impacts of Proposed Baddeggedara Impounding Reservoir" was conducted in relation with the feasibility study for water supply and sewerage for Koggala Export Processing Zone and the surrounding license zone.

The project area consist of Talpe, Habaraduwa, Koggala EPZ and Coastal belt, Ahangama, Dikkumbura and Imaduwa. People living in the area excluding Koggala EPZ have to depend on individual water sources. The majority of the population depend on ground water drawn from shallow dug wells. The main complaint of people living along the coast in the project area regarding the water quality of thier dug wells is salinity. Most of these wells are shallow and not covered or protected. Water obtained from these wells is therefore at high risk to be polluted with organic matter.



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Study was conducted by having field surveys. When selecting a source for the project area whenever possible first choice was given to ground water which requires the least treatment. But the test drilling programme shows that it is impossible to get total water requirement by ground water itself. Therefore we have to go for a surface water source close to the project area.

Proposed impounding reservoir at Baddeggedera is located nearest to the project area. Reservoir catchment is the upper most region of a tributary of Polwatta ganga which meets the main river about 2 km upstream of Kananka. This catchment is located near to the catchment of Hiyare impounding reservoir which is presently supplying part of water to the Galle Municipality.

Environmental Impacts were assessed by using a matrix called Environment interaction matrix. In this method a list of all potential impacts of the project were prepared and each individual impact was assessed. The matrix was analysed by using the Battell's environmental evaluation system. In this method the weights of the parameters were assigned depending on the relative importance of the parameters. Value function for the variation of environmental quality index with the change in each of the environmental parameter had to be determined.

The environmental quality (e.q.) index with project and the e.q. index without project were evaluated for each environmental parameter. Then the environmental impact unit was obtained by getting the product of the relative weight of the parameter and the e.q. index. In this method positive net change of product means beneficial impacts whereas negative product means adverse impacts.

The topography of the area does not lend itself to the fashioning of a deep lake. According to past studies done by various people the ideal wildlife lake is shallow with gently sloping shore. This type of situation could be expected from the proposed impoundment. These natural qualities of the habitat could be further augmented by various management techniques such as the restriction of the area of impoundment and catchment.



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NOTATIONS

Acft	-	Acre feet
BOD	-	Biochemical Oxygen Demand
C	-	Centigrade
db	-	decibel
DO	-	Dissolve Oxygen
D/S	-	Downstream
EIU	-	Environmental Impact Unit
EQ	-	Environmental Quality
EPZ	-	Export Processing Zone
ha	-	hectare
km	-	kilo metre
km ²	-	Square kilometre
l	-	litre
m	-	metre
m ³	-	Cubic metre
mcm	-	mega cubic metre
mg	-	miligramme
mg/l	-	miligrammes per litre
MSL	-	Mean Sea Level
MT	-	Metric Tons
N	-	Nitrogen
NWSDB	-	National Water Supply & Drainage Board
P	-	Phosphorus
U/S	-	Upstream
USA	-	United States of America



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