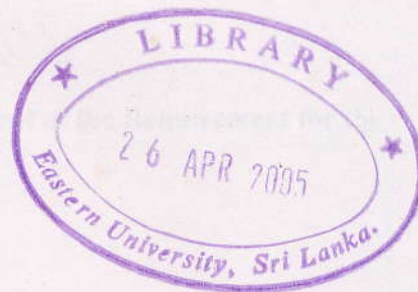


INVESTIGATION ON THE DYNAMICS OF A
PERIPHERAL WETLAND SYSTEM OF THE
BATTICALOA LAGOON AT SINNAUPPODAI USING A
SIMULATION MODELING APPROACH

173



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2004

ABSTRACT

The life-water relationship is simple, “nothing will live without water”. Though the population increases affect on quality and quantity of the water everywhere, the urban areas are most vulnerable and the effect acute. This report describes a research project that investigates the peripheral wetland systems connected to the Batticaloa lagoon near Sinnaupodai (in the Batticaloa Municipal Council area). Previous work on this genre by Manobavan (2003a) has hypothesized that:

1. The water bodies at Sinnaupodai area act as the recharging facilities for the ground water table of the locality and,
2. The sodium chloride concentration gradient along the water bodies of Sinnaupodai also sustains the dynamic equilibrium of the groundwater and keeps it from becoming saline.

Field experiments proved the presence of a concentration gradient along the water bodies at Sinnaupodai. To evaluate these hypotheses, different scenarios were tested using a simulation model (named HYDROB 1) developed on the MS Excel platform. The simulations explain the dynamics (or the geophysiological mechanics) and immense recharging and flood mitigating potential of the peripheral water bodies and/wetlands at Sinnaupodai. The results also show that, as the abstraction rates increase (due to urbanization in the Sinnaupodai area), an acute shortage in freshwater for human consumption will be experienced if the water bodies are not maintained properly. Furthermore, extending the potential of the HYDROB 1 towards a developing a working model to assist in lagoon water resources management in Batticaloa is also suggested.

Key words: simulation model, water bodies, groundwater, dynamics

TABLE OF CONTENTS

	Page
ABSTRACT	1
ACKNOWLEDGEMENTS	II
CONTENTS	III
LIST OF FIGURES	VI
LIST OF TABLE.....	IX

CHAPTER 1 Page Number

1. Introduction	1
1.1. General overview of the problem.....	1
1.2. Sinnauppodai drainage Basin or Micro Watershed	3

CHAPTER 2

2. Literature Review	8
2.1. Hydrological process	8
2.2. The drainage basin system.....	10
2.3. Hydrological processes in the drainage basin.....	10
2.3.1. Processes above the surface	11
2.3.2. Processes below the surface.....	14
2.4. Factors influencing hydrological processes.....	15
2.4.1. Impacts of changing forest cover	15
2.4.2. Urbanization	16
2.5. Water storage	19
2.5.1. Groundwater storage.....	20
2.5.2. Confined, unconfined and perched aquifer.....	20
2.5.3. Aquifer Dynamics.....	22
2.6. Managing water resources	23

2.7. Process Models.....	23
2.8. Types of model.....	24
2.8.1. Natural and scale analogue models	24
2.8.2. Conceptual models.....	25
2.8.3. Mathematical models.....	25
2.9. Modelling physical and environmental processes	27
2.10. Role of modeling in managing drainage basin or watershed ..	27
2.11. Forecasting models and Scenarios	28
2.12. Computer based modelling.....	28
2.13 Summary	29

CHAPTER 3

3. Development of conceptual model, Simulation and Scenario testing	30
3.1. Developing the conceptual model.....	31
3.1.1. Out line of the geographical and hydrological aspects of the area	32
3.1.2. Other systems that maintain the stability of the water resource	35
3.2. Calculation and simulation of the hydrology and dynamics of peripheral water bodies of the area	38
3.2.1. Amount of Rainfall Caught in a catchment	39
3.2.2. Evapotranspiration form the drainage basin	41
3.2.3. Calculation of surface runoff	48
3.2.4. Infiltration of the Rainwater at land area.....	51
3.2.5. Calculation of infiltration from water bodies.....	52
3.2.6. Calculation of Subsurface flow	53
3.2.7. Calculation of Deep percolation.....	54
3.2.8. Compiling the calibrations for each sub-basin.....	55

3.2.9. Calculation of Total recharges	55
3.2.10. Calculation of over flow from the water bodies.....	56
3.2.11. Calculation of Total Runoff from the Basin	57
3.2.12. Calculation of groundwater abstraction.....	58
3.3. Model out puts	58
3.3.1. Out put - 1	59
3.3.2. Out put - 2	61
3.3.3. Out put - 3	63
3.3.4. Out put - 4	65
3.4. Forecasting and scenario testing	65
3.4.1. Scenario - 1.....	66
3.4.2. Scenario - 2.....	67
3.4.3. Scenario - 3.....	71
3.5. Summary	71

CHAPTER 4

4.0. Problems and Further Development.....	72
4.1. Shortcomings of modeling (in general).....	72
4.2. Problems with the model developed in this research.....	72
4.3. Further developments of this model.....	73

CHAPTER 5

5.0. Conclusion	75
Afterthoughts.....	78
References	82
Appendix	85