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CHAPTER ONE

INTRODUCTION

CHAPTER-01

1.1 Background of the study

Wetlands are the most productive Eco-Systems in the world particularly those situated in the tropics. They include estuaries, mangroves and tidal flats, flood plains & deltas, fresh water marshes and lowlands, lagoons, swamp forests and lakes located around the world. Their shallowness, high temperature, high nutrient content and profusion of light, guarantee large biomass turnover and rich and diverse plant & animal communities.

They are rich in fish, birds, crocodiles, & other valuable creatures. They support herbs with high medical value.

They are the natural habitat of one of the world's principle food grains, rice-most strains of which are cultivated in a modified wetland habitats.

They are regulators of water floor.

They support enormous biological productivity of plant and animal communities and are important as nursery grounds for marine fishes.

"Wetlands are thus valuable as 'sources, sinks and transformers of a multitude of chemical, biological and genetic materials', and their function as natural processors of waste products have earned them their description as 'the kidneys of the landscape' (Mitch and Gosselink, 1986:3)"

-Brian J. Hudson, Cities on the shore, 1996:P.118

For thousands of years, wetlands have provided mankind with almost inexhaustible sources of foods, building and utility material etc. Today they still contain a large part of the world's biological heritage.

Historically, location of the settlements were determined by water and the first major concentrations took place in the broad fertile river valleys which later developed in to the centers and movements of high



civilizations, like Greece, Persia and China. This introduced a new and profoundly important aspect of man's relation to environment from natural to manmade.

"for 6000 years, river valleys and their associated flood plains have served as centers of human population, with many boasting sophisticated Urban cultures. Their fertile soils brought in huge harvest upon which the peoples of regions could depend. Today, the wetlands which nurtured the great civilizations of Mesopotamia & Egypt, of the Niger, Indus & Mekong valleys continue to be essential to the health welfare and safety of million of people who live by them"

-Mitchell Beasley, Wetlands indanger,1993:P.22

In an Urban fabric Wetlands provide vital natural infrastructure linking all parts of the region with corridors of streams and canals, as well as forming a skeleton of natural habitat that allows for continued existence of living environment. This web of streams & lowlands are basis for largest open Ecological resources in an Urban fabric.

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When it comes to the Urban Built Environment, Wetlands act as utilization, recreational, aesthetic, reflective, landscape or experimental feature.

Sri Lanka is enriched with Tropical Wetlands system extends over 6500 Km², 15% of the land surface of the island. These wetlands comprises both natural and man- made systems. In Sri Lanka, majority of these Wetlands are located in and around the Colombo Metropolitan Region. The wetland landscape of this region is dominated by three main rivers Kelani, Kalu, Bentara and several Oya's. The region is originally built on low-lying marshy land of those river valleys.

These wetlands represent potentially the most valuable natural Ecosystem in the Colombo Metropolitan Region and primarily consist of fresh water marshes, lowlands, lakes and coastal waters. As setting

of the major part of the CMR is on low lying flood plain, contribution of these wetlands as natural infrastructure is on a very higher level.

However in our Urban Context the use of inland wetlands such as lakes and canals, fresh water marshes for other utilization purposes is very limited. In many countries inland wetland ecosystem play a vital role in the Urban fabric, not only to enhance the built environment, but also to stimulate various socio-economic activities.

1.2 Issue

With the rapid Urbanization and swelling of population the consumption of natural resources grew rapidly resulting in severe ill effects on Wetland Eco-system. Land being the most precious natural resource in the current trend, due to their scarcity, is not a simple commodity that can be stored and replaced, destroyed or even recycled.

Due to this mere reason Wetlands are found to be used for day-to-day development activities, despiting their Ecological value.

To day most of the development activities in the city have encroached Wetlands. Due to unplanned and mismanaged reclamation or filling of them, Wetlands have failed their basic function of reclamation draining and disposing storm water to sea through a natural net work.

The continued destruction of Wetlands by drainage, exploitation & pollution is one of the apparent acts of environmental Vandalism being committed on a worldwide scale today. Similarly, in local conditions many Wetlands are indiscriminately exploited for commercial,

agricultural and industrial development purposes which happen now at an increasing pace, and are found to be used as dumping grounds for the domestic, agricultural and industrial waste. In some places they have become only dumping grounds & completely neglected & detached from the Urban Fabric.

This is the reason for Wetlands being perceived as “wastelands” in the common opinion. In most occasions lowland and streams in the Urban context, are considered as evil features, mostly which are disregarded due to physical, psychological, social, environmental & economical issues they pronounce on the city structure and its inhabitants.

Rich and developed countries have been already recognized the importance of these natural resources, has long played a leading role in shaping appropriate policies & laws for sustainable designing in order to promote their understanding of wetland issues and to provide guidance for sensible development and management of available wetlands and riparian resources.

Ex: Utah wetlands & Riparian Center- USA

But such conditions can't be expected from desperate developing countries due to their poverty and lack of knowledge to look after their Wetland heritage.

1.3. Need of the study

As mentioned above the poor attention paid on the Wetlands have enabled clogging and polluting effects upon Urban life. Due to the ignorance and unplanned filling permitted on Wetlands, large part of the Colombo city was submerged by nasty floods, which considered as one of the major environmental problems arose for recent past. In this



occasion, the Wetlands and associated canal network have clearly proved they have almost lost their capacity of draining, and disposing storm water. In order to sustain at least this basic function Government have to dredge clean and upgrade the canals and drains from time to time spending millions of rupees.

On the other hand, in the present trend, Wetlands have been identified as an asset due to their important functions and values., which has resulted in the increase in conservation efforts during the past ten years around the world.

This has raised the need of making the government and public knowledgeable to move beyond the traditional concepts of Wetland conservation and focus more upon effective Wetland management. The available area of highlands in the city has become a very scared resource, and lowlands are compelled to be used for new developments. In that, these lowlands are needed to be sustainably reclaimed and more wisely utilized to meet the future demand rather than to be preserved.

Current demand of the Urban man, specially of younger generation, for places to spend their leisure time out doors to escape from dull & monotonous city life, has been increased for past few years. Density of Colombo has been growing continuously over the last forty years resulting in no proper places for recreation and public activities. So, the Wetland network and associated canal system will be an obvious solution.

Although, majority of Wetland studies have focused on Environmental and Ecological issues, less efforts have been devoted to investigate the viability of a society based management and maintenance mechanisms for Colombo wetlands, considering future demands and attitudes of

city dwellers. Therefore, it is essential to manage Wetland resources with the integrated assistance of relevant agencies and general public through an innovative manner. Revitalizing of them to achieve goals of sustainable development is essential, rather than preserving them as Ecologically sensitive areas in an Urban context.

At the same time according to the setting of Colombo Metropolitan Region most of the area is on low line flood plain (fresh water marshes & low lands). Fragility of that context requires considerable attention to sustain Wetlands from the destruction that arise from opportunistic Urbanization.

To day most of the developed countries have lost majority of their Wetland heritage, due to unplanned use for various development activities. Fortunately developing countries still remains their majority of Wetlands, but the problem is poor mitigation of them due to various reasons.



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This negligence has resulted in clogging & polluting of the Wetland system and its effects upon Urban life and the hygienic conditions has become a critical environmental issue.

Such current issues have make it very essential and a timely need, to look into this matter in a wider angle , than ever before.

1.3 Objectives

The problem identified and discussed in this research can be addressed in two basic ways.

- structural methods
- non structural methods

The overall objective in this research is to identify ways and means to address this problem through non-structural methods, incorporating design solutions to deal with wetlands. The ultimate goal is to bring forward ideas that conform to sustainable methods in order to formulate comprehensive solutions.

Under this broad perspective various objectives to be dealt with,

- main objective in this study is to work out strategies for optimum utilization of Wetlands in a sustainable manner.
- In achieving above, main focus will be made on Urban voids adjoining Wetlands and criteria would be developed for relevant aspects to be considered.(i.e. wetlands can be developed as recreational area in the urban context.)
- Strategies for revitalizing Wetlands in terms of the said criteria would then be formulated, to ensure sustainable utilization of them.

Hence the overall attention of this dissertation is to present a strong case practical as well as sustainable course of strategies that can be taken in to consideration when dealing with utilizing Wetlands in sustainable Urban designs.

1.4 Method of the study

The research design to be incorporated in this dissertation would comprise of many different methods depending on specific objectives, which are to be achieved. A reconnaissance survey in the study area will be carried out in order to gain an insight to the current situation of Wetlands.



A study will be carried out to find out the interrelationships between people, city and associate Wetlands. Here, investigations on the existing utilizations, potentials, and neglected situations of them, also will be done .

It would also be necessary to selectively read and gather information related to the study area and conduct a literature survey in order to achieve the objectives to formulate a concept and identify the related criteria in relation to that concept. Further more, the case illustrations done for specific concepts will be briefly analyzed to achieve this.

The electronic media giving all the latest information regarding the subject will also be taken in to consideration.. These information from literature survey will be gathered and analysed finally to come to the measures, and obtain appropriate strategies regarding the subject.

The study will have Three main parts: Introductory consisting Chapters one and two, Investigative part consisting of Chapters three, four and Illustrating consisting of Chapter five.

Introductory chapters ONE, TWO brings forward with background information of Wetlands, functional, ecological, historic back ground of them and etc. In the investigative section the criteria identified will be developed in to the basic concept dealing with Wetlands and current functions of wetlands and their neglected situation within the study area will be discussed. In the illustrative section various strategies are formulated to achieve sustainable goal presented.

1.6 Scope and limitations

As discussed earlier, Sri Lanka is enriched with Tropical Wetlands extends over 15% of the land surface of the island. Majority of them are located in and around the Colombo Metropolitan Region. As this area covers a vast area and the study is specifically focused in to a selected area which is defined as

“ Core Area” in Colombo Metropolitan Regional Structure Plan. Being a part of the macro region ‘Core Area’ has same environmental profile, climate and other issues common to its macro region. Therefore problems attached with Core Area can be considered as representing the large area denoted by CMRSP.

In addition to that the study will be limited only to formulate ‘Model Guide lines’ to be followed and applied in developing sustainable approaches to revitalize Urban Wetlands in future.

There is an opportunity for some one interested in the subject area to use these Model Guide Lines, analyze realistic situations and come up with suitable Solutions for revitalizing Wetlands.

