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LeisureLAND

Inside

Wrestling With Health Issues

Flying frog and mountain mouse among new species in danger of going extinct

Gin Oya's life - giving richness under threat

Like to enjoy a relaxing late afternoon boat ride through tangled mangroves in a freshwater canal? The boat safari would take you through the breath-taking and picturesque view of nature unfolding before your eyes, eventually taking you in time to see the sunset from the beach. A boat ride along the Gin Oya river situated not far away from Colombo brings you this fascinating experience of exploring a unique eco-system while travelling in a boat.

Gin Oya is a river not only important as a paradise of environmental beauty but also as a historical canal. The river meets the sea at Wennappuwa. Boating in the river is very popular among foreigners and it is a major source of income for the villagers. This is the first part of Hamilton Canal which was used to transport goods from Chilaw to Colombo during the Colonial period.

Gin Oya river runs through the flat terrain of the western landscape of the country. It is fed during the Southwest Monsoon. The river catchment receives a substantial amount of precipitation, which drains through small tributaries to the main channel. Major portion of water flows through a flat landscape and meets the Indian Ocean at Kammala Moya (estuary) at Wennappuwa on the West coast of Sri Lanka, according to Dr. Wasantha Welianga, who conducts a research in the area.

Dr. Welianga said the river met its neibouring river the Maha Oya near the sea. Both rivers share their water through a narrow channel at Sindathriya. This combination has severe implications on ecology of the Gin Oya river. Plants and animals have adapted to this particular mixing conditions for a long time. Alternations to this specific combination would provide a new environment to which they may not adapt whilst other plant species and animal species could easily invade it.

A large extent of land is left uncultivated in the lower catchment of the Gin Oya river due to various political, environmental and hydrological reasons. Biodiversity is rich near the river mouth where mangroves grow.

The area had become a popular destination for ecotourism. Many development activities were being carried out in the catchment as the area was rich in natural resources such as water, nutrients, aesthetic beauty etc, Dr. Welianga explained.

Gin Oya river canal and the riparian zone contain a rich selection of adapted plants and animals. Many plant species are amphibious in nature, that is they need both submerged and exposed surface soils for the continuation of reproduction for increasing the population to complete their life cycle.

Seed dispersal of these plants occurs via transportation on water, hence water flow is an important factor in distribution of these plants. Once the seeds fall into the water, they are carried to different places depending on the water flow and the wind. Thereafter seeds need a substrate to start germination. As the water level is raised due to artificial barrier at Kammala Moya, land is not exposed for seeds to start germination.

Dr. Welianga said that although organic matter was important for maintaining biological production, it also increased turbidity and eventually sedimentation, reducing primary production and jeopardising survival of juvenile fish.

Creation of different environmental condition favours establishment and spread of species (Animals and plants) that were not in existence in the area earlier. According to elderly villagers lower reaches of Gin Oya have lost vast number of fish species as well as herbs and plant species. Alien plant species could also be observed.

Dr. Welianga said that human activities such as fertiliser use, sewage, industrial effluent and addition of carcasses and body parts of butchered animals also were evident in the Gin Oya and they changed the water quality and increased the nutrient levels. Low – flow situations with high nutrient concentration were especially damaging if they occurred at a time when organisms were biologically active, particularly during the reproductive season, he said.

The major processes governing water quality within the Gin Oya river catchment are related to transport, retention and processing, the decomposition of organic matter being one example. Specific concentrations of substances, water temperatures and water conditions may have different impacts on these processes and associated ecosystem services during different times of the year.

"Abandoned paddy fields is another problem. Growing paddy in the riparian area of the Gin Oya could positively improve the absorption of nutrients that are washed down to the main canal. Paddy fields also serve as barriers for soil erosion and sedimentation. Therefore in order to restore the Gin Oya, it is important to understand the ecology of the system including the function of paddy fields" Dr. Welianga said.

He said that the colour of the water of the Gin Oya had changed during the last few years from 'no – colour' to grayish – green.

This colour change has occurred due to the abundance of the green algae and diatoms in the water. Nutrient addition particularly enhances the growth of algae and diatoms in the river, particularly of benthic algae. Peladic adapted algae which grow in extremely low flow conditions also are found in Gin Oya river which indicates the lower water flow.

Thermal pollution occurs water quality is impaired through temperature increase, usually following the use of water as a coolant, especially in illegal liquor industry occurring along the Gin Oya. Warming reduces the solubility of gases which can have a serious impact on aquatic life. Thermal pollution also affects productivity of the river, affects spawning, survival and growth of fish. Warm waters can also increase fish mortality due to viral infections etc, and restrict fish distribution.

"People in the Gin Oya basin are well aware of this particular crisis and have their own experiences about the past and the present. They know about water quality, quantity and flow regime parameters with their own experiences. People are aware the repercussions of using the present Gin Oya water for daily needs. Therefore Gin Oya is deserted as no local communities use it for any kind of recreational activities," Dr. Welianga said.

W. A. S. Wijethunga, Community Development Officer attached to the Wennappuwa Pradeshiya Sabha said that they were going to protect the river with the co-operation of the villagers.

The villagers have formed an organisation for that purpose and are receiving government assistance as well.

Nature File
With Dasun Edirisinghe