

## WATER QUALITY IN THE MAHA OYA STREAM OF THE UNIVERSITY OF PERADENIYA

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Maha Oya is a natural fresh water stream in the Hantana hill range of the Kandy district. It originates from a forest area and flows through the University premises where it joins the Mahawali River. Up stream it flows through a line house community and further down stream it flows through an agricultural community. The stream water is used by both communities for drinking, bathing and cultivation.

Water quality was assessed along the stream at four different sites, namely a forest area, near a line house community, near an agricultural area and the University premises during a wet season and a dry season. Microbiological counts (total and faecal coliform, [*Escherichia coli*]) were assessed using the membrane filter method. Physical (temperature and turbidity) and Chemical [pH, dissolved oxygen (DO) and biochemical oxygen demand (BOD)] were other parameters measured. A sociological survey was carried out to find out the impact the communities had on the quality of water.

The water of the stream was not suitable for drinking and bathing at any of the sites according to WHO guidelines and Sri Lanka standards (1 coliform and 0 faecal coliform/ 100 ml of water for drinking and 1000 coliform and 200 faecal coliform/100 ml of water for bathing -US standards). Total coliform counts were  $6.0 \times 10^4$  per 100 ml of water (wet season) and  $2.6 \times 10^4$  per 100 ml of water (dry season) while the faecal coliform counts were  $7.0 \times 10^3$  per 100 ml of water (wet season) and  $6.9 \times 10^3$  per 100 ml of water (dry season) in the populated area. This was significantly higher compared to the other locations. Human waste was the source of faecal pollution in the forest and populated area in the dry season. Mixed sources of faecal pollution were found at the other locations during both the dry and wet season. Temperature of water in the stream increased downstream from the forest area to the campus. Turbidity increased during the wet season with the increase in rainfall and increase in human interference. pH was lower in the wet season compared to the dry season, and was lower in the populated area compared to the other locations which may be due to the collection and decomposition of organic waste through human activities. DO in the stream was lower in the populated area, indicating collection of oxygen demanding pollutants into the stream at this location. The BOD was higher in the wet season in all locations.

The sociological survey indicated direct discharge of faecal matter into the stream by the line house community. Both communities were not satisfied with the quality of water in the stream near their homes and blamed the line house community and the University livestock farms for polluting the stream. This study revealed the unsanitary quality of water in Maha Oya and the need to implement sanitary water disposal methods.