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Impact of drainage water from Walawe irrigation area on lagoons in the basin

Walawe River basin is located in the south of Sri Lanka and has a drainage area of about 2442 km2. Average annual rainfall over the catchment is about 1750 mm. The river drains to the sea close to Ambalantota. The average annual outflow to the sea is approximately 1000x106 m3.

Several water resources development schemes have been designed and built to harness the Walawe River water for the purposes of hydropower generation and irrigation water supply. A considerable part of the Walawe River water, which originally drained to the sea are now diverted away from the river by these schemes to supply irrigation water requirements on both banks of the river. All the drainage waters from these agricultural lands do not flow back to the river and they take different paths to the sea. A study was carried out to account for the water that is passing to the sea from the Walawe basin through various paths other than the main Walawe River and to study the impact of these drainage water have on lagoons located at sea-land interface of the Walawe basin with respect to water quality. Seven drainage paths originating from the Walawe irrigation area and flowing to the sea and three lagoons in the basin were identified as shown in Figure 1

Quantity and quality of water flowing in the different drainage paths and quality of water in the lagoons were collected on monthly basis for the period from February to May in the year 2001. Water quality parameters observed were temperature, total dissolved solids, conductivity, salinity, dissolved oxygen, and pH. The observations indicate that one lagoon, called Kalametiya lagoon, is highly affected by drainage water coming from the irrigated area through Kachchigal Ara while the other lagoons are less affected. Further, the quality of water in the seven drainages is observed to be dependent on the water flow in them.