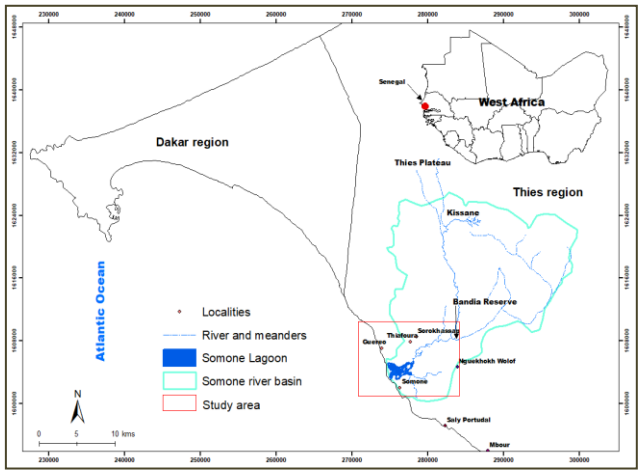
Assessment of Climate Trends and Land Cover/Use dynamics Within the Somone River Basin, Senegal

This study was undertaken mainly to investigate (1) temporal trends in annual rainfall and temperature, (2) identify discontinuities in the time series (3) and assess the Land Use/Land Cover Change (LULC) in the Somone coastal lagoon, within the river basin. The study examined temporal trends in rainfall (1931–2016) and temperature (1961-2016) datasets of Somone river basin, and breaks in time series using Mann-Kendall non-parametric test and other suitable statistical tools. Temporal evolution in LULC was assessed for the years 1954, 1978, 2003 and 2016. Analysis indicates a significant decreasing trend in precipitation over the basin. These trends are much more pronounced for minimum and average rainfall than for maximum and annual amplitudes. Contrary to precipitation, surface air temperature shows a significant increasing trend for its minimum and averages, and a decreasing trend for its maximum and amplitudes. A significant break in precipitation was observed in 1958, while surface air temperature presents much longer breaks within the years 1975 and 1977, and 1991 and 1993. A more direct implications of climate change on LULC patterns is increased in unproductive salt pans (Sabkhas). Increase in Sabkhas gave rise to conversion of forest lands to agricultural lands of local farmers in search for fertile soils to cater for the food needs of a growing population. Otherwise, the development of the settlements, favored by the tourism activity and agriculture crisis, is another cause of croplands decreasing. The findings of the present research clearly indicate that the impacts of climate change are exacerbated by rapid urbanization in the basin



Study area