LANDUSE CHANGE AND HYDROLOGY OF THE UPPER MAHAWELI BASIN

C.M. Madduma Bandara

Since the advent of plantation agriculture in the hill country hydrology of the Upper Mahaweli basin has undergone considerable changes. The extent and magnitude of landuse changes that have been taking place since early 1950s can be quantified through sequential aerial photography. An attempt made in this direction recently as part of the IFS Mahaweli studies programme, indicates a significant reduction in the extent of land under tea in the Upper Mahaweli basin. Much of these lands were either converted to homestead gardens or reverted back to patana grasslands. There had also been some attempts by the Forest Department to establish forest plantation in patana grasslands.

The hydrological implications of landuse changes is only poorly understood in most tropical countries. This is particully so in the Upper Mahaweli basin which is the source area for the newly constructed Cascade of Mahaweli reservoirs. The conventional belief that, reafforestation of barren lands necessarily leads to an increase in the quantity and quality of streamflow is now under challenge. However, the results of the studies undertaken at the IFS tend to suggest that low flows of Mahaweli have decreased over the years as a result of landuse changes in its catchment area. Further research studies in this theme are now being planned for the catchment above Nawalapitiya which records the highest annual rainfall in Sri Lanka.