

**EVALUATING THE IMPACT OF LAND USE / LAND
COVER CHANGES ON AGRO-BIODIVERSITY IN
KANDYAN HOME GARDENS**

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ABSTRACT

Kandyan Home Gardens are multi-species traditional agro forestry system which provides food, nutrients, timber, medicine and many other services while conserving bio diversity. Land Use / Land Cover change adversely affect on bio diversity in Kandyan Home Gardens. Land Use / Land Cover changes in the Kandy District were analyzed using Remote Sensing and GIS techniques. Landsat images of year 2000 and 2015 were used for the study. Supervised classification technique was used to identify different Land Use / Land Cover classes. Land Use / Land Cover maps in Kandy district for year 2000 and 2015 were prepared. Normalized Difference Vegetation Index maps were prepared for year 2000 and 2015. Least square regression technique was used to rectify the climatic influences in satellite images. By obtaining the percentage Normalized Difference Vegetation Index change between 2000 and 2015, three Land Use / Land Cover change categories were identified; less changed, moderately changed and highly changed. Agro-biodiversity in Kandyan Home Gardens was evaluated through field investigations in 90 home gardens in Ambathenna, Pilimathalawa, and Gampola. The locations of each Kandyan Home Gardens was recorded using Global Positioning System device and Land Use / Land Cover change category which each Kandyan Home Garden belonged to was identified. Species Richness, Shannon-Weiner index and Simpson Diversity Index were used to assess the agro-biodiversity. Land holding size in majority of home gardens was between 0.01 to 0.758 ha. Trees, root and tuber crops consisted of 88 species and 45 plant families were identified. Less changed area and moderately changed area have similar Species Richness and Shannon-Weiner values for diversity, but evenness of abundant species is higher in moderately changed area. Hence, agro-biodiversity in moderately changed area is high. Twenty seven species were perceived as threatened or lost from Kandyan Home Gardens by the dwellers.

Key words: Agro-biodiversity, Kandyan Home Gardens, Land Use / Land Cover change, Remote Sensing and GIS