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**STUDIES ON LAND USE CHANGES IN THE NORTH CENTRAL SRI LANKA**

**FROM SEQUENTIAL AERIAL PHOTOGRAPHY**

By

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## SYNOPSIS

The status of land development in the North Central Dry Zone of Sri Lanka can best be described in terms of 'carrying capacity' and the use and over-use of its fragile agricultural resource base over the past few decades. Due to the increasing population pressure, the available arable lands are now being cultivated more intensely, the fallow periods in the cultivation cycle appearing to become shorter. To compensate for decreasing soil fertility and consequent low yields, the cultivated area both in terms of the lowland and highland, is also continuously being extended. Thus, there exists a danger of a serious disruption of the environmental sustainability. Against this backdrop, the author has endeavoured to examine the contention whether changing land use patterns have been in harmony with nature, specially in terms of 'carrying capacity' of its physical environment that has been perceived to be relatively low, and where futile attempts have been made in the past for the establishment of a permanent and sustainable farming system for the peasantry.

In the methodology adopted for these studies, detailed mapping of the study area, with due regard to the environment as a holistic entity has played a key role. Aerial survey remote sensing techniques have been used for mapping and monitoring of the land use changes, between the years, 1956 and 1982 in the study area. On the basis of the resulting mapped data, an attempt has been made to conduct detailed qualitative and quantitative analyses by examining the basic morpho-pedological conditions, the spatial and temporal characteristics of the change, and associated manifestations. Detailed field and laboratory studies have been used to support the mapped information.

By interpreting the trends of land use change in recent years, as well as by comparing them with that of a decade or two earlier, an attempt has been made to suggest ways and means of minimising the adverse impacts of rapid land use changes, that have apparently taken place over the years. A more rational use of the land resources, considering the natural drainage basin as the fundamental unit for planning and development, has also been attempted. Such a unit could be the basis for suggesting alternative systems of land use for the study area.

There appears to be a significant increase in all categories of land use in the study area. In fact, disturbances of the landscape eco-system are presently evident as indicators of degradatory processes. Significant among them are the twin problems of salinity and waterlogging in lowland ricelands, and siltation in tanks or waterbodies. It is concluded that the absence of an ecological approach in the exploitation of the available physical agricultural resource base, has inadvertently contributed to a slow and steady deterioration of the area. By the fact that soil salinisation and siltation occurs, unambiguously established by evidence of cultivated lands and tanks being abandoned or under-utilised, it is apparent that with the present utilization of lands, the 'carrying capacity' is being stretched beyond sustainable limits.

There is clearly a need for fresh thinking regarding the use of the physical agricultural resource base in these areas. Much greater emphasis towards environmental protection aspects is called for, as an urgent priority in the further use of land and water resources. The conceptualised and suggested alternative land use plans

or spatial models, attempt to integrate the traditional wisdom and modern thinking for a rational use of the available resource base, in order to ensure its sustainability and help maintain an ecological balance.

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