

## **GIS based classification in potential rice production of Dickwella DS Division**

SHH Wickramathunga,  
G.P.T.S. Hemakumara  
Department of Geography,  
University of Ruhuna

**Key words: Rice production, GIS, agriculture**

Dickwella DS Division is one of agro and fisheries based DS divisions in Matara District. This study mainly focuses on potential rice fields and their capability to contribute to national rice production because many unutilized and under optimized rice fields exist in the study area. Therefore, in this study all potential rice field areas have been developed into GIS spatial database. Dickwella DS Division comprises 48 GN Divisions which are available for potential rice fields that can be optimised rice production.

Simple questionnaire based interviews have been carried out to estimate the cost of rice production in this area. Accordingly cost of production is as follows; purchasing of seed Rs 8000.00, Wages of Labourer Rs 15,000.00, Ploughing Rs.15,000.00, Agro Chemicals and Fertilizer Rs 15,000.00 and Harvesting Rs 20,000.00. In totally, it is estimated that the cost of production of rice per one hectare is approximately Rs 73,000.00 per one season. On the other hand, it has been calculated that maximum income of rice production of this area is  $50 \times 150 \times 35 =$  Rs 262,500.00 per a hectare in a season. Whether rice field is good or bad , Rs 73,000.00 is the minimum cost per a heceter for rice production in a season. According to survey, it can produce rice valued at Rs 262,500.00 from certain areas per a season.

Another aspect of this study is to focus on paddy field Geo-Database. Rice field Geo-Database has been built on Georeferenced 1:50,000 information. Entire paddy lands of study area have been identified. It has been calculated that amount of paddy hectares in each GN by overlying GN Division Geo-database of study area. This information shows that potential paddy lands in Dickwella GIS Division. Per Capita rice production of the study area has been calculated for each GN Division.

Identifying of under optimized and unutilized rice lands has been classified by using open source images. Collected field verification data have been applied to make a final classification. Final classification shows that potential but under optimum lands which have to be given agro-aided and develop in different aspects to make optimum land.

The result of this study shows that how much the total cost of rice cultivation of the study area, per capita rice production of the area, under optimum rice lands and total rice production of the study area. Calculation of potential rice production of the study area is main outcome of this study; it shows that situation of optimization rice production. Per Capita information shows income level of rice farmers of this area while showing the potential rice production areas in which can be increased income levels of farmers. Finding of this study can be used for Agro based Local Authorities to make decision to increase the production capacity of rice.