

An assessment of climate change in coconut growing areas and its effects on the national coconut production

SUMMARY

by Dr. T S G Peiris

The seasons of rainfall in Sri Lanka have been classified as first inter monsoon (FIM) from March to April, south-west monsoon (SWM) from May to September, second inter monsoon (SIM) from October to November and north-east monsoon (NEM) from December to February, respectively. As some changes in this seasonal pattern of rainfall have been observed over the years, knowledge of time of arrival and withdrawal of rains in each season is very important for planning many agronomic practices in agriculture particularly in management of tree crop like coconut.

Daily rainfall (1962-1997) of eighteen locations representing four agro-ecological regions of coconut growing areas: low country wet intermediate region (LCWIR), low country dry intermediate region (LCDIR), low country wet region (LCWR) and low country dry region (LCDR) were analyzed.

The research was carried out at the Coconut Research Institute, Lunuwila (NSF grant RG/98/P/004) from April 1999 to November 2000 and the experimental method was statistical analyses via mathematical models.

There was a significant declining trend in the amount and number of rainy days over the last thirty-six years period in all four regions. The rainy seasons have changed over this period. The first peak usually expected during March and April has shifted towards April and May. The first spell of rain in LCWIR, LCWR and LCDIR has mixed with FIM and SWM rains and it is not possible to separate two types of rains. There was no clear rain spell during March to June in LCDR. The months of January, February, July and August should not be considered into rainy

seasons. Proposed rainy seasons in these regions was classified as extended southwest monsoon - ESWM (March to June), second inter monsoon - SIM (September to November) and northeast monsoon during December

The best probabilistic model to explain dates of onset and length of ESWM and SIM rain was gamma distribution. Identification of suitable time for agronomic practices related to the onset of ESWM rains in the LCWIR and LCDIR should be location specific. A common recommendation can be given for the areas in the LCWR. An early onset of ESWM rain results a proportionally shorter length of rains while delayed onsets result a longer length. The planning of agronomic practices related to ESWM rain is not recommended in LCDR. A comprehensive calendar for planning agronomic practices on location basis was prepared as a guide for planning and implementation of agricultural activities (Peiris, 2000).

A model was developed to predict annual coconut production in one year ahead (Peiris, *et. al.*, 2000). However, further investigation is required to identify the effect of climate change on national coconut production. Modeling approach is more powerful than distribution free method in analyzing rainfall data. The probabilistic approach for weekly rainfall would be better criteria to redemarcate the present agro-ecological regions than 75% expectancy values of yearly and monthly rainfall. This study had to be continued.

References:

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