DECISION SUPPORT SYSTEM FOR ON-FARM WATER MANAGEMENT IN THE DRY ZONE OF SRI LANKA

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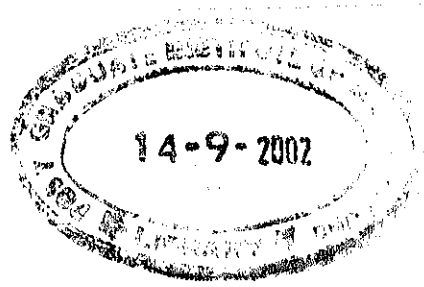

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ABSTRACT

On-farm irrigation planning and management require information on soil properties, climatic conditions and the quality and quantity of irrigation water available. Many individuals and institutions have been involved in gathering the above information in Sri Lanka for more than fifty years. But, the reality is that the information gathered is mostly confined to progress reports, feasibility studies and even to hand written documents. Furthermore, they are widely scattered and not available in the form needed for on-farm irrigation planning and management. The main reason is that there is no co-ordination and data-sharing mechanism exists among the agencies involved in various activities.

Decision making on irrigation is one of the most complicated activities undertaken by irrigation planners, managers, marketing agents, manufacturers, academics and farmers. The informational and logical aspects of decision making imply that a computer, with its ability to handle and process large amounts of information and analyze complex logical relations, is an ideal tool to support this activity. A study was conducted to develop a user-friendly Decision Support System, using appropriate computer hardware and software to make the irrigation-related information for the Dry Zone of Sri Lanka readily available for above mentioned target group.

This package allows retrieval facility for information on major soil types and their properties, rainfall and reference crop evapotranspiration for different locations in the Dry Zone of Sri Lanka. Further, for the calculation of crop water requirements and

irrigation scheduling a facility was made to link to the CROPWAT programme. Also, this software package provides recommendation on irrigation method suitable for a particular location based on infiltration rate, hydraulic conductivity, available water capacity and irrigation water quality. In addition to that, details on irrigation expertise and training tools are provided for academic and research interests. Present status of micro-irrigation in Sri Lanka, including the information on irrigation equipment companies are provided for the users to be up to date with the emerging technologies. It is hoped that this research has sufficiently demonstrated the potential value of irrigation information and that necessary resources will be found to further develop this work for the benefit of the wider irrigation community.