

ABSTRACT

Some Aspects Of Design, Construction
And Operation Of An Irrigation And
Drainage System For Rice Cultivation

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This report presents the methodology involved in the design, construction and operation of an irrigation and drainage system for rice cultivation. The investigations cover soil surveys, crop water requirements, evapotranspiration, available water resources information and the likely effects of the anticipated global warming on the irrigation and drainage scheme. In designing the irrigation system, concrete canals are used. The method used in determining the capacity of the canals is outlined in detail. Along the irrigation canals, the structures which are used to convey, regulate and measure the irrigation water are described. The reasons for using these structures are also discussed. The drainage system has been designed to drain the paddy fields based on agronomic considerations for rice cultivation. The hydraulic design criteria for the drains are highlighted. Specifications for the land grading, earthworks and the concrete works are given for the preparation of the infrastructure for the one thousand hectares of land. The materials and workmanship to be used in attaining high quality control are outlined. The operations and maintenance aspects of the irrigation and drainage systems are also looked at. Finally, the environmental impact of this scheme is critically examined. It is noted that with

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this project located adjacent to populated areas and the Caroni Swamp, the impact of certain operations carried out during the crop can have adverse effects on the environment if precautions are not taken.

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