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Optimazing operation and maintenance Telang II tidal reclamation scheme in relation to agricultural development

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ABSTRACT

The objective of this research is to study the hydraulic performance of the water management system of the Telang 2 tidal lowland reclamation scheme with respect to the operation and maintenance of the system. The hydraulic performance of the system should inline with the food crop water requirement and its cropping pattern. Based on the result of this research, a basic model will be set up in order to support a sustainable agricultural development in the area. The methodology of this research consists of 1) Analysing the hydraulic performance of the water management system for the existing condition as well as under the proposed scenarios; 2) socio-economical approach to the related farmers in relation to the operation and maintenance of the water management system; 3) Mathematical modelling of crop water requirement and an optimal water management system and its water management zoning system; 4) Cost benefit analysis related to operation and maintenance of the water management system, role sharing and cost sharing. In this study, computer softwares *CROPWAT*, *DUFLOW* dan *ArcGIS* have been used as supporting tools in the analysis and evaluation. *CROPWAT* model was used for calculating the crop water requirement based on the climatological condition and proposed cropping pattern (rice-maize and rice-rice) and its calendar. Based on the result of the *CROPWAT* model, *DUFLOW* model was used in order to evaluate the capacity and hydraulic performance of the open canal system. Finally based on the field water layer condition, water management zoning can be derived by using *ArcGIS* in relation to the crop water requirement and required water levels in the water management system. Based on this research, it can be concluded that the cropping pattern rice-rice or rice-maize are preferable and the co sharing is 50% by the Government and 50% by the farmers is the best option and this is also inline with the hydro-topographical condition of the related area.

KEYWORDS

Optimalization; Water Management; Tidal Lowland Reclamation Scheme; Mathematical Modelling

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