

## **ABSTRACT**

### **OPTIMIZATION STUDY OF IRRIGATION OPERATIONAL PATTERN IN LAMBUNU IRRIGATION AREA – CENTRAL SULAWESI PROVINCE**

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Lambunu Irrigation Area is administratively part of ParigiMoutong Regency, Central Sulawesi Province. This irrigation area is supplied by Lambunu River through its intake in Lambunu Weir and the irrigation water is supplied gravitationally. In the year 2014, planting pattern used in the area was paddy-paddy with 3,825 ha and 3,645 ha for planting schedule I and II, respectively.

Irrigation operational pattern in Lambunu varied due to the development in irrigation system, the decrease of function of irrigation structures, the change of cropping pattern, and the fluctuation of irrigation water availability. Today, Lambunu Irrigation Area captures 5,041 ha of potential areas. Due to the changes in irrigation system and water availability, it is necessary to do some optimization in irrigation operational pattern in Lambunu in order to find optimum planting area and optimum farming production.

Of some alternatives irrigation operational patterns, carried out based on grouped and rotation system for paddy-paddy-secondary crops, the most optimum irrigation operational patterns has been found. It is irrigation operational patterns with ungrouped system and three planting schedules as follows:

- Paddy I is in December I to March II
- Paddy II is in April I to July II
- Secondary crops in August I to November II

Crop intensity for paddy and secondary crops in the area is 200% and 23%-28%, respectively. Grouped system will give the same result. However, it will reduce the maximum discharge of irrigation water demand.

**Keywords:** irrigation, operational pattern, optimization.