ABSTRACT

Cengklik reservoir’s water availability problem that ended by drought disaster appears latest year. The latest real impact is irrigation water crisis in 850 hectares farm area that causes 350 hectares were not planted. The risk that must be faced by farmers is potential production in the amount more than 2,5 billion disappeared. Therefore it needs technically problem solution to reduce this drought disaster risk.

To obtain an alternative solution of water availability limitedness problem in drought disaster mitigation, this research uses optimization of reservoir standard operation simulation (standards operating rule) with decision variable is farm area for rice or palawija in the 2nd and or 3rd time plants, objective function is maximizes productivity value, parameter is irrigation water demand which depends on alternative pattern plants and time plants that chosen, with several constraint are: reservoir reliability is 100%, all farm area can be irrigated in the 1st and 2nd time plants; and maximum farm area which is not irrigated in 3rd time plants are 300 hectares. The tool that used to do optimition is a problem solver facilities in microsoft excell software.

Result of this research shows pattern plant that can considering as an alternative solution of water availability limitedness problem in Cengklik reservoir is rice-rice-corn beginingly November II and farm service area during a year for 1st and 2nd group each 433 hectares and 1524 hectares. Risk reduction that reachable is 9,33% reviewed from reservoir reliabilitas, 23,61% reviewed from area can be serviced, and 27,29% reviewed from consequence of water availability crisis.

Keyword: water availability, water required, and reservoir operation