Irrigation Mangetan Kanal Trosobo observation area and Sumput (1437 ha). The entire existing cropping pattern in irrigated areas Mangetan Kanal today originated from November I to the type of cropping pattern of rice-crops-sugar cane. Problems found in irrigated areas Mangetan Kanal is the average number of cropping intensity only reached 277%. There are several causes of the less optimal cropping intensity of damage to the talub and basic channels, taking water that is not optimal, building measure, there is still an unspoiled tract and sediment buildup.

These problems it is necessary in the operation and maintenance inventions. To increase cropping intensity with existing discharge, it is necessary to cropping patterns and acreage by the method of Climatology and FPR (Relative Crop Factor). As a benchmark can be run whether or not this final project, need to do calculations BCR (Benefit Cost Ratio) to the value of BCR > 1.
By carrying out the operation and maintenance plan that is good and right is expected to increase agricultural production, promote economic growth, increase farmers' income and optimization of the utilization of water resources, so the network of irrigation DI.Mangetan Kanal Sidoarjo regency can meet food self-sufficiency, especially in East Java regency of Sidoarjo.

Key words: Regional Irrigation (DI.) Mangetan Kanal, Operation and Maintenance of Irrigation Areas Sidoarjo regency, Observation Kemasan I and II.