

Rachan Pattanasak 2015: Concept of using Subsurface Water Storage System for Multipurpose in Pranburi Watershed. Doctor of Philosophy (Sustainable Land Use and Natural Resources Management), Major Field: Sustainable Land Use and Natural Resources Management, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Utis Kutintara, Ph.D. 108 pages.

A conceptual of subsurface water storage system is designed to collect excess water during the rainy season in order to solve water shortage in non-irrigated area during the dry period of Pranburi Watershed. The water shortage problem usually occurs between December to April of every year. An example of 1 rai (40x40 m.) area is used for demonstration. A square reinforced concrete pipe of 1x1 meter and 1 meter long area connectively lay out in rows of 39 meters in length. There are 22 rows in 1 rai. It has two rows to close up the two ends with opening for inlet and outlet. Approximately 858 m³ of water will be collected in the concrete pipe network of 1 rai. The potential area for subsurface storage system estimated by GIS program reflected that there are 13.43% , 2.36% and 2.71% of high, medium and low potential of construction respectively. A possible total area for this system construction in this watershed is 294,937.50 rai(471.9 km²) with a total water storage of water storage 253,056,375 m³. This system can be applied for every size of agricultural land and for various kind of crops species.

Student's signature

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