

Efficient Sources and Methods of Extracting Water for Irrigation

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Abstract : Due to the increasing water scarcity in South Africa, the prime focus of irrigation in South Africa shifts to creating feasible water sources and the efficient use of these sources. These irrigation systems in South Africa are implemented because of low and erratic rainfall and high evaporative demand. Irrigation contributes significantly to crop production in South Africa, as the mean annual precipitation for the country is usually less than 500mm. This is considered to be the minimum required for rain fed cropping. Even though the rainfall is low, a lot of the water in various areas in South Africa is lost due to runoff into storm water systems that run to the rivers and eventually into the sea. This study reviews the irrigation systems in South Africa which can be vastly improved by creating irrigation dams. A method of which may seem costly at first but rewarding with time. The study investigates the process of creating dam capacity capable of sustaining a suitable area size of land to be irrigated and thus diverting all runoff into these dams. This type of infrastructure method vastly improves various sectors in our irrigation systems. Extensive research is carried out in the surrounding area in which the dam should be constructed. Rainfall patterns and rainfall data is used for calculations of which period the dam will be at its optimum using rainfall. The size of the area irrigated was used to calculate the size of the irrigation dam to be constructed. The location of the dam must be situated as close to the river as possible to minimize the excessive use of pipelines to the dam. This study also investigated all existing resources to alleviate the cost. It was found that irrigation dams could solve the erratic distribution of rainfall in South Africa for irrigation purposes.

Keywords : irrigation, rainfed, rain harvesting, reservoir

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