Water resource management for improved agriculture in the fertile dry lands of Jaffna Peninsula

Extended Abstract

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Background

Dry lands in the Jaffna Peninsula are identified as arid, semi-arid and sub-fertile ad fertile. The most important factor about rained agriculture is that, agro-products are closely related with the variability of rainfall (Allen, et al. 1998). Farmers in such dry lands often face weather related challenges, which introduce risk and uncertainly into their productive activities. Most of the dry lands are subjected to high annual variability in the length of the rainy season and in the distribution of rainfall within the cultivation seasons. The nature of rainfall events seriously affect the farming activities, despite the fact that most farmers often cultivate only one season per year (Anderson 2009). They experience severe water shortages if they attempt to cultivate two seasons and therefore, the wise use of water becomes a real necessity. Any imprudent in water control and supply will result in improving household incomes by at least 50% since the soil is of prime quality in the dry lands of Jaffna (Hydro geochemical characterization of Jaffna's aquifer systems in Sri Lanka 2013). However, a preliminary study suggests that, improved agriculture and water resource management in Jaffna's fertile dry lands is a real challenge, if overcome has the potential to increase farmer incomes and make significant contributions to increase the national agricultural production (Hydrological Sciences Journal, 2007)

Objectives

Proper management at improved agricultural water management for dry lands , in Sri Lanka northern province special references with Jaffna area having the fertile dry lands , for mostly suitable to the cultivation(Balendran, 1969). If the regions have the water facility which mean irrigation they can cultivate two vise. Consequently, objective of this study is to analyse present literature partiality to agriculture water assessment methods apply to recently supporting various assess the potential role of agriculture water management in increasing resilience to shocks in the dry lands of Jaffna.

Methodology

Most previous studies of irrigation potential across Jaffna have focused on technical factors, taking into account the availability of arable land and water resource management. They applied to issues such as most suitable irrigation methods, economic considerations. Therefore, an attempt is made here for searching the most applicable methods for, data generating and analyzing and in

terpreting results and modern techniques in irrigation engineering.

Results

A correlation between rainfall and cultivation was found making it possible to introduce a new index to determine the relationship between dry land cultivation and farmers income. Namely, FNI (farmers new income, FNI= current income * 2). It can be used as one seasonal income and if there is water recourse then use to FNI index and calculate the correction between income and water resource management. This is only a basic finding but it may be possible to apply it at national level to dry lands in the country.

Conclusion and recommendation

Sri Lanka has a large extent of dry lands but they have low productivity due to water scarcity and uncertainly of rainfall and the high risk of cultivation. Therefore, its clear main problem is water resource management is the predominant need today. The proposed FNI may serve as a useful analytical tool. Introduction of water-saving irrigation practices and echniques are essential to manage the dry-season water demand and availability.

Key words: Jaffna dry lands, irrigation engineering, agriculture, water management, FNI index.

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