

# **Dry zonal irrigation of Sri Lanka; Lessons to the world for the sustainable development**

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## **Introduction**

Irrigation is a traditional knowledge of Sri Lanka, which developed over almost 3000 years in the country. Many evidences of the historical development of irrigation systems in Sri Lanka could be revealed inquiring the stone inscriptions and literature records. The system was developed in association of fine lands at the dry zone and the intermediate zone. The ancient people who subsisted on agriculture mainly paddy selected the dry zone which is diffused over about 70% of land of the country as the most suitable land for inhabit. The suitable physical and natural resources and setting for agriculture in this zone became the facts affected for the selection.

It is believed that the first sedentary communities who lived in the settlements along river valleys in Sri Lanka built temporary bunds and dams to get water for their agricultural purposes. When the population increased gradually, their irrigation systems were not adequate and they began to collect rain water by constructing dams joining two high lands together. The small tanks associated with Megalithic settlements (proto historic) could be such constructions done during this basal period. The main environmental threatening in the dry zone to the

settles was the scarcity of water. As an option for that, people have moved in to construction of irrigation systems in this zone for collect rain water.

## **Objective**

The objective of this research paper is to identify the contribution of irrigation, along history for the development of the country and discuss how it can be employ for the development of the countries where facing immensely to water problems.

## **Methodology**

This research has been done on the data that collected through archaeological field researches along with historical sources and studies on ancient irrigation technology. Data got from interviews with personals who expertise in the field are also gathered.

## **Case Study**

Water is the essential factor for the subsistence based on agriculture. The dry zonal irrigation, built on the concept of "Fulfill the need" can be identified as one experience, for thousands of years in Sri Lanka. Even if the dry zone is comprised with many beneficial factors, suitable for living and settlements, it's main deficiency was water. But, to overcome this challenge, the ancestors, considered and examined the topography of the

land, have made very efficient devices to collect limited rain water of the year, as an irrigation system, based on tanks and dams.

Sri Lanka is the only country, where there is a dense irrigation system in a limited land area. The ancient stone inscriptions and chronicles give evidences that it was built on a typical system and later become as a complicated network on inter connection of valleys tanks and dams, so that it clears a great efficiency of this irrigation system then and now.

The dry zone irrigation has been constructed in three steps, such as **Micro Scale, Meso Scale and Macro Scale**. Environment friendliness and protectiveness of this irrigation system have created the people to be close and to protect the system.

In the past, the world recognized Sri Lanka, as the "Granary of the East". The main reason for that was the self sufficiency of paddy to the country produced by agriculture based on this dry zonal irrigation system. This food security became an economic security and a deposited wealth which can be easily converted into any form; was able to generate a rest in contemporary political background as well. Yet this is the expectancy of public from the rulers. But irrigation of the country was not a forcefully loaded subject to the public, by the political authority. It was a collaborative effort of people and the rulers, after understanding the necessity. So, it was common to all and they took effort to protect and maintain it properly.

There was a well-organized system of settlements in the past as we can see from the ruins of ancient tanks, dams, bunds and canals, which were supported to upkeep the way of life. After the passage of time the prosperity and self-sufficiency in the past of these areas cannot see anymore. Only dry and infertile condition remains. The reason for this adverse situation is the fall of the irrigation network in the past.

The dry zonal irrigation of this country can be introduced as a practical application which can be introduced with the regular development to the equatorial dry and semi-arid countries. The most suitable irrigation system, that can be built is, the cascade system, which is comprised with tanks, interconnected each other by canals. Owing to of the simple construction technology and the safety, as well as ecofriendly, this can be implement as a community work will attract the people of such countries. The dry zonal irrigation system, built on the concept of "*The fulfillment of the need*" is a result of activities based on experiences. By the cleared prevailing factors, it can be proved that, the result of their water work systems, had been affected beneficially, for the environment, or well as the people, while it was in the optimum condition.

#### Reference

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