

UTILIZATION OF GROUND WATER RESOURCES IN SAMMANTHURAI AREA: A CRITICAL STUDY

MIM. Kaleel

*Department of Geography,
South Eastern University of Sri Lanka, Oluvil*

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Introduction

Water resource is indispensable and very essential for the existence of human being in the world. Its availabilities are in various ways in order to utilize the water (Panabokke, 2005). Groundwater is one of the sources among those ways and it is the most preferred source of water in various user sectors in Sri Lanka on account of its near universal availability, dependability and low capital costs. However, availability of ground water resource and its utilization differ from place to place. Some of the areas have been facing in utilizing ground water and some of the area has increased level of groundwater more than maximum utilization of the people (Jeyarub and Thushyanthy, 2009). It leads to carry out extent and lengthy study to focus on groundwater management system.

As Sri Lanka is an island, it has wealthy of ground water. However, there are number of difficulties in utilizing the ground water resources in particular areas of the country. It leads to explore the ways and means for proper ground water management system and it helps to find out the management system for utilization of ground water in order to achieve maximum benefits with minimum ground water resource (Pathmarajah, 2003).

On this backdrop, this study attempts to analysis utilization of ground water resources in Sammanthurai area. The study area has physical features for a dry zone in the country. Nevertheless, it has got an important place in land uses and economics activities of the island. As far ground water is concerned, it is a scarcity of ground water resources in the particular area and utilization of ground water was also in low percentage in the early time of its history originated. On the other hand, problems behind utilization of ground water were very less (Kaleel, 1998). However, rapid growth of population and maximum utilization of water and land of the area has created number of problems in utilizing ground water.

Objectives

As mentioned earlier, water is indispensable in human life and utilization of ground water has been increasing rapidly due to its significance. Presently, there are number of difficulties felt in maximum utilization of ground water due to rapid human growth and scarcity of land and water resources. This sense is more appropriate in the study area. Hence, this study aims:

- To asses ground water resources and their utilization in the study area.
- To identify problems and prospects related to ground water resources in the area.
- To provide policy recommendation for the proper utilization of ground water resources

Methodology

This study is carried out to analyze the ground water potentials for better utilization in study area, Sammanthurai located dry zone of the island of Sri Lanka. This study is based on

statistical and descriptive analysis model due to its practical merits for such research. The qualitative and quantitative data has been used to achieve above mentioned objectives. The basic data for the study has been obtained from primary materials such as direct observation, experiment and measurement, and interview and discussions have been employed to identify difficulties which are faced by the people (Kaleel, 2001). As a sample, 100 families who have been utilizing ground water with well, has been selected randomly to obtain the data related to people usages of ground water and location of well focused temperature and rain fall season. Secondary data has been collected from related books, reports and statistical data (rainfall data). The study has been carried out in the period of ten years (1990 – 2010) in order to collect data and to analysis the data. Further, the study has employed the following formula to the measurement of ground water level (Kaleel, 1998).

$$W + (B+G) - L$$

W = Ground water level from mean sea level

L = Water level from level of well

B = Height of well from level of land

G = Height of land from mean sea level

Discussion and Conclusion

According to the government censuses held in 2001, the study area has populated with approximately 51,510 in number within a land of 256.70 sq.km. Presently, the ground water has been utilized with using wells such as protected well (5,974 families), unprotected well (633 families), tube well (313 families). On the other hand, particular number of families (4709 families) has been utilizing the water with using tap and other means (river, tank and etc.) (Kaleel, 2001).

Rainfall and water tanks are the major sources of ground water recharge in Sri Lanka, which is supplemented by other sources such as recharge from canals, irrigated fields and surface water bodies. For instance, the study area is surrounded by number of tanks such as Kimuthurawa tank, Veerakodai tank and Kondawadduvan tank, etc (Kaleel, 2001).

The study reveals that during the dry season the ground water level in this area decreases due to over use of ground water compared to past decades. Sometimes salt water intrusion result in a certain amount of salinity in the water. Higher ground water pollution has occurred due to intensive cultivation. Run-off has increased due to low infiltration, which leads to low ground water yield.

Further, the study exposes that there are number of issues in utilizing water resources in the study area due to rapid population growth and getting the water by means of water supply with using tab.

Around 75% of the well located in the study area have not infiltrated during whole the season. Those well has not enough infiltration to utilize the ground water ever. On the other part, around 25% of the well has only infiltration to utilize the ground water. It has been used for fulfilling of water needs of the people.

Since above discussion, there are number of issues in utilizing ground water. The study suggests to tackle those issues by means of following ways; construct to facilitate the infiltration, save the rainfall and optimum use of rainfall (rain harvester), re-use irrigated water, avoid the construction of deep wells help to prevent salinity, control the intensive use

of water pumps for drainage and make the farmers aware about the water wastage and pollution.

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