

SOCIO-ECONOMIC STATUS OF AGRO-WELL FARMERS IN MALWATHU OYACASCADE-I IN ANURADHAPURA DISTRICT

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Introduction

Inadequacy of water is one of the most prominent environmental constraints for agricultural cropping in the dry zone. Hence, the farmers have supplemented the supply by utilizing the groundwater available in the region by digging shallow, large diameter wells called "agro-wells". The number of agro-wells have expanded up to around 50,000 in an unprecedented manner as those were meant to serve as sources of water for irrigation of agricultural crops during the much drier *yala* season as well as during the water stress times of the *maha* season (Jayakody, 2006). The annual average evaporation in the dry zone is between 1,700 mm and 1,900 mm, which exceed the average annual rainfall, implying water stress during May to September time period of the year (Panabokke *et al.*, 2002). *Malwathu Oya* cascade-I, which a meso-catchment of *Nuwara Wewa* catchment, located in the low country dry zone has the same characteristics

and it consists of eleven small tanks characterized by low availability and low quality of water for agriculture. However, over 200 agro-wells are already operating in the cascade to fulfil the water requirement of agriculture and domestic purposes. According to the early studies based on agro-wells; with the time of introducing agro-wells, as a remedy for the highly suffered water shortage problem of dry zone farmers, some changes have been occurred in their life style and cropping patterns (Aheeyar and Ariyabandu, 2002). But no any study has done to assess the impact of agro-wells on socio economic conditions in this cascade. Hence, this study was conducted to assess the present situation of agro-wells and their impact on livelihood of farmers in *Malwathu Oya* cascade-I

Methodology

The study based on two samples of farmers (30 agro-well farmers and 30 rain-fed farmers) selected purposively

to compare groups. Household heads were interviewed using pre tested questionnaire. Data collected include demography of farmers (like sex, age distribution, knowledge of farming and skills), nature of economic activities, land extent and cropping pattern, irrigation method, characteristics of agro-wells, etc. were collected from the farmers. Gross land productivity (GLP) was calculated for mostly cultivated by both farmer groups.

Results

Analysis of demographic data revealed that almost all the households were headed by males while male to female ratio of family members was 1:2 irrespective of the samples. Level of education of the members of a community is an important attribute of the quality of the available human resource. According to the results majority of household heads in both samples had obtained formal education up to secondary level. But 7% of household heads of agro-well farming had not received a formal education. Majority of household heads in both samples had 10-30 years farming experience. This indicates that higher percentages of respondent farmers in both samples are well experienced with their farming practices. With respect to headship, gender ratio and education a significant difference was not observed between agro-well farming families and rain-fed farming families. However a difference was observed in livelihood activities of two groups. It was noted that only 13% of agro-well farmers involve in part time off farm

employment while 37% and 6% of rain-fed farmers have involved respectively in government and private sector employments. It concludes the fact that majority of agro-well farmers remained in agriculture than rain-fed farmers for their livelihood.

Average cultivated land extent under agro-wells ranged from 1.0 to 1.5 ac. Cultivated land extent has increased nearly by 21% with the introduction of agro-wells. A number of reasons have been cited by farmers for their inability to increase the extent of cultivated land further under agro-wells. They are inadequate water availability in the wells to irrigate a full season, limitation of available land, lack of necessary capital and unavailability of labour.

The results also revealed that, 80% and 20% of the agro-wells have been constructed without and with subsidies respectively. Based on the structure of agro-wells 70%, 10% and 20% of the wells were well constructed and not well constructed respectively. Despite the condition as such, rain-fed farmers, expect subsidies from the government to construct agro-wells.

Figure 1 and 2 illustrates the cropping pattern of agro-well and rain-fed farmers. Most of the agro-well farmers cultivate in both seasons with supplementary irrigation from agro-well water, while most of the rain-fed farmers cultivate only in *maha* season. It also noted that agro-well farmers mostly cultivate vegetables and cash crops which demand more water than crops cultivated by rain-fed farmers.

To assess the land productivity GLP was calculated for brinjal, long bean and chilli under agro-well and rain-fed farming since they found more often both under agro-well and rain-fed conditions. According to the results, okra recorded the highest GLP among the selected crops followed by brinjal

and long bean. High yields due to utilization of agro-well water for irrigation and favourable climatic conditions for crop production leads to achieve high GLP in all three crops in *yala* 2012 compared to *maha* 2012. GLP of agro-well farmers were higher than rain-fed farmers.

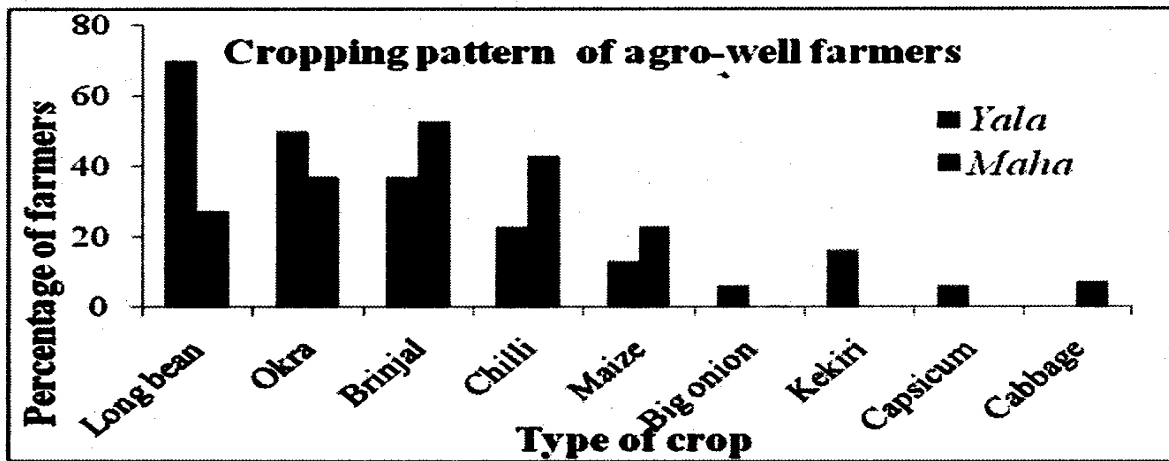


Figure 1: Cropping pattern under agro-wells in *Malwathu Oya* cascade-I

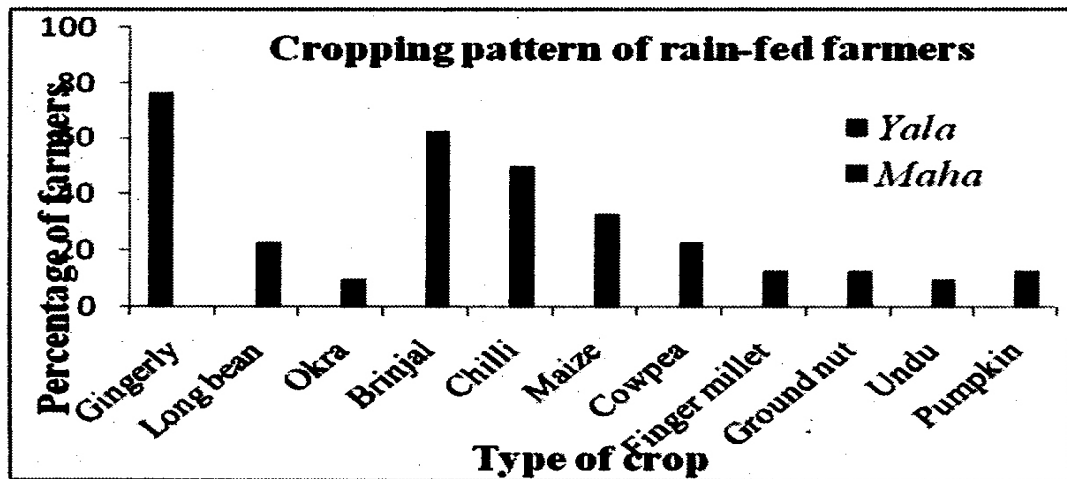


Figure 2: Cropping pattern under rain-fed in *Malwathu oya* cascade-I

Conclusions

Development of groundwater irrigation through constructing agro-wells has

increased the water supply and facilitated the farmers to use high value cash crops. Hence, land and water

productivity of agro-well farmers were higher than rain-fed farmers in *Malwathu Oya* cascade-I as they still not at the optimum.

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