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WATER PRODUCTIVITY, LAND PRODUCTIVITY AND PROFITABILITY OF PADDY CULTIVATION UNDER AGRO WELLS, IN-STREAM AND IRRIGATION SCHEME WATER USERS IN *HAKWATUNA OYA* WATERSHED

N.G.R. Saumyarathna[1]*, E.R.N. Gunawardena[1] and N.D.K. Dayawansa[1]

[1]Postgraduate Institute of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka.

ngrsaumyarathna@gmail.com

The *Hakwatuna Oya* major irrigated system, in Deduru Oya river basin provides irrigation water to 2,578 ha of land to cultivate paddy in both wet (*Maha*) and dry (*Yala*) seasons. In 1964, the catchment which feeds the reservoir, included 5,024 ha of natural forest owned by the state (part of *Kahalla-Pallekale* wildlife sanctuary) and 976 ha of privately owned lands by 136 settler farmers. By year 2000, the cultivated land in the catchment area has increased to 2126 ha which included encroachment of 1,137 ha. Presently, farmers in the command area are facing a water shortage to cultivate their paddy lands mostly in the "*Yala*" season. Ground water abstraction from agro wells constructed in newly developed cultivated lands in the catchment and the direct abstraction from three tributaries, which feeds the reservoir, are considered as some of the contributing factors to this water shortage.

With this background, a study was conducted to assess the water productivity, land productivity and profitability of cultivation of three types of water user groups, consisting of, i) farmers of *Hakwatuna* irrigation command, ii) agro-well farmers in the *Hakwatuna* catchment, and iii) farmers who abstract water from streams of the *Hakwatuna* catchment. Ten farmers from D-10 canal of the right bank and nine farmers from D-4 canal of the left bank of *Hakwatuna Oya* irrigation scheme were randomly selected to represent the farmers in the irrigation command. Nine in-stream users and ten agro well users were selected randomly from "*Halmillawewa*" GN division which has the highest number of agro wells and in-stream users. Cultivation activities of all these 38 farmers were closely monitored during the 2014-2015 *Maha* season.

The results show that in-stream and agro well users in the *Hakwatuna Oya* catchment were performing either equally or better compared to farmers in the irrigation command, who are the legitimate users of the water. This implies that encroaching new lands in the catchment and easy access to water resources on their own from streams and agro wells appears to be more attractive. Further, non-implementation of existing land and water regulations exacerbated by poverty could further accelerate the encroachment of natural forests.

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These encroachments lead to degradation of remaining natural forest and increase the already existing human-elephant conflict in this area. In addition, the degradation of catchment and water scarcity of *Hakwatuna Oya* irrigation scheme due to decreasing inflow as a result of water abstraction from streams and agro wells would have a serious impact of the long term sustainability of the *Hakwauna Oya* watershed, which encompasses the catchment, reservoir and the irrigation command. Therefore, policy makers need to take these trends in to serious consideration in developing long term strategy to protect the natural resources.