

Tragedy of the Commons: The Case of Irrigation Water in Sri Lanka

AA Shantha*, KPLN Patabandi, AD Ampititiyawatte and HSR Rosairo
Sabaragamuwa University of Sri Lanka, Sri Lanka
*arunaeconomics999@gmail.com

In Sri Lanka, irrigation water is treated as a common pool resource and one of the common issues of irrigation water in Sri Lanka is tragedy of common. The tragedy of the commons is an economics problem in which every individual has an incentive to consume a resource, but at the expense of every other individual - with no way to exclude anyone from consuming. Farmers in Sri Lanka generally enjoy free-of-charge irrigation facilities that are often provided by the government at zero -price mainly for water intensive paddy production. Practically it is impossible to expect economically efficient way of factor usage among paddy cultivation and this zero-price policy leads to uneconomic use of irrigation water, water inequality and mismanagement of water. Therefore, the main objective of this research is to measure the actual water usage for paddy farming at different water risk in the dry zone of Sri Lanka. Primary data were obtained from 360 paddy farm plots from *Rajanganaya*, *Nachchaduwa* and *Huruluwewa* irrigation schemes covering upstream and downstream farmers. Daily actual water usage at plot level was measured by volumetric method. Under this method water is collected in a container of known volume and the time taken to fill the container is recorded. Water responsiveness functions at different water risk were measured using classical cubic form production function approach. According to our study, on average, in the wet (*Maha*) season upstream farmers of *Rajanganaya* have used 4.8-acre feet (5921 cubic meter) and *Huruluwewa* upstream farmers 4.2-acre feet (5181 cubic meter) for paddy farming. Though water usage of *Rajanganaya* farmers were 14% higher than that of *Huruluwewa* farmers in the wet season, the productivity variation was insignificant between two farmer groups. However, the downstream disparity of water usage in the dry season (*Yala* season) is much higher than the wet season. In the dry season, downstream farmers of *Rajanganaya* have recorded 5.7 acre feet and *Huruluwewa* downstream farmers have managed with 3.2 acre feet due to scarcity of water in the dry season. Even though water usage of *Rajanganaya* farmers were 78% higher than that of the *Huruluwewa* farmers, the productivity of paddy in *Rajanganaya* farmers were only 20% higher than the *Huruluwewa* farmers in the dry season. In the dry season, *Rajanganaya* farmers and *Huruluwewa* farmers have used 2950 liters and 2485 liters respectively for producing one kg of paddy. It is evidence from results that free provision of irrigation water leads to over exploitation and irrigation scarcity leads to efficient utilization of irrigation water.

Keywords: *Dry-Zone, Irrigation Management, Production Function Water Inequality*