

HRE032-P04

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## Irrigation and socio-economic stratification in the semi-arid Laikipia Plain, Central Kenya

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Horticultural production is an important sector of rural livelihoods in East Africa, and commercial practice of frequent and year-round irrigation is widespread. In semi-arid areas of Central Kenya, contract farming of various vegetables for the European market has collectively reached a considerable size, and is an influential factor in the issue of scarce water resources. This study investigates the socio-economic stratification caused by, and the global nature of, horticultural production in a newly opened settlement in a semi-arid area, with a view to assessing the potentiality of smallholders' self-organised governance system for common pool resources (irrigation system) as a more stable and equitable way of resource management, facing the market and state failure.

In the study area, the rotation system of water distribution collapsed in the face of commercialised horticulture, and only temporarily reappears in acute water shortage at the request of those located in the lower section of the gravity-fed irrigation scheme. A series of fieldwork found that, first, there is a general and remarkable difference in the dry-season water use among different sections in the scheme, where those located in the upper section use more water and practice commercial horticulture. It is highly likely that the current unequal distribution of irrigation water have accentuated socio-economic stratification. Second, the newly introduced contract farming of French beans for the EU market exhibits a clear relationship between the socio-economic stratification among water users (as evidenced by the ownership of individual irrigation means, especially portable engine pumps for the upland irrigation) and their total volume of production. However, the relationship between the socio-economic stratification and the net income from the contract farming is not necessarily mutually enhancing, because the latter is subject to fluctuating global conditions, seasonality, and demanding harvest task, all of which incur risks in production expansion. Therefore, many vegetable growers adopt the risk-averse strategy of small-scale sowing, and ensure continuous money flow by a variety of year-round horticulture so as to keep their livelihood at the subsistence level. Meanwhile, the cases of temporary reallocation of land and labour among the water users are not so frequent, and the system regarding these two production factors has no salient correcting effect on the undesirable relationship between the socio-economic stratification and unequal allocation of irrigation benefit. All of these have hampered the farmers' efforts to collectively control the irrigation system, entailing individualisation of irrigation.

Keywords: water resource, water users' association, horticulture, socio-economic stratification, Kenya