B-126: Potential for conjunctive use of surface and groundwater in Kirindi Oya Irrigation Project

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In the Kirindi Oya Irrigation Project area there is a potential to increase the irrigation intensity through conjunctive use of drainage and groundwater from its present intensities of 108% in the new area and 178% in the old Ellegala area. This study was conducted to assess the irrigation suitability of such water for conjunctive use taking into consideration water quality, drainage conditions and the crop.

The salinity levels of such water were monitored during a 1 year period - 1996/1997.

Drainage conditions in the new area provide a vast potential for use of commonly available class 2 quality groundwater in conjunction with presently used class 1 irrigation water from the Lunugamvehera reservoir to increase the irrigation intensity in the Yala season. In the old Ellegala system, currently used irrigation water is of class 2 category. If proper mixing is achieved, there is potential for conjunctive use of drainage water of the Kitindi Oya main drainage or groundwater available in class 3. Under the least salinity tolerant conditions in the Yoda Wewa irrigation command area, irrigation water of class 3 quality or poorer may have harmful effects on rice as indicated by ratio of salinity of irrigation water to that of soil extract.

Sodium Adsorption Ratio, pH and concentration of other important ions are within the limits which would cause no restriction on use, even after blending. The spatial distribution of groundwater quality in the basin is dependent on topographical and hydrological factors and salinity levels vary temporally with seasonal differences in runoff volumes and irrigation. Therefore, an integrated holistic approach including appropriate irrigation and drainage management and continuous specific measurements of water quality is needed to achieve a higher irrigation intensity while maintaining long term land productivity.