

## **Executive summary Mengistu Assefa**

This study assesses the social-economic performance of two community-based small-scale irrigation schemes in the *woreda* Adami Tullu Jido Kombolcha Woreda (ATJK) against the background of the rapidly expanding irrigation sector in the CRV. Objective of the study is to assess the socio-economic performance of two small-scale irrigation schemes and to identify options for improving their performance. Among the existing 31 small-scale irrigation schemes in ATJK two community-based irrigation schemes in the *Kebeles* Haleku and Dodicha were selected on the basis of accessibility, management differences, and available research time. A total of 80 households, i.e. 26 and 54 in Haleku and Dodicha, respectively, were surveyed in the second half of 2007 based on the number of farmers in both schemes. In addition to structured household survey questionnaires, semi-structured interviews, group discussions, field observations and literature were used in this study. Various socio-economic characteristics of households 'before' and 'after' implementation of the irrigation schemes were compared to study the impact of irrigation.

Both irrigation schemes extract water from the Bulbula river, the Haleku scheme covers 36 ha and Dodicha 75 ha of irrigated land. Haleku is supported by the Rift Valley Children and Women Development Association, while Dodicha received support from the Oromia Social Rehabilitation Development Fund in developing the scheme. In Haleku 72 and in Dodicha 150 households are beneficiaries/users of the irrigation schemes. Average household size was 6.7 and 7.2 in Haleku and Dodicha irrigation schemes, respectively, which is considerably more than the average family size in ATJK (4.6 members).

In addition to irrigated plots (varying but generally ranging from 0.25 to 0.5 ha) all farmers in both schemes also have rain fed land. The rain fed land holding size after implementation of the irrigation schemes increased from 2.7 to 3.2 ha in Haleku and decreased from 1.5 ha to 1.1 ha in Dodicha. The smaller land holding size in Dodicha seems to be associated with increased land fragmentation due to a combination of larger families, and the older and less wealthy population in Dodicha. The average number of animals reared by farmers increased after implementation of the scheme in Haleku whereas it decreased in Dodicha, which

suggests a positive impact of irrigation on incomes in Haleku, and a negative impact in Dodicha.

Cropping intensity is higher in Haleku (up to three crops per year) than in Dodicha. Irrigated crops comprise (in decreasing order of economic importance): Onion, tomato, maize and green beans. Production costs between both schemes was not different and ranged from the highest 9380 Birr/ha for onion to the lowest 3932 Birr/ha for maize. Input use in irrigated crops is characterized by the low use of fertilizers (100 kg DAP and 100 kg urea/ha) and the use of a range of insecticides and fungicides. The lack of inputs, cash and credit hamper farmers to use more and better quality inputs (especially for sowing seed). Physical crop outputs were statistically higher in Haleku except for tomatoes, which were not different. Average onion yields ranged between 13.8 t/ha (Haleku) and 9.5 t/ha (Dodicha), maize yields between 5.6 t/ha (Haleku) and 2.9 t/ha (Dodicha), green bean yields between 8.9 t/ha (Haleku) and 6.4 t/ha (Dodicha). Average tomato yields were 10.5 t/ha. Farm-gate prices of onions were on average 2.9 to 3.4 Birr/kg, which is 72-85% of the retail price in Ziway and 58-68% of the retail price in a mini supermarket in Addis (for tomato similar numbers apply). Like the physical yields, net revenues of crops defined as the value of production minus costs of inputs and costs of labor (using local wage rates for hired labor and opportunity costs for family labor) were higher in Haleku, except for tomato. Average net revenues for onions ranged from 32620 Birr/ha (Haleku) to 21144 Birr/ha (Dodicha), for maize from 6648 Birr/ha (Haleku) to 2596 Birr/ha (Dodicha), and for green beans from 9092 Birr/ha (Haleku) to 5532 Birr/ha (Dodicha). Average net returns of tomatoes was 21460 Birr/ha. Note that the actual profit of farmers is much lower since the maximum irrigated plot size is only 0.5 ha, and many irrigation farmers have less irrigated land.

Not all farmers were able to realize positive net returns, for example, 24% of the farmers in Dodicha lost money (negative net returns) with irrigated maize. Overall, the Dodicha scheme performed worse than the Haleku scheme. This is also illustrated by the fact that 43% of the respondents in Dodicha indicated no change or even worsening of their food security situation after introduction of the irrigation scheme, against only 4% of the respondents in Haleku. In cases where food security improved, farmers are not any longer forced to sell their rain fed production for cash expenses; Instead, they can use now rain fed production for

home consumption while cash income from vegetables can be used for household expenses and for savings.

The study also identifies causes of the poor performance of the Dodicha scheme, which seems to be associated with the interrelated issues of poor scheme coordination and water management, corruption in the Water Users Associations (WUA) and lack of maintenance. These factors result in irregular and low supply of irrigation water which may explain the lower crops yields in Dodicha. Better coordination and improved (financial) transparency of the WUA were identified as important factors to improve the functioning of both irrigation schemes. In addition, the low crop yields in both schemes are associated with poor agronomic practices, low level of inputs and lack of experienced extension services. Farmers in both schemes are relatively new to (irrigated) cultivation and lack the skills and expertise to manage crops properly. Irrigated yields of onion and tomatoes in both schemes are lower than the regional average. Interventions in extension and training of farmers may contribute to higher yields of irrigated crops.