



# Where do people in rural areas obtain their water for different uses and what water-related problems do people have?

Access to safe and reliable water is a critical challenge for smallholder farmers in rural areas. Understanding which water sources smallholder farmers use during different seasons, which water-related problems they experience and how these vary across the landscape is important. Such knowledge can help to improve water security and reduce water-related problems in rural areas. We assessed water sources used and problems experienced by rural communities in Jimma Zone of Oromia regional state, southwestern Ethiopia, by interviewing households. Our study shows that, although this area receives high annual rainfall, smallholder farmers in the countryside still experience several water-related problems such as water-borne illness linked to poor water quality, long water collection time and water use conflicts at local and landscape level.

## Why water matters in rural areas ?

Most smallholder farmers live in rural areas where access to clean and safe water is limited. As a result, families are more likely to suffer from several water related problems including quality decline, shortage during dry season, flooding and water-borne diseases. As the population grows and land use changes, the demand for water also increases and competition over scarce water resources can become stronger, sometimes leading to conflicts. Around 2 billion people, or 500 – 600 million families, depend on smallholder farming for their livelihoods worldwide. Most of these farmers work on small plots of land, usually less than two hectares. Water resources in their landscape are essential both for household use and farming activities.

## What we did

We interviewed 83 households in the countryside of Jimma Zone, Oromia regional state, southwestern Ethiopia to understand which water sources households used during different seasons and how this varied between landscapes with different land use.

We also investigated water-related problems the farmers experienced and how these varied across watersheds. To supplement the information from the farmers, we also visited various water sources used for drinking, washing clothes, hygiene and for watering the cattle.

## What did we find?

Our study shows that most households relied on multiple water sources for different uses (Fig 1). These different sources had varying levels of water quality. The most frequent source of drinking water was protected springs. Some farmers had access to other protected sources such as handpumps, communal taps, and wells (Fig 1a). For washing clothes, cooking and hygiene, households shifted to a variety of unprotected sources such as streams and unprotected springs (Fig 2b). During the rainy season, there was a major shift toward rainwater collected from rooftop for cooking, washing clothes and hygiene (Fig 1c-d and Fig 3c).

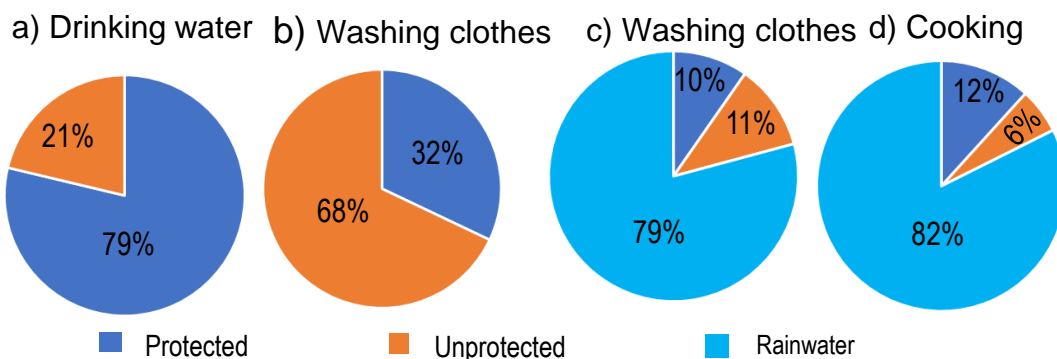


Figure 1. Water sources for different uses for smallholder households. All year-round sources for a) drinking water b) dry season sources for washing clothes; c) rainy season sources for washing clothes and d) cooking. Protected sources include sources with some sort of protection regardless of quality status (protected springs, communal wells with handpumps, communal taps, and individual owned shallow wells), while unprotected sources represent streams and unprotected springs.

However, farmers experienced a variety of water-related problems, such as water-borne illnesses associated with poor-quality water sources, excessive time and labour required to fetch water, and the exposure of women and children to queue-related conflicts and sometimes even violence.

In coffee-dominated landscapes, wastewater from wet coffee processing polluted the water downstream that had a bad smell during 1-2 months of the year. This water is used by smallholder farmers for washing clothes, hygiene, irrigation and to water the cattle. Water sources in agriculture landscapes required frequent maintenance (Fig 2a). We also found that water-borne illnesses were more common if there were upstream settlement areas (Fig 2b), indicating that this is likely a serious public health problem in the study area.

### Conclusion and recommendations

Improving access to safe and reliable water has been in progress during the past 30 years in rural areas in Ethiopia. However, without careful planning and community involvement, water scarcity and related conflicts are still problems and may even increase.

We suggest the following measures as short- and long-term strategies to improve the current situation.

- Expand small-scale protected springs as an affordable and effective way to improve access to protected drinking water sources
- Ensure long-term sustainability by using durable materials, providing adequate storage and establishing clear monitoring and maintenance plans
- Involve local communities and rural water authorities in planning, construction and maintenance of water sources
- Improve waste treatment, irrigation water management and fair water sharing between upstream and downstream users to reduce water-related conflicts
- Upgrade rainwater collection and storage systems so water can be used for longer periods after the rainy season
- Strengthen rural water supply databases to track water source functionality, user numbers and water quality conditions to enable better planning and decision making.

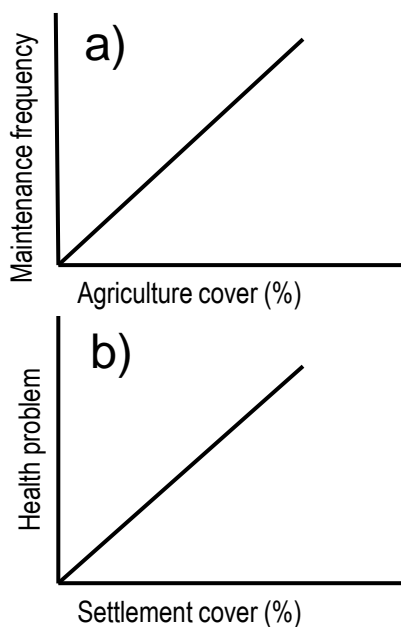


Figure 2 Land use and drinking water sources problems. a) agricultural areas are associated with more frequent maintenance needs b) upstream settlements are associated with increased health problems



Figure 3 Protected springs with a) large storage capacity, a separate washing slab and good accessibility and b) poor condition with limited storage, a submerged outlet in polluted water and difficult access. c) Rooftop with collection gutters and a small container for storage.

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