

Improving Watershed Management by arresting Gullies



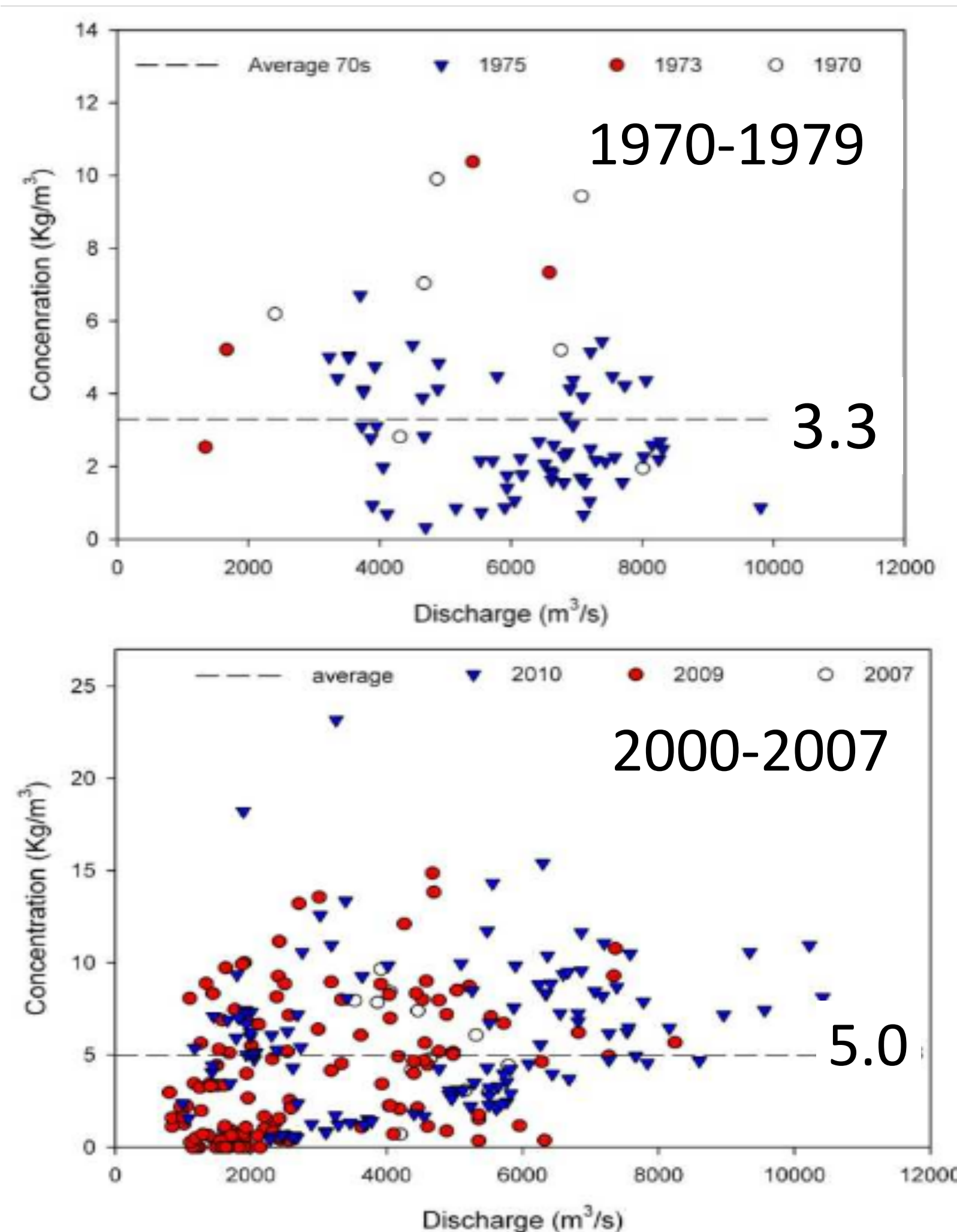
Engaging Women Farmers in Vegetable Production during Dry Period



Soil Loss in Ethiopian Highlands

Over a quarter billion dollars has been spent on SWC practices targeting the steep slopes to combat erosion.

In reality most soil loss is happening by gullies at the valley bottoms but they are considered as punishment from God for doing sin by the community. Government is only giving focus to upland SWC.



Community Mobilization

In 2013, we initiated local collaboration, by first discussing with the religious leaders and local respected elders, and later with local village farmers about some ideas for restoring gullies.

Only after they were shown photos of other rehabilitated gullies and two farmers were brought to visit a rehabilitated gully, that an agreement was reached for them to start a trial on one location.

A meeting was organized with the local community, religious leaders, administrators, extension workers, and the village expert to share responsibilities.



Impact of intervention

Grass grew well in the gully after closure during the rainy season, but then a conflict emerged when the 20 farmers whose land surrounded the gully refused to share the resulting benefits.



Conflict resolution



More gullies rehabilitated in 2014



Key findings

Ground water table depth above the gully bottom enhanced the slumping of gully heads and walls.

Plantation integrated with enclosure and physical measures at gully heads less than 3m could stop gully development and affordable.

Gully rehabilitation measures should give priority consideration at the heads.





Dry Period Irrigation

In the highland where shallow groundwater is available, farmers use rope and bucket to extract water for domestic purposes and livestock drinking.

Household irrigation is currently encouraged in Ethiopia for poverty alleviation and improve household income.

More than 6 million ha in Ethiopia could be irrigated using solar photovoltaic based lifting technologies to extract groundwater up to 25 m (Schmitter et al., 2018).

Innovation laboratory for Small Scale Irrigation (ILSSI)

A cooperative research project aiming to increase food production, improve nutrition, protect the environment and accelerate economic development through improved access to irrigation technologies for smallholder farmers, while promoting, based on research evidence, a dialogue among stakeholder communities and policy makers.

In 2015, we discussed with a women within a community where dry period irrigation was not well promoted from shallow ground water by first discussing with the *Woreda* administration and then with local women farmers.



Technologies

Farmers were translated from rope and bucket to technologies of Pulley and Rope and Washer. Currently the community is introduced to solar Majipump through another collaborative research project: Appropriate Scale Mechanization Consortium within Innovation Lab of Sustainable Intensification.

Pulley



Rope and Washer



Solar Majipump



Technologies potential

Technologies have led to the multipurpose use of shallow ground water for irrigation, domestic and livestock water supply.

Solar Maji pump is friendly to both women and men as well as to grown children as it is light in weight, easily manageable to use, and enable them to save time, labor, and money.

In future the technology will be promising if the availability of such technology in the market is improved.



TECHNICAL BRIEF

CGIAR
RESEARCH PROGRAM ON Water, Land and Ecosystems
IWMI

DECEMBER 2016
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Low-cost measures can reclaim gullies and reduce soil erosion in the Ethiopian highlands

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Publication: Addisie et al., 2018 and video is available at www.youtube.com/watch?v=Z4LhmAdjh0U



Lessons

The collaborative effort in the watershed management was successful because of the informal decision making process that exists in parallel with the formal one, and is centered around the elders and priests whose authority is very well respected. Therefore, any new knowledge generated within the community, particularly with the key community representatives such as local elders and religious leaders, can be easily received if channeled by/through these figures.

The practice of dry period irrigation from GW using water lifting technologies was channeled through the formal decision government process and this helped to select farmers who can adopt new practices.

The establishment of field Innovation Hub and the visit by different stakeholders helped the buy-in of solar Maji pump and these have inspired NGO's such as AgroBiG, government agricultural extension offices to promote the use of such technologies and private entrepreneurs to purchase the solar pump.