

# Sustaining Land Resources Management Interventions in the Highlands of Ethiopia

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## The Challenge

Since 2010, the government of Ethiopia in collaboration with the local communities has implemented the establishment of exclosures and construction of Soil and Water Conservation (SWC) measures to restore degraded ecosystems throughout the country. The aim is to double agricultural productivity to contribute to the country's economy by achieving a projected GDP growth of 11-15% per year. The greatest challenge is to ensure that such interventions are sustainable.



Picture 1: Exclosure established on uphill and SWC measures in agricultural lands (Photo: Wolde Mekuria)

## The Project

The CGIAR's WLE program through 'Sustaining land management interventions through integrating income generating activities, addressing local concerns and increasing women participation' project is supporting IWMI and national partners to: (a) identify incentives that can support farmers to adopt long-term conservation approaches; and (b) provide empirical evidence related to the impacts of restoration programs on ecosystem services and on the role of incentives to sustaining long-term conservation approaches. The project is using ecosystem-based approaches to guide restoration of degraded lands. It has integrated a gender-based approach to incentivize women and landless youth participation in the interventions.



Picture 2: Gully head treatment using stones of different diameters (Photo: Meseret B. Addisie)

## Results and Emerging Outcomes

- Evidence on the impacts of Natural Resource Management (NRM) interventions on ecosystem services and livelihood has been generated (e.g., Table 1; Fig. 1); while best practices have been synthesized, packaged and communicated with partners.
- Short-term incentives to support the adoption of long-term conservation approaches identified are being piloted, including training of 327 HHs (i.e., 127 women and 200 men) in improved agricultural practices.
- Management plan for exclosures developed through participatory approaches have been shared with practitioners for feedback.
- Drivers of land degradation have been identified; and ways of addressing the drivers have been communicated with practitioners.
- Reduced pressure on natural resources through the integration of energy stoves and integration of income generating activities in NRM interventions

TABLE 1: EFFECTS OF SWC MEASURES IN REDUCING RUNOFF AND SEDIMENT YEILD

	AVERAGE RUNOFF (MM)			AVERAGE SEDIMENT YEILD (T HA-1)		
	BEFORE SWC	AFTER SWC	% REDUCTION	BEFORE SWC	AFTER SWC	% REDUCTION
Weir 1	95	71	26	3.3	1.8	45
Weir 2	242	155	36	16.1	6.3	61
Weir 3	110	74	32	6.6	2.6	61
Weir 4	160	101	37	16.0	3.9	76
Weir 5	272	78	71	62.1	11.6	81

FIGURE 3: EFFECTIVENESS OF SWC MEASURES TO REDUCING RUNOFF (A) AND SEDIMENT YIELD (B) AS AFFECTED BY YEARS AFTER IMPLEMENTATION.

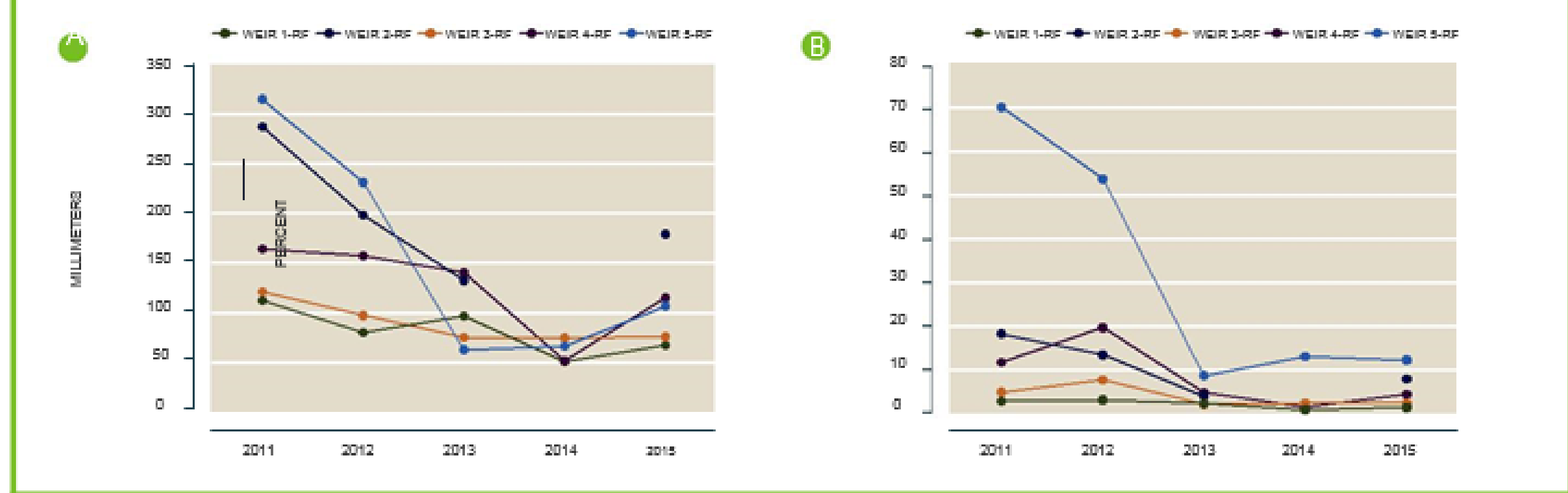


Fig. 1: Effectiveness of SWC measures to reducing runoff(a) and sediment yield (b) as affected by years after implementation



Picture 3: Women farmers engaged in income generating activities (photo: Wolde Mekuria)

## Lessons Learned

- Restoration programs (e.g., exclosures) has a huge potential to adapt climate change through sequestering atmospheric CO<sub>2</sub>.
- The short-term benefits from restoration programs (e.g., exclosures) should be enhanced to ensure the support from local communities.
- Design of SWC measures should consider difference in landscape position, soil type and groundwater level, as these variables affect the effectiveness of SWC measure in reducing runoff.
- SWC structures must be maintained every two to three years to sustain ES benefits, as their benefits in reducing runoff and sediment yield reduced over time.
- Effectiveness of SWC measures in reducing sediment yield can be enhanced by addressing soil erosion from degradation hotspots (e.g., gullies).
- Reclaiming gullies at early stage of their formation and development is effective, less costly, and can easily be managed by the financial and technical capacities of local communities.
- Involving farmers in action research support to change the attitude of local community on NRM interventions.
- Lack of options to generate adequate income is the key driver to ecosystem degradation.
- Ecological restoration projects (e.g., exclosures) require management plan to move from conservation to economic benefits.
- Short-term incentives strengthen the participation of local communities in ecological restoration projects and provide support to achieve equity in benefit sharing.
- With conducive, agreeable and applicable conditions, and enabling economic instruments, interventions related to cut and carry systems may become useful.

## Implications for next users

- The initial findings and lessons are important for decision-makers or next users as they point to key issues that need to be addressed to sustain country-wide land management interventions and support the development of integrated approaches to sustaining NRM, increasing ecosystem services and reducing poverty.

