EXECUTIVE SUMMARY OF THE FINAL REPORT

External Project Evaluation

Soil and Water Conservation in the Irob Woreda - Tigray, Northern Ethiopia

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On behalf of
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1. Executive Summary

Background

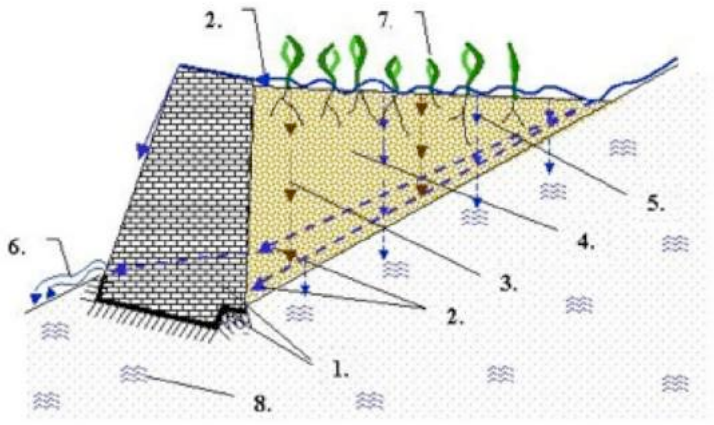
Since 30 years, Caritas Switzerland and the local partner organization ADCS (Adigrat Dioceasan Catholic Secretariat) cooperate for the implementation of the ADDA programme (Adigrat Diocesan Development Action) aiming at improving the livelihoods for rural communities in Northern Ethiopia. The Irob district, a rural area of the Tigrinya Highlands, is a war-torn borderland where Ethiopian and Eritrean troops fought between 1998 and 2000 for the drawing of the boarder. Besides from the aftereffects of the war the area suffers from intense soil erosion and scarce water availability. To improve the living conditions of the rural population, ADDA constructs so-called "check dams". "Check dams" are dry stone masonry constructions to dam up the watercourses rushing down the slopes during the rain season. The idea to construct check dams was developed by the local farmers themselves in the 50's and became part of the ADDA programme in 1975.

Check dams have the aim to:

1. Prevent the landscape from soil erosion
2. Enhance agricultural land reclamation
3. Conserve and save water

The investigated check dams vary in size and have the following dimensions:
15m - 60m (length) x 3m – 6m (width) x 3m – 10m (height).

The following scheme illustrates the functioning and construction of a check dam.



1. Dam foundation and wall construction
2. Dam up of the watercourse and diminishing of the flood energy; accumulation of water and soil behind the check dam.
3. Sedimentation of soil particles
4. Silting up of the area behind the check dam => soil reclamation => check dam field
5. Water infiltration
6. Spring originating at the check dam's bottom
7. Crop cultivation on the check dam field
8. Saving of groundwater in the sediments => prospering of flora and fauna

From 16th July - 17th September 2003, the functioning and impact of the check dams constructed under ADDA in the Irob Woreda was analysed and assessed. The external evaluation for Caritas Switzerland was conducted within the scope of a traineeship tutored by the Institute for Environmental Sciences at the University of Zurich.

The research included 10 check dam sites and focused on the three pillars of sustainability: Ecological, economic and social issues. Qualitative data are based on 35 interviews with local farmers and the ADCS staff. Quantitative data were collected on site (soil profile analysis incl. pH-value and lime content, quality of the check dam cultivation, assessment of flora and fauna) and complemented by technical data provided by the ADCS office.

Summary of the main findings

In all of the investigated sites the **check dams successfully increased the availability of water and the biodiversity**. The reclaimed soils are fertile and provide fields for agriculture. In a nutshell, **check dams are of high environmental importance due to their ability to convert barren strips of land into green landscapes. They improve people's livelihood and contribute to prevent migration from the rural areas.** The farming families cultivate the community-owned fields mainly with maize and sorghum. Both, Ethiopian peasant women and farmers assess the check dams to be a useful measure to enhance their livelihoods. Besides the big check dams constructed under ADDA the local communities set-up their own small check dams that characterize the slopes of the Irobinyan Mountains.

The cost-benefit calculations revealed that eight fruitful maize harvests amount to the average expenditure for the construction of one check dam.

Generally, there is a good relationship between the different stakeholders such as the local farmers, the project office and the administrative entities of the district. The cooperation with the local Peasant Associations and the regional government entities is of much importance for the successful implementation of the check dam projects.

Reasons for not cultivating the check dam fields are mainly allocated to social matters (e.g. gender issues, ancient traditions). Additionally, the last boarder conflict with Eritrea left its marks by disturbing significantly the community spirit and leaving numerous female-headed families alone. In few cases, the check dam cultivation was hampered due to economic matters (e.g. sharing of the harvest among too many peasants is not profitable) and environmental issues (strong water currents damage the crops).

The research revealed that the local population does not yet take completely the responsibility for the maintenance of the check dams built under ADDA. Despite technical trainings for the farmers, they maintain the check dams insufficiently while shifting the responsibility to repair damaged check dams to the project office.

Recommendations to improve the check dam projects were given with regard to complementary capacity building projects incl. gender related development activities and consultancy in agricultural practices to increase the yield of the harvest. Additionally, enhanced technical trainings shall foster the construction practices and increase the awareness of the local communities for their responsibility to maintain the check dams.

Drawing a final conclusion, based on the achievements of the last 30 years the project has to be continued. At the same time, enhanced project activities shall target the assessed issues to enable the exploitation of the check dam's full potential.

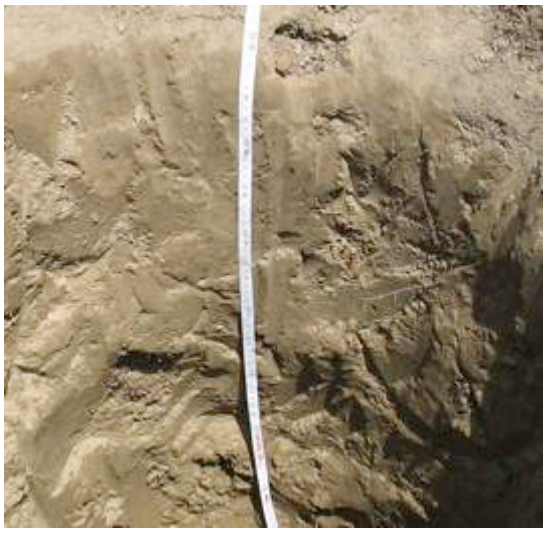
The full report as indicated in the table of contents is available on request. The following pictures illustrate some details regarding the functioning of the check dams.

Picture 1: The encircled zone indicates a potential area for the construction of check dams, photo near Gunda Gunde, August 2003

Picture 2: Check dam sequence constructed by local farmers with cultivated maize fields in Daya/Alitena,

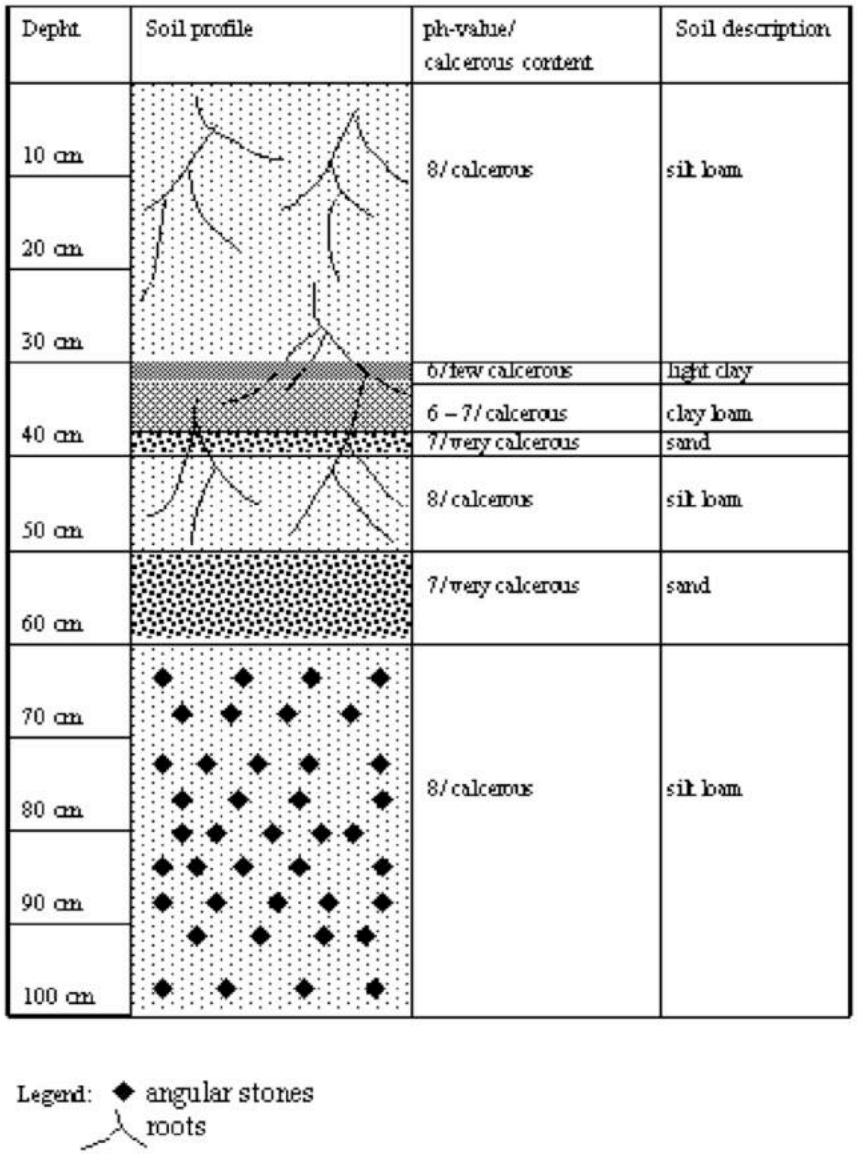
Picture 3: Topmost check dam of the Dogogola sequence, with soil stabilizing stone embankment at the right side

Picture 4: Maize on the Dogogola check dam in September 2003 with an average height of 1.2 m.



Picture 5: Homogenous silt loam texture in Dogogola, July 2003. pH-Values vary between 6 and 8. Values between 5 and 7.5 provide optimal conditions for agriculture due to a high availability of minerals and a good biotic activity.

Picture 6: Daamoita's soil profile with different layers from above; July 2003



Picture 7: Schematic illustration of the layered soil profile in Daamoita

Picture 8: Front view of the Alakalo check dam; July 2003

Pictre 9: Alakalo check dam with maize crops, July 2003

Picture 10: Growing acacia trees below the check dam sequence; July 2003

Picture 11: Spring at the check dam's bottom; July 2003

Picture 12 (above): Amphibians live in the moist habitat provided by the Ubukto Ela check dam.

Picture 13 (on the right): Following the check dam sequence of Ubukto Ela uphill gives proof of efficient water conservation due to the check dam system. Between the second and the third check dam a little paradise was discovered, where a small waterfall rushes down the escarpment and builds a nice pool. August 2003

I. Index of Literature

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