

**CPWF SMALL GRANTS PROGRAM  
FORMAT FOR PROPOSAL SUBMISSIONS**

**Proposing Institution:** Institute for Sustainable Development

**Project Title:** Sustainable Water Management for Food Security for Smallholder Farming Communities in Tigray, Northern Ethiopia

**Brief Title:** Water for Food Security in Tigray

**Budget Requested:** (min \$25k max 75k) US\$ \_\_\_\_\_

**Project Duration:** 18 months **Target commencement date:** January 2006

**1. PROJECT TEAM**

**1. Lead Institution:** Institute for Sustainable Development

**Name of Project Leader:** Sue (Susan Burnell) Edwards (Ms)

**Postal Address:** PO Box 171 code 1110, Addis Ababa, Ethiopia

**Email:** sustainet@yahoo.co.uk; sosena@gmail.com; sustaindeveth@ethionet.et

**Telephone number:** (+251-11-4653916, 4669467/+251-91-1200834)

**Primary discipline/experience of importance to this proposal:** Botanist and science editor / Developed and run the Sustainable Agriculture Project since 1995 with Dr Tewolde Berhan Gebre Egziabher.

**Type of Institution:** NGO

**2. Institution:** Institute for Sustainable Development

**Name of Principal Investigator:** Hailu Araya (Mr)

**Postal Address:** PO Box 171 code 1110, Addis Ababa, Ethiopia

**Email:** hailuara@yahoo.com

**Telephone number:** +251-11-4669467/ +251-91-1246046

**Primary discipline/experience of importance to this proposal:** Geographer / Team leader for the Sustainable Agriculture Project since 2001; worked with smallholder farmers for many years

**Type of Institution:** NGO

**3. Institution:** Water Team, Mekelle University

**Name of Principal Investigator:** Mintesnot Behaylu (Dr)

**Postal Address:** PO Box 231, Mekelle, Tigray Region, Ethiopia

**Email:** mekelle.university@ethionet.et

**Telephone number:** +251-34-4408627 / 4407500/02

**Primary discipline/experience of importance to this proposal:** Soil Scientist / lead researcher in many applied multi-disciplinary research projects focusing on management of natural resources in Tigray

**Type of Institution:** OTHER (University)

**4. Institution:** Both ENDS

**Name of Principal Investigator:** Martien Hoogland (Mr)

**Postal Address:** Nieuwe Keizersgracht 45, 1018 VC Amsterdam

**Email:** ma@bothends.org

**Telephone number:** 0031-20-6230823

**Primary discipline/experience of importance to this proposal:**

**Type of Institution:** NGO

(repeat as necessary with more team members) (delete institution types that are not applicable)  
(provide a one page c.v. of the project leader and key principal investigators)

**The project leader confirms that official representatives of all the institutions listed above have agreed**

to execute the proposal as described if it is selected for funding. YES
<b>2. LINK TO CPWF RIVER BASINS</b>
<b>CPWF Benchmark basin in which the project will be conducted:</b> Andean / Indo-Gangetic / Karkheh / Limpopo / Mekong / <u>Nile</u> / Sao Francisco / Yellow River / Volta (mark the basin that applies)
<b>3. THE PROJECT</b>
<p><b>3.1 Provide a summary of the background leading to your proposal</b> (max 300 words)</p> <p>Tigray Region is found in northern Ethiopia. Most of the Region lies in the catchments of the Tekezze and Mereb rivers, which join the Nile in northern Sudan. This part of the country is degraded, drought prone and hence food insecure because the smallholder farming families rely on rain-fed agriculture to feed themselves, but rainfall is erratic, often starting late and/or ending early, resulting in frequent crop failure. Showers are heavy and highly erosive, so much water and soil is lost.</p> <p>Since 1996, the Institute for Sustainable Development (ISD) has been working in partnership with the Bureau of Agriculture and Rural Development of Tigray (BoARD) and Mekelle University (MU) on the Sustainable Agriculture Project, which uses an ecosystems approach to support local farming communities rehabilitate their environments, increase water infiltration and raise productivity. The farmers assisted and informed by their development agents and experts of BoANR and ISD decide on the technologies to use, and monitor and evaluate the outcomes. The activities include organizing farmers in the use of micro-catchments, conserving water and soil, harvesting water, protecting catchments and treating gullies and so strengthening household economies by composting, fruit and multipurpose trees, vegetables, animal husbandry.</p> <p>The use of compost has produced increased yields similar to or better than those from using chemical fertilizer but with the farmers free from debt. The farmers have also noted that compost helps retain soil moisture and reduce crop diseases and pests. The improved water content of the ecosystems have stimulated local innovators to develop various methods of harvesting and using water for year-round crop production and diversification. There are thus a wide range of both traditional and modern technologies being promoted and used by smallholder farming families and communities. The impact and sustainability of these technologies needs to be studied to inform policy makers.</p>
<p><b>3.2 Who is/are the target group/s of your project?</b> (max 100 words)</p> <p>Policy makers, administrators and experts, particularly in BoANR, whose decisions on promoting water use technologies affect development options for smallholder farmers at all socio-economic levels, but especially disadvantaged farming families that suffer from labor shortage: elderly couples, women-headed households, and households afflicted by HIV/AIDS. Innovative farmers will be supported to help disadvantaged households make water harvesting structures. Other groups include unemployed and landless youth seeking income generating opportunities through use of water for various agriculturally-oriented activities. Results will also help inform teaching and research in Mekelle University.</p>
<p><b>3.3 What specific agricultural water management strategy or technological/dissemination innovation does the project intend to address?</b> (maximum 100 words)</p> <ol style="list-style-type: none"> <li>1. Assessing introductions and innovations in surface water harvesting, stream diversions and management, including the use of plastic and other methods to improve water use efficiency.</li> <li>2. Assessing introductions and innovations in underground water harvesting through springs and shallow wells.</li> <li>3. Evaluating the impact on water tables and water flows in selected micro catchments.</li> <li>4 Determining patterns of community management of water in micro-catchments (including regulation of scarcity) and possibilities to link different micro-catchments</li> <li>5 Determine effect of improved water management on household economies (innovative farmers, women-headed households, etc.; also in relation to the development of markets for diversified products.</li> </ol>
<b>3.4 Provide a summary of your project methodology/approach activities for achieving the</b>

**project results** (maximum 500 words)

The Water for Food Security Project will use participatory methods for bringing farmers, experts and policy makers together to monitor, evaluate and improve traditional and introduced water use technologies.

Baseline data will be obtained using participatory rural appraisal (PRA) methods.

Simple forms will be developed for local development agents and farmers to provide data for analysis of water use types and efficiency.

The communities will be supported to develop or improve by-laws for fair and equitable water use. Two types of workshops will be used. One will involve representatives of all the stakeholders; the other will be for training in specific technical skills by innovator farmers and experts.

The project will record relevant findings on maps. GPS (global positioning instruments) will be used to locate the positions of water sources and uses. GIS software will be used to generate maps with clear explanatory legends.

Audio-visual methods will be used to document the physical appearance of the micro catchments and water use technologies.

The following activity plan is based on an 18-month time frame from January 2006 to June 2007. This period includes one main rainy season (June to September 2006) and two dry seasons.

1. January 2006: Identify 4 micro-catchments: two where intensive water use has already started, one where the underlying rocks are basalt or basement complex and the other where the rocks are sandstone; and two where no or very little intensive water use has started, one on basalt or basement complex and the other on sandstone.

2. January 2006: The first stakeholder workshop to explain the aims of the project and develop a plan.

3. February-March 2006: Carry out baseline surveys, one for socio-economic data, and the other on water uses and users for agricultural production. Establish points for monitoring water tables, and simple rain gauges. Set up GIS.

4. March-April 2006: Compile and analyze data from baseline surveys.

5. April 2006: Second stakeholder workshop to review the outcome of the baseline surveys and identify where innovations and improvements are needed for increased water use efficiency.

6. April-May 2006: Training and awareness-raising to improve water harvesting technologies before the onset of the main rainy season in June/July 2006.

7. June-September 2006: Record rainfall in each micro catchment. Monitor selected water harvesting structures.

8. August-September 2006: Compost making workshops using farmer-to-farmer diffusion for up-scaling.

9. October-December 2006: Collect data on crop types and yields from the main rainy season noting what technologies, if any, were used to improve yields.

10. December-April 2006: Collect data on second cycle crops and the water use technologies used to produce these.

11. March-April 2006: Compile a first draft report on the activities.

12. April 2006: Third stakeholder workshop to review the draft report of the activities.

13. April-May 2006: Carry out a survey to assess the impacts of the activities.

14. End May 2006: Fourth stakeholder workshop to evaluate the project and make recommendations.

15. June 2006: Make final report of the project, including maps and audio-visual materials.

**3.5 What results will your project provide to the CPWF?** (maximum 200 words)

- Farmers' innovations in water harvesting and use will be identified and documented.
- The potential for water harvesting, including use of compost, to improve food security and nutrition at household level will have been assessed.
- Types of community management of water will be assessed, including decision-making on water as a scarce resource
- Local by-laws for fair and equitable water use will have been improved or developed.
- Forms for monitoring water harvesting technologies by the development agents and farmers will have been developed.

- The relationship, if any, between underlying rock type and the type of water harvesting technology used will have been identified.
- Maps to record developments in water harvesting technologies will be developed to aid planning of up-scaling and diffusion of technologies throughout the region.
- Audio-visual records, including short videos of best practices in water harvesting and uses, will be made to aid up-scaling.

**3.6 What elements of your proposal are innovative and why?** (maximum 300 words)

The innovative aspects of this proposal are in relation to the current development paradigm in Ethiopia where responsibility for development activities is being decentralized to the lowest administrative level, the ‘woreda’. The government and local administration in Ethiopia is paying attention to water management and has produced a Guideline “Community-based Participatory Watershed Development” and looks for cooperation with coalitions of NGO’s and farmers to implement and disseminate innovations.

The project will use participatory methods to enable dialogue among farmers, development agents and experts. This will include the development of simple forms to record the use of water harvesting technologies incorporating the farmers’ ways of explaining these.

The most innovative aspect of the project is the use of farmers to disseminate technologies and train other farmers. Local communities identify one or two leading farmers in their communities to be trained on the understanding that these farmers will then train their neighbors in that technology. This approach has already proved effective for up-scaling making and using compost, and should be tried for improved water harvesting technologies.

All government offices, including those at ‘woreda’ level, are being equipped with computers. The project will find out what is needed to make production of maps through GIS a useful planning and monitoring tool for local and senior experts.

**3.7 How, if at all, does your proposal address issues of** (maximum 600 words total in this section)

**1. stakeholder involvement** (demand by them and their inclusion in project activities; acknowledgement of their contribution)

In addition to ISD and MU the following will be involved: the local communities, especially the local administration and farmers; the ‘woreda’ administrations and offices of Agriculture and Rural Development in the four micro-catchments; Bureau of Agriculture and Rural Development of Tigray Region, Environmental Protection Authority of Ethiopia. Representatives will participate in the stakeholder workshops to help plan and execute the project with decisions being taken through consensus especially accommodating the interests of the local communities, officials and experts.

**2. gender** (for instance, in data collection and analysis, farmer group activities)

In Tigray, women and men have an equal chance of participating in innovations, but women work much longer hours than men. After domestic work, the most time-consuming task for women is collecting water. All data collected will be disaggregated by gender. Particularly attention will be given to the impact of improved water harvesting technologies on women’s access to and use of water.

**3. environmental security** (e.g. biodiversity, water quality)

Although not directly monitored in this project, improved availability of water has come about as a result of environmental rehabilitation, and this has also benefited local natural biodiversity and agro-biodiversity. Overall land management is better in these local communities. Therefore, they are the groups who care for the sustainable development of the environment.

**4. impact on the poor** (including food security and wellbeing)

All the partners are pro-poor. Assessing the impact of water harvesting and use technologies will take note of the socio-economic status of the different innovators and users. Training will particularly focus on incorporating the poorest and most disadvantaged segments of the society.

**3.8 How do you intend to self-monitor the progress of the project towards obtaining the**

**results?** (including the roles of institutions/groups involved (maximum 200 words)

There is already a system for communities and to meet an average of twice a month to evaluate their activities and plan their future work, and the plan for this project will be part of the overall plan. The leader for the Project in ISD will make regular visits and use informal and focused group discussions with the local stakeholders in order to follow the implementation of the Project.

There will be four meetings of all the stakeholders, as indicated in the schedule of activities in 3.4.

<b>4. BUDGET (Calculate in US\$)</b>						
<b>Divided by institution as follows:</b>	<b>Lead Institution</b>	<b>Partner 2</b>	<b>Partner 3</b>	<b>Partner 4</b>	<b>Partner 5</b>	<b>Totals</b>
1. Personnel	\$7,450.00	\$1,500.00	\$0	\$0	\$0	\$8,950.00
2. Travel and accommodation	\$10,500.00	\$2,000.00	\$3000	\$0	\$0	\$15,500.00
3. Other operational costs	\$14,000.00	\$500.00	\$0	\$0	\$0	\$14,500.00
4. Overheads	\$5,000.00	\$500.00	\$0	\$0	\$0	\$5,500.00
<b>Total CPWF Budget</b>	<b>\$36,950.00</b>	<b>\$4,500.00</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$41,450.00</b>
5. Additional budget provided by partner as 'matching funds'	\$20,000.00	\$0	\$0	\$0	\$0	\$20,000.00
<b>Total Cost</b>	<b>\$56,950.00</b>	<b>\$4,500.00</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$64,450.00</b>