

VOLUNTEER REPORT FORMAT

To be submitted to CRS at the end of volunteer assignment and shared with the Host

1.1 Assignment information

- a) Volunteer Name: **John Bliss**
- b) Host Organization: **Water Action**
- c) Assignment: **ET40 Innovative Irrigation Techniques on Vegetables-Water Action Office**
- d) Dates of Assignment: **Nov. 28 - Dec. 19**
- e) Number of days worked: **18**

1.2.1 Objective 1 in your SOW (To train Small Scale Irrigation Users SSU on modern and practical irrigation methods and improved production methods.)

a) Progress with the objective

Water Action had done quality work developing irrigation canals making irrigation more efficient and reducing erosion and water loss. From the point of the cement canal, methods remained traditional in the production of vegetables, and so my primary objective was to promote the conservation of the water in the fields, teach users the horticultural needs of the crop, specifically the nuances of too much water and not enough given the soil characteristics. The training focused on raised bed preparation and soil organic matter to promote water holding capacity and excessive water draining. Farmers' concerns were focused on disease and pest pressure, so I included a trainings on crop rotation based on plant families, crop spacing, and sanitation in the field. My foundational training was on soil fertility, especially organic matter maintenance. I allowed for plenty of time for in-field demonstration and one-to-one problem assessment, which was well-received.

b) Expected impacts/results

Since some of my recommendations (which for example called for the use of new tools) were very contrary to traditional methods, I expect some progress will be slow. However, wherever the extension staff had laid the groundwork for my messages (for example, plant spacing and the importance of sanitation) the lesson was understood clearly and I expect many farmers will work towards improving on these methods.

c) Recommendations¹

- 1. Farmers should pay close attention to wider spacing in their fields, and adopt a raised bed culture as opposed to a "broadcast" approach. Many crops were planted in rows but only to accommodate the flood irrigation, not for the purpose of allowing even growth and low disease pressure.**
- 2. Farmers should rely on using manure as the basis of soil fertility and leave as much crop debris as possible on the soil. Carbon in the form of mulch will also improve soil organic matter. Compost is best, but this practice is not expected to be adopted without further demonstration from extension staff.**

¹ **Note:** Only make not more than 6 recommendations. The most useful recommendations for hosts are ones that they can implement themselves with minimal expense. For example, a cooperative might change its financial reporting procedures or hold more regular meetings of its board. Broad recommendations on tax or credit reform, changes in government policy, or investment in large-scale equipment, are usually not within the host organization's reach.

3. Farmers should refocus on what they already understand about rotation principles, and specifically pay attention to vegetable families. A four year rotation should be standard for crops without evident disease, and more years between families with disease (onions).
4. More effort should be made in maintaining excellent soil health in the nursery plots, with good spacing and probably lower plant density.
5. Gender diversity was lacking in all trainings. Efforts should be made on all sectors to employ female teachers for female workers, or otherwise explore options for achieving the goal of reaching women who make up 52% of the farming population.

1.2.2 Objective 2 in your SOW (To train Extension Staff and Ministry of Agriculture employees on modern and practical irrigation methods and improved production methods.)

a) Progress with the objective

Many important principles are well understood by the educators in this region, and it was clear that the staff had been trying to deploy progressive methods among farmers. Perhaps the ratio of farmers to educators was too low, and the impact of illiteracy made the speed of change slow. There were, however some major gaps in understanding about soil health and plant nutrition, as I found when I asked about people's understanding of macro and micro nutrients and the importance of soil tests. "Blanket application" of fertilizer has done tremendous damage to soil health in both regions I visited, and many problems the farmers face can be traced back to the low level of understanding on the basic chemistry of soil health. It is the responsibility of the educated staff to package this knowledge and deliver a message appropriate for the farmers. My presentation to the trainers was similar to my lessons with the farmers, but with an emphasis on ways of conceptualizing the issues which might aid them in their goal of education.

b) Expected impacts/results

Some results will only be realized with the intensification of effort, for example the wider distribution of staff and the more regular involvement in their communities. They understand that the population they are dealing with is illiterate and without analytic skills that come with a study of sciences. Their educational style has to focus on the practical side, relying on positive exemplification.

c) Recommendations

1. Educators should spend more time in the field, and establish regular seasonal or more frequent visits with each community.
2. Educators should identify excellent farmers in their area, and showcase the example of success.
3. Educators must reinforce their own knowledge with current thinking about fundamentals in the field, using technology of the internet and research tools to solve the problems of farmers in their areas.
4. Gender diversity was lacking in all trainings. Efforts should be made on all sectors to employ female teachers for female workers, or otherwise explore options for achieving the goal of reaching women who make up 52% of the farming population.

1.2.3 Objective 3 in your SOW (To showcase practical solutions to water harvesting and appropriate technology for the host to promote in their area.)

a) Progress with the objective

This objective was our initiative to leave something physical behind and to provide an example to the host of research-based solutions in sustainability. Though the ferro-cement tank we built was small and perhaps should have been cast in place, I think it was a good honest effort to introduce a new technology, and showcase a small scale approach to water harvesting. Many farmers are not fortunate enough to have access to irrigation water because they are located at a distance from the source, and so they do not generally participate in vegetable farming. However, with this small scale storage tank, they might capture enough water to tend a small garden to serve their individual needs. As well, such storage would certainly save hours of labor each day collecting water further from the household. (Work invariably done by women.) This was not necessarily within our SOW, but given some changes in schedules around the trainings, we were interested in building something that neither of us had previous experience with before. So this was an experiment for everyone, and I will follow up with this objective in due time.

b) Expected impacts/results

I expect the skills learned in building light-weight, affordable “ferro-cement” will be shared further with any new project the host chooses to engage in. The result would be several new tanks within a year and, if a successful technology, then an exponential growth as water availability becomes less reliable.

c) Recommendations

1. I recommend a more robust approach to research-driven problem solving. The internet is a powerful force in the dissemination of skills and knowledge, and despite problems of connectivity in this area of Ethiopia, with a few targeted technology upgrades, I believe that individual trainers might multiply their efforts through it. This project was an example of leveraging this vast knowledge base.
2. I recommend building several of these tanks, in place, and larger, perhaps at a school location where the wider community has access to the project. A cost analysis should be made and advertised.
3. With these tanks, drip irrigation is the most sensible technology of water delivery. A 5000 liter tank might only be appropriate for a home scale plot, but it would be an important foothold for the wider adoption of irrigation technology among these communities.

1.3 Action Plan

Recommendation	Specific Action	Responsible person	By when
1. Further educational training around horticultural methods.	Soil fertility workshops, crop rotation, and bed forming practicals at sites where best practices have been established.	Education teams, either by MOA employees, or non-profit educators. Showcased farmers should be part of a compensation package.	This should be on-going, but scheduled around times when farmers have the time to



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			attend.
2. Gender diversification among farm education programs.	Recruit female educators to engage with the targeted users who are women. Gather information about women's priorities.	CRS staff, working with local collaborators.	As soon as feasible, and on-going.
3. Soil testing	Work with a small number of farms as a pilot program, focussing on their nutrient levels with soil lab tests and application of soil amendments.	A local partner like Water Action with a good scientific background working with individual farmers and soil amendment providers (— lime, and organic inputs.)	As part of the effort to build horticultural methods from recommendation s #1.
4. Build capacity with a compost initiative for the purpose of production as well as a demonstration for farmers.	Develop a composting facility at the government run orchard in Harbu.	Ministry of Agriculture employees working with compost-making consultants, and making use of the resources available at the Orchard/Nursery site (in terms of organic materials as well as machinery and infrastructure). Outreach and education to be done with the assistance of Extension Agents.	As soon as partnerships can be explored.

5. Empower communities to build their own cisterns at their homes eventually as a way of irrigating home scale gardens where irrigation water is not accessible.	Build several cast-in-place ferro-cement cisterns at local schools or other community facilities.	Water Action staff working with members of the local community, perhaps with the help of another Farmer to Farmer volunteer. (More technical research or assistance might be required.)	When labor is most accessible in relation with the farmer's schedules, but ideally an advance of the summer rains.
6. Strengthen partnerships between extension agents and farmers through merit-based reward incentives. In these development and demonstration spaces there is opportunity to showcase and introduce new tools and methods.	Extension agents need to be more involved in the local communities which they serve. One way to do this is by identifying excellent farmers, and empowering them to conduct educational sessions with other farmers. This can be facilitated by some award type of recognition. A respected farmer fairs better at disseminating information like tool adoption, than staff.	Extension staff and individual farmers. Tools might be brought in and duplicated at local metal smith shops.	When the farmer's season allows.

1.4 Number of people Assisted **Please refer to the sheets which we submitted at the conclusion of our project.**

- a) Through formal training
- b) Through direct technical assistance (Do not double count)
- c) Out of these above, number of host staffs
- d) Training/assistance by field

Category	Total	Males	Females
Members/ owners			
Employees			
Clients/ Suppliers			
Family Members			



Total			
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e)

1.5 Gender

- a) What gender roles did you recognize in your host community? Did these roles play a part in your assignment? How?

As mentioned above, there is great opportunity to improve this aspect of the program. Not many women were involved overall and some of them we encountered in the field. (only 2 were involved in the farmer trainings). Women obviously share in much of the work on farms and a majority of domestic duties, but we were not privy to this sphere since we were all male for this project. We approached a number of women at the market (a majority of vendors were female in the vegetable section) but there did not seem entirely comfortable engaging with us males.

- b) How might CRS or the host organization improve opportunities for the women in this host or host community?

This is a cultural issue which perhaps agricultural workers or volunteers are not adequately prepared to address, but one approach would simply be to recruit more female volunteers. Specifically I think a male/female couple might be accessible in approaching a farm family as peers.

1.6 Value of volunteer contribution in \$ ($200 \text{ hours} \times \$35 + \$20 = \7020)

- a. Hours volunteer spent preparing for assignment **50 hours (in the field, 150 hours)**
b. Estimated value of all material contributions volunteer contributed to host during assignment **\$20**

1.7 Value of hosts' contribution in \$ (Please consult the host as well)

- a) Meals \$20
b) Transportation \$500
c) Lodging \$0
d) Translation \$200
e) Other (Specify) (Please do not reference this as a I have not consulted with the host organization about costs.)

1.8 Host Profile Data:

Did you obtain any data that supplements or corrects the data in the existing host information as detailed in the SOW? Please list it.

The description of the situation is accurate, except for the expectation that technologies might be introduced which qualify as affordable, renewable, or "modern". In fact, the work that Water Action has participated in: the development of stream diversion and concrete canal systems is great, but the next step beyond this, technology-wise, is quite a large one which would necessitate greater economic success which is not realistic at this point. So in terms of actual water delivery systems, my assessment is that the existing infrastructure is adequate to satisfy basic requirements of production. However, there remain many horticultural techniques which need focus in order to meet higher production goals. Therefor, my work shifted from (my expectation of) irrigation to horticultural consultant (which by the way was perfectly fine by me.) But the topics which needed dressing were numerous and varied— from soil fertility (agronomy) to tool development



(horticulture). It seemed to me that Water Action as an organization was at the beginning stages of building its capacity in this regard.

1.9 Recommendations for CRS:

1. CRS has done a great job at partnering with Water Action. Technical support was great for the volunteers but I recommend more background support in the form of an information packet or an electronic document with academic papers detailing the agricultural, anthropological and economic subject at hand. A compilation of previous volunteers' reports might be a starting point of reference. Another related idea is to develop an online list-serve where participants can post questions on specific topics so that globally, CRS can assist in the networking of its Farmer to Farmer volunteers. This kind of network is used among farmers more and more and can be great at raising awareness of narrow focused issues among many diverse partners. It would be a good idea to develop a policy on using teams of two volunteers at a site. It is a good idea to pair experienced with inexperienced people. Consider bringing in a woman/man pair to better connect with the gendered nature of farm labor.
2. I think that the farmer to farmer concept is a powerful one, but I wonder how many active farmers the program relies on. I recommend a re-focusing on actual farmers-volunteers rather than professional consultants, engineers, academics, or others who's bias is less practical and more theoretical and perhaps have less compassionate understanding of the many issues facing farmers in the field.
3. Take into consideration the timing of programs in relation to farmer's harvest or planting seasons. (we had to halve our time because of the busy harvest season)