



USAID
FROM THE AMERICAN PEOPLE



Volunteer Name: James Litsinger

Country: Ethiopia

Country project: Provide training and technical assistance on integrated soil fertility management techniques

Host: Debre Berhan University

Venue: Lecture room

Benificiaries: MSc students

Number of people : 28

Date: March 10-31, 2017



1. Assignment Objectives as in SOW

- 1. Provide training and technical assistance on integrated soil fertility management techniques
- 2. Managing water logging problem in bottomlands
- 3. Demonstrate the different techniques of improving soil organic matter content

2. Achievement of the assignment objectives

1. Provide training and technical assistance on integrated soil fertility management techniques
 - The host suggested that I also provide training in Crop Protection to which I agreed. Total hours of training: Soils (five lectures totaling 10 hours), Crop Protection (three lectures totaling 5 hours), One lecture was cancelled as no students showed up, a final university-wide workshop 1.5 hours as per schedule given. Only MSc students were trained and the training schedule was worked around their current courses. The material was targeted to MSc students and not farmers.
 - Continued:

2. Achievement of the assignment objectives

- In particular the concept of undertaking on-farm research to test soil fertility management techniques (inorganic and organic nutrient management) was stressed as well as pest management practices based on integrated pest management to replace the need for synthetic pesticides. I provided a text book on an introductory soils course used at most US universities. The hard copy is in the library and the soft copies were provided to the students as well as the library. Four other soft copies of relevant books were provided.

2. Achievement of the assignment objectives

- 2. Managing water logging problem
- I provided training on managing waterlogged lands such as using drainage tiles, drainage ditches, or making tall beds to overcome the problem. According to my host, however, most bottomlands are being cultivated along the margins in high value vegetables where farmers sink shallow wells from which they irrigate their crops. So to these farmers, bottom lands are not a problem but are an opportunity. Farmers welcome the wetlands as the runoff from the watershed recharges the groundwater they use to irrigate high value vegetables.
- Continued

2. Achievement of the assignment objectives

- Not all wetlands or bottom lands are viewed as an opportunity. The manager of Project Mercy has a wetland on their property which he believes is uncultivable so would like to see it drained. The problem with drainage is there needs to be a location lower than the wetland to drain the water to. I am not sure if there is such a site.

2. Achievement of the assignment objectives

3. Demonstrate the different techniques of improving soil organic matter content

The lectures covered ways of improving the organic matter content of soils from the use of compost, green manures, cover crops, alley cropping, and plowing under crop residues. These methods are also taught by the faculty in the Soil Fertility course that is required of all MSc students. My lecture reinforced those methods. What is lacking is the practical side of actually demonstrating some of these methods in the field. There is no source of organic matter or animal manure on campus, nor is there a branch research station with facilities where these practices could be studied.

3. Anticipated Impact

- Objective 1 in the SOW: Provide training and technical assistance on integrated soil fertility management techniques
- Because the number of universities is expanding from 10-30, most of the MSc students intend to become lecturers and eventually professors, therefore there is a high leverage factor from the training toward impacting future generations of students and future leaders in universities and the country.

3. Anticipated impact

- Objective 2 in your SOW: Managing water-logging problem
- I am not sure that the University sees its role to develop technology to make wetlands productive. The university is not, at this time, focusing on research.

3. Anticipated impact

- Objective 3 in your SOW: Demonstrate the different techniques of improving soil organic matter content
- Until facilities are provided for on-farm demonstration of these practices, it is doubtful if my lectures made any difference in increasing their knowledge of more practices that can be used.

4. Recommendations to the host with regards to the assignment

Objective 1 in your SOW: Provide training and technical assistance on integrated soil fertility management techniques

- The greatest obstruction to learning is the poor internet connection on the University campus
- As undergraduate and graduate students are required to undertake field experiments as a part of their training, and that land for conducting such trials is highly limited, the university should construct simple greenhouses for simple pot trials to test soils collected throughout the region to be tested for nutrient deficiencies and to produce recommended fertilizer practices. Galvanized trays on tables to hold the pots waist-high above the floor would be helpful.
- Continued:

4. Recommendations to the host with regards to the assignment

- For pest management, simple screen houses should be constructed to allow students to rear pests for studies in IPM.
- Both greenhouses and screen houses should have facilities such as deep sinks for washing as well as tables for preparation of materials.
- In the future, incubation chambers with varying temperatures and relative humidity settings would be useful to students to conduct research.

4. Recommendations to the host with regards to the assignment

Objective 2 in your SOW: Managing water-logging problem

Recommendations

The University should make arrangements with Project Mercy or find another location where it can use to undertake research to find out the best uses for bottom lands. The University could arrange transportation for its students and staff to visit the site daily in order to oversee research trials to test ideas. It would be a great lesson for students to try to tackle the problem. As not all people think bottom lands should be drained, a study is in order to determine what use farmers have for bottomlands.

4. Recommendations to the host with regards to the assignment

Objective 3 in your SOW: Demonstrate the different techniques of improving soil organic matter content

Recommendations:

The University should arrange for compost making on campus so that students can have hands-on experience as well as providing a supply to be used in research trials and to fertilize experimental plots. A concrete slab can be made where the manure is stored under a simple open-sided metal roof to keep prevent rainfall from leaching the manure.

Continued...

4. Recommendations to the host with regards to the assignment

Small sets of three bins should be constructed out of simple materials so the compost could be turned and rotated as it becomes decomposed.

Separate bins for vermiculture (earthworms) can be constructed as well. Arrangements to acquire manure could be made with Project Mercy which wants to get rid of their manure.

The University should also establish departments of agricultural statistics, agricultural economics, plant breeding, and agricultural extension. These are sorely lacking.

The university should embrace the use of an A-frame as a survey tool to measure contour lines in erosion control activities.

5. Recommended future volunteer assistance

- There is no need to provide lecturers to strengthen university courses. There is enough expertise in the country to do this supplemented through the guest lecturer method or by contract.

6. Recommendations to other non-host stakeholders

Action plan for host recommendations

| Recommendation | Specific Action | Responsible person | By when |
|---|---|--|---------|
| 1. Construct simple greenhouses and screen houses | Find a suitable location and budget the funds | Dean of the College of Agriculture | 2018 |
| 2. Identify a collaborating entity to undertake research in bottomlands | Make a collaborative project with Project Mercy | Dean of the College of Agriculture | 2018 |
| 3. The University should arrange for compost making on campus | Construct concrete slab(s) and fabricate each with a simple metal roof. Make small compost bins | Dean of the College of Agriculture | 2018 |
| 4. University to fix the internet connection and subscribe to CABI abstracts | Allocate budget for improving the internet Visit the UK embassy for CABI | Dean of the College of Agriculture Head librarian | 2017 |
| 5. Establish departments of agricultural statistics, agricultural economics, agricultural extension, and plant breeding | Conduct a needs assessment | Dean of the College of Agriculture | 2018 |
| 6. The University should identify a location at one of its branch stations where it can do research on rehabilitating highly eroded soil. | Visit branch stations and determine which ones are suitable & budget facilities | Dean of the College of Agriculture | 2018 |

7. How can CRS improve future volunteer experience

Thank You!