 

**Farmer to Farmer East Africa**

**Volunteer Assignment Scope of Work**

**NOTE: THIS SCOPE OF WORK AWAITING FINAL EDITS**

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| **Summary Information** | |
| Assignment code | ET119 |
| Country | Ethiopia |
| Country Project | Horticulture production and Sector support |
| Host Organization | Wolkite University |
| Assignment Title | Tissue culture techniques for mass propagation of desirable crops (Biotechnology/ Biology/ Agriculture) |
| Assignment preferred dates | Flexible |
| Objective assignment | Provide advice and instruct staffs and students on Tissue Culture/ Biotechnology |
| Desired volunteer skill/expertise | * Ph.D. and/or Professor in Tissue Culture/ Agricultural Biotechnology/ Plant nursery and related * Experience in Tissue culture techniques and propagation (experience in universities is preferable) |

1. **BACKGROUND**

The Farmer-to-Farmer (F2F) East Africa program is a program that leverages US volunteer’s expertise to assist small holder farmers and small scale processors in East Africa to improve their business practices through volunteer assignments conducted with host organizations. Through F2F intervention, CRS will improve the livelihoods and nutritional status of significant numbers of low income households by: i) broadening their participation in established commodity value chains as producers and service providers; ii) strengthening community resilience to shocks such as droughts that adversely affect livelihoods; and iii) preserving/enhancing natural resources upon which most rural communities depend. CRS will also increase the American public’s understanding of international development programs and foster increased cross-cultural understanding between host countries and US volunteers.

With the ongoing massive effort to improve the productivity potential of the agriculture sector, and the need to create enabling factor towards food security at house hold level, which the government claims failed to satisfy by the end of the first growth and transformation plan (GTP-I); there arise a need to identify the better yielding and resistant crops to various biotic and abiotic calamity and produce their planting materials in massive amount in a shorter period of time. This will help the farmers to get ample and preferred plantlets in a required amount and boost their production capacity which will have a direct repercussion in the country’s economy.

To this edge, Wolkite University would like to introduce and utilize a tissue culture technique for mass propagation of explants of selected traits using in-vitro techniques as a potential solution to address the increasing high influx of planting material scarce at the farmers’ holding. It has been noted that low productivity is also attributed to limited utilization of biotechnology for mass production of fruit crops using tissue culture techniques and other agricultural value chains in the country. Modernization of agriculture through tissue culture for scarcely available crops and whose conventional production took prolonged time is largely at infant stage in Ethiopia. Hence there arise a need for technology transfer in utilizing tissue culture technique and developing economical and effective tissue culture protocols for selected fruits and vegetables.

Tough Wolkite University has chosen biotechnology to be its center of excellence with an ultimate interest of overcoming the challenges posed through disease devastation and save guarding the available vigor germ-plasms available in the farmers holding continues to be a big challenge in the agriculture sector, and in the research institutions domain. This is mainly due to limited human and material resource available in this very (emerging) technology, and lack of practical experience.

1. **ISSUE DESCRIPTION**

Being a young but upcoming university, Wolkite University is having a significant shortage of human resource for courses which require contemporary technology and advanced laboratory techniques in some of its programs, predominantly in Biotechnology. In the department of Biotechnology there is a limited experience and skill to use **tissue culture techniques to produce disease free and ample plantlets using in-vitro mass propagation of desired crop**s. The University requested the F2F Program in Ethiopia for volunteer assistance to train its instructors, researchers and graduate assistants on **Tissue culture techniques** including: **The general techniques, callus and suspension culture, cloning, regeneration, Anther culture, ovary culture, meristem culture, somatic hybridization, embryo culture, in-vitro pollination, cryopreservation, slow-growth culture and optimizing protocols** in selected economically important crops. The training will help to improve the methodological capability, teaching effectiveness and research engagements to produce, provide, and preserve sufficient planting materials of selected vigor and highly productive cultivars of the aforesaid crops, and ultimately to support the needy farmers through community outreach programs.

Hence, this training will have a direct role in addressing Course delivery through lectures and laboratory practical with an aim of equipping the technical skills and scientific basis to educate the tissue culture techniques as the best alternative way of mass propagating the healthier and desired plant materials to the farmers in the vicinity.

This assignment will directly contribute to equipping the graduate assistants, researchers, and instructors equipped with relevant skills and knowledge in tissue culture techniques. Hence, they can contribute to boost the availability of enough and high yielding plant material of these important crops.

1. **OBJECTIVES OF THE ASSIGNMENT**

The objective of this assignment is to instruct 30 graduate assistants and Lecturers from the department of Biotechnology, Biology & Agriculture to have hands on training in **Tissue culture techniques for mass propagation of desirable crops**. Laboratory practical will also be periodically scheduled for the trainees. Additionally, the volunteer will conduct a seminar to other university staff which will be attended by our researchers, lecturers and senior officials. The program will be hands on training and the trainees will be expected to share the knowledge they grasp from the training in their academic engagement to the rest of the university community. Hence, the training will be Training of Trainers (TOT). The volunteer will also develop a training module for this course to guarantee the continuity of the program time after time.

**Host contribution** – The Department of Biotechnology in the college of natural and computational science will make its laboratory and the available facility accessible for this program. The research office will arrange additional stationary material, LCD projector and lecture hall available for this particular training. The research coordinator of college of Agriculture and Natural resource will accompany and guide the volunteers to locate the available research sites and areas where the various clones are being cultivated, the nursery trials, and the farmer’s field in Wabe, Ye-ferezay and Meskan Woredas. The research vice president and director will take time to sketch the strategic development of the program with the volunteers.

1. **ANTICIPATED RESULTS FROM THE ASSIGNMENT**

* 30 graduate assistants, instructors and researchers from three different programs in the university will attend the course and the research office being with CRS Ethiopia will certify them up on successful completion of the program.
* 3 on site visits will be carried out as part of the training program (preliminary visit and to collect samples for lab analysis).
* 8 project proposals will be developed as an outcome of the training

The anticipated deliverables include:

* Initial presentation done (outlines/list of activities, plan, approach, etc),
* Training module for this course prepared and discussed with the university fraternity for review and adoption as a training curriculum for this course
* Final report with recommendation submitted to CRS, Presentation to CRS staff and USAID;

1. **SCHEDULE OF VOLUNTEER ACTIVITIES IN ETHIOPIA**

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| Day | Activity |
| Day 1 | Arrival to Ethiopia. The volunteer will be met at Bole Airport by CRS’s client hotel Churchill (churchillhotel@ethionet.et; phone # 0111111212) or another client hotel with a placard bearing “CRS logo and volunteer name”. |
| Day 2 | Introduction and briefing meeting at CRS office with CRS F2F staff and become fully briefed on logistics and itinerary of trip. Discuss anticipated outcomes and work plan, |
| Day 3 | * Travel to Wolkite (2-3 hrs) and then travel 13 kms to Wolkite University * First hand briefing on the main objectives and modality of the assignment and adjust the agenda for the coming days. Briefing with WkU management, and trainees. |
| Days 4-5 | Introducing the volunteers about the existing curriculum of the university (pros and cons), lab visit, and field visit as an input to the lessons they are going to deliver. Prepare course specially for the first and few succeeding days and plan with the local associate of the University to start lecturing |
| Day 6 | **Rest day** |
| Days 7-12 | Conduct lectures/practical as appropriate – scientific ground of genome mapping and MAS |
| Day 13 | **Rest day** |
| Days 14-15 | Finalize training course and support the trainees to experiment on the existing challenges of crop production using the theoretical and practical lessons provided during this hands-on TOT. |
| Days 16 | Final presentation of the achievements to the University management and CRS by the volunteer |
| Day 18 | * Debriefing at USAID Mission or CRS office * Finalizes reporting and submits training M&E forms to CRS F2F staff. * Volunteer liquidates cash advances and expenditures with finance * Depart for US (evening hours) |
| TBD | Outreach event when back in the US could include: presentation with a local group/organization, press release, media event and/or speaking tour. |

1. **DESIRABLE VOLUNTEER SKILLS**

* Ph.D. and/or professor level in Agricultural Biotechnology, Tissue Culture, Nursery Management and forestry
* Demonstrated experience in course training through lecturing, advisory, research and laboratory work experiences on practical aspects of tissue culture techniques for mass propagation of fruits and vegetables.
* Previous experience working in agricultural universities/ agricultural biotechnology research institute in the US and/or other African agricultural universities where the language media of instruction is English language,
* Experience or exposure to farming practices preferably as small scale farmers’ level with good knowledge and skills in modern farming technologies and adult training skills.
* Good communicator and interpersonal communication skills

1. **ACCOMMODATION AND OTHER IN-COUNTRY LOGISTICS**

* Before travelling to the host at the assignment place (Modjo), the volunteer will stay in Addis Ababa at one of the CRS’s client hotels Churchill (churchillhotel@ethionet.et / info@churchillhoteladdis; phone # 0111111212) or another client hotel that will be communicated prior to volunteer.
* In Addis Ababa, the hotel usually has rooms that include services such as airport pickup and drop-off, breakfast, wireless internet, etc.
* The hotel or CRS will arrange a vehicle for short travel from the hotel to CRS and vice versa while in Addis Ababa.
* All required materials will be prepared ahead of time and will be provided to the volunteer. CRS Ethiopia will provide the volunteer with a laptop computer, local internet dongle (modem/EVDO) and mobile phone with charged local SIM-card.
* Any other required logistics and facilities can also be requested by the volunteer during her/his stay in Addis Ababa.
* CRS will arrange transport service and accompany the volunteer to the place of assignment.
* During her/his assignment period, the volunteer will stay in host’s guesthouse at Yejoka University or will be booked a hotel found at Wolkite town.
* CRS Ethiopia will cover the lodging bills against receipts.
* CRS HQ will provide the volunteer with a per-diem advance to cater meals.
* CRS Ethiopia will also reimburse the volunteer with laundry costs against receipts. Before departing from Ethiopia, the volunteer will also liquidate if s/he received any advances in Ethiopia.
* For more information, please refer to country information that will be provided.

1. **RECOMMENDED ASSIGNMENT PREPARATIONS**

* Although CRS F2F has developed such hinting SOW, the volunteer can fine-tune through her/his professional qualification to successfully carry out this assignment. Prior to travelling to Ethiopia, s/he will be expected to collect relevant lecturing aids, reference books/literatures and required technological information. CRS F2F relies on the volunteer to design appropriate methodologies to successfully complete the assignment
* Prior to travel, CRS F2F also strongly suggests that the volunteer prepare necessary training and demonstrating aids and written handouts. Softcopies of the handouts and any other paper materials can be printed for immediate use in Ethiopia CRS office at Addis Ababa. If the volunteer will require use of any aids and media to instruct, advise laboratory work etc. S/he should prepare in advance or make a request for the materials and collect from the CRS and the University prior to the assignment. If required and more feasible, the volunteer sometimes can use a laptop and projector for power point presentations.
* CRS F2F strongly recommends that the volunteer familiarize himself/herself with the history of Wolkite University. The information can be collected from [www.wku.edu.et](http://www.wku.edu.et) or you can directly contact the research office through [research@wku.edu.et](mailto:research@wku.edu.et) .

1. **KEY CONTACTS**

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| **Host Organization:** | |
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