

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: Joseph R. Sullivan
- b) State of Origin: Oklahoma
- c) Host Organization: Alage Agricultural, Technical, and Vocational Education and Training (ATVET) College
- d) Assignment: ET 106, Aquaculture (Aquafarming) System
- e) Dates of Assignment: May 19 – June 10, 2017
- f) Number of days worked: 22

1.2.1 Objective 1 in your SOW: Educate and/or transfer modern aquaculture farm management techniques to instructors and students from animal science and animal health departments of Alage ATVET College.

- a) Progress with the objective: The first full day at Alage College I visited the ponds the college already has. They are 9 small static research ponds and one larger small production size pond (about 200 square meters) dug into porous soil that does not hold water and were consequently lined with plastic and covered with cement. Roughly 20 staff were instructed on extensive to intensive aquaculture techniques, pond construction, hatchery management (including inbreeding avoidance among other topics) and all-male tilapia culture during the first week of the assignment. Frequent power outages (all of my presentations are in PowerPoint), scheduling conflicts, and language barriers limited what I could accomplish in three days for this group. I did, however, provide electronic copies of all my presentations I had planned to give as well as those I did give, to my counterpart, Dr. Sebsibe Ames, Animal Science Department Head. At their leisure, this first group of students can also look at presentations on catfish fingerling production and producing feeds from locally available ingredients that we did not have time to cover. Sebsibe informed me that perhaps 100 students needed to be given a single day's worth of lecture each day the following week. As aquaculture is at the very entry level stage here and their role will be as development agents working with villagers, I revised the training to only cover extensive small-scale fish farmer tilapia culture, pond construction, inbreeding avoidance and all-male tilapia culture using hand-sexing males and females. This is very subtle and formed the basis for the practical giving students the chance to distinguish male and female Nile tilapia. A small scale farmer can increase his or her production by rearing only males in the grow-out ponds because males grow faster than females, which divert some food into egg production and then stop feeding for several weeks while they are mouth-brooding eggs and then fry. Using all-males, there are no fry produced that can compete with the males for food (adults, fry and fingerlings all compete for the same plankton food items). In order to do this, the farmer must have several ponds because one, at least, must produce fingerlings for the next crop.

There was also a Chinese aquaculturist, Hu Wang, teaching extended aquaculture courses at the college. Sebsibe explained that I was there to fill in some gaps, though it was not clear what those gaps were.

- b) Expected impacts/results: This remains to be seen. Language was a huge barrier to learning at the college. The staff I trained during the first week had some English skills, but provided very little translation services during the lectures to the students who seemed to have no English language skills at all. Sebsibe says that he will have my PowerPoint presentations translated into Amaric, so that may help. Perhaps that will happen to the Hu Wang's lecture notes as well.

c) Recommendations¹:

- a. Translate the presentations into Amaric.
- b. Build small scale tilapia ponds and perfect all the elements of small scale tilapia aquaculture on campus based on my lectures before training anyone else to do this and before advancing to other species or more intensive forms of tilapia culture. Among the reference materials I gave to Sebsibe is the 2006 Peace Corps Zambia aquaculture training manual. The only caveat with that is PC Zambia is moving towards culture of the local three-spotted tilapia because Nile tilapia are exotic to Zambia. Stay with Nile tilapia in Ethiopia where it is native.
- c. Attempt to seal the ponds built on campus first with manure and a covering as described in the pond construction presentation. Although a soil map of the area shows a tiny amount of clay (best soil for ponds), it might not be conveniently located near the campus. While the college may be able to afford plastic sheeting and concrete, small-scale farmers often cannot. Experience with adequately sealing ponds built in less than optimal soils will help development agents use this process with the fish farmers they teach.
- d. Have the campus water quality tested professionally. Local waters in the area drainages are consistently turbid, some are high in fluoride which can be toxic to fish and some are very high in bicarbonates which increases the toxicity of total ammonia in the water. Aquaculture water quality test kits are usually adequate for most parameters and range from \$200 to \$300 US, but normally don't test for fluoride, a feature of the underlying volcanism of this area. Dental fluorosis is already a serious human health problem in the area due to high concentrations of fluoride in well water. The relationship between accumulation in fish and risks to humans who eat them is as yet unclear.
- e. Consider setting up an aquaculture research station at a site more suitable for aquaculture than the college campus. That is, find a place with clay soil and good consistent water. It is possibly nearby but off the Rift Valley floor.
- f. When you have accomplished the above items, contact me again and I will help you with the next step of fish culture, creating fish feed from locally available ingredients. Unless it is too high in fluoride, the fish offal from the fish processing facility in Ziway can be converted into fish meal, oil or silage. When combined with other locally available ingredients, the college could create a high quality fish feed adequate for tilapia or catfish.

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.

That's moving up to the next level but is not that big of a step. Instead of using the offal to create Marabou storks and white pelicans, as it currently does, it could be creating tilapia and catfish.

1.3 Recommended future volunteer assignment:

Pond construction using extensive methods. Derivation ponds of 100 to 300 sq. meters in size are generally manageable by the small scale farmer and produce enough fish to encourage construction of more ponds. Pond construction might take a dozen people using only hoes, shovels, wheelbarrows, stakes and twine two to three weeks to construct. Students learn pond construction much better by actually building a pond than by just hearing the presentation on how to do it. This is best done in an area with clay soils, and good quality and quantity of water. While heavy equipment can be used to create fish ponds, this is out of reach for many subsistence level farmers, so building fish ponds while staying within their resources is appropriate level technology.

1.4 Action Plan

Recommendation	Specific Action	Responsible person	By when
1.Translate presentations into Amharic.	Find the most English-fluent staff to accomplish this.	Sebsibe Amesa, Animal Science Dept. Head	January 2018
2.Water quality testing	Hire a water quality laboratory	Sebsibe Amesa	August 2017
3.Pond Construction	Animal Science staff, not casual laborers, build pond.	Sebsibe Amesa	September 2017
4. Stock Ponds	Animal Science staff	Sebsibe Amesa	October 2017
5. Avoid subsequent inbreeding	Animal Science staff	Sebsibe Amesa	April 2018
6. All-male (hand sexing) tilapia	Animal Science staff	Sebsibe Amesa	Practice beginning June 2017, stock June 2018.

1.5 Number of people Assisted

- a) Through formal training (Classroom setup): 140
- b) Through direct hands on practical assistance (Do not double count): 1
- c) Out of these above, number of host staffs: 20
- d) Training/assistance by field

Category	Total	Males	Females
Members/ owners	120	110	10
Employees	20	19	2

Clients/ Suppliers			
Family Members			
Total	140	129	11

1.6 Gender

- a) What gender roles did you recognize in your host community? Did these roles play a part in your assignment? How? Hu Wang, the Chinese aquaculture specialist and one Animal Science instructor were the only female staff with whom I interacted, but about 10% of the students were female.
- b) How might CRS or the host organization improve opportunities for the women in this host or host community? Encourage Alage ATVET College to hire more female instructors and seek out and admit more female students.

1.6 Value of volunteer contribution in \$

- a. Hours volunteer spent preparing for assignment: 40.
- b. Estimated value of all material contributions volunteer contributed to host during assignment: \$30 US (purchased \$25 US of fish, \$4 US of ink and \$1 US of Q-tip cotton swabs, all used in the practicals).

1.7 Value of hosts' contribution in \$ (Please consult the host as well): I am no longer in contact with the host so the following are my best guesses based on the local economy.

- a) Meals
- b) Transportation: \$75 US (gas, driver and maintenance costs)
- c) Lodging \$90 US (\$10/night for 9 nights)
- d) Translation
- e) Other (Specify)

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.

1.9 Recommendations for CRS: Pursue other aquaculture training opportunities in other parts of Ethiopia where there is more clay and better water quality and quantity, particularly away from the Rift Valley floor where water is less likely to be contaminated with fluoride.

1.10 Press Release

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FOR IMMEDIATE RELEASE

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Piedmont, Oklahoma Retired Aquaculture and Fisheries Expert Works with Counterparts in Ethiopia

Farmer-to-Farmer program promotes economic growth and agricultural development in East Africa

[DATELINE: Piedmont, Oklahoma, June 9, 2017]--- Dr. Joe Sullivan, an Alaska Department of Fish and Game retiree from **Piedmont, Oklahoma** who is an aquaculture/fisheries specialist travelled **to Ethiopia** for **3** weeks to share **his** technical skills and expertise with local farmers. Dr. Sullivan's assignment is part of Catholic Relief Services' Farmer-to-Farmer program that promotes economic growth, enhanced nutrition through access to healthy food, and agricultural development in East Africa.

"I was teaching Animal Science staff and students at Alage ATVET College how to construct fish ponds and raise tilapia using methods that require little to no monetary resources - just a hoe, clay soil, good water and enough of it, some tilapia gathered locally from the wild or given to them and garden/animal wastes to grow the plankton that feed the fish. The staff and students, in turn as development agents, can pass along this knowledge to small scale subsistence farmers who want to supplement their diets and incomes raising fish," said Dr. Joe.

Farmer-to-Farmer matches the technical expertise of U.S. farmers and professionals in agribusinesses, farming cooperatives, and universities with farmers in developing countries to assist them in improving agricultural productivity, accessing new markets, and increasing their incomes. Farmer-to-Farmer is funded by the U.S Agency for International Development (USAID).

In a world where 80% of food is produced by farmers working on small farms or fisheries, the movement to share proven farming and business skills can improve the quality and quantity of the world's food supply. For communities in the developing world who often struggle to produce enough food, this can improve access to a reliable source of food and better nutrition. For the farmers, it can strengthen their path to prosperity.

The goal of **Dr. Sullivan's** assignment was to **bring** fish culture technology, modern, but at the appropriate level to make it within the reach of the small scale fish farmer. He worked with **about 140 staff and students** who, as development agents will spread this information across all parts of Ethiopia. Most of **Dr. Sullivan's** time was spent in the **Main**



Ethiopian Rift working with Alage ATVET College. Dr. Sullivan is very hopeful that the impact of this assignment will bring fish farming within the reach of the small scale farmer.

This is Dr. Sullivan's twenty-third volunteer assignment with Farmer-to-Farmer and is one of nearly 500 assignments that focus on improving approaches to local agriculture practices, expanding production of quality food crops and nutrition in Ethiopia, Tanzania, Kenya and Uganda. The program, funded by the U.S. government has been running for nearly 30 years.

CRS is partnering with five U.S. institutions to tap into the rich diversity of the U.S. agriculture community: the National Catholic Rural Life Conference, Foods Resource Bank, National Association of Agricultural Educators, American Agri-Women, and the University of Illinois' College of Agricultural, Consumer and Environmental Sciences.

The volunteers travel to East Africa for anywhere from one to six weeks.

"We are certain that this program will be beneficial not just to the farmers in East Africa but also to the volunteers from America," said Bruce White, CRS' director for the program. "It's going to make the world a little bit smaller and a whole lot better for everyone involved."

For more information, visit farmertofarmer.crs.org

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***Catholic Relief Services** is the official international humanitarian agency of the Catholic community in the United States. The agency alleviates suffering and provides assistance to people in need in more than 100 countries, without regard to race, religion or nationality. CRS' relief and development work is accomplished through programs of emergency response, HIV, health, agriculture, education, microfinance and peacebuilding. For more information, visit www.crs.org or www.crsespanol.org and follow Catholic Relief Services on social media: [Facebook](#), Twitter at [@CatholicRelief](#), [@CRSnews](#) and [@CRSnoticias](#), [Instagram](#), [Pinterest](#) and [YouTube](#).*