

FOOD AND ENTERPRISE DEVELOPMENT (FED) PROGRAM FOR LIBERIA

SUBTITLE: LAND LABORATORY AND SERVICE-
SPECIALIST

AUTHOR: CARL E. MOTSENBOCKER, PH.D.

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Summary

The STTA focused on the educational activities of the Booker T. Washington Institute and Grand Bassa Community Colleges in order to assess current service-learning and community engagement activities. The STTA conducted an assessment of service-learning at BWI and presented a seminar on service-learning. The STTA also met with the faculty of Grand Bassa Community College and evaluated the Farmer Resource Center that GBCC was negotiating to incorporate into its educational mission and to also engage the local community. The STTA also evaluated the condition of the soils lab at the UL Fendall campus.

Section I. SOW Summary & Objectives

LIBERIA FOOD AND ENTERPRISE DEVELOPMENT PROGRAM (FED)

SCOPE OF WORK

Title: Land Laboratory and Service-Learning Specialist (Carl Motsenbocker)

Locations: Monrovia and the Booker T. Washington Institute, Nimba County Community College, and Grand Bassa County Community College (field travel required)

Period of Performance: beginning on or around January 3rd 2013 for a period of 3 weeks.

BACKGROUND:

USAID Liberia's Food and Enterprise Development (FED) Program is being implemented to achieve the following component objectives:

- Component 1: Increase agricultural productivity and profitability and improve human nutrition
- Component 2: Stimulate private enterprise growth and investment;
- Component 3: Build local technical and managerial human resources to sustain and expand accomplishments achieved under components one and two.

This assignment focuses on Component Three, Task 3.1 Creating Centers of Excellence

OBJECTIVES:

During the assignment, the Land Laboratory and Service-Learning Specialist will work with the Vocational Training and Non-Formal Education Specialist (VTNFES), Dr. Dennis Eaton, in coordination with the Ministries of Education and Agriculture to contribute to the development of vocational agriculture programs focused on youth.

The Specialist will:

- Conduct an appraisal of the Land Laboratory (hands-on science) programs and service-learning activities at the Booker Washington Institute, Nimba Community College, and Grand Bassa Community College;
- Develop protocols and procedures to engage students in service-learning activities linked to formal classroom instruction at the Vocational Centers of Excellence;
- Conduct service-learning workshops for vocational instructors and administrators;
- Explore the development and strengthening of the Land Laboratories and integrating into formal classroom instruction at the Center of Excellence;
- Conduct workshops on hands-on science (gardening) applications and implementation in the Centers of Excellence as needed.

Deliverables:

- Assessment report of the Land Laboratory and service-learning and recommendations and proposed revisions at all institutions.
- Report on hands-on science and/or service-learning workshops for vocational instructors and administrators.
- Provide the vocational training centers with guidelines and/or materials for developing, and implementing service-learning opportunities.
- Recommend ways to strengthen the connection between formal classroom instruction and the Land Laboratory at the Centers' of Excellence.
- Recommend how to integrate service-learning as an integral component of the Vocational Education programs.
- Submit and present (e.g. power-point presentation) a preliminary trip report with meeting notes and recommendations to the DAI/FED Project Office before the IDS's departure for the United States.
- A final trip will be submitted within seven days of his departure.

Reporting: The Specialist in the field will report to the FED Chief of Party, or his designee.

Section II. Observations/Findings and Recommendations**A. Bong County FED Office**

The STTA visited the garden demonstration site on the MoA / FED office grounds. Currently the garden beds are planted with vegetables and the irrigation system installed. The large bucket kit system (brought in previously on a STTA) is on a 10m by 10m garden area with five 10 m-long beds with 3-ft wide walkways in-between. It is apparent that the system would function efficiently if there was irrigation water available for the system on a constant basis. There is an issue with water as there is not a well on site for irrigation. A vehicle is used to get water off-site and if an extension officer travels to the field, a vehicle is not available to source water for irrigation. Water is needed every day for the garden. A long-term solution would be to have a well installed for the project on site and to use the water tank storage system that is on site. In addition, the system that is installed needs minor modifications to the bucket kit that will make it more efficient. Modifications such as: a cutoff for the bottom of the bucket to stop water flow, a longer piece inside the bucket to extend in the bottom a short distance so as to limit sediment from going into the irrigation system. An afternoon was spent acquiring parts (PVC pipe, cut-off valve, hacksaw blade) at a hardware store in Kakata for 3 large bucket kits to modify the large bucket kits.

Recommendation: develop a plan for increasing water access such as a well on the site. Develop a year-round plan for the demonstration garden and engage an intern at the site to manage the demonstration.



Bong County office vegetable demonstration plot.



Bucket irrigation system at Bong County office.

A visit was made to Mr. Bill Tolbert and Sangai Farm. Sangai Farm currently has a number of crops planted (herbs/vegetables) in the dry season and is having issues with insufficient water supply. There was a discussion of issues: marketing, succession planting, insect and disease management, organic and synthetic mulches and water issues on the farm. The STTA visited all of the production areas on the farm. In general, most of the crops had a good stand with a large portion of the field not receiving adequate irrigation presently. Sangai is relying on hand-watering of plots with inadequate water resources (wells) and irrigation equipment. Bill Tolbert realizes that his labor is limited and hand-watering is a very time-consuming and costly operation during the dry season.

Recommendation: FED to continue to work with Sangai Farm on developing a year-round production and marketing plan and assessing input needs (including water) and then developing resources (such as drip irrigation as needed).



Sangai Farm dry season vegetable production.



Okra field with good stand, irrigation by hand watering.



Sangai Farm hand watering vegetable fields.

Sweet potato, a drought tolerant vegetable at Sangai Farm

C. Booker Washington Institute

Meetings were held with faculty at BWI to learn more about their curriculum and opportunities and challenges as they develop into a Center of Excellence. The meetings were held with the Agriculture Faculty at BWI concerning the courses and labs (if any) taught, community engagement, and whether any service-learning activities were currently conducted at BWI. Met with the following faculty: Jacob Swee (head); J. William Barrolle; Sylvester Gbarsha; Jestina N. N'cube; Saykor H.K. Davis; Jerry Yini of the BWI Agriculture Department at the FED office at BWI along with James Cooper.

It was intended that the STTA present a seminar to all of the BWI faculty on the topic of service-learning and community engagement. The seminar was presented and the presentation was well received with many questions concerning service-learning and how to apply this to specific courses.

Below is a summary of the information provided from BWI faculty:

Students in BWI class years: classes for the Agriculture Department are M / W / F for 4 hours and T / Th / F for 3 hours. The Tuesday and Thursday classes are dedicated to "practical" class. Normally BWI classes are from 8 to 11 am but the Ag. Department has classes for 4 hours on M / W / F.

For the practicum, the students are split into groups and rotate through exercises each week (2 times per week). The practical class has the following agriculture enterprises: rice in rainy season & vegetables in the dry season; swine production (piggery); compost; oil palm; rubber; cattle.

Year	Number of students	Number of student groups	Class	Days per week (Number)
Freshmen	64	6	Plant Science I / 2	3
			Animal Science I / 2	3
			Soil Science I / 2	3
			Farm Tools I / 2	1
			Compost I / 2	1
Sophomore	69	7	Rice Production I / 2	3
			Vegetable Production I / 2	3
			Plantation Crops I / 2	2
			Swine Production I / 2	3

			Small Ruminants I / 2	1
Junior	73	7	Poultry Science I / 2	3
			Rubber Culture I / 2	3
			Agriculture Extension I / 2	2
			Root and Tuber Crops I / 2	2
			Large Ruminants I / 2	1
Senior*	43	3	Farm Management I / 2	3
			Farm Mechanics I / 2	3
			Fishery I / 2	1
			Oil and Coconut Palms I / 2	2
			Pasture & Forage Crops I / 2	1

* Internship – for the entire fall semester, the courses in the spring are therefore doubled up.

In their Junior year the students participate in a “Special Project” to prepare for their internship. The intent is to select a crop/commodity and work on it.

Community Outreach – on Thursdays the students work on community outreach activities and connecting students. No grade is allocated, but is worth 40 % of their total grade for a class.

General Information from Faculty: The faculty indicated that they have a syllabus for their classes. A copy of the syllabus was requested for each class (this needs to be followed up). Sometimes materials for the class will be handed out to students but that this is a large effort and costly. The cost of duplication is from \$ 2.5 to 10 Liberian per page. The faculty indicated that finding resource materials for their classes is difficult and they often use internet resources (that may or may not be reliable). Textbooks are an issue and they have not been updated in years. Textbooks are a priority for teaching classes and at a minimum one copy would be required for the faculty member and another for the library.

A list of requested textbooks was asked for (and later provided by the faculty, See Annex B). The list of textbooks was then researched as to the cost per copy and this is also provided. It was suggested that a minimum 2 textbooks per course are needed (1 instructor / 1 library).

The instructors generally use a blackboard and chalk for instruction in the lecture rooms. Writing during lectures is very labor intensive. The faculty indicated that upgrading the teaching facilities such as a computer projector should be a priority. There are 4 lecture rooms that in the BWI Agriculture Department. When asked what is crucially needed to improve instruction? The faculty agreed that visual aids and equipment are a priority.

There was a general discussion about community engagement and what service-learning is. The faculty indicated that all of them have students engaged in the community with their classes. None of the courses use labs that are connected with the lectures but rely on the Tuesday and Thursday practical periods. The activities during the practical class are directed by one of their faculty. The students in each year are divided into groups and rotate through the practical period each week (twice per week).

Recommendations:

Teaching facilities and methodologies – a concerted effort should be made to enhance the teaching facilities where possible such as electronic delivery of lectures and to enhance teaching methodologies and maximize teaching effectiveness. It was indicated that ultimately it would be nice for the Agriculture Department to teach in classrooms equipped with modern computer

projection equipment, in addition to the traditional blackboards. Apparently there are 4 classrooms that the Ag. Department uses primarily. There was an apparent lack of interest in purchasing textbooks for teaching by the faculty with their own personal funds even though apparently the Ministry of Education has textbooks available for sale at a reasonable cost.

Labs – at present there is no apparent formal linkage of classroom instruction and hands-on practical activity. For selected courses, formal labs should be set up to provide hands-on instruction that emphasizes classroom instruction. Directed experiential learning would be a great addition to the formal classroom instruction.

BWI textbook list: the BWI textbook request should be cross-referenced with the FED Project textbook purchase to see if some of the textbooks have already been ordered. If texts are not on the FED purchase list, then a decision should be made whether or not to purchase the books on the list.

A concerted effort should be made to collect all syllabi for classes at BWI. As part of future teacher training, the syllabi will be useful for faculty to revise their own syllabi and to use other's syllabi as models. Another aspect is to insure that students are provided a syllabus at the beginning of each course so that this is similar to a contract between the faculty and the students, both parties agree to the conditions specified and that adequate resources are provided.

Development of class materials – in addition to syllabi it would be advantageous for the FED Project to facilitate, perhaps by stipends, the development of course materials for use by all of the educational institutions involved with the FED project. An effort to develop one set of course materials for each course would be helpful for faculty as they develop their course materials and upgrade their classes. The course materials should include: syllabi, PowerPoint presentations, supplemental materials, suggested textbook(s), student handouts and notes, lab exercises, draft quizzes and tests, possible community engagement and service-learning projects. The course materials could then be used by faculty at the community colleges and BWI in developing, revamping their individual courses.

D. Green Coast Agriculture Program (G-CAP) Inc

A group of 22 enterprising young people have organized to work together and support agriculture initiatives in Bong County, in particular the Kakata area. The STTA visited several current projects of G-CAP alone and with Mr. Albert Bass. Here is the contact information for the group: Executive Director: Aloysius Tamba (Cell: 0886-480-342); email: greenagriculturecoast@yahoo.com / aloyiousgcap2012@gmail.com; Michael B. Flomo, cell: 0886-673-535; email: michael.flomo@yahoo.com

Several current sites were visited where the group has been working.

1st site –

This site is adjacent to the BWI campus and would be a good site for community outreach and service if the G-CAP volunteers and BWI faculty could organize this as this is less than a 10 minute walk. This garden site is at a school and the G-CAP volunteers are working with teachers and the students.



Left: transplant production beds. Right: Garden beds, note the bathroom in the background and possible contamination issues for produce grown in the adjacent soil.



Extensive garden area. Cabbage of harvestable age, with some incidence of pest damage.



Water supply for the garden area is adjacent to the school. This is also used by the community and locked when not in use.

2nd site – land under the control of the Lango Lappaye High School; Community Name: Bassa Community, Kakata, Margibi County



G-CAP members and Mr. Bass in plots



Plots on the edge of Bassa Community.

The lowland area (21 plots) is currently in rice and the project expects to grow vegetables later working with the school PTA. The school reportedly has an agreement with the community to use the land. The G-CAP group, has an informal agreement with the school and no formal written agreement to use the land. Mr. Bass stressed the need to formalize the arrangement to use the land and to insure that any improvements (clearing land, drainage) can be used by the group for their project. The G-CAP members indicated that they have constraints (inputs, equipment) for developing the project on the site and are looking for resources.

3rd site - new Site – brushed land for future production. G-CAP volunteers cleared the brush area in advance of future production. The site is fairly close to the BWI campus.



Plot of land recently cleared by G-CAP volunteers

Recommendation: The G-CAP volunteer group appears to be a hard-working group of young people whose goals are to assist others in the production of food. The G-CAP volunteers apparently have the necessary knowledge to develop and implement small-scale vegetable projects. The group has a leadership structure and is progressive in expanding their possible sites. The FED project perhaps has an opportunity to assist the G-CAP with identifying inputs and working with them in sustaining their efforts. It would be advantageous for FED project staff to work with this group and perhaps develop a joint program or have them as one of the FED farmer contact groups.

E. Grand Bassa FED Office and Guesthouse



The STTA visited the Grand Bassa FED office. The office is in a secure compound and needs several improvements to make the operations at the FED office more efficient. A pump is required in order to provide water for the water tower (see photo at left). Apparently the water pump was stolen prior to security being implemented by FED. Another issue is the printer not being functional due to the low power of the generator. Instead of replacing the generator with a larger capacity generator, an option is to replace the current printer with a smaller printer. This would improve the situation at the FED office. At the time of the visit to the Guesthouse, located in Buchanan, the Guesthouse and office was close to being ready.

F. Grand Bassa Community College

The STTA traveled with Mr. Bass of the FED project to meet with personnel from Grand Bassa Community College. The meeting began with an overview of the Grand Bassa Community College programming that includes: 1. Teacher education 2. Nursing 3. Agriculture. GBCC also has a business entrepreneurship program and the program material and contact information were provided (later these were given to FED staff in Monrovia) as they are interested in developing a collaborative program with FED. GBCC is also aware of gender issues and supporting training of women as well as men.

The discussion then centered on their agriculture programs and their opportunity to assimilate the Concern's Farmer Resource Center (FRC) in Grand Bassa. GBCC would like to develop their agriculture program to have two components – theory and practical. The theory part would be classroom instruction and the practical would be hands-on at the FRC. The focus would be the training of locals, including high school students in various agriculture enterprises. The enterprises mentioned include: oil palm, aquaculture, rice, animal culture with a plant science and an animal science focus. GBCC is also interested in a program of home economics and adult education and reaching out to the local community.

The group then had a discussion of various topics some of which involved possible collaboration with the FED project:

1. Internship program – GBCC would like to provide relevant job experience to students and be involved in the FED intern program
2. Library – the library has very few textbooks and they would like to increase relevant materials that are available. They would also like to update the internet for easier access to the internet, provide access to on-line materials, and enhanced internet access in the library.
3. Quality of instruction – GBCC would like to have funds to send faculty for training as well as updating the facilities. An example is that they had funds to send 1 to South Africa. They indicated they only have 1 portable computer projector for the ag department to use for instruction.

4. Farmer Resource Center – they would like to develop partnerships and perhaps a MoU with the GOL and/or the FED project (or others). The focus of the FRC would be business and training and they would like to have long-range sustainability.
5. Scholarships for students – GBCC expressed a need for scholarship funds (from MoA?) to support students.
6. GBCC New Campus – the new campus is currently under construction and GBCC is currently in a high school campus and eventually they will move to the new campus. The new campus is on 200 acres, although 500 acres was promised. The facilities will have 50 classrooms with electricity, running water and internet access. A tour was arranged to visit the campus.



Meeting of FED staff and GBCC personnel.



Computer lab



Library facilities



Shop class in progress



Shop class, with mixed gender.



New campus site with buildings under construction.



New site with classroom under construction with blackboard.



New site with shop area under construction



New site -vacant campus land that could be used for plantation crops. Soil is primarily sand.



Left: soil (sand) being harvested for construction on site. Right: Road and bridge on the way to the new campus.

Recommendations:

The faculty and administration of GBCC are very interested in developing the college and to provide a wide range of course offerings and majors. As a relatively new college on a temporary campus they are facing many challenges and opportunities. They also apparently have the support of the community for their efforts. GBCC is looking to partnership with other entities for their efforts and are turning to the Ministries of Agriculture and Education to support their efforts. In addition, they are looking to the FED Project to provide leadership and assistance where possible. The current library and computer facilities are somewhat limited and need to be updated. With the move to the new campus considerable resources may be needed to enhance these essential areas. The distance to the new campus is a considerable distance from town. The road is in fairly good condition but may be upgraded in the future due to higher traffic going to the site and a bridge replaced.

The new campus construction appears to be proceeding at a good pace but is still far from completion. The classrooms apparently will not be equipped with installed computer projection equipment (only blackboards) and updating to more modern technology may be needed. The new campus is fairly spacious and there may be an opportunity for agricultural enterprises on the land such as oil palm or rubber as long-term projects. The soil is almost pure sand and this may be an issue for sustainable agriculture enterprises.

GBCC has decided to incorporate Concern's Farmer Resource Center in Grand Bassa (see below). The site is a considerable distance from the future GBCC site and there will be logistical issues to work out concerning management of the facility, engagement of the students as part of classes or as extra-curricular activities, transportation issues. The STTA estimated that the FRC is 43 km and about an hours drive from Buchanan.

G. Concern's Farmer Resource Center (FRC) in Grand Bassa

The FED staff met with Zowulu Seepo of Concern Worldwide Grand Bassa and others at the FRC compound. Mr. Seepo began the discussion by explaining the history of the Farmer Resource Center (FRC). The Concern project started about 5 years ago and the organization was leaving the site. He indicated that the FRC did not have a self-generating source of income that the FRC operated without a business component and gave all products and services free of charge to the community. The FRC had 2 goals; training of farmers and literacy. The following were agriculture

demonstration projects at the FRC: cassava, swamp rice (0.7 ha), upland rice, vegetables, aquaculture (fish pond), small ruminants, poultry. The FRC also has a seed bank and seed storage facility along with cassava and rice processing equipment. The FRC has considerable land area. The FRC is composed of 35 acres with various buildings (see pictures below) that include a 4 BR guest house, a processing building with rice and cassava processing machinery, seed storage building, shop building, office buildings, kitchen building and in a separate fenced compound with pasture a pasture building and piggery, lowland rice, upland vegetable and fruit crops area, and aquaculture ponds. At the time of the visit the pigs were obviously underfed and in need of nourishment; as apparently not enough food was available. There is one water well with a hand pump and there are issues of water quantity. The compound has a solar energy collector that is used for several of the buildings.

The FRC was staffed with 6 persons. There was a farm manager and 4 extension officers and 1 local livestock specialist. Apparently all but one of the extension staff worked with livestock enterprises. The FRC conducted Farmer Field Schools (FFS) with demonstration projects and 15 to 20 farmers in a group for the season. The target was to reduce poverty at the local level. Community Facilitators (CF) were trained by the extension staff at the village level. There was some involvement of the MoA District Ag Officer but this was limited due to lack of resources (such as fuel for motorcycles). The agriculture training was conducted by the FRC staff.



Approach to Concern FRC



Interior of main compound



Community members meeting with Concern about the handover of facility. Right: FRC living quarters and meeting room



Buildings in compound with solar power Solar system on site Shop building



Seed storage building and kitchen building



Machinery available on site



Livestock production area (poultry, pigs) behind fence. Poultry house (left) and piggery (back right)



Paddy rice growing area

Upland crop production area



LEFT: Return path to main buildings from paddy/crop area LEFT: Well on Farmer Resource Center Property

Recommendations:

The transfer of the Concern Farmer Resource Center to GBCC is potentially a great resource for Grand Bassa Community College. There are a number of issues in order to develop the FRC facility for use by the community and to integrate also into the educational mission of GBCC. Concern had put considerable funds and effort into developing the site with the physical infrastructure as well as production areas. Concern also had expended considerable resources in management of the site and for training. At present GBCC apparently does not have resources to staff and manage the site as previously managed by Concern. GBCC students could be used as

labor to assist with maintaining the site although the distance from Buchanan could be problematic, especially in the rainy season. Discussions revolved around a mandatory student work commitment over the weekend or during the week for more than a day. Another topic was how to incorporate the hands-on type of activities into classes and integrate them into formal classroom instruction. A limitation for the involvement of students is the limited lodging available on site (4 bedrooms).

There are several models for practical experience integrated into the curriculum at international universities that the STTA is aware of. Zamorano University (formerly the Pan American School of Agriculture) in Honduras uses a “learning by doing” approach with farm enterprises (dairy, fruit orchards, aquaculture, vegetable production) on a central campus. EARTH University in Costa Rica also uses sustainable farm enterprises on their main campus (biodigester, composting, animal enterprises, banana which is exported to the USA for Whole Foods Market, pineapple) as well as a new campus in the west of the country where students are actively engaged in sustainable development. Considerable investment, planning and implementation have been made in order for these universities to be successful.

GBCC is looking for support of developing the site for educational purposes as well as outreach to the local community. The first step would be the development of a strategic plan with goals and expected outcomes for the site, assessment of resources, and steps for implementation. It would be useful for the FED project along with the MoA to develop a partnership with GBCC and a MOU in order to delineate a course of action and implementation. Concern already had groups of farmers that they were working with and it would be advantageous to develop a relationship between these farmers and FED.

H. Soil Lab Facilities at the William R. Tolbert, Jr. College of Agriculture and Forestry, University of Liberia, Fendall Campus

A meeting was held to discuss the soil laboratory, the MoU with FED and support, and other possible collaborative activities such as seminars. The MoU with FED is apparently still under review by administration. The EHELD engineering enhancement for U.L. was discussed and the general need in the U.L. College of Agriculture and Forestry for resources and enhancements. It was also mentioned that U.L. has a 2 year vocational education program at Cape Mount. Four students (graduating seniors) received training at IITA and are expected to support the college’s lab effort. Six U.L. students received scholarships by the university to attend a university in the Philippines. The total cost for the 6 is \$ 28,000 for all of them to attend. A general discussion of issues related to the soils lab and then a tour was taken of the facilities.

A tour was taken of the facilities and the 7 rooms and a conference room that comprises the soils lab. The soil analysis and processing facility lacks consistent electricity, water and air conditioning. It was suggested by the group that at of all of the rooms there are 3 at a minimum that air conditioning is absolutely necessary (N analysis room, AA and spectrophotometer room, and the storage room). The soils lab is temporarily located in the Engineering Building and is along a central corridor.

The STTA discussed with the soils lab staff access to soil mapping information and resources in advance of a potential STTA to conduct soil mapping in country. The group indicated that no physical soil maps still exist in country and that there is a need to develop newer resources. A

discussion followed on previous soil mapping that was conducted in Liberia. The USDA effort in 1951 (<http://naldc.nal.usda.gov/download/CAT87210307/PDF>) and a more recent effort focused on the Mano River (http://eusoils.jrc.ec.europa.eu/esdb_archive/eudasm/africa/lists/clr.htm). A GIS satellite receiving unit at CARI was mentioned as a possible resource for the potential mapping project.



Hallway with the 7 soil lab rooms and conference room in the Engineering building

Nutrient Concentration Analysis Section:

Nutrient analysis equipment (spectrophotometer, AA (atomic absorption)) was donated however the following is needed for this lab to be functional:

1. Fume hood
2. Water
3. Electricity
4. Air conditioning



Atomic Absorption



Spectrophotometer

Nutrient Analysis and pH Section



Lab with pH meter, reagents, and nitrogen digester under a flume hood.



Block digester in fume hood

Work Lab

Needs – water / gas lines to be used adequately as a wet lab and processing of samples



Work bench

Wet Chemistry, Plant, Water and Soil Analysis Section

4 drying ovens. The room needs electricity and adequate ventilation.



Storage Room

The soils lab received donated supplies that need to be in an air conditioned room with proper shelving and organized storage. There is also concern that the supplies may be past their proper use date.



Particle Size Analysis Soil Particle, Size and Water Section



Equipment donated and not used



Water still

Balance Room

The faculty and staff indicated that they have sufficient balance equipment (4)



Recommendations:

The faculty at UL involved in the soils lab is interested in developing the soils lab as a fully-functioning lab at the university. The UL administration is apparently evaluating a potential MoU with the FED project although because of the limited funds and resources in the MoU they see a much greater need for sustainable resources to support the lab. The lab facilities requires significant infrastructure that is noted above (water, electricity, AC, gas lines) for the lab rooms and UL currently has limited resources for this. It would be valuable for a future STTA (such as the potential soil mapping STTA, LSU professor David Weindorf) to evaluate the lab and resources and what will be required. An assessment of the chemicals/reagents that were donated and stored at ambient temperatures and relative humidity needs to take place. At a minimum the soils labs requires air-conditioning in 3 rooms (nitrogen analysis, AA spect., stockroom).

A fully functioning lab would be beneficial to the FED project as well as the Ministry of Agriculture in support of the agriculture projects. In addition, the UL trains students who will in the future work in the Liberian industry and for NGOs, with the GOL including MoA, as well as those who will be teachers at community colleges. If the UL soils lab was operating this may allow for more in depth analysis and studies to take place than with the private soils lab that is currently operating.

I. Goat Value Chain Meeting at FED Office with LTTA Dennis McCarthy

Dennis indicated that there is a file in the Goat Activity Description that would be good to have. The files are in TAMIS Clin I – 0017, 0047, 0048.

The Goat Project is currently working in 3 counties (Bong, Lofa, Nimba). The project has 5 lead goat farmers in each county. Previously “Shelter Fencing” Training was conducted in each of the counties with a FtF volunteer. It was suggested that trainings at each site be conducted on a monthly basis, even if some of the information is repetitive. A STTA coming in would need to conduct trainings over a week in 3 sites with basic information provided.

The following are proposed training topics:

1. Nutrition and Feeding (hay production, feeding)
2. Basic Animal Health – prevention, diagnostics, disease epidemiology, parasites, deworming, hoof trimming.
3. Basic Management of Kids
4. Reproductive Management – breeding, how to recognize pregnancy, supplements, feeding, castration techniques
5. Performance Records

Recommendation: need to develop a series of STTAs to support the goat value chain effort and the “goat pass on scheme” with the FED project.

Section III. Overall Conclusion/Recommendations

Through this mobilization for the Centers of Excellence for Component 3 of the FED project there are major needs identified:

- I. Teacher training in the basics of course development and modern delivery methods (if modern technology will be available) including syllabus development, teaching methods, inclusion of hands-on activities in labs directly associated with courses, service-learning projects and community engagement is . Incentives, such as financial

or release time, would be a beneficial way to encourage training and enhanced course development. An example is where LSU began an effort in order to increase service-learning on the LSU campus and started training of faculty in service-learning, provided mentors as well as small stipends (\$ 1000) to faculty for their participation and development of service-learning classes. This is an ongoing effort at LSU. In general, future STTAs will be invaluable to provide teacher trainings.

2. Classroom technology – continued investment in developing teaching classrooms and libraries is needed as the schools develop into Centers of Excellence.
3. In the original contract, LSU had 4 positions (locals) to support Component 3 and these positions were transferred to DAI. It would be beneficial if these support positions were provided to the LTTA for Component 3, Dr. Dennis Eaton in order to fulfill all of the tasks for the FED project. In particular, this is important due to recent changes in the FED project direction and focus.
4. Grand Bassa County Community College is developing its new campus while taking on the Concern Farmer Resource Center as a teaching lab and hands-on second on campus. This is very ambitious and the BCCC will need guidance, support and assistance as they develop these 2 projects. Hopefully the FED project, the MoA will be able to develop a relationship with GBCC that is mutually beneficial.
5. This STTA mobilization was focused on evaluating the hands-on activities and community engagement of Booker Washington Institute and Grand Bassa Community College. Due to a time restriction, Nimba Community College was not part of this mobilization. In the future it would be good to have a follow up of service-learning/community engagement at BWI and to conduct service-learning workshops at GBCC and NBCC.

Section IV. Annexes

Annex A. Daily log of Assignment Activities

Mon. Jan 28, 2013 Depart U.S. Travel to Liberia via routing of Baton Rouge-Atlanta- JFK-Paris-Monrovia.

Tues. Jan. 29. Night arrival in Liberia, travel to Kakata. Lodging at BWI Guesthouse.

Wed. Jan. 30. Orientation. FED Component 3 meeting at BWI. Discussion of activities to be undertaken while in country for FED.

Bong County MOA - Met with Gala Toto, Bong County FED staff and met the FED intern Randolph. The intern position for FED was discussed and their duties (1/2 time, 20 hr per week).

Sangai Farm, Bong County and Mr. Bill Tolbert

Lodging at BWI Guesthouse

Thurs. Jan. 31.

Booker Washington Institute - Meeting with Agriculture Faculty at BWI: Jacob Swee (head); J. William Barrolle; Sylvester Gbarsha; Jestina N. N'cube; Saykor H.K. Davis; Jerry Yini of the BWI Agriculture Department at the FED office at BWI along with James Cooper. A return meeting was suggested to follow up on the meeting and to allow for a presentation on service-learning and community engagement.

Visit Green Coast Agriculture Program (G-CAP) Inc – production site adjacent to BWI campus. Executive Director: Aloysius Tamba (Cell: 0886-480-342); email: greenagriculturecoast@yahoo.com / aloyiousgcap2012@gmail.com. Michael B. Flomo (G-CAP) Inc (Cell: 0886-673-535); email: michael.flomo@yahoo.com

Lodging at BWI Guesthouse

Fri. 1. Feb 2013

Returned to DAI office in the morning from the FED Office at BWI.

10 am – meeting of Component 3 group (D. Eaton, A. Bass,) to discuss activities for the following week. Visit and meeting at BWI and visit to Grand Bassa Community College.

Listened to STTA report of Dr. Howard Williams on Component 3

Afternoon meetings and work with FED staff

Lodging at Royal Grand Hotel

Sat. 2 Feb 2013

Worked at FED Office. Met with Dennis Eaton to discuss meetings with faculty at BWI and activities and travel plans for next week. Worked on service-learning presentation.

Mon. 4 Feb 2013

Travel to Grand Bassa County. Departure delayed in order to meet with the Grand Bassa FED extension personnel. Visit to FED Office in Grand Bassa. Overnight at Philipmena's Guest House.

Tues. 5 Feb 2013

Visit to Concern Farmer Resource Center in Grand Bassa County. Discussion with Concern staff and local agriculture leaders on the FRC and future plans. Toured FRC site and agricultural production area and land.

Return to Bong County and Overnight in Kakata at City View Guest House.

Wed. 6 Feb 2013

Morning meeting with Grand Bassa Community College personnel. Attendees: S. Augustine Yeahgar, Dr. Zachariah Gaye, Emmanuel Tokpah, Dr. Levi B. Zangai, Sokowuah K. Subah, Morris B. Zorbah, David N. Zeogar, Albert N. Bass (FED).

Tour of current GBCC old campus and new campus.

Overnight at Philipmena's Guest House.

Thur. 7 Feb. 2013

Presented seminar at BWI library at noon. Arrived at 11 am to set up. All BWI faculty were encouraged to attend the seminar.

Visited several G-CAP production sites in Kakata with Mr. Albert Bass.

Overnight in Kakata at KEM Guest House.

Fri. 8 Feb. 2013

Morning meeting at the William R. Tolbert, Jr. College of Agriculture and Forestry, University of Liberia, Fendall Campus. Attendees: Dr. Roland C. Massaquoi (Dean, U.L.), Edwin B.T. Nimley (instructor, U.L.), Peter N. Korvah (Professor, U.L.), D. Abugarshall Kai (instructor, U.L.), Albert N. Bass (FED); Carl Motsenbocker (FED), William S. Kollie (lab technician, U.L.), Roland K. Voker (lab technician, U.L.), Henry T. Nyuma (lab technician, U.L.), Frank Jawara (lab technician, U.L.).

Returned to FED office around 1 pm. Meeting with FED LTTA Dennis McCarthy about possible STTAs to support the FED goat value chain effort. Overnight at Royal Grand Hotel

Sat. 9 Feb. 2013

Worked at FED Office. Met with Dennis Eaton to discuss past week's activities. Worked on presentation of findings for STTA mobilization.

Overnight Royal Grand Hotel

Mon. 11 Feb. 2013

Participated in FED meetings and discussions at the FED Office. No time for trip presentation due to meetings.

Overnight Royal Grand Hotel

Tues. 11 Feb. 2013

Participated in the FED review by Components as presented by FED staff. Departed office for airport at 3 pm. Evening flight departure from Liberia for USA and arrival on Wed. 12 Feb.

Wed. 12 Feb. 2013 Arrival in USA and Louisiana

Annex B. BWI Faculty Textbook Request

Title of book	Author	Year Pub	List price	Used price
Improvement of Livestock Production in Warm Climates	R. E. McDowell	1973		9.30
An Introduction to Animal Husbandry in the Tropics	J. A. Paynes & R. T. Wilson	1999	221.45	225.05
Natural Rubber: Biology, Cultivation & Technology	M. R. Sethuraj	1992	370.00	
Hevea Brasiliensis; or Para Rubber its Botany, Cultivation, Chemistry and Diseases	Herbert Wright	2011	30.97	22.17
Farm Mechanics	Herbert A. Shearer	2011	20.33	16.13
Farm Mechanics	Emil Wilhelm Lehmann & Fred D. Crawshaw	2011	30.99	
Rice Production: Best Management Practices (LSU)	Fred S. Sanders	2011		FREE
Rice: Origin, History, Technology & Production	C. Wayne Smith & Robert H. Dilday	2002	293.03	424.73
Agriculture Extension: The Training & Visit System	M. D. Benor Daniel	1984	386.15	11.15
Education Through Cooperative Extension	Brenda Seevers	1997	231.20	45.00
Globalization and Indian States: Education, Health and Agriculture Extension Services in Punjab	Sucha Singh Gill, Jaswinder Singh Brar & Sukhwinder Singh	2010	30.00	22.95
Elements of the Nature and Properties of Soils (3rd ed.)	Nyle C. Brady & Ray R. Weil	2009	99.38	60.00
Principles and Practices of Soil Science: The Soil as a Natural Resource	R. E. White	2005	44.00	48.00
Modern Livestock and Poultry Production	James R. Gillespie & Frank Flankers	2009	84.48	75.49
Poultry Production	William Adams Lippincott & Laslie Ellsworth Card	2010	23.30	
Tropical Tuber Crops: Yams, Cassava, Sweet Potatoes & Coco yam	I. C. Onwueme	1978	157.30	35.50
The Cassava Transformation: Africa's Best Kept Secret	Felix I. Nweke, Dustan S. C. Spencer & John K. Lynam	2001	21.62	17.35
Cassava: Farming, Uses & Economic Impact	Colleem M. Pace	2011	89.00	
Tree Crops: A Permanent Agriculture	J. Russell Smith & Wendell Berry	1987	48.68	
Introduction to Fruit Crops	Mark Rieger	2006	54.22	44.99
Breeding Plantation Trees: Tropical Species	Shri Mohan Jain & P. M. Priyadarshan	2010	94.00	88.7
Farm Management	Ronald Kay, William Edwards & Patricia Duffy	2011	48.00	33.58
Communicating in Agriculture Industry	Russell A. Graves	2003	67.95	14.5
Contemporary Issues in Animal Agriculture	Peter R. Cheeke	2003	69.00	42.47
Agriculture Economics & Agribusiness	Gail L. Cramer, Clarence W. Jensen & Douglas D. Southgates, Jr.	2001	21.97	19.12
Mathematical Applications in Agriculture	Nina H. Mitchell	2011	84.88	55.18
The Biology of Horticulture: An Introductory Text	J. E. Preece, John E. Preece & Paul E. Read	2005	95.22	57.91
The Oil Palms (World Agriculture Series)	R. H. V. Corley & P. H. B. Tinker	2003	250.68	322.16
All About Palms	Ortho	2008	2.23	1.77
Old-Time & Garden Devices and How to Make Them	Rolfe Cobleigh	2005	5.97	5.5
Turn-of-the-Century Farm Tools and Implements	Henderson & Co.	2002	5.92	5.81
Soil Science & Management	Edward J. Plaster	2008	220.91	59.78
Ecology of Fish & Wildlife	L. Devene Burton	1995	9.18	7.33
	ESTIMATED COST		3212	1771.62

Note: the estimated costs were calculated by sourcing textbooks on Amazon.com.

BWI

AGRICULTURE DEPARTMENT

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| o Jacob B. Swee, B.Sc. M.Sc. | Head |
| Johnson Zieh, M.Sc. (Ag extension) | Instructor |
| o J. William Barrolle, B.Sc. - | Instructor Farm mechanics/Fishery |
| o Sylvester Gbarsha, B.Sc. | Instructor |
| Galimah Taylor, B.Sc. | Instructor |
| Varlai W. Jackollie, B.Sc. | Instructor - Intro Soil sci / Root tuber |
| o Jestina N. N'cube, AA | Instructor |
| o Saykor H. K. Davis, Diploma, Student/ UL | Instructor, Aide - Teaching Assistance |
| Flomo Zayzay, Certificate | Animal Caretaker |
| Darent Jarwu, Certificate | Shop Aide |
| o Jerry Yini | Project officer/Extension officer |

AUTO DEPARTMENT

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|---|------------------------|
| Charles M. Dumber, Diploma, AA, Student-BTS | Head |
| Vessellee G. Kollie, Diploma | Instructor |
| Philip Momotai, B. Certificate | Instructor |
| Mannir Ibrahim, B. Tech M. Tech | Instructor |
| Samuel A. Okyere Certificate | Machinist/Instructor |
| William Gonwokaye, Diploma | Instructor |
| James Clement, Diploma | Shop Assistant |
| Mohammed Aliou, Certificate | Shop Aide |
| Abraham Flomo, Certificate | Shop Aide |
| Henry N. Kwenah, Diploma | Shop Aide |
| Fasu Mulbah, Diploma | Auto Electrical Aide |
| Musa Siryon | Service Mechanic |
| J. Isaac Dunbar | Machine/Teacher Assist |

BUSINESS DEPARTMENT

- | | |
|--|------------------------------------|
| Ann Mardea Clinton, B.BA | Head |
| Motalee Jabateh, B.BA, Candidate MBA | Instructor, Accounting |
| Abraham W. Wowah, BBA, Student-MA /UL | Instructor, Secretarial Science |
| Rebecca B. Flomo, Diploma, AA. B.Sc | Instructor, Secretarial Science |
| Emmanuel B. Green, BBA. | Instructor, Business English |
| James M. Kpardeh, B.Sc., MBA | Instructor, Economics/Management |
| Nelson B. McGill, Diploma, AA, Candidate BBA | Instructor, Computer Science |
| Matthew Gungrien Diploma, Student CUJC | Instructor, Computer Science |
| Harris H. Johnson, BBA | Instructor, Accounting /Management |

BUILDING TRADES

- | | |
|-----------------------------|---------------------------|
| James Karnley, Diploma | Acting Head of Department |
| Joseph N.B. Kamara, Diploma | Masonry Instructor |
| Arthur B. Jarwo, Diploma | Drafting Instructor |
| Christian A. Jones, Diploma | Drafting Head |

AGRICULTURE DEPARTMENT
BOOKER WASHINGTON INSTITUTE
P. O. BOX 273
KAKATA, MARGIBI COUNTY

A FOUR YEAR CURRICULUM

FRESHMAN CURRICULUM

FIRST SEMESTER	SECOND SEMESTER
Course Title: Plant Science 1	Course Title: Plant Science 2 3x/wk
Objectives: By the completion of the course students should be able to: <ol style="list-style-type: none"> 1. Discuss the ecological requirements of various crops 2. Discuss farming systems practice in West Africa 3. Classify various tropical crops. 	Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Demonstrate principles of crop production 2. Perform and discuss various crop maintenance and management practices.

FIRST SEMESTER	SECOND SEMESTER 3x/wk 1hr
Course Title: Animal Science 1	Course Title: Animal Science 2
Objectives: By the completion of this course students will be able to: <ol style="list-style-type: none"> 1. Outline the origin and distribution of various domestic animals 2. Discuss the economic importance of farm animals 3. Differentiate the types of domestic animals 4. Discuss animal behavior and environment 5. Perform different management systems of farm animals 	Objectives: By the completion of this course students will be able to: <ol style="list-style-type: none"> 1. Specify different kinds of animal nutrition 2. Demonstrate various breeding methods 3. Identify general health problems of farm animals

FIRST SEMESTER	SECOND SEMESTER
Course Title: Soil Science 1	Course Title: Soil Science 2 3x
Objectives: By the completion of this course students will be able to: <ol style="list-style-type: none"> 1. Discuss historical highlights of soil 2. Outline economic importance of soil 3. Discuss parent material and soil formation 4. Discuss physical and chemical properties of soil 	Objectives: By the completion of this course students will be able to: <ol style="list-style-type: none"> 1. Discuss soil relative to plant nutrition 2. Demonstrate fertilizer application methods 3. Perform various soil testing methods 4. Demonstrate soil conservation & management 5. Outline soil water management practices

FIRST SEMESTER	SECOND SEMESTER
Course Title: Farm Tools 1	Course Title: Farm Tools 2
Objectives: By the completion of this course students	Objectives: By the completion of this course students

will be able to: <ol style="list-style-type: none"> 1. Identify simple farm tools and implements 2. Explain the usage and maintenance of various farm tools 3. Outline safety and the use of tools & farm implements 	will be able to: <ol style="list-style-type: none"> 1. Identify various types of farm machines 2. Discuss the principles of operating farm machines 3. Identify sources of farm power
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FIRST SEMESTER	SECOND SEMESTER <i>lx/wk</i>
Course Title: Compost 1	Course Title: Compost 2 <i>2x/wk</i>
Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Outline compost benefits & usage 2. Discuss composting as a biological process 3. Enumerate compost ingredients 4. Explain the principles of composting 5. Identify the stages of composting 	Objectives: By the completion of the course students <i>points</i> will be able to: <ol style="list-style-type: none"> 1. Select ideal sites for composting 2. Demonstrate various methods of composting & illustrate relevant designs 3. Discuss the environmental issues relative to composting

SOPHOMORE COURSES

FIRST SEMESTER	SECOND SEMESTER
Course Title: Rice Production 1	Course Title: Rice Production 2
Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Discuss rice morphology 2. Demonstrate the growth stages of rice 3. Identify ideal sites for rice & practice proper land preparation for the production of the crop 4. Perform seed selection & preparation methods 5. Demonstrate methods of raising seedlings 	Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Discuss plant nutrients & their effect on growth 2. Demonstrate fertilizer application 3. Explain and perform pests & disease control practices 4. Demonstrate weeds control methods 5. Demonstrate harvest & post-harvest technology

FIRST SEMESTER	SECOND SEMESTER
Course Title: vegetable Production 1	Course Title: vegetable Production 2
Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Outline factors to be considered when growing vegetables 2. Identify & discuss various types of local and exotic vegetables 3. Perform seed selection & testing methods 4. Demonstrate nursery establishment & maintenance practices 5. Demonstrate field maintenance practices 	Objectives: By the completion of the course students shall be able to: <ol style="list-style-type: none"> 1. Discuss nutritional requirement for vegetable crops 2. Determines fertilizer requirement 3. Perform various insects/pests & disease control methods

FIRST SEMESTER	SECOND SEMESTER <i>2x crop</i>
Course Title: Plantation Crops 1	Course Title: Plantation Crops 2
Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Discuss the origin of various tropical crop 2. Explain the ecological requirement of various 	Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Demonstrate culture practice of <ol style="list-style-type: none"> i. Citrus species

crops 3. Discuss the botany of plantation crops	ii. Musa species iii. Coffee iv. Cocoa v. Pineapple vi. Mango vii. Papaya viii. Kola nut
FIRST SEMESTER Course Title: Swine Production 1	SECOND SEMESTER Course Title: Swine Production 2 3x
Objectives: By the completion of this course students will be able to: 1. Explain the origin, distribution, potential & constraints of swine production 2. Demonstrate various systems of breeding swine 3. Identify breeds of swine 4. Explain and demonstrate swine nutrition	Objectives: By the completion of this course students will be able to: 1. Demonstrate the construction of swine housing 2. Practice management systems of swine 3. Discuss swine health & disease management 4. Demonstrate processing, packaging and marketing of pig products

FIRST SEMESTER Course Title: Small Ruminants 1	SECOND SEMESTER Course Title: Small Ruminants 2 1x/wk
Objectives: By the completion of the course students will be able to: 1. Discuss the origin & history of small ruminants 2. Identify and discuss the physiology of small ruminants 3. Explain the nutrition of small ruminants	Objectives: By the completion of the course students will be able to: 1. Discuss the breeding & rearing of i. Guinea pigs ii. Rabbits iii. Goats iv. Sheep 2. Identify and control common pests and diseases of small ruminants

JUNIOR COURSES

FIRST SEMESTER Course Title: Poultry Science 1	SECOND SEMESTER Course Title: Poultry Science 2 3x
Objectives: By the completion of the course students will be able to: 1. Discuss the origin & economic importance of poultry birds 2. Explain the biology of poultry 3. Demonstrate various poultry breed systems	Objectives: By the completion of the course students will be able to: 1. Perform management systems of poultry 2. Discuss poultry nutrition & feed categories 3. Demonstrate incubation of poultry eggs 4. Identify and control poultry pests and diseases

FIRST SEMESTER Course Title: Rubber Culture 1	SECOND SEMESTER Course Title: Rubber Culture 2 3x
Objectives: By the completion of this course students will be able to: 1. Explain the origin and distribution of natural rubber 2. Discuss the botany of rubber 3. Demonstrate nursery establishment & management practices 4. Perform cultural practices on rubber	Objectives: By the completion of this course students will be able to: 1. Demonstrate tapping systems 2. Discuss rubber processing 3. Identify, prevent & control rubber pests and diseases

FIRST SEMESTER	SECOND SEMESTER
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Course Title: Agriculture Extension 1	Course Title: Agriculture Extension 2 2x
<p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Explain the purpose of Agriculture Extension 2. Organize extension programs 3. Apply terminologies associated with extension services 	<p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Discuss the elements of communication in extension services 2. Organize farm visits (Projects)

FIRST SEMESTER	SECOND SEMESTER
Course Title: Root & Tuber Crops 1	Course Title: Root & Tuber Crops 2 2x
<p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Discuss the origin & history of root & tuber crops 2. Explain the botany of root & tuber crops 3. Discuss the diseases and pests of root & tuber crops 	<p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate cultivation & cultural practices of <ol style="list-style-type: none"> i. Cassava ii. Yam iii. Sweet potatoes iv. Eddoes

FIRST SEMESTER	SECOND SEMESTER
Course Title: Large Ruminants 1	Course Title: Large Ruminants 2 2x
<p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Identify various large ruminant species 2. Discuss the origin & history of cattle breeds 3. Identify and discuss the physiology of large ruminants 4. Explain the nutrition of large ruminants 	<p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 2. Demonstrate the breeding and management practices of cattle 3. Identify and treat common pests & disease of large ruminants

SENIOR COURSES

Internship

FIRST SEMESTER	SECOND SEMESTER
Course Title: Farm Management 1	Course Title: Farm Management 2 3x
<p>Objectives: By the completion of this course students will be able to:</p> <ol style="list-style-type: none"> 1. Discuss the Concepts of Farm Management 2. Outline the Problems faced by local Farmers 3. Explain the Decision Making Process of Farm Management 4. Enumerate the Factors of Production 5. Discuss various Economic Principles & Farm Management 	<p>Objectives: By the completion of this course students will be able to:</p> <ol style="list-style-type: none"> 1. Formulate & Interpret a Farm Budget 2. Interpret the Risks & Uncertainty involve in a Farm Enterprise 3. Prepare Farm Records 4. Interpret Farm Assets & Liabilities 5. Discuss Depreciation of Farm Equipment

FIRST SEMESTER	SECOND SEMESTER
Course Title: Farm Mechanics 1	Course Title: Farm Mechanics 2 3x
<p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Discuss various Farm Machinery & Power 2. Discuss Internal Combustion Engine 3. Discuss the Kinds of Engine 4. Perform Simple Maintenance on Farm Engines 	<p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Operate major Farm Machines 2. Use various Farm Implements and Operate Associated Machines

FIRST SEMESTER	SECOND SEMESTER 1X
Course Title: Fishery 1	Course Title: Fishery 2
Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Identify valuable tropical species 2. Discuss types of fish ponds 3. Demonstrate fish ponds construction 	Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Discuss fish ponds management 2. Discuss fish ponds pests & diseases 3. Discuss processing & marketing of fish and fish products

FIRST SEMESTER	SECOND SEMESTER 2X
Course Title: Oil & Coconut Palms 1	Course Title: Oil & Coconut Palms 2
Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Know the origin of oil & coconut palm varieties grown in West Africa 2. Know and describe suitable soil required for growing of oil & coconut palms 3. Demonstrate pre-nursery & nursery practices 	Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Perform field management practices of oil & coconut palms 2. Discuss harvest & post-harvest practices of palms 3. Understand management practices of palms

FIRST SEMESTER	SECOND SEMESTER 1X
Course Title: Pasture & Forage Crops 1	Course Title: Pasture & Forage Crops 2
Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Discuss types of pastures & their establishment 2. Identify pasture species and demonstrate good seed selection 	Objectives: By the completion of the course students will be able to: <ol style="list-style-type: none"> 1. Demonstrate excellent management of pasture 2. Discuss nutritional value of forage species

Courses taught at Agri. Dept. - BWI

Plant Science
Animal "
Soil "
Farm Tools & Implements
* Compost Technology

Plantation Crops (Tropical)
* Rice Production
Swine "
Vegetable "

Agriculture Extension
Poultry Science
* Rubber Culture (Natural Rubber Production)
Root/Tuber Crops (Tropical)
Ruminants

Farm Management
Farm Mechanics
* Oil & Coconut Palms Production
Fishery
Pasture & Forage Crops Production

AGRICULTURE DEPARTMENT

FRESHMAN COURSES

FIRST SEMESTER	SECOND SEMESTER
<p>Course Title: Plant Science 1</p> <p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Discuss ecological requirements of crop plants 2. Discuss farming systems 3. Discuss classification of various crops 	<p>Course Title: Plant Science 2</p> <p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate principles of crop production 2. Demonstrate crop maintenance and management practices

FIRST SEMESTER	SECOND SEMESTER
<p>Course Title: Soil Science 1</p> <p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Discuss historical highlights 2. Discuss the economic importance of cultivated crops 3. Discuss parent material and soil formation 4. Discuss physical & chemical properties of soil 	<p>Course Title: Soil Science 2</p> <p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Discuss soil & plant nutrition 2. Apply fertilizers to crops 3. Practice soil testing 4. Demonstrate soil conservation & management 5. Demonstrate soil water management

FIRST SEMESTER	SECOND SEMESTER
<p>Course Title: Introduction to Farm Tools 1</p> <p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Name simple farm tools and implements 2. Explain farm tools usage and maintenance 3. Take safety precautions in using tools 	<p>Course Title: Introduction to Farm Tools 2</p> <p>Objectives: By the completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. List different types of field machinery 2. Discuss the principle farm machines operation 3. List sources of farm power

FIRST SEMESTER		SECOND SEMESTER	
Course Title: Animal Science 1		Course Title: Animal Science 2	
Objectives: By the completion of the course students will be able to:		Objectives: By the completion of the course students will be able to:	
<ol style="list-style-type: none"> 1. Discuss origin and distribution of animals 2. Discuss the economic importance of animals 3. Differentiate the types of domestic animals 4. Discuss animal behavior and the environment 5. Practice different management systems of farm animals 		<ol style="list-style-type: none"> 1. Demonstrate animal nutrition 2. Breed domestic animal 3. Treat animal health problems 	

SOPHOMORE COURSES

FIRST SEMESTER		SECOND SEMESTER	
Course Title: Rice Production 1		Course Title: Rice Production 2	
Objectives: By the completion of the course students will be able to:		Objectives: By the completion of the course students will be able to:	
<ol style="list-style-type: none"> 1. Discuss rice morphology 2. Demonstrate the growth stages of rice 3. Demonstrate seed selection & preparation methods 4. Demonstrate methods of raising seedlings of different crops 5. Practice proper land preparation for production of crops 		<ol style="list-style-type: none"> 1. Discuss plant nutrients & their effect on growth 2. Demonstrate fertilizer application 3. Prevent pests & diseases of rice and their control 4. Prevent weeds and weed control 5. Practice harvesting & post harvesting technology 	

FIRST SEMESTER		SECOND SEMESTER	
Course Title: Vegetable Production 1		Course Title: Vegetable Production 2	
Objectives: By the completion of the course students will be able to:		Objectives: By the completion of the course students will be able to:	
<ol style="list-style-type: none"> 1. Things to consider when growing vegetable 2. Types of vegetable production 3. Seeds selection & testing 4. Nursery establishments/preparation 5. Crop establishment 		<ol style="list-style-type: none"> 1. Discuss nutritional needs for vegetables 2. Determine fertilizer requirements 3. Demonstrate vegetable care & maintenance practices 4. Practice pests/insects control 	

FIRST SEMESTER		SECOND SEMESTER	
Course Title: Plantation Crops 1	Objectives: By the completion of the course students will be able to:	Course Title: Plantation Crops 2	Objectives: By the completion of the course students will be able to:
<ol style="list-style-type: none"> 1. Discuss the history of plantation crops 2. Discuss the Ecological requirements of plantation crops 3. Discuss the Physiology of the crops 4. Discuss the Botanical description of plantation crops 		<ol style="list-style-type: none"> 1. Establish Cocoa, Coffee, Rubber and Oil palm nurseries 2. Transplant Cocoa, Coffee, Rubber and Oil palm seedlings 3. Fertilize Cocoa, Coffee, Rubber and Oil palm 4. Carryout field maintenance of Cocoa, Coffee, Rubber and Oil palm 	

JUNIOR COURSES

FIRST SEMESTER		SECOND SEMESTER	
Course Title: Poultry Science 1	Objectives: By the completion of the course students will be able to:	Course Title: Poultry Science 2	Objectives: By the completion of the course students will be able to:
<ol style="list-style-type: none"> 1. Name the Breeds of chickens 2. Explain the biology of fowls 3. Practice poultry breeding and management systems 		<ol style="list-style-type: none"> 1. Feed chicks with proper nutritional feed 2. Incubate eggs 3. Identify, control and treat Poultry diseases, parasites 4. Practice disease prevention methods 	

FIRST SEMESTER		SECOND SEMESTER	
Course Title: Root & Tubers 1	Objectives: By the completion of the course students will be able to:	Course Title: Root & Tubers 2	Objectives: By the completion of the course students will be able to:
<ol style="list-style-type: none"> 1. Propagate and produce Cassava 2. Propagate and produce Yam 		<ol style="list-style-type: none"> 1. Propagate and produce Sweet potatoes 2. Propagate and produce Eddoes 	

FIRST SEMESTER		SECOND SEMESTER	
Course Title: Agricultural Extension 1		Course Title: Agricultural Extension 2	
Objectives: By the completion of the course students will be able to:		Objective: The course will afford students the opportunity to interact with farmers in the field.	
<ol style="list-style-type: none"> 1. Explain the purpose of Agriculture extension 2. Organize extension program for farmers 3. Define terminologies associated with extension service 4. Explain the role of an extension agent 5. Discuss the elements of communication in extension service 		Farm Visits (Project)	

FIRST SEMESTER		SECOND SEMESTER	
Course Title: Rubber Culture 1		Course Title: Rubber Culture 2	
Objectives: By the completion of the course students will be able to:		Objectives: By the completion of the course students will be able to:	
<ol style="list-style-type: none"> 1. Explain the Origin & distribution of rubber 2. Discuss the Environmental requirements of rubber 3. Demonstrate Nursery establishment & management practices 4. Transplant rubber from nursery into the field 5. Practice field maintenance 		<ol style="list-style-type: none"> 1. Demonstrate proper Tapping system 2. Process rubber 3. Control and prevent rubber Pests and diseases 	

FIRST SEMESTER		SECOND SEMESTER	
Course Title: Ruminants 1		Course Title: Ruminants 2	
Objectives: By the completion of the course students will be able to:		Objectives: By the completion of the course students will be able to:	
<ol style="list-style-type: none"> 1. Explain the history of Cattle, Goats and sheep 2. Classify the breeds of Cattle, Goats and sheep 3. Draw and explain the parts of the digestive systems of Cattle, Goats and sheep 4. Explain the Nutritional requirements of Cattle, Goats and sheep 		<ol style="list-style-type: none"> 1. Breed and produce Cattle, Goats and sheep 2. Properly feed Cattle, Goats and sheep 3. Prevent, and control diseases of Cattle, Goats and sheep 	

By the completion of study in this course the fourth year student will be able to:

1. Properly use the arc-welding and oxy-acetylene welding equipment to weld horizontally, vertically and the flat welding position with safety.
2. Form or mold metal sheet according to specification
3. prepare the body surface for painting

AGRICULTURE DEPARTMENT CURRICULUM DEVELOPMENT

AGRI 201: PLANTATION CROPS:

COURSE OBJECTIVES:

By the completion of this course, student will be able to:

1. Identify the main varieties of plantation crops grown in West Africa.
2. Name and describe the types of soils suited for their growth.
3. Understand the basic principles of nursery practices.
4. Learn the various cultivation methods of plantation crop.

LEARNING ACTIVITIES

1. Instructor displays various types of fruits and seeds
2. Students measure and construct nursery
3. Students collect soil and fill poly bags.
4. Instructor demonstrates seed sowing and watering
5. Students sow seeds and maintain nursery

**LEARNING MATERIALS: SEEDS, FRUITS POLYBAGS, WATERING CANS
CUTLASSES, HOES, MEASURING TAPE**

AGRI. 202: PLANTATION CROPS:

COURSE OBJECTIVE:

- 1 Understand the temperature, rainfall and water requirement of plantation crops
2. Know various methods of crops cultivation, land preparation and field planting
Crops
- 3 Understand different methods of fertilizer application, weeding and harvesting of
plantation crops.

By the completion of this course students will be able to:

1. Identify and name farm machine
2. Care and maintain farm machine properly
3. Operate farm machine safely

COURSE ACTIVITIES

1. Instructor labels each farm machine and has students repeat the name after instructor
2. let each student sketch and label the farm machines
3. Organize students to visit rice processing plant and look on the processing progress
4. Teach students how to operate different kinds of farm machines safely
5. Teach students how to care and maintain farm machine

AGRI 201 PLANTATION CROPS

COURSE OBJECTIVE:

By the completion of this course students will be able to:

1. Identify the main varieties of plantation crops grown in West Africa
2. name and describe the types of soils suited for their growth
3. Understand the basic principles of nursery practices
4. Learn the various cultivation methods of plantation crops

LEARNING ACTIVITIES

1. Instructor displays various types of fruits and seeds
2. Students measure and construct nursery
3. Students collect soil and fill polybags
4. instructor demonstrates seed sowing and watering
5. Students sow seeds and maintain nursery

Learning Materials: seeds, fruits, polybags watering cans
Cutlasses, hoes, measuring tape

AGRI 202 PLANTATION CROPS

COURSE OBJECTIVES:

1. Understand the temperature, rainfall and water requirement of plantation crops
2. Know various methods of crops cultivation, land preparation and field planting
3. Understand different methods of fertilizer application weeding and harvesting of plantation crops

4. Identify insect pests and diseases of plantation crops and know the control methods

LEARNING ACTIVITIES

1. Instructor exhibits various farm tools and equipment and explain the usages
2. Students layout field, do spacing and pegging
3. Instructor demonstrates transplanting of seedlings
4. Instructor displays fertilizers and insecticides and explain the application methods
5. Students practice different methods of fertilizer application and chemical spray

LEARNING MATERIALS

Nursery seedlings fertilizer, insecticides, spraying cans, etc

AGRI: 301-ROOT & TUBER CROPS

COURSE OBJECTIVES:

1. Identify different types of root & tuber crops grown in West Africa.
2. Understand and describe various types of suitable soils
3. Know the origin of root and tuber crops, the botanical, family and species names
4. Understand the cultivation methods, i.e. land preparation, planting, weeding and harvesting

LEARNING ACTIVITIES:

1. Instructor displays different planting materials i.e. cassava and potato cuttings, yam sets, and eddoes
2. Students participate in the selection and cutting of planting materials
3. Students clear and prepare land for root & tuber production
4. Instructor explain and demonstrates the preparation mounds and ridges
5. Students perform practice in planting crops

Learning Materials: hoes cutting vines, yamsets

AGRI: 302 ROOT & TUBER CROPS

LEARNING ACTIVITIES

1. Instructor displays various tools for mound making
2. Instructor exhibits mapsack sprayer and insecticides
3. Students practice chemical calibration and do field spraying
4. Students practice root & tuber harvesting
5. Instructor demonstrates cassava processing, into gari

COURSE TITLE: RICE PRODUCTION

COURSE OBJECTIVES:

By the completion of this course students will be able to

1. Know three essential factors of rice seed germinating i.e. water, temperature and oxygen.
2. understand that enough oxygen is necessary for decomposing activities of endosperm at the stage of seed germinating and young seedling growing
3. know that it is better to increase the tillers at the middle or lower part of the rice plant.

COURSE ACTIVITIES

1. Common way for seed soaking and pre-germinating. Teach students practice individually.
2. Seed germinating under low temperature in refrigerator. Teach students practice by group
3. Making seedling bed in the irrigated nursery. Teach students practice by group
4. Water and fertilizer management at the young seedling stage by the irrigated nursery. Teach students practice by group
5. Yield comparison test on different depth of transplanting. Teach students

OIL PALM & COCONUT CROPS 401

COURSE OBJECTIVE

By the completion of this course, students will be able to:

1. Identify various types of oil palms and coconuts grown in tropical Africa
2. Know and describe suitable soils require for their production know the origin of palm, the various, families and names of species
3. understand the pre-nursery and nursery practices of oil palm and coconuts land preparation and field planting

LEARNING ACTIVITIES

1. Students collect fruits of palm and coconuts from communities
2. Instructor displays the various types of fruits and explain their differences
3. Students prepare boxes and tray for pre-germination of seeds

Learning materials: Palm coconut fruits cutlasses hoes, wooden boxes watering

COURSES TITLE: FARM MACHINE

COURSE OBJECTIVES:

4. Identify insect pests and diseases of plantation crops and know the control methods

Learning Activities:

1. Instructor exhibits various farm tools and equipment and explain usages
2. Students layout, do spacing and pegging
3. Instructor demonstrates transplanting of seedlings
4. Instructor displays fertilizers and insecticides and explain the application methods
5. Students practice different methods of fertilizer application and chemical spray

LEARNING MATERIALS: TUBE CASSAVA SETS OF YAM EDDOES HOES, CUTLASSES RAKES PRESS

AGRI. 301- ROOT & TUBER CROPS

COURSE OBJECTIVE:

1. Identify different types of root & tuber crops grown in West Africa
2. Understand and describe various types of suitable soils
3. Know the origin of roots and tuber crops, and the botanica, family and species names
4. Understand the cultivation methods, i.e. land preparation, plantation, weeding and harvesting

LEARNING ACTIVITIES

1. Instructor displays different planting materials i.e. cassava and potato cutting, yam sets and eddoes
2. Students participate in the selection and cutting of planting materials
3. Students clear and prepare lands for preparation mounds and ridges
4. Students perform practice in planting crops

LEARNING MATERIALS: HOES, CUTTINGS, VINES, YAM SETS TO THE PETS AND DISEASES

5. Know the types of fertilizers required and methods of application
6. Learn and understand the harvesting processing extraction of coconut and palm oil

LEARNING ACTIVITIES:

1. Instructor exhibits major insect of palms
2. Instructor displays types of insecticides and spraying equipment
3. Students do chemical mixture and perform spraying
4. Instructor demonstrates fertilizer application Method i.e. side-dressing, basal application etc. and explain the differences.
5. Students participate in harvesting and extraction of palm and coconut oil

3. Instructor and students outdoor informer to identify scientific proof of soil science and value to plants.
4. Students select parent materials and its sources
5. Students collect adrandom soil sample from the field to perform a ribbon soil test

LEARNING MATERIAL

Literature, black board, chalk encyclopedia, water, soil sieve, and a piece of hard-board

COURSE TITLE: POULTRY PRODUCTION

COURSE OBJECTIVE:

By the completion of this course students will be able to:

1. disinfect the poultry area accurately
2. make correct use of incubator
3. Grasp the feed confecting method for poultry

COURSE ACTIVITIES:

1. Confect disinfect solution for the entrance pool
2. Disinfect implements in the poultry house
3. adjust and test incubator
4. Let students list out available local feed---three energy type and two protein type, respectively
5. Let students confect a compound feed 20% in protein, 13.44 MJ in energy with corn, wheat bran and bean pulp

COURSE TITLE: SWINE PRODUCTION

COURSE OBJECTIVE:

By the completion of this course students will be able to

1. disinfect swine house accurately
2. grasp four essential ways of medicine administration
3. grasp confecting methods of swine feed

COURSE ACTIVITIES:

1. let students list out 5 common disinfectants for swine house
2. demonstrate how to use and disinfect the injector
3. disinfect the swine house
4. give iron to three-day-aged piglets
5. identify the quality of main raw feed material-corn and bean pulp, by sense

LEARNING MATERIALS

**NURSERY SEEDLINGS, FERTILIZER, INSECTICIDES, SPRAYING CANS
ETC.**

AGRI: 301-ROOT & TUBER CROPS

COURSE OBJECTIVE:

1. identify different types of root & tuber crops grown in West Africa
2. Understand and describe various types of suitable soils
3. Know the origin of root & tube production
4. Instructors explain and demonstrates the preparation mounds and ridges

AGRI. 302 ROOTS AND TUBE CROPS

OBJECTIVES:

1. Learning and understand the environmental factors affecting the growth of the crops
2. Identify and learn the trade names of various insecticides, fungicides and chemical calibration
3. Identify insect pests and diseases of root & tuber and the control methods
4. Know the processing, storage and uses of the crops

LEARNING ACTIVITIES

1. Instructor displays various tools for mounds making
2. instructor exhibits knapsack sprayer and insecticides
3. Students practice chemical calibration and do field spraying
4. Students practice Root & tuber harvesting
5. Instructor demonstrates cassava processing into garri

AGRI. 101 SOIL SCIENCE

OBJECTIVE:

This course will at the end of the semester enable the students to:

1. Acquired knowledge about the history of soil and its value to plants
2. Describes the factors of soil formation
3. Classified sources parent materials and its properties

LEARNING ACTIVITIES

1. Instructor provides literature on historical information
2. Students sent to the library for additional enlightenment on scientists and their contributions to soil science

LEARNING MATERIALS: TUBER OF CASSAVA, SETS OF YAM, EDDOES, HOES CUTTLESSES, RAKES PRESS

OIL & COCONUT PALM 402:

COURSE OBJECTIVES:

1. Understand those basic environment factors responsible for the growth of palms
2. Identify various pests and diseases of palms
3. Know the different types of insecticides and fungicides needed

Agri: 302 Root & Tuber Crops

OBJECTIVES:

1. Learn and understand the environment factors affecting the growth of the crops
2. identify and learn the trade names of various insecticides fungicides and chemical calibration
3. identify insect pests and disease of root & tuber and the control methods
4. Know the processing, storage and uses of the crops

LEARNING ACTIVITIES

1. Instructor displays various tools for mound making
2. Instructor exhibits knapsack sprayer and insecticides
3. Students practice chemical calibration and do field spraying
4. Students practice Roots & tuber harvesting
5. Instructor demonstrates cassava processing into garri

Learning Materials: tuber of cassava sets of yam, eddoes, hoes cutlasses, rakes, press

To combat the pests and diseases

- 5 know the types of fertilizers required and methods of application
- 6 Learn and understand the harvesting, processing and extraction of coconut and palm oil

LEARNING ACTIVITIES

1. Instructor exhibits major insect pests of palm
2. Instructor displays types of insecticides and spraying equipment
3. Students do chemical mixture and perform spraying
4. Instructor demonstrates fertilizer application methods, i.e. side-dressing, basal application etc. and explain the differences
5. Students participate in harvesting and extraction of palm and coconut oil

Learning materials: Knapsack sprayer, insecticides, fertilizers, hand cultivators, nose masks, cutlasses mortars, drum etc

OIL PALM & COCONUT CROPS 401

COURSE OBJECTIVES

By the completion of this course, students will be able to

1. identify various types of oil palm and coconuts grown in tropical Africa
2. Know and origin of palms the varieties familiar and names of species
3. Know and describe suitable soils required for their production
4. Understand the pre-nursery and nursery practices of oil palm and coconuts land preparation and field planting

LEARNING ACTIVITIES:

1. Students collect fruits of palms and coconuts from communities
2. Instructor displays the various types of fruits and explain their differences
3. Students prepare boxes and trays for pre-germination process of palm seeds
4. Instructor demonstrates the arrangement and placement seeds

Learning materials: palm seed, coconut fruits, cutlasses, hoes wooden boxes, watering can etc.

Introduction to Service-Learning

Carl Motsenbocker
Louisiana State University AgCenter
cmots@lsu.edu
FED Project in Liberia, USAID



Why the Hyphen in Service-Learning?

Reciprocity

University ↔ Community

The hyphen also represents REFLECTION



What is Service-Learning?

A course-based, credit-bearing educational experience in which students

- **Participate** in an organized service activity that meets identified community needs
- **Reflect** on the service activity in such a way as to gain
further understanding of course content,
a broader appreciation of the discipline,
and an enhanced sense of civic responsibility.

Bringle & Hatcher, 1997



What Service-Learning is NOT?

- Not volunteerism
- Not just an “add on”
- Not just an internship or practicum
- Not just for undergraduates
- Not just for senior faculty



Key Components of Service-Learning

- Service
 - Direct placement, deliverable or both
- Academic Content
- Partnerships & Reciprocity
- Mutual Learning
- Analysis & Reflection

Lima & Oakes, 2006



What does service-learning look like?

- Placements, projects, combination
- Required or optional
- Group or individual
- Includes research as service
- High School, First Year University to Grad School



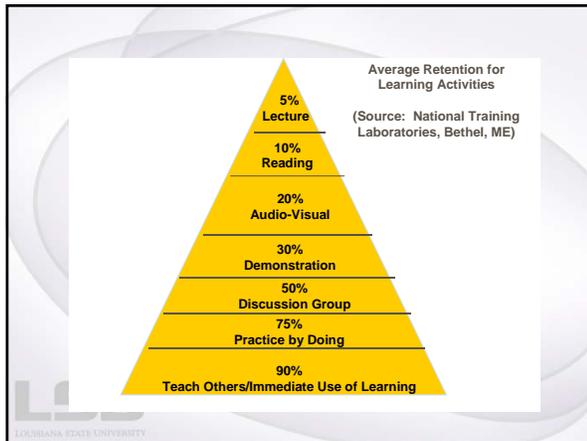
The Impacts of S-L: Student Impact

- Deeper understanding of course content
- Writing / activities becomes relevant
- Motivation to work harder
- Deeper understanding of systemic issues
- Increased retention



If you want to teach a SL class, you'll have to decide....

- How will service be integrated with learning goals?
- What kind of model will we use?
- How will the community partner be involved in identifying needs and assets, project planning, implementation, and evaluation? (*Contract*)
- What kinds of reflection strategies will we use?
- How will we evaluate student learning and project design?



English Example



Composition students help elementary students with reading and writing or write newsletters and grants for non-profits. These students wrote a grant that won \$50,000 for McMains Children's Developmental Center in Baton Rouge, LA.



How Does Learning Occur?

- Reflection- Process by which students think critically about experience
- What we want them to gain from reflection:
 - Connect experiences to course content,
 - examine what reading/writing means to them as well as to society
- Methods:
 - Group Discussions
 - Journals
 - Reading Responses
 - Electronic Forums

**What?
So What?
Now What?**



Literature and Theater Examples

- Drama students write scripts based on oral history transcripts and produce them for middle schools in which the stories took place.
- Theater students write and produce scripts that deal with community issues.



Math Example

- Math students tutor in elementary schools.



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Architecture Example

- Architecture students assist community members in developing a development plan and a web site for community organizations to facilitate community development and communication.



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Biological Engineering Example

- Biological engineering students work with elementary school students to design and construct environmentally sensitive playgrounds and butterfly gardens.



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Education Example

- Education students develop computer-based instructional materials for Scotlandville elementary school teachers.



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Information Systems and Decision Sciences Example

- ISDS student teams design, code, test, document, and implement a software development project for Habitat for Humanity.



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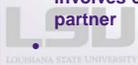
When designing a service-learning class, faculty should consider these questions:

- How will my community partner be involved in project planning, implementation, and evaluation?
- What kinds of reflection strategies will I use?
- How will I evaluate student learning?

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To qualify as a service-learning class, a course should include these components:

- addresses an identified community (campus, local, regional, global) need
- service-learning supports the attainment of one or more course objectives
- demonstrates a clear connection between the service activity and the course content
- involves reciprocity between course and community that has the potential to result in students' increased civic awareness and engagement
- involves structured student reflection on the service experience and its relation to course goals
- involves collaboration with an appropriate community partner



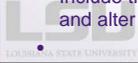
HORT 4083 - Vegetable Crops Course Assignment – Market Garden / Greenhouse Production

- Course format: 3 hr lecture, 2 hr lab (4 credits)
- Mandatory service-learning projects
- **Community partners** – St. Vincent dePaul soup kitchen, International Gala (LSU Dining), Student Farmers Market
- Semester project: integrate knowledge required for successful vegetable crop production -fall production of vegetables
 - Field area – 10 rows on 4 foot centers, 150 ft long (40 x 150)
 - Greenhouse – hydroponic lettuce (herbs), 2 systems
- Reflection – lab journals, midterm/final



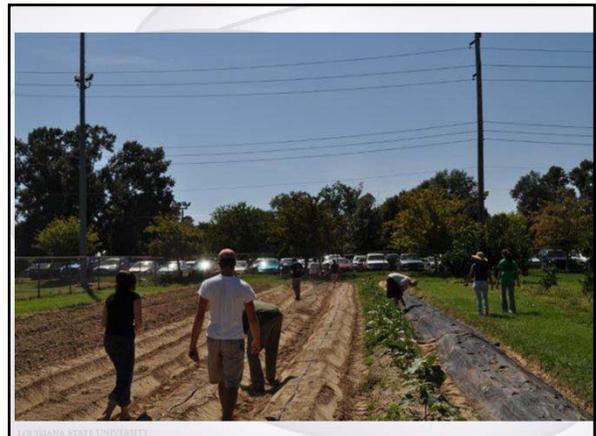
Effective reflection will:

- Clearly link the service experience to the course content and learning objectives
- Be structured in terms of description, expectations, and the criteria for assessing the activity
- Occur regularly during the semester so that students can practice reflection and develop the capacity to engage in deeper and broader reflection
- Provide instructor feedback on at least some of the reflection activities so that students learn how to improve their critical analysis and develop from reflective practice
- Include the opportunity for students to explore, clarify, and alter their values



Evaluation Strategies

- Use reflection assignments to assess student learning and evaluate performance.
- Create individual or group assignments that require students to integrate course content and the service experience.
- Get feedback and evaluation from community partners
- Evaluate analytical skills, communication skills, critical thinking, and judgment from student's reflection papers and presentations. Grading rubrics may be used to clarify your expectations.







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LSU Student Market (Earth Day)



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Thank you

Any comments or questions?

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