



**USAID** | **LIBERIA**  
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# FOOD AND ENTERPRISE DEVELOPMENT (FED) PROGRAM FOR LIBERIA

ANNUAL REPORT FISCAL YEAR 2013



FY2013

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COVER PHOTO: *Eva Patrick (far left) and her colleagues stand in front of a goat shelter with their goats in Belaylay, Nimba County.*

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## ABBREVIATIONS

AEDE	Agency for Economic Development and Empowerment
AM	Arcelor Mittal
ASRP	Agricultural Sector Recovery Program
AYP	Advancing Youth Program
BSTVSE	Bureau of Science, Technology, Vocational and Special Education
BWI	Booker Washington Institute
CAAPD	Comprehensive African Agriculture Development Program
CAC	County Agriculture Coordinator
CARI	Center for Agriculture Research Institute
CBO	Community Base Organization
COR	Contracting Officer Representative
COSEO	Community Sustainable and Educational/Empowerment Organization
CRS	Catholic Relief Service
DAI	Development Alternatives, Inc.
DQA	Data Quality Assessment
ECHOPPE	Echange pour l'Organisation et la Promotion des Petits Entrepreneurs
ECOWAS	Economic Community of West African States
ED	Enterprise Development
EHELD	Excellence in Higher Education for Liberian Development
EMMP	Environmental Mitigation and Monitoring Plan
FAO	Food and Agriculture Organization
FBO	Farm Based Organization
FED	Food and Enterprise Development
FTF	Feed the Future
FY	Fiscal Year
GAP	Good Agricultural Practices
GBCCC	Grand Bassa County Community College
GIS	Geographic Information Systems
GPS	Global Positioning Systems
IBEX	Investing for Business Expansion
ICT	Information and Communication Technology
IEE	Initial Environmental Examination
IFDC	International Fertilizer Developmental Center

IITA	International Institute of Tropical Agriculture
IQC	Indefinite Quantity Contract
ISFM	Integrated Soil Fertility Management
IT	Information Technology
LASIP	Liberia National Agricultural Investment Plan
LAUNCH	Liberia Agriculture, Upgrading Nutrition & Child Health
LBBF	Liberian Better Business Forum
LCCC	Lofa County Community College
L-MEP	Liberia Monitoring and Evaluation Program
LoL	Land O'Lakes
LREC	Liberia Renaissance Education Complex
LSU	Louisiana State University
LTTA	Long Term Technical Assistant
M&E	Monitoring and Evaluation
MDF	Market Development Fund
MoA	Ministry of Agriculture
MoCI	Ministry of Commerce and Industry
MOE	Ministry of Education
MOU	Memorandum of Understanding
MSME	Micros/Small and Medium Enterprise
MTTA	Medium Term Technical Assistant
NAD	National Agriculture Diploma
NCCC	Nimba County Community College
NGO	Non-Governmental Organization
NGW	New Generational Women
NIC	National Investment Commission
PERSUAP	Pesticide Evaluation Report and Safer Use Action Plan
PIDS	Performance Indicator Database System
PSD	Private Sector Development Strategy
PROSPER	People, Rules and Organizations Supporting the Protection of Ecosystem Resources
PUA	Peri Urban Agriculture
R&R	Rights & Rice Foundation
RFQ	Request for Quotation
RFTOP	Requests for Task Order Proposal
SEAS	Strengthening Agricultural and Advisory Services
SME	Small Medium Enterprise
STTAs	Short Term Technical Assistants
ToT	Training of Trainers
TVET	Technical Vocational Education and Training
UDP	Urea Deep Placement
UN	United Nations
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VES	Vocational Education Specialist
VMHS	Voinjama Multilateral High School
VSLA	Village Savings and Loan Association
VTNFES	Vocational Training and Non-Formal Education Specialist
VTTS	Vocational Teacher Training specialist
WAD	West African Dwarf
WHL	Welt Hunger Life
WOFPD	Women Organization for Peace and Development



## BACKGROUND

The Food and Enterprise Development (FED) Program for Liberia is a USAID-funded development program that was launched in September 2011. USAID FED uses an all-inclusive strategy incorporating MSME farmers, processors, suppliers, women and youth while partnering with the government of Liberia and local civil societies to achieve food security.

The goal of USAID FED is to increase food availability, utilization, and accessibility by building an indigenous incentive structure that assists agricultural stakeholders in adopting commercial approaches.

This incentive structure will be built upon:

- Improved technology for productivity and profitability
- Expanded and modernized input supply and extension systems
- Commercial production, marketing, and processing
- Enterprise services
- Workforce development

FED works with the Ministry of Agriculture (MoA), civil societies and the private sector in providing communities access to agricultural inputs (including improved seeds), extension services, nutritious food products, processing services, market information, transportation, credit, agro-business education, training, and enterprise services.

In five years, FED's thrust to expand market linkages is expected to lead to substantial increases in income and job opportunities.

FED also aims to significantly boost the production, processing, marketing and nutritional utilization of rice, cassava and vegetables, and to enhance the productivity of goat farming in the counties covered by the program.

These initiatives are being carried out in the counties of Bong, Lofa, Nimba, Grand Bassa, Montserrado, and Margibi.

FED focused on these counties because they are situated along regional development corridors that are crucial in promoting intra and inter-county commerce. These growth corridors are expected to improve food availability and access for all Liberians.

FED has three main components, each targeting an important part of the value chain.

**Component One: Increased Agricultural Productivity.** This component focuses on supporting agricultural technologies and techniques in improving incomes and nutrition. This part entails using improved seed varieties and fertilizer; encouraging shift to mechanization; availing of improved extension outreach; adopting integrated pest management system, and; employing other improvements to production, post-harvest handling, processing and marketing of the four value chain products.

**Component Two: Stimulate Private Enterprise.** Activities under this component aim to strengthen agribusinesses by improving their access to inputs, finance, and markets; providing training and opportunities to work with individuals and groups of entrepreneurs; enhancing their skills in business management and marketing; and promoting the use of modern technologies to add value to their products and increase their profits.

**Component Three: Building Local Human Capacity.** Activities under this component aim to establish partnerships with vocational agriculture schools and other related institutions on workforce development. The goal is to improve the skill sets of the next generation engaged in agribusiness, including farmers, enterprise employees, businessmen, and women.

FED's methodology is market-led and value chain-driven; it is committed to develop indigenous capacity building, with specific focus on Liberia's women and youth.

FED's approach is collaborative and catalytic. It is driven by the goals and objectives of our partner clients. It aims to increase incomes of rural households and create new employment and livelihood opportunities for Liberians; to improve access to food and household dietary diversity scores of food-insecure Liberians; and to promote the use of improved inputs, better farming practices, and technologies that boost agricultural productivity.

FED is implemented by five partners, namely: Development Alternatives, Inc. (DAI), Winrock International, International Fertilizer Developmental Center (IFDC), Louisiana State University (LSU), and The Cadmus Group.

## EXECUTIVE SUMMARY

In FY13, FED focused on expanding existing engagements with all major stakeholders, from village-level farmers to county governments. FED extended its reach into the target counties and selected districts within the development corridors. Because these growth corridors foster intra and inter-county commerce, they are the most likely to make sustainable impact on the four FED value chains.

FED has two major objectives. These are to commercialize agriculture and increase food security. Over the last 12 months, FED achieved considerable progress in advancing the rice, cassava, vegetables and goat value chains in 46 districts — or 239 villages — throughout the six focus counties.

FED's outreach increased a whopping 601 percent from 2,494 farmers in FY12 to 18,646 in FY13. The land area where improved technologies and/or management practices are being employed increased by 370 percent, from 560 ha in FY12 to 2,634 ha in FY 13. There are now 2,290 ha of group and demonstration farms and 344 ha of individually owned lands using improved technologies.

FY13 also saw a significant increase in private sector participation. Investment generation rose by 169 percent, from \$150,000 in FY12 to \$403,683 in FY13.

Considerable progress was also made in access to finance through embedded financing. The program generated \$113,500 in FY13, compared to none in FY12. Sales generated during FY13, amounting to \$331,414 came mostly from FY12 support. Rice, cassava and most of the vegetable crops planted in FY13 will be harvested in the first quarter of FY14.

FED-supported rice farmers in FY12 harvested 446 MT in the first quarter of FY13. The harvest came from 194 ha of lowland and upland areas. The farmers sold 65.7 MT of their harvest, generating \$21,901 in sales. An average yield of 2.24 MT/hectare was also achieved, which is approximately 50 percent higher than traditional yields.

In FY13, FED supported 128 rice farming groups comprising 7,834 farmers. They are expected to harvest rice from 1,675 ha of upland and 426 ha of lowland farms from October to December 2013 and during the first quarter of FY14.

FED-supported cassava farmers in FY12 harvested 4,569 MT of tubers from 204 ha of land during the fourth quarter of FY13. They sold 1,827 MT of their produce, generating \$179,825 USD in sales. FED-supported farmers also achieved yields that are 267 percent higher than average traditional yields. FED-supported farmers harvested 22 MT per hectare, compared to traditional yields of five to six MT per hectare. In FY13, FED supported 5,091 cassava farmers in cultivating 204 ha. They will harvest in the fourth quarter of FY14.

FED-supported goat farming households sold a total of 290 goats in FY13, generating \$23,256 USD in sales. There was a marked decline in kid mortality rates in the first year of life in goat herds of 374 FED-supported farmers. The mortality rates in the kids' first year of life dropped from 46 percent to 22 percent.

In FY13, FED supported 51 vegetable farming groups, with 1,612 farmer-members, who were cultivating a variety of vegetables in 60 ha of land. They were able to generate sales of \$106,432 USD from the dry season crop (February-May). The rainy season crop (June-September) will be harvested during the first quarter of FY14.

FED's activities in FY13 focused primarily in increasing crop production through various labor-saving and productivity-enhancing technologies and management practices. These include using treadle pumps, tube wells, power tillers, rice de-hullers and efficient fertilizer (through the Ultra-Deep Placement or UDP technique). FED will continue to promote these technologies and introduce additional improved technologies such as protected cultivation, drip irrigation and motorized pumps for high value vegetable production.

With increases in production and improvement in productivity, investment in FED's value chains becomes more attractive to the private sector. Although FED will continue to step up the adoption of improved technologies in the production segment of the value chain in FY14, more emphasis will be placed in helping market players improve their capacity to absorb and process local produce, and to transport, store and sell them to end-market channels at competitive prices.

Sustainability and exit strategies that are focused on building the capacity of support markets, specifically providers of mechanized services such as power tillers, threshers, etc., will be initiated in partnership with enterprising farming groups and private entrepreneurs.

Other accomplishments in FY13 are as follows:

- FED began targeting nutrition activities including the development and creation of the framework for the Nutrition Assessment Gap Analysis (NAGA) for Liberia. NAGA is a major study that has provided recommendations for FED and other key partners' nutrition interventions.
- In partnership with the Government of Liberia's Ministry of Agriculture (MoA), the Ministry of Commerce and Industry (MOCI) and Education and Health and Social Welfare (MOEHS), FED provided appropriate applications of government policy while assisting government partners in building skills and knowledge. In FY13, FED provided technical support to the government in producing the draft of the National Livestock Policy and the first agriculture vocational curriculum.
- FED placed emphasis on Liberia's women and youth participants, both as beneficiaries as well as project staff and partners. Forty-five percent of FED's beneficiaries are youth (ages 16 to 35), while 48 percent are women.
- FED played a crucial role in the development of Liberia's first National Agriculture Diploma Curriculum, which was tested in key vocational institutions. This will be rolled out in FY14 to FED's targeted Vocational Educational Centers of Excellence, namely: Booker Washington Institute, Lofa County Community College, Nimba County Community College and Grand Bassa County Community College. Additionally, a total of 2,861 students and instructors benefited

from FED's assistance, including establishment of demonstration farms, provision of textbooks and training aimed at improving the quality of instruction. The total number of beneficiaries exceeded the target by 188 percent.

There are areas, however, where FED did not meet its targets. One such area is the use of improved food processing in households. The lack of adequate supply discouraged the private sector from investing in improved processing technologies. Understanding this, FED focused instead on increasing production and productivity and will shift emphasis on food processing to FY14, in time for the harvest of cassava and rice planted in FY13.

Infrastructure and transportation networks at the county level remain poor and this poses a major constraint on FED's value chain development, especially during the six-month rainy season. FY13 activities were spread out all over the program areas, both geographically and technically, causing a strain to the already stretched-out FED staff and resources, including vehicles. This led to the mid-year operational strategy shift toward the end of Q2.

Farming groups were grouped into clusters and prioritized. Category A groups were the main focus of interventions. These groups were centrally located and were designated as training centers in the clusters. Category B groups are included in the cluster. Category C groups were outliers, not readily accessible to a cluster. To reach all the groups and beneficiaries, FED subcontracted 29 NGOs that provided technical assistance to Category B groups and to lead farmers of Category C groups. Category A groups were directly supported by FED extension officers. Lead farmers from Category C groups were trained by FED to provide extension support to their groups, and were supervised by NGO technicians.

Two critical organizational moves that facilitated project implementation were the appointment of a Market Development Fund (MDF) manager toward the latter part of Q2, and the streamlining of the MDF review process that addressed bottlenecks in moving activity proposals within the approval system. The review process also ensured that all projects approved were priorities and directly tied to achieving FED's targets. Instead of piloting a wide range of new technologies and approaches, the FED team focused on specific technologies that were critical in improving productivity.

A major challenge is facilitating access to finance for FED beneficiaries. The highly subsistence level of FED's value chains makes its beneficiaries generally ineligible for financing by formal institutions. FED realized in Q2 and Q3 that a good business plan is not enough. Banks require track record in business. As a result, FED initiated the Village Savings and Loans Associations (VSLAs) toward the last quarter of FY13 to generate financing for the farmers. VSLAs will remain a focus for FY14. Embedded financing rather than bank financing is also seen as a more feasible option for farmers and other micro-entrepreneurs.

Additionally, after focusing on a number of field trips and consultancies to establish FED's Enterprise Service Centers (ESC), it has become clear that MSME capacity in the rural areas is extremely weak. The traditional ESC model that FED initially envisioned will not be financially sustainable in the long run. In FY14, FED will adopt innovative ESC models that ensure profitability and sustainability. Major lessons

learned from FY13 are provided in this report in detail under each program component and highlighted next to the existing challenges in Liberia's agriculture and agribusiness sectors.

## **2013 HIGHLIGHTS**

### **Component One**

- A total of 18,646 of farmers have been trained on improved technologies and management practices.
- Approximately 13,745 farmers are applying new technologies learned from FED trainings on over 2,634 hectares of rice, cassava and vegetable farms. These new technologies are also being used on goat farming involving 850 goats.
- Developed over 40 vegetable, rice, and cassava extension manuals, brochures and radio jingles that are now being used by hundreds of farmers across FED's target counties. (9 vegetable guides, 8 rice guides, 1 cassava guide, 1 cassava video, 4 agriculture related jingles in 10 languages and 21 farm radio shows)
- Piloted various labor-saving and productivity-enhancing technologies, including: treadle pumps, tube wells, power-tillers, rice de-hullers, and application of Urea Deep Placement (UDP).
- Kicked off the 'Back to School Garden' competition with partners, an initiative that got 1,138 young people involved in agriculture.
- Preliminary observations have shown that extensive training on goat management practices has reduced kid mortalities in the first year of life, from an estimated 46 percent to 22 percent among participating goat farmers.

### **Component Two**

- Worked with 224 business and agriculture interns from 54 Liberian organizations. The internship provided them with life-changing work experience.
- Generated incremental income of \$331,414 for rice, vegetable, goat and cassava sales.
- Generated private sector investment of over \$403,683 for rice seed production and processing, vegetable seedling production, input supply distribution, and goat shelters.
- Trained 164 women in food processing and preservation skills so they can jumpstart their own agribusinesses.

### **Component Three**

- Developed the country's first National Diploma Curriculum for Agriculture (ND) and disseminated this to FED-supported CoEs. The curriculum is Liberia's first vocational curriculum to get approval from ECOWAS. It represents Liberia's first step toward standardizing educational curricula.
- Worked with the Ministry of Agriculture to produce the first draft of a National Livestock Policy; this draft National Livestock Policy is the first Policy document reviewed by the newly established Liberian National Agricultural Policy HUB.
- Provided 435 textbooks to four educational institutions benefitting close to 3,000 students and instructors.

# COMPONENT ONE: INCREASED AGRICULTURAL PRODUCTIVITY

## TASK 1.1 INPUT SUPPLY SYSTEM INTERVENTIONS

### FY13 ACHIEVEMENTS

- FED launched the pilot voucher scheme for vegetable farmers to encourage farmers to invest in inputs like fertilizer. It offered products at a discounted price and simultaneously promoted long-term linkages between farmers and agro dealers.
- FED successfully carried out field trials of Urea Deep Placement (UDP) in 20 sites.
- FED successfully carried out Integrated Soil Fertility Management (ISFM) demonstrations in eight sites in Bong County.

### ACTIVITY 1.1A: SMALLHOLDER CAPACITY BUILDING

In Q1, FED began this activity by training 10 seed producers, four trainers and three FED staff in agro input supply, handling, storage and use at the BWI Center of Excellence.



Fig. 1: Harriette Laway in front of her agro-input store in Totota, Bong.

capital as credit and inventory on consignment.

### ACTIVITY 1.1B: AGRO-DEALER CAPACITY STRENGTHENING

In Q1, FED staff provided two training packages for 12 Liberian agro dealers, eight representatives from farmer cooperatives, eight community-based facilitators, two FED extension officers and four MoA extension officers in Bong County. Participants received the 750-page IFDC extension materials, along with business and product knowledge training from FED partner Wienco.

In mid-2013, nine agro-dealers, eight store managers and 12 lead farmers attended training in Bong and Nimba counties on product knowledge and use of inorganic fertilizers and crop protection products for vegetables. In addition, FED trained them in business management practices such as recordkeeping, inventory control, and marketing strategies. In Q4, FED and Wienco signed a MoU supporting linkages between farmers and agro-inputs dealers. The memorandum provided for the expansion of Wienco's agro dealer network in rural areas. Wienco supports agro-dealers with startup

### ACTIVITY 1.1C: INPUT VOUCHER PROGRAM

FED initiated a pilot voucher program for dry-season vegetable production that was designed to encourage farmers to invest in inputs by offering a discounted price for fertilizer while promoting long-term linkages between farmers and agro dealers. The voucher program offered farmers three alternative pack sizes of NPK15-15-15 fertilizer with a 50 percent discount. Six farmers groups were selected for the pilot voucher program – four in Nimba and two in Bong County. Overall, the program activity targeted 1,093 FED farmers. FED selected four agro dealers from the product knowledge and business management trainings to act as the dealers in the pilot voucher program.

FED provided voucher orientation to agro dealers, farmer group leaders, and two MoA officials and FED staff on the methodology being used in the pilot voucher scheme. Wienco also attended for better understanding of how they were supposed to manage the voucher program.

Of the 1,093 farmers entitled to a voucher, 805 (74 percent) came forward to collect their vouchers. These farmers are now in the process of redeeming their vouchers at their agro-dealers' store. The redemption of vouchers at the agro-dealers' shops started on September 22 and ended October 23, 2013.

Of the 805 vouchers distributed, 383 vouchers (or 48 percent of distributed vouchers) were redeemed, but this number is expected to increase in Doumpa, where they received inputs late due to a washed out bridge. In early FY14, FED will hold a "lessons learned" session to determine ways to improve the input voucher schemes.

Fig. 2: Voucher Example

The image shows a sample of a USAID Liberia Group Voucher. The voucher is purple and white with a green '50% OFF' sticker. It includes the following fields and information:

- Logos for USAID LIBERIA and the Liberian government.
- Text: "50% OFF", "Food & Enterprise Development Program", "GROUP VOUCHER".
- MDF: 0081 0001
- Fields for: Group's Name, Chairperson's Name, Secretary's Name, Treasurer's Name, and their respective signatures.
- Field for: Agrodealer's Stamp here.
- Fields for: Product, Quantity, Retail price, and Total Amt. Paid.
- Expiration Date: November 1, 2013.

### ACTIVITY 1.1D: IMPROVED APPROPRIATE TECHNOLOGIES; UDP AND ISFM

Urea Deep Placement (UDP) is a technology that has been shown to improve efficiency of urea fertilization. It involves placement of urea briquettes deep enough into the soil to reduce volatilization, which is the cause of inefficiency in traditional broadcast method of applying urea granules.

Integrated Soil Fertility Management (ISFM) is a combination of approaches to managing soil fertility, including soil erosion control through contour farming, use of cover crops, nutrient replenishment through organic and inorganic fertilizer application, composting and organic matter incorporation, crop rotation and intercropping using crops that harbor nitrogen-fixing bacteria.

In March 2013, FED evaluated the production potential of the Urea Deep Placement (UDP) and Integrated Soil Fertility Management (ISFM) pilot-sites, identified the constraints to UDP and ISFM deployment, and gauged the progress made so far in forest clearing/brushing and land preparation. FED

learned that fertilizers are mainly applied to vegetables, followed by lowland/swamp rice. FED also found out that there is an overall lack of knowledge in the proper use and application of fertilizer among farmers and FED community-based facilitators.

Rice yield performance is low in the upland (300 to 700 kg/ha) and lowland (1,000 to 1,500 kg/ha) due to limited access to quality fertilizers and seeds. The network is dominated by the black market and informal cross-border transactions of substandard or inferior inputs.

In April 2013, soil samples were collected from 20 sites selected for UDP demonstration in Bong, Nimba, and Lofa, and eight ISFM demonstration sites in Bong. Specific recommendations on fertilizer application were made based on the results of the analysis. Samples collected showed clayey soils are suitable for UDP applications. Applicators have yet to be sold locally, but as part of the FY14 Workplan, FED will work with local artisans to produce them locally.

In May 2013, Gro Green retail agricultural supply store imported a UDP briquette-making machine and the store provided the briquettes used by FED on the 20 UDP sites.



*Fig. 3: FED farmers plug UDP briquettes into the soil at a UDP site in Lofa County.*

**UDP:** FED set up field trials in 20 demo sites in Bong, Nimba and Lofa to showcase the UDP application including the deep placement of urea briquettes against broadcasting and traditional methods. The rice crop in the swamps often absorbs less than 30 percent of the nitrogen fertilizer applied by the farmer, leaving the remaining 70 percent as a pollutant in waterways and the atmosphere, contributing to health issues and climate change. Reducing these losses will lead to greater rice production and the higher incomes. FED will begin collecting results of yields during the first quarter of FY14.

In June 2013, 10 UDP applicators were imported from Bangladesh for use on the 20 UDP sites. Throughout June and July, UDP fertilizer applications took place on the 20 sites.



Fig. 4. A FED beneficiary demonstrates the treadle pump.

### ACTIVITY 1.1E: MECHANIZATION OF AGRICULTURE ACTIVITIES

FED introduced treadle pumps as a cost-effective way to irrigate during the dry season. Thirty-three treadle pumps and 10 tube wells were manufactured in Bong and Nimba counties. Thirty treadle pumps have been sold to date, resulting in \$4,500 USD in earnings from their sales. At the moment, however, FED is looking into some issues concerning treadle pump recharge rates.

FED trained two metal workshops in Red Light and Zubah Town in Paynesville, Montserrado County to fabricate, operate, maintain, and demonstrate forced-air dryers that run on biomass. Approximately 10 demonstrations have been

performed by the two trainee workshops. These dryers will be used in processing hot peppers to prolong shelf-life and sell in the future. Six dryers were fabricated and cost \$75 USD each.

In mid-December, Unity Metal Constructions and Services, Inc. located in Freeport Community, Montserrado County, received training in the construction, use, maintenance, and demonstration of the cassava fiber discharge hammer mill. Five demonstrations were conducted in Greater Monrovia, Bong and Margibi to approximately 200 participants. Four machines were sold, each costing \$850 USD.

FED first introduced the usage of a power tiller at UDP demonstration rice plots in Lofa, Nimba, Bong and Grand Bassa counties. A total of 16 out of 20 UDP sites have been tilled using power tillers in FY13 – five in Nimba, two in Lofa, and nine in Bong. Selected farmers received hands-on training in field plowing and machine operation and maintenance during the demonstration activities. In FY14, the demonstration of power-tilling technology will continue on lowland demonstration areas in Lofa, Nimba, Bong and Grand Bassa counties. There are presently three FED power tillers in Lofa, two in Nimba, four in Bong, and one in Grand Bassa. FED retains ownership to these power tillers; they are housed at each county office to demonstrate to the farmers the usage and effectiveness of these machines. In FY14, FED will launch an active campaign for farming groups and private entrepreneurs to provide fee-based service for these power tillers. FED anticipates that farmers will invest in the technology through leasing schemes that FED is supporting in FY14.

In Q1 of FY13, FED partnered with a Monrovia-based metal workshop with the support of STTA, Mory Thiaw, to design technology that would remove the husk from paddy rice. The rice processing technology is lower in cost, lighter in weight, and more energy efficient than other intermediate-scale rice hullers. Unlike other hullers, it does not remove the bran from the paddy rice, making the consumption of the resulting hulled rice more nutritious. Huller testing has exhibited a high, 95-percent hulling rate (i.e., percentage of hulled grains to total grains entering the huller) from parboiled rice. Hourly capacity was estimated at 100 kg. In FY13, three hullers were fabricated, costing \$650 USD per machine, but no sales have been reported yet.

To further address the post-harvest problems faced by farmers, FED supported the fabrication of low-cost parboiling drums and carried out an awareness campaign on the benefits of parboiling along with the use of a rice huller in Nimba County. The parboiling training took place in FED's four core counties, but not a lot of interest was generated due to the cost of the tanks. During the parboiling demonstration, farmers learned the process and expressed their satisfaction and interest in the benefits and low cost of the technology.



Fig. 5. Cassava Processing demonstration.

In Q2, FED supported two rice processing groups in each of FED's four core counties with potential for managing rice milling operation and provided them with training in rice milling enterprise operation, maintenance and financial management. In addition, FED trained eight community groups in rat guard installation in Lofa, Bong, Nimba, and Grand Bassa counties.

FED and its partners trained sheet metal workers in the fabrication of parboiling drums and tanks and 25 masons (three from Lofa, two from Bong and 20 from Grand Bassa) in the construction of drying floor structures. Upon completion of the trainings, FED demonstrated parboiling in Grand Bassa County and constructed eight drying floors (30 ft x 60 ft) in Lofa, Nimba, Bong, and Grand Bassa counties.

FED supported the manufacture of two cassava mills in Nimba County in June. One cassava mill used for processing raw cassava into gari or fufu product was manufactured at the New Generation metal shop in Saclepea using local materials where three professional metal workers were trained. The mill is powered by a five-horsepower gasoline engine and retails for \$1,500 USD. Upon completion of the workshop, the prototype machine was demonstrated in two nearby locations with an estimated 1,200 persons in attendance. No sales took place in Saclepea, but one mill was sold in Voinjama, Lofa County.

FED also supported the fabrication of a hammer mill used for processing cassava flour, corn flour, and other local cereals and fruits in Nimba County. Five professional metal workers were trained. The machine is powered by a five-horsepower motor and is sold for \$850 USD. One mill was sold in Nimba County. The company that fabricated the mill, Standard Garage, took one to the general market in Ganta to provide service for a fee.

In Grand Bassa County, FED conducted two welding group trainings for cassava mill manufacturing. During the training, two sets of cassava mills were fabricated. The facilitator and the participants worked 10 days to fabricate one set, while the participants took eight days to complete another. After the training, the group demonstrated the machinery at the Siahn Market and the Buchanan General Market. Each cassava mill costs around \$1,500 USD; there have been no sales reported to date.

FED also trained three builders on the fabrication of rice threshers in Grand Bassa County. The facilitator with the participants took eight days to complete one thresher. Later, the participants took six days to complete another one, while the last thresher was fabricated in four days in collaboration with the facilitator. The group followed the training with four days of demonstrations at the Luewin Market and the Buchanan General Market. Three rice threshers were fabricated, but there have been no sales to date.

In Lofa County, FED and partners trained 40 participants, fabricated one hammer mill and one cassava mill and demonstrated the hammer mill and cassava mill technologies. The one hammer mill sold for \$850 USD.

Two sets of cassava mills, used for processing raw cassava into gari or fufu products, were manufactured at Varlee Sasey Metal Garage in Voinjama, Lofa County with local material. At the same time, three professional metal fabricators were trained. Upon completion of the manufacturing training, the prototype machine, which is powered by a five-horsepower engine and retails for \$1,500 USD, was demonstrated in the nearby John Town Market, Voinjama General Market, Foya General Market, Kolahum General Market and Bakerdu Market.

Three hammer mills, used for the processing of dry cassava flour, dry corn flour, and other dry local cereals and fruits were manufactured at M-JAST Professional Metal Workshop Inc. located in Foyah, Lofa County. Five professional metal workers were trained to manufacture the mill. This machine is also powered by a five-horsepower engine and will be sold for \$1,250 USD. Upon completion of the manufacturing training, the prototype machine was demonstrated at John Town Market, Voinjama General Market, Foya General Market, Kolahum General Market and Bakerdu Market. During the demonstrations, FED-supported groups such as the Rural Women of Foya, RAA in Voinjama and a businesswoman, Ma Musu in Bakerdu, operated three of the hammer mills. At the end of the demonstrations, one of the hammer mills was purchased by RAA in Voinjama.

### **Rice Processing Centers**

In Q4, FED began the process of procuring 12 sets of rice milling systems, which will facilitate rice threshing, cleaning, and milling for selected rice production groups in Lofa, Nimba, Bong and Grand Bassa counties. A civil engineer has been hired for the design of the rice processing centers.

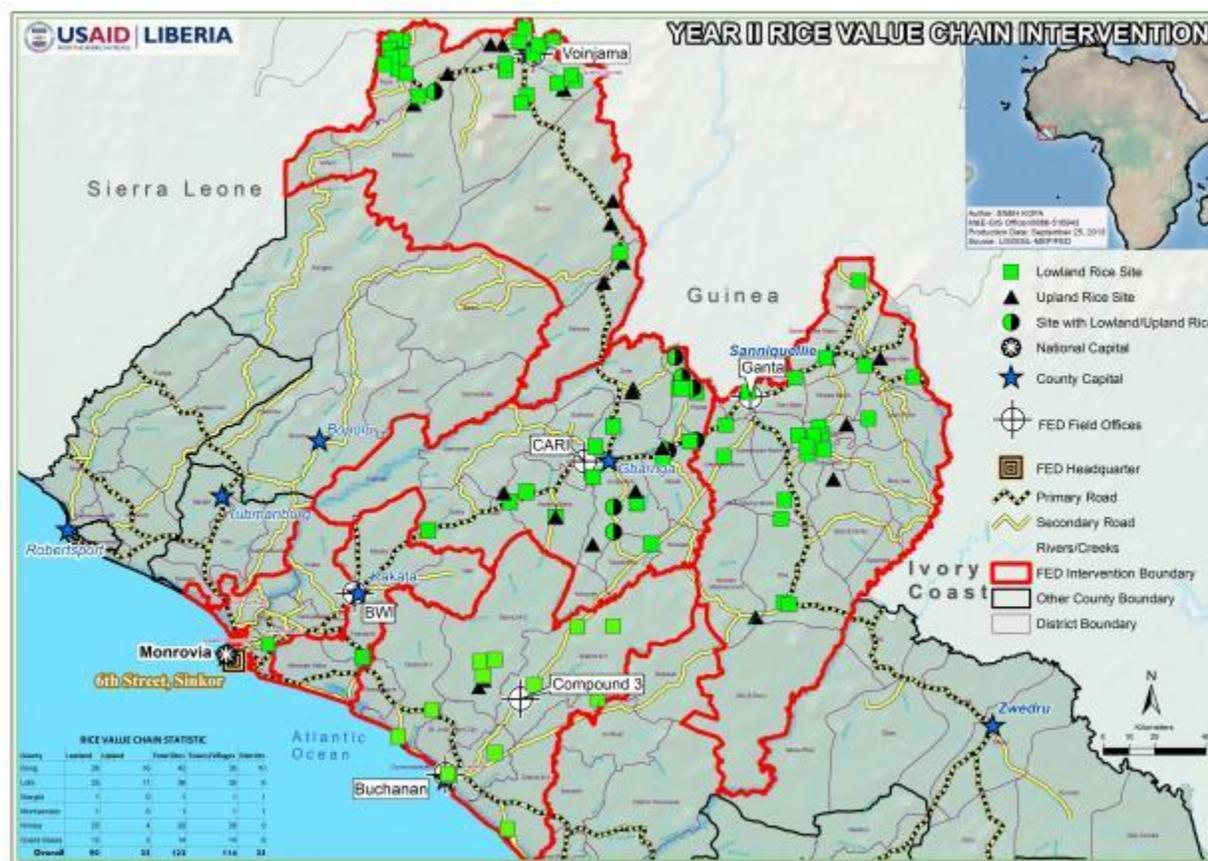
Three communities in Nimba signed the partnership agreement concerning the rice processing center activity. The agreement outlines the specific roles and responsibilities of each party (FED and farming groups) in the setting up of rice mills and community warehouses/stores. In September, the remaining five of eight total Pilot Rice Business Clusters signed MOUs with FED. Some of the groups have already embarked on the gathering of local materials as well as the clearing of the sites for the upcoming construction of the community stores/warehouse. The procurement process for the rice processing equipment will continue through FY14.

In FY14, FED's biggest challenge is devising an efficient and sustainable method on how to consolidate input supply knowledge among farmers, while stepping up operations to meet input supply deliverables.

### **INPUT SUPPLY LESSONS LEARNED AND RECOMMENDATIONS**

- The rainy season is a logistical challenge; many farmers are isolated and cannot get to the town. FED should complete the input voucher scheme before the heavy rains.

## TASK 1.2: INCREASED PRODUCTION AND PROFITABILITY OF QUALITY RICE IN LIBERIA



### FY13 ACHIEVEMENTS

- FED supported 128 rice farmer groups, consisting of 7,834 farmers applying improved technologies and management practices in 2,297 hectares of upland and lowland rice farms.
- FED produced easy-to-follow rice training materials—manuals, leaflets and brochures—offering simple guides on rice harvesting and processing, insect management, seed selection, and weed and water management. The materials were distributed to field staff, farmer group leaders, MoA partners, and local NGOs.

FED assisted farmers by providing them with essential hand tools, improved seeds, fertilizers and food during heavy work, and by conducting hands-on training on improved technology package. For upland rice production, FED trained 1,463 farmers on the application of ISFM on planting techniques, such as drilling seed into rows and dibbling. For lowland rice farming, 6,371 farmers were trained to rehabilitate and construct water control/irrigation structures, and were taught techniques on nursery bed preparation, in-line planting, weeding, fertilization, water control and pest and disease control.

In FY13, FED built the capacity of four Liberian NGOs to provide additional technical training and administrative support to upland and lowland rice farmer groups in the six FED counties of operation. FED also completed introductory learning sessions with agro-dealers and selected farmer groups in a



Fig 6. FED farmers harvest improved seed rice on a Category A site in Montserrado County.

pilot voucher program targeting Nimba and Bong counties during the FY13 dry season vegetable production campaign. In Liberia, rice farmers plant vegetables after rice harvests.

FED conducted post-rice harvest loss reduction strategies. It held practical demonstration training for 64 women in the use of rat guards for traditional kitchen storage areas, and trained 25 masons from Lofa, Bong and Grand Bassa how to build concrete slabs or solar dryers. Eight solar drying areas were constructed, two in each of the four counties.

In the value chain segment of rice processing, FED specialists promoted practical and efficient methods of parboiled rice processing, using locally available materials with an emphasis on employing women in a developing value added rice industries. In FY13, FED trained 164 women in parboiling techniques for improved rice processing and storage.

### **ACTIVITY 1.2A: VARIETAL TESTING AND CERTIFIED RICE SEED PRODUCTION**

#### **Increased Rice Seed Production**

In 2013, FED’s rice team visited farms to follow up with Liberian rice seed growers. In June, FED organized a six-day training workshop for 83 farmers from 22 farming groups of Bong, Lofa, and Nimba counties in collaboration with Africa Rice. The training focused on protocols for production of certified seeds and good seeds, pre- and post- harvest operations, seed quality and characteristics, seed testing, and the process of seed certification.

In Bong, FED invited prospective seed producers to Central Agricultural Research Institute (CARI) to know more about seed classification and seed certification. They learned how to select seed varieties against iron toxicity and the effect of iron toxicity on the rice plant during growth. As a result of this training, FED established seed production sites in 22 locations spread across FED’s area of operation.

In July, FED met with MOA Deputy Minister for Technical Services, Dr. Sizi Subah, to finalize the MOU with CARI concerning collaboration activities on rice seed production and certification. Dr. Subah leads Liberia’s Rice Seed Task Force and supports efforts to strengthen the capacity of CARI to produce foundation rice seed in its center in Bong and to maintain a team of state-managed, certified rice inspectors. An umbrella MOU stipulating the partnership between FED and CARI was signed in July 2013.

### **ACTIVITY 1.2B: IMPROVED PRODUCTION PRACTICES AND TECHNOLOGIES**

Table 1: Rice Value Chain Activities

<b>County</b>	<b>Results lowland</b>	<b>Results upland</b>	<b>Results lowland</b>	<b>Results upland</b>
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	hectares	hectares	farmers	farmers
Bong	328.1	1644	2345	565
Lofa*	40.1	14.8	1426	779
Nimba*	34.7	14.2	2262	65
Gr. Bassa*	15.2	1.9	303	54
Monts.*	5	0	35	N/A
Margibi*	3	0	50	N/A
<b>Total</b>	<b>426.1</b>	<b>1674.9</b>	<b>6421</b>	<b>1463</b>

*\*Unable to provide figures for individual beneficiary farms*

Rice groups are organized in three classifications in FY13:

- 20 Category A Sites:** At A-sites, all technologies are applied, such as UDP trials for lowland rice; mounds, ridges and contours for cassava and more. A-sites are used as a central training and demonstration site for technologies not applied in other sites and are fully supervised by FED staff.
- 88 Category B Sites:** At B-sites, improved technologies are applied on a site-specific basis. These technologies include water management control structures, line planting, improved seeds varieties for rice, cassava mounds for flat lands that have sandy clay loam soils, and ridges on gentle slopes. Category B-sites are supervised by sub-contracted NGOs that are supervised by FED staff.
- 20 Category C Sites:** C-sites are usually located in very remote areas and select interventions and technologies, such as essential tools, and improved seeds, are applied. FED-trained Lead Farmers train farmers in their respective groups. These sites are supervised by NGO staff.

FED provided advisory support to 2,031 beneficiary rice farmers in the proper layout and construction of 45 distribution and water management control structures, such as dikes, bunds and canals in Bong, Nimba, and Lofa Countries.

In March 2013, FED conducted a Training of Trainers (ToT) on agronomic and post-harvest and water management for 40 lead farmers, NGO extension officers, MoA extension officers, teachers and community-based facilitators. The training sessions were held in partnership with the Swiss Agency for Development Cooperation (SDC). The trainees then passed on to other farmers what they learned from the ToT seminars. As a result, an additional 8,283 farmers across the six FED counties received training on agronomic and post-harvest and water management.

A FED-supported plant pathologist carried out site visits to 20 UDP demonstration sites in Lofa, Nimba and Bong counties to assess rice plant health and to recommend appropriate remedies. Dr. Jim Correl provided training in rice plant disease identification for five groups and lead farmers, MoA agents, and FED extension agents during his visits in the counties. The goal was to refine the existing Crop Protection Manual developed by FED that will be used by farmers and extension workers in FY14.

A FED supported entomologist evaluated the risks of insect populations on lowland rice areas in the FED targeted zones. After visiting areas in Lofa, Nimba, Bong and Grand Bassa, Dr. Souleymane Nacro documented signs of stem borers, leaf-hoppers and crickets. He noted, though that there was less than one percent decrease in plant growth overall in the areas he visited. Dr. Nacro emphasized the presence of good insects, such as dragonflies, water skaters, spiders, and praying mantis. His general recommendations included the promotion of organic manures and composting where possible, the use of Nerica 4 for resistance to stem borers, limited use of pesticides, and the promotion of training demonstrations in subjects of ISFM, IPM and post-harvest strategies.

### **LOFA COUNTY RICE CULTIVATION**

<b>County</b>	<b>Results lowland hectares</b>	<b>Results upland hectares</b>	<b>Results lowland farmers</b>	<b>Results upland farmers</b>
Lofa*	40.1	14.8	1426	779

#### **Activities**

FED hired the Organization for the Development of Agriculture & Farmers Related Association (ODAFARA) to work with 32 farming groups comprising 10 upland and 22 lowland groups in May FY13. In Lofa County, beneficiaries tilled a total of 40.1 ha on lowland demonstration sites and an aggregate of 14.8 ha on upland demonstration sites.

FED activities were hampered by poor weather conditions and other temporary delays on rice production activities. Still, a total of 2,205 farmers attended training sessions; the aim was to train 2,295 farmers. The farmers' interest in new methods and skills continues to grow in the county. As the farmers saw the improved seeds grow and observed the commitment of FED trainers and staff, they became more involved and motivated. The continuing increase in the price of imported rice in the shops within the farmers' communities is also a motivating factor.

FED selected and provided improved varieties FKR-19 and NL-19, to counter the proliferation of low-yielding seeds in the market from across the borders. Farmers were supplied with these seeds and they were grateful, but farmers and extension agents have to be very careful not to mix improved seeds with local seeds to prevent hybridization and the loss of improved variety characteristics. This is part of the training received by FED beneficiaries. FED also assisted farmers in preparing 51 nursery beds with improved seeds in 31 farms.

A total of 31 farming groups underwent swamp layout that entailed brushing, clearing and laying out for the construction of irrigation structures (main drainage canals, peripherals canals, bunds, dikes and peripherals). Use of the power tiller was introduced and demonstrated on five hectares of lowland. Harvest and marketing will begin in early FY14.

## NIMBA COUNTY RICE CULTIVATION

County	Results lowland hectares	Results upland hectares	Results lowland farmers	Results upland farmers
Nimba*	34.7	14.2	2262	65

### Activity

FED hired the local NGO, Special Emergency Relief for the Elderly (SERE), to provide technical support and training for 2,327 beneficiaries in 20 lowland and four upland rice production sites. FED meanwhile carried out the management of five lowland UDP sites. In Nimba County, beneficiaries planted on 34.7 ha of lowland demonstration sites, and 14.2 ha of upland demonstration sites.

The 20 lowland work sites managed by SERE were divided into two categories: 10 developed and 10 undeveloped lowland sites. The developed lowlands are swamps that have an infrastructure layout designed for better water system control and good rice production practices. The undeveloped lowlands are those that are not laid out and lack water control infrastructures. In FY13, the 10 undeveloped lowland sites have on average transplanted less than 40 percent of their targeted land size. The developed lowland sites have transplanted more than 80 percent of their total targeted size.

The low performance of undeveloped lowland sites is explained by the high labor costs of brushing and clearing accumulated plant and tree growth. All four of the upland sites were completed and are producing for harvest in early FY14. During the training, FED Extension Officers explained how these good practices and technologies will lead to higher yields. It is expected that majority of farmers will adopt the practices once they actually see the higher yields from the demonstration farms. However, it is estimated that at least 10 percent of the farmers can be considered innovators and/or early adopters, who would be applying what they learned from the training and the demonstration farms in their own lands.

## BONG COUNTY RICE CULTIVATION

County	Results lowland hectares	Results upland hectares	Results lowland farmers	Results upland farmers
Bong	328.1	1644	2345	565

### Activity

FED hired a local NGO, Association for Safer Community Organization (ASCO), to provide technical support and field training for 31 farmer groups engaged in lowland and upland rice production, representing 2,910 beneficiaries. The number of beneficiaries exceeded the program's target of 2,633 beneficiaries.

In Bong County, beneficiaries planted on 328.1 ha of lowland rice – of which, 76.4 ha are demonstration sites and 252 ha are plots owned by farmers. For upland rice, program beneficiaries planted on 1,644 ha, with 19 ha on demonstration plots and 1,625 ha on farmer-owned plots. ASCO managed 31 demonstration sites, while FED managed 11 lowland UDP sites.

ASCO carried out on-site training in land preparation, brushing, clearing, plowing, construction of water control structures, and the development of nurseries in upland and lowland fields. FED’s provision of farming tools (**spell out what is being provided**), seeds, and food rations encouraged farmers to work hard in groups while ASCO helped farmers create a crop calendar for future planting and harvesting.

In addition, FED and partners supported the farmer groups with on-site trainings, including swamp layout, nursery preparation and transplanting, fertilizer application, contour farming, erosion control methods, weeding, pest and disease control and harvest methods. These trainings provided avenues for rice farmers to adopt the improved practices such as drilling, dibbling, nursery preparation, transplanting, and fertilizer application in their own fields or production plots.

In upland rice production, FED and partners worked with farmers from 16 communities and cultivated 19 ha of demonstration plots. FED farmers exceeded the 1,431 ha target; they were able to cover a total of 1,644 ha by using FED-supported techniques, technologies, and training.

In lowland rice production, FED and partners worked with farmers from five communities and cultivated 76 ha of demonstration plots. The target was 421 ha; FED farmers covered 328.1 ha using FED-supported techniques, technologies and training on their own plots. Harvest will begin in early FY14.

### **GRAND BASSA/MARGIBI/MONTERRADO COUNTIES RICE CULTIVATION**

<b>County</b>	<b>Results lowland hectares</b>	<b>Results upland hectares</b>	<b>Results lowland farmers</b>	<b>Results upland farmers</b>
Gr. Bassa*	15.2	1.9	303	54
Monts.*	5	0	35	N/A
Margibi*	3	0	50	N/A

FED partnered with Liberian NGO West Africa Initiative of Liberia (WAIOL) to provide technical support and field training for nine farmer groups representing 442 beneficiaries engaged in lowland and upland rice production.

In the three counties, beneficiaries cultivated 23.2 ha of lowland rice demonstration sites and two ha of upland rice demonstration sites. WAIOL managed all of the 20 groups. The main training activities included clearing and land preparation, nursery establishment, transplanting, and the construction of water control systems such as main and periphery canals, bunds, drains, and dikes.

## RICE VALUE CHAIN LESSONS LEARNED AND RECOMMENDATIONS

- Weather conditions. Farmers saw heavy flooding at some rice fields, delaying activity start dates. Inclement weather resulting in poor road conditions further complicated the delivery of inputs to farmers. FED should supply inputs for farm field activities well before the onset of the rainy season, which begins in March and April.
- Shortage of training days. Many group members only attended one training session per week due to time constraints and logistics. A clear schedule is useful before conducting training.
- Poor environmental practices. Many farmers had to be taught better practices for soil and water control and maintenance of constructed water structures. FED and farmers must keep a serious tab on plant infections and diseases in order to detect early stages and warnings. There is a need to hire a sufficient number of experts in commercial rice production, rice processing and storage, and rice trading to facilitate the move toward a competitive commercial rice sub-sector. Further, as Liberian farmers commercialize production, an increase in pest and disease incidence can be anticipated. MoA, FED and NGO Extension Officers together with Lead Farmers will need further assistance in identification, management and control to keep damage below economic thresholds.
- Farming schedules. Land development and the construction of water control structures should begin no later than December if solid canals and bunds are to provide better farming results. At this time of the cropping calendar, the swamp water table is appropriately low for proper field layout as well as construction purpose for suitable and better water management system. In addition, farmers seem to have more time to attend training sessions for lowland development during this period. Logistical arrangements should be provided for the timely undertaking of activities for both the farming groups and the implementing partners.
- In order to increase the sizes of the farms and continuous engagement of the farmers, the implementing partners should be involved in identifying sites and farmers for accessibility and suitability of the farming sites.
- Farmer groups' capacity. Some FED-targeted community farmers groups are in need of improved organizational structure and capacity-building in the following areas: written by-laws and constitutions as a framework for the operation of the group, leadership structures for better performance, and a realistic work plan for a desirable work achievement. Low literacy rate is impeding the farmers' learning process and adoption of modern agriculture. FED will need to revisit targets and may need to spend more time and support for farmers groups.
- Site and group selection. The selection of project target beneficiaries and sites for participation in future activities should involve the following relevant stakeholders: MoA representative, implementing partners and community stakeholders.
- For efficient project management and to increase the chances of success of enterprises, areas to be selected should have a critical mass of rice farmers that can be formed into clusters.
- To increase the success of rice-based business, farming groups must learn the basics of the rice trade, such as selling input supply and milled rice, trading rice grain and, seed rice and other aspects of the rice business, among them is the employment of fee-based services such as power tillers, rotary weeders, threshers, and rice milling. Farming groups could even engage in embedded financing.

- Absence of workers. The community working group members are frequently absent from field work because of the scarcity of food during the rainy season when the farmers are most needed for lowland rice cultivation. Other factors that contributed to the absence of rice farmers include labor opportunities in the tree crops (rubber, palm oil, cocoa, citrus) and the mining industries. FED should evaluate farmer capacity to carry out projected targets during the initial stages of group formation.

### ACTIVITY 1.3: INCREASING AND IMPROVING CASSAVA PRODUCTION, PROCESSING & MARKETING



### FY13 ACHIEVEMENTS

- A total of 588 FED-supported farmers in FY12 harvested 4,569 metric tons of cassava tubers from 204 hectares (15 hectares demonstration plots and 189 own land) in the third and last quarter of FY13. Cassava farm groups from FY12 sold 1,827 metric tons of cassava worth \$179,825 USD.
- During FY13, the cassava value chain focused on providing farming groups with improved disease-resistant planting materials, conducting training sessions on good agricultural practices and developing training materials.

- A total of 5,091 farmers received training on cassava best practices. Integrated Soil Fertility Management (ISFM) was demonstrated on a total of 139 hectares of land in Nimba, Bong, Lofa, Grand Bassa and Montserrado counties.
- FED provided Training of Trainers (ToT) workshops on cassava cultivation for 66 FED, MoA, NGO extension officers and community college staff.
- In Q4, FED commissioned the Cassava Market Study to identify markets and determine the profitability of cassava processing as well as suggest profitable business models which could be prioritized to upgrade the value chain and facilitate cassava farmers' access to market opportunities.
- Through a FED-supported business plan development activity, four entrepreneurs who developed business plans on cassava processing were selected for USADF grants to expand their processing activities. Each future rural processor will receive \$50,000 USD to expand their processing facilities in FY14.

### **ACTIVITY 1.3A: DEVELOPMENT OF A LOCAL, PRIVATE SECTOR, ELITE CASSAVA CUTTING SUPPLY SYSTEM**

- FED distributed existing, improved high-yielding disease-resistant varieties of cassava throughout Bong, Nimba, Grand Bassa and Lofa counties.
- FED signed a MoU with CARI that covered the following activities:
  1. Collaborate with CARI on the introduction, screening and dissemination of new cassava varieties, to include both on-station and multi-locational trials in Liberia's ecological zones.
  2. Work alongside CARI in addressing the growing demand for improved cassava cuttings in terms of multiplication and dissemination by supporting the establishment of commercial cuttings producers/suppliers.
  3. Work with CARI on Integrated Soil Fertility Management (ISFM) in cassava-based systems, both on-station and on-farm trials: with the various ecological zones in Liberia taken into consideration.
  4. Collaborate with CARI on the screening of existing cassava varieties currently being tested by CARI, with multi-locational testing in the various ecological zones in Liberia taken into consideration.
  5. Work with CARI on value addition, product development and technology transfer activities along the cassava value chain.
- FED worked with CARI to roll out the ToT workshop for FED extension staff, NGOs, and Lead Farmers. CARI supported the training by giving workshop participants access to its fields. The training provides trainees experience in the various aspects of cassava pests and diseases, the on-going cassava stem multiplication exercise at CARI, as well as the diversity of cassava cultivars. FED also helped guide CARI staff on the initial screening process of 11,000-plus open pollinated cassava cultivars.
- FED and partners identified 11 new international cassava varieties for testing in Liberia and expects to finalize transactions to import foreign varieties in FY14. These elite clones will initially be screened at CARI and later distributed to FED farmers' for on-farm testing and,

subsequently, for the establishment of multi-locational nurseries in Bong, Grand Bassa, Lofa and Nimba counties.

- FED supported 13 commercial nurseries in Bong, Grand Bassa and Lofa counties. Two sites in Bong and Nimba (FED office and Tonglewin, respectively) were also utilized to set up a gene pool to assist in the dissemination of FED's program. In FY14, FED will work with CARI to set up five hectares of nursery stock to support the FED dissemination package through community-based commercial nursery establishment.

Table 2: Field Establishment of FED-initiated commercial cassava nurseries

County	Organization/Farmer	Location	Variety	Ha
Bong	• Kponmah	• Gbaota	TMS/040	2.0
	• Tohlo Women	• Palala	TME/357	2.0
	• Kponmah	• Tolomai	TMS/364	2.0
	• Torwelee Women	• Torwelee		2.0
	• Kukatonon	• Weinsue		2.0
Grand Bassa	• United Communities Agri-Group	• Jeremiah Gardee Town	TME/166 TMS/364 TMS/040	0.6
	• Dahnblee Section Help Yourself	• Phillip Robert Town		0.6
	• Compound #2 Cassava Project	• Compound 2		0.6
Lofa	• Anthony Flomoku	• Zorzor	TMS/040	5.0
	• Ballah Syngbeh	• Zorzor	TME/357	1.5
	• Bolay Kollie	• Kolahun	TMS/364	1.5
	• James Mulbah	• Voinjama		2.0
	• Johnny Saryon	• Kolahun		5.0
<b>Total</b>				<b>26.8</b>

### ACTIVITY 1.3B: BUILDING LINKAGES BETWEEN CUTTING PRODUCERS AND CASSAVA FARMERS

In FY13, FED worked with lead farmers and farmer associations interested in cassava to pool together their order for planting materials to reduce the supply and transport costs of the planting materials. Through recruitment, training, and close cooperation, lead farmers can increase the participation of rural farmers in the value chain.

- During the cassava Training of Trainers (ToT), FED assisted farmers to create cassava farmers associations in each county. Lofa county lead farmers took the lead in hosting meetings. Formation of farmers associations needs to be encouraged to create ownership of the cassava sector within these counties. Such undertaking will eventually give farmers bargaining power and the ability to move volumes of cassava and cassava products in the future.
- FED trained 66 lead farmers in Bong, Nimba and Lofa counties (Table 3) on sustainable cassava production. In FY14, FED will link farmers to input dealers.
- Before the rollout of the demo sites in Q3, FED held a series of ToT workshops in Bong, Lofa and Nimba counties and trained a total of 66 participants. The training targeted FED extension staff, all contracted NGO technicians and lead farmers, Nimba County Community College staff and two CARI staff. The training covered site identification and preparation, planting criteria, harvest and post-harvest management, processing of cassava leaves, leaf selection and the production of mini-stem cuttings. FED also held practical field demonstrations and stressed the importance of disease identification and control measures in the cultivation of cassava and production of mini-stem cuttings. During the ToTs, FED discussed its future Workplan for NGOs, lead farmers and FED extension officers (Table 3).

Table 3: Cassava Processing ToT Participants.

County	Date of Training	# Participants		Total
		Male	Female	
<b>Bong</b>	April 29 – May 4, 2013	39	11	50
<b>Nimba</b>	May 8 – 11, 2013	12	3	15
<b>Lofa</b>	May 29 – 30, 2013	5*	0	1
<b>Total</b>	3 Sessions	51	14	66

The successful ToT workshop on sustainable cassava production best practices set the stage for the establishment of on-farm production demonstration activities. Despite the delays in cassava field activities roll-out, Bong, Grand Bassa, Lofa, Margibi, Montserrado, and Nimba farmers were able to plant a total of 77.7 ha out of the 139 ha that have been cleared and prepared for planting.



Figs. 7 and 8: Jeremiah Gardee Town Farmers' adoption FED staff Boone and Melvin (left) and Land preparation FED Staff Boone (right).

Table 4: Cassava field planting by county summary

County	Farmers Results	Hectares Results
Bong	642	15.7
Grand Bassa	2,153	67.2
Lofa	1,170	17.9
Margibi	0	0.5
Montserrado	23	15
Nimba	1103	24.1
<b>Total</b>	<b>5,091</b>	<b>139.7</b>

- FED developed a video clip on best practices in cassava production that is being shown by the media in some of the counties. FED also created jingles that address cassava production concerns to help farmers better understand production issues.
- Regular field monitoring is key to ensuring that the various communities have access to improved planting materials. Purchasing directly from a good source of cuttings and doing away with middlemen can help ensure that only good planting materials are provided to FED beneficiaries.

### ACTIVITY 1.3C: TRAINING FED PARTNERS ALONG THE CASSAVA VALUE CHAIN

FED prepared training manuals — copied with permission from UNICEF and distributed to ToT participants — and field tested the material throughout FY13. FED is currently revising the materials to produce a final version to serve as an extension tool for distribution to Liberian cassava farmers.

- After CARI participated in the ToT, the institute granted FED access to their facilities, where farmers are able to get a better understanding of the training materials. After signing the MOU with CARI, the Cassava Value Chain was linked with the West African Agriculture Productivity Program that IITA is managing, and is also working closely with the National Cassava Sector Coordinating Committee to assist in the development of an action plan for the sector.
- FED produced a cassava extension guide and manual to assist farmers with information on varieties, husbandry, post-harvest processing and marketing of improved cassava.

### **ACTIVITY 1.3D: FARMERS FIELD DAY, FARMERS EXCHANGE VISITS, AND TRAINING MATERIALS ON CASSAVA**

FED provided copies of the cassava production manuals to the MoA, CARI, community colleges, and other institutions of higher learning to enhance their capacity to provide extension support to farmers.

### **ACTIVITY 1.3E: PROCESSING CASSAVA WORKING WITH FED PARTNERS (EXISTING PROCESSORS, ASSOCIATIONS)**

In Q3, FED staff carried out a study on the profitability of gari processing. The findings show that a gari processing business, in the light of the cost of raw materials, regularity of supply and competition with imports, may not be profitable. This explains the difficulty to generate interest in gari processing from the private sector. FED is now looking into other potential markets for cassava products, including new or non-traditional products such as ethanol and animal feeds. For more information on this, see Component Two, Activity 2.1C. FED is also looking into different models for a cassava processing business to improve profitability. Other strategies aimed at improving competitiveness will be considered for FY14.

### **ACTIVITY 1.3F: IMPROVING THE MARKETING OF CASSAVA.**

See STTA Bibliography (Annex A) for title of report.

FED partners were trained in the fabrication of processing equipment; initial sales of prototype machines are encouraging. Training during the year took place in the main FED counties plus Montserrado. See Component Two for more information.

### **ACTIVITY 1.3G: FEASIBILITY STUDIES OF THE ECONOMIC, FINANCIAL, AND SOCIAL ASPECTS OF CASSAVA**

FED carried out a market study in partnership with cassava stakeholders NCSCC, EU and ZOA in FED and ZOA program counties. A draft copy has been produced in late FY13 and the final copy will be finished in early FY14. See Component Two for more information.

### **ACTIVITY 1.3H: CASSAVA VALUE CHAIN COORDINATION**

FED worked closely with the National Cassava Sector Coordination Committee (NCSCC) in implementing the national cassava strategy. A presentation on improved cassava cultivation was made by the FED at the NCSCC Technical Working Group's meeting in June 2013.



*Fig. 9: New Generation Women – cassava & peanut intercrop – Cooper Town, Clay Ashland, Montserrado County.*

### **CASSAVA VALUE CHAIN LESSONS LEARNED AND RECOMMENDATIONS**

- Over the past two years, FED’s cassava production team has focused on increasing productivity and production without visibility to buyers. The enterprise team has been unable to assure buyers of adequate supplies of locally produced goods that meet quality, quantity, pricing and delivery requirements. For better coordination and linkage between production, processing, and marketing, FED plans to reorganize according to value chain.
- Liberians are slow to adopt to group farming methods. FED should adopt the “kuu”, the traditional Liberian organizational structure where farmers organize themselves informally to help each other with labor on the farm. This is an established system in the rural areas, which apparently works well.
- In order to increase the linkage of farmers and processors, FED should concentrate on creating processing centers in areas where there’s a critical mass of cassava production. This will reduce transport cost and ultimately raw material cost, which will help improve competitiveness.

## TASK 1.4 IMPROVING THE QUALITY AND QUANTITY OF PERI-URBAN VEGETABLES (PUA)



### FY13 ACHIEVEMENTS

- Supported 51 vegetable farming groups, representing 1,612 farmers, with vegetable gardening training on topics such as land preparation, nursery construction and maintenance, planting/transplanting, field maintenance, and pest management practices.
- Developed vegetable, rice, and cassava extension manuals and brochures that are now being used by hundreds of farmers across FED's target counties.
- FED assisted farmers in cultivating a total of 60 ha and in using improved planting methods to render an average of 3.6MT/ha, representing a 14 percent increase over traditional yields.
- Average sales reached \$125 USD/ha.
- Trained 25 vegetable seedling producers in six counties, leading to the creation of over 31,500 vegetable seedlings sold to more than 140 farmers.

### ACTIVITY 1.4A RAISING AWARENESS

In Q1, FED partnered with the MoA to establish a 1.2 ha vegetable plot at the MoA office in Margibi county. The plot was to serve as a model farm to showcase best practices of FED's peri-urban vegetable value chain. The vegetables cultivated and harvested at the site, including 200 kg of sweet potatoes and 50 kg of bitter ball, were donated to My Brother's Keeper and Ethel orphanages in Montserrado county.

In Q1, FED helped organize and participated in the Urban and Peri-Urban Agriculture Conference hosted by Welt Hunger Life (WHL) in collaboration with the MoA. The conference enabled stakeholders to share experiences on their achievements in the urban and peri-urban agriculture sector. FED presented a talk on their approach and the development of the vegetable value chain.

In Q2, FED attended a multi-stakeholder forum at the Monrovia City Hall. The forum gathered stakeholders in the PUA sector to develop a joint city strategic agenda on urban and peri-urban agriculture that address the need of farmers, particularly access to land in urban and peri-urban communities.

A FED plant pathologist from the University of Arkansas conducted an assessment of vegetable diseases and identified 30 diseases of PUA crops in Liberia. The findings were part of the development of a compendium of diseases published to provide information on the signs, symptoms, causal organism characterization, and control/management of the diseases. An assessment of the availability and access to chemicals for control, as well as the farmers' control practices, was also conducted.

FED developed a set of fact sheets looking at additions to the Pesticide Evaluation Report for a Safer Use Action Plan, known as the PERSUAP, and the needed capacity to continue the work. The manual on diseases was completely overhauled, and the section on pests increased substantially due to a large number of newly recorded pests, since most have never been formally recorded before in Liberia.

After attending the MoA's Climate Change Management Capacity Development Plan Validation Workshop, FED made sure that it would emphasize climate-smart agricultural practices in training and extension materials at the farmer field school and community college programs.

FED produced five PUA manuals and extension material on the following topics:



*Fig. 10: Demonstration site at MoA Kakata in April 2013 planted with hot pepper using traditional methods*

- Land Preparation and Soil Management for Vegetables
- Seed Saving for Vegetables
- Pest, Diseases and Nematodes for Vegetables
- Crop Production Calendar for PUA Production
- Insects and Pests of Liberia that Affect Vegetables in Liberia

All manuals are in their first edition and the FED team plans to update them as new information are gathered, particularly on the pests and diseases recorded on PUA crops.

#### **ACTIVITY 1.4B CAPACITY BUILDING**

A total of 51 groups were identified for 2013 vegetable production in all six counties. The sites were cleared and okra, collards greens, chili pepper, bitter ball, cabbage, watermelons and eggplants were planted. Weekly trainings through practical

demonstrations were carried out at the 51 demonstration sites. Among the topics were land preparation, nursery construction and maintenance, planting/transplanting, field maintenance, and pest management practices.

A total of 1,556 participants (643 males and 914 females) participated in the training and demonstrations. They cultivated a total of 49.6 ha of land.

FED established vetiver nurseries and carried out demonstrations on how the plant can be used to control erosion at the group sites most affected by this problem. Mini-vetiver nurseries and efficacy demonstrations were established at four sites based on the procurement of 2,000 vetiver corms or crowns within Liberia. Better vegetable bed techniques and pH amelioration techniques, including the wider use of compost and biochar amendments, were introduced to project beneficiaries when possible (Figure 11). Low pH levels lead to higher toxicity and deficiencies of a range of nutrients like N, P and K. Amending soil with biochar is one solution to this problem.

Soil fertility is a major problem in Liberia. This is due to thin top soils, poor bed management and large amounts of rain. Loss of topsoil is a serious issue affecting long term soil fertility in Liberia. The PUA team addressed this issue by introducing contour marking using simple 'A' frames and plumb lines and encouraged bed alignment along contours, and contour stabilization using mixed vetiver/moringa support systems.

In Q3, FED began providing support to 50 beneficiaries from the Deaf Agricultural and Development Project in Virginia by helping them plant 6 ha with cassava and vegetables. All members suffer from

*Fig. 11: Land planted with mixed Vetiver/Moringa in contoured beds. IS this a vetiver nursery? Name the site and county.*



impaired hearing. Charles Saypahn is 50 years old and deaf; he is one of the farmers on the project.

In Q3, FED trained three extension officers and one environmental officer on pesticide use and on the guidelines for the effective application of pesticides as per USAID regulations. Following their training, the extension officers taught 509 farmers in Margibi and Montserrado counties on the same subject matter.

FED introduced the method of soil solarization to control soil-borne diseases by mulching the soil and covering it with tarp — usually with a transparent plastic cover — to trap solar energy and sterilize the soil. The

method produced promising results, and FED began to replicate the method at sites in Crozierville, Montserrado county to increase okra yields.

FED selected NGOs VOSIEDA and TECURE to carry out PUA trainings in all six counties. The NGOs provided field agents and administrative oversight to strengthen FED capacity to plan, implement and monitor PUA activities. In Q3, FED carried out two successful PUA Training of Trainers (ToT) sessions in Bong and Grand Bassa counties to ensure synchronization of improved vegetable production. Thirty-four farmers, FED extension officers, NGO stakeholders and representatives from the MoA attended the sessions. During the training, the PUA manual was distributed to the participants to guide extension officers in their relaying the information to vegetable farmers.

During the rainy season, which ran from June to September 2013, the PUA team rolled out a crop rotation demonstration for all 51 PUA groups. Rotating vegetable crop cycles with corn, peanuts, pigeon peas and cowpeas help increase soil fertility. The groups harvested over 774 kg of corn and 387 kg of peanuts during the rainy season.

### **ACTIVITY 1.4C COMMERCIAL LINKAGES**

In FY13, FED carried out two phases of the vegetable seedling production training, targeting 17 producers in each phase, with two to three growers from every county. As a result of the training, producers sold 51,486 vegetable seedlings with a value of \$31,869 LD to more than 140 farmers.

On the basis of estimated plant yields and wholesale prices, total future vegetable production (bitter ball, cabbage, eggplant, and pepper) and income from the sales of the vegetable seedlings is estimated at 35 tons or \$32,000 USD (Figure 12).



*Fig. 12: “Liberians usually just throw the seeds on the ground,” says Rebecca Larblah, chairlady of the Mowede Women’s Group in Paynesville. In FY13, the group estimated sales at nearly 34,000 Liberian Dollars (\$485 USD). The group made their largest sales with okra, potato greens and watermelon. In addition, the women take home an estimated 15 percent of their harvest for personal consumption.*

### **VEGETABLE VALUE CHAIN LESSONS LEARNED AND RECOMMENDATIONS**

- When demonstrating improved technology, timing is crucial so that farmers can see the real benefit of the technology at the appropriate time; otherwise it could lead to negative reception of the project and low adoption rate.

- Most groups began with 30-45 persons. However, as the year progressed, there was a drastic reduction in member attendance. Farmers prefer activities that provide immediate benefit to the individual. Forming them into a registered business or a cooperative is not necessarily the model to be adopted. Vegetable groups that divide into sub groups consisting of two or three members have seen higher levels of success.
- In Year 2, farmers were brought together for demonstration purposes on group land with the intention of replicating improved practices they learned in their own fields. Many farmers expressed enthusiasm for practicing improved vegetables production after the demonstrations, but do not have secure access to land that is necessary for continuous production on a given area. This has prevented adoption of technology by individual farmers.
- The fundamental purpose of farmer group selection in Year 2 was for learning through the establishment of group plots to demonstrate improved cultivation of *local* vegetables for subsequent adoption by farmers. At the end of the demonstrations, farmers sold surplus harvest in local markets to generate income for the groups; however sales were not optimal since they were selling low value local vegetables. The recommendation is for farmers to be selected in clusters to address a specific market demand for *high value* vegetables for sale on a more commercial level. Farmers should be assisted in best practices for organizing to meet that demand so that sales can be optimized. The clusters will be formed around farmers who own land and can allocate at least 0.25 ha to the cultivation of commercially viable vegetables.



### **ACTIVITY 1.5A: NATIONAL LIVESTOCK VACCINATION CAMPAIGNS**

FED strengthened the MoA's capacity to conduct animal disease vaccination and endemic disease diagnosis and surveillance by funding and executing the MoA national PPR vaccination campaign, which started in Q4 FY12 and ended in Q1 FY13. FED partnered with local livestock implementing partner BRAC to provide vaccinations and conduct refresher training for both MoA county livestock officers and private animal health promoters.

The training ensured that all field staff members were qualified to properly administer the vaccine and appropriately dispose used materials in an environmentally responsible way. Over 122,000 small ruminants (sheep and goats) were vaccinated against the most potentially damaging disease in sheep and goat populations in Africa.

The MoA has been responsible for implementing the national PPR vaccination campaigns in Liberia, but has not been able to fully execute the campaign according to planned levels. It was unable to implement the campaign for 2012 when other donors phased out. There are approximately 640,000 doses of PPR vaccine at the MoA in Liberia.

### **ACTIVITY 1.5B: COMMUNITY GOAT PASS-ON SCHEMES THROUGH LEAD FARMERS OR CBO'S**

FED identified and signed MOUs with 19 farmer groups in all four FED target counties to serve as lead farmers in the pilot Goat Pass-on schemes. Farmers were selected based on factors such their existing herd size and health, willingness to serve as demonstration sites, degree of past development involvement with surrounding community farmers, and understanding and agreement with expectations of the program.

Following identification of producer groups, pilot production intensification and demonstration sites were constructed for each of the 19 identified producer groups (+ or -5 per target county) representing 350 farmers. FED supplied the necessary materials for site construction while producer groups provided the goat herd, the land, and labor.

Farmers in and surrounding pilot production sites received extensive hands-on training in design, construction and management of shelter site, routine herd health practices, salt/mineral block fabrication and use, maternity and newborn kid care, breeding management and record keeping, and feeding strategies. Improved forage feeders designed to reduce waste/loss of forages were successfully designed and field-tested at all sites of demonstration and training.



*Fig. 13: The FED-supported goat farmers in Belayglay, Nimba county have been using goat shelters since mid-2013.*

Today, each production site is actively demonstrating the use of most critical production intensification technologies like proper sheltering, slatted floors, fenced enclosures for animal observation and treatment, deworming, multivitamin, antibiotics, salt/mineral supplementation, feeders, maternity care, newborn/kid care, and breeding management (Figure 13).

In response to the limited availability of phosphorous and calcium in local forages, FED introduced the use of locally available burned oyster shells into the fabrication of salt/mineral blocks for goats. Producer groups then trained their members in the fabrication of salt/mineral blocks.

Extensive training on goat management practices reduced kid mortalities in the first year of life from an estimated 46 percent to 15-20 percent. Such management has been proven to be critical in ensuring sufficient colostrum (first milk) consumption by newborn kids and a critical safe haven from the greater herd in the first few weeks of life.

FED partnered with ACDI/VOCA and completed two volunteer assignments under the ACDI/VOCA Farmer to Farmer Program with FED lead goat farmers in routine animal health care and breeding management. The volunteers are experienced goat farmers in the United States. A total of 150 producers were trained under the Farmer to Farmer volunteer programs in 2013.

### **ACTIVITY 1.5C: VETERINARY PHARMACEUTICAL OUTLETS IN THE RURAL AREAS**

In addition to onsite training of lead farmer producer groups in basic routine animal health care practices, FED trained 36 Community Animal Health Workers (CAHWs) in diagnostics, treatment and veterinary pharmaceutical handling, use, and administration (nine in Nimba, 10 in Lofa, 4 in Bong, 13 in Grand Bassa). In the absence of veterinary care in Liberia, there is no adequate animal health care curriculum for the training of CAHWs. In response to this need, FED produced village oriented CAHW

training manuals outlining practical, village level, user-friendly, practices and principles in basic illness diagnostics and treatment.

FED used highly experienced Liberian livestock production extension agents to develop the training manuals and carry out the training. The CAHWs received practical hands-on and on-site training at the FED established lead farmer group sites (Figure 14). FED trained only active members with personal interest in the activity.



*Fig. 14: Nancy Morris administers a multi-vitamin shot to a goat during the CAHW practical training in Lofa county.*

### **ACTIVITY 1.5D: IMPROVE NATIONAL DISEASE SURVEILLANCE/DIAGNOSTIC CAPABILITIES**

As per the FY13 workplan, FED had planned to develop the capacity of the MoA National Veterinary Diagnostic Laboratory. In late FY 2013, Liberia was selected as a regional center for honey bee management by the AU/IBAR Honey Bee Health Initiative. This means that the Liberia National Livestock Disease Diagnostic Laboratory at Fendell in Monrovia's diagnostic equipment and capacities for disease diagnostic capabilities in honey bee management will be upgraded.

Due to this initiative, it was not necessary for FED to move forward with the upgrading of the Fendell Laboratory as previously planned. Funds slated for this activity will be programmed into the rehabilitation of the National Animal Quarantine Facility at CARI in FY14.

In FY13, researchers identified a genetically improved breed at the International Trypanotolerance Center in the Gambia, which has carried out selection and breeding programs to upgrade the West African Dwarf Goat for many years. In order to safely import such animals into the country, a standard animal quarantine facility will be needed in Liberia to hold these animals for observation for the standard required period of 2-3 weeks prior to distribution to farmers.

### **ACTIVITY 1.5E: ASSIST MOA WITH THE DEVELOPMENT OF NATIONAL LIVESTOCK POLICY GUIDELINES**

The drafting of a National Livestock Policy, that will guide MoA in providing county and district level support services, in regulating the import/export of livestock and livestock products, was a priority in 2013. At the MoA's request, FED produced the first draft National Livestock Policy and submitted it to the MoA in early June. This draft National Livestock Policy is scheduled to be the first policy document reviewed by the newly established Liberian National Agricultural Policy "HUB", established under the ECOWAS Regional Veterinary Governance (VET-GOV) Initiative.

Policy issues such as the regulation of quantities of animals imported from neighboring countries and potential effects on local markets as well as the functioning of border quarantine facilities to avoid introduction of trans-boundary diseases are addressed in the draft policy document. Import regulations

on veterinary pharmaceuticals to verify expiration dates of medicines and source of origin is also included in the draft document.

### **ACTIVITY 1.5F: ASSIST LAND O'LAKES TO IMPORT IMPROVED BLOODLINES OF WEST AFRICAN DWARF GOATS**

The other USG-funded activity in the Goat Sector in Liberia is the USDA-funded goat restocking effort being implemented by Land O'Lakes (LOL). The USDA/LOL program aims to import at least 5,000 goats, beginning in December 2013, for the restocking of farmers who lost their animals in the war. Under this activity, FED will introduce improved performance proven goats (Figure 15) into the existing lead farmer herds in order to improve the production performance of the indigenous goat herds.

In FY13, FED has put USDA/LOL in touch with a source of these types of goats. These goats were bred and selected for enhanced productivity over a 10-year breeding/selection period at the International Trypano-Tolerance Center (ITC) in the Gambia. The ITC is ready and willing to provide the genetically improved goats to the LOL program for shipment to Liberia.



*Fig. 15: The West African Dwarf*

USDA/LOL's original plan was to import all 6,000 goats at one time. FED has raised concerns over the risk of very high mortality with this approach, and was able to convince LOL to import goats in batches. LOL now intends to purchase and import an initial batch of 500 of genetically superior goats from Southern Senegal into Liberia as a "pilot" shipment test case for the restocking program in FY14. The standard incubation period of most trans-boundary livestock disease threats in the West African Region is three to four weeks in order for symptoms of a disease to be evidenced. The USDA/LOL goats being purchased in Southern Senegal are scheduled to be quarantined

in Senegal following deworming and vaccination for PPR, for at least two weeks prior to shipment to Liberia. Liberia's MoA has no operational livestock quarantine facility. FED has agreed to assist the LOL and the MoA in rehabilitating an existing livestock quarantine facility at CARI to receive the imported goats. Some of the improved male goat stock will be distributed to FED farmers to improve their genetic stock.

FED and partners finished the first phase of the rehabilitation of the quarantine facility at CARI including assessment and design, budget development and costing estimation. Following the design work, a Request for Proposal (RFP) was issued for the construction work and approximately 23 local Liberian construction firms have expressed interest in the project. A bidder's conference and site visit to the CARI site was organized and carried out by the FED team by the end of September 2013. The Director of Livestock Research at the CARI Facility was directly involved in both the design and briefing of potential construction firms at the bidder's conference held at CARI. Bid selection will be completed in October 2014 and rehabilitation work will begin.

FED drafted a trilateral MOU to be signed by three partners (LOL-FED-CARI). The MOU listed down guidelines for the procurement, importation, receipt, maintenance, housing, and distribution of the animals. FED is responsible for the rehabilitation of the CARI quarantine infrastructure and will team up with LOL in animal distribution when appropriate. CARI and FED signed the MOU, but LOL opted for a bilateral agreement instead at the last minute. The MOU is currently undergoing revision.

## **GOAT VALUE CHAIN LESSONS LEARNED AND RECOMMENDATIONS**

- In addition to strengthening the critical capacities of the MoA livestock subsector, FED made extra efforts to avoid the pitfalls of past goat restocking efforts that focused on the importation of goats from bordering countries. FED has focused rather on production intensification strategies targeting Liberian goat herds. While this is a good strategy to avoid mistakes of previous approach, an economic analysis done by STTA, Marina Kryvoshlykova, showed that FED's approach of providing shelters alone will reach only a limited number of goat farmers and is therefore not cost-effective. To be able to reach out to more goat farmers, FED should utilize these shelters as learning centers where goat farmers within the community can come and be trained on improved animal management practices. In line with this, it will be cost-effective for FED to build the shelters in areas where there's a concentration of goat farming households. This will be FED's approach in FY14.
- Solid partnerships with other donor-funded development efforts in the sector are effective for both current and future leveraging of resources and taking advantage of strategic comparative advantages.
- Training and goat shelter implementation was frequently delayed due to weather conditions, impassable roads, procurement issues, low input supplier availability, and lack of skilled carpenters. There was also a delay in building goat shelters linked to a slow learning curve by FED partners and beneficiaries. FED recommends beginning implementation in FY14 in October, just after the rains. The activity is expected to be completed before July 2014. FED should begin with training and discussion sessions prior to the actual construction of the shelters. In addition, carpenter groups will be identified early on—two groups in each county—and trained in shelter construction and contracted to directly manage shelter construction using local labor.
- A widespread lack of veterinary care and livestock pharmaceuticals lead to high mortality of goats. The lack of knowledgeable care and drugs pose serious obstacles to the implementation of the program.
- The identification of strong groups already engaged in livestock is critical in order to find probable success. During beneficiary selection, FED staff learned that livestock owners were eager to learn new skills and quickly committed to the program. FED staff learned that it is more beneficial to target already existing groups, and that some villages are more organized than others, lending themselves to become productive livestock owners.

# COMPONENT TWO: STIMULATE PRIVATE ENTERPRISE

## TASK 2.1 SME DEVELOPMENT

### ACTIVITY 2.1A: VALUE CHAIN AND SECTOR STUDIES

#### Gross Margin and Processing Feasibility Templates

FED constructed gross margin templates to determine profitability of rice, cassava, and a variety of local and exotic vegetables. In addition, the team gathered information on investment requirements and cost of production for rice and cassava (gari) processing that was used for feasibility and budgeting purposes for the Rice Business Cluster, the Cassava Processing project, and the New Generational Women project (listed below). The information was useful in determining costs and estimating returns to FED and entrepreneurial investments, which in turn has informed FED's FY14 programming.

#### The Cassava Value Chain and Market Study

The Cassava Market Study was launched in Q3 in partnership with the European Union (EU) and Zuidoost-Azië (ZOA). The study gathered market information in nine primary cassava production counties (Montserrado, Margibi, Grand Bassa, Bong, Nimba, Lofa, Cape Mount, Bomi and Gbarpolu). The study focused on (1) Comprehensive domestic market overview showing the market size, trends, preferences, and structure. (2) Business models for profitable production, processing, and marketing of cassava products such as gari, deepa, cassava chips, cassava animal feed, and starch to enhance competitiveness. The final report will be ready in the first quarter of FY14.

### ACTIVITY 2.1B: PROFILE COMMERCIAL BUYERS, LEAD PRODUCERS, FBOS, AND ENTERPRISES

#### Stakeholder Survey Project

In Q1, Subah Belleh Associates (SBA) completed a Stakeholder Profile Survey. The data collected included baseline information on business practices, business acumen, and organizational structure for lead farmers, agro-input dealers, processors, and transport companies. FED used the information to locate buyers, processors and agro-dealers in the rural areas for ongoing projects. In addition, information gathered showed that most businesses are operating informally with no formal record-keeping, that very few businesses are registered, and that all of them lack access to capital.

#### Backward Mapping and Rapid Market Assessments

Rice business cluster pilot projects with farm-based organizations (FBOs) and entrepreneurs were launched in the four major counties. These projects will demonstrate post-harvest technologies on a fee-for-service basis to rice farmers as a means of reducing post-harvest losses and to improve the quality of locally milled rice. These technologies include: threshers, rice mills, parboiling tanks, solar dryers, rat-proof warehouses and outlet for selling milled rice and other farm inputs. During Q2, FED created and tested a Rapid Market Assessment (RMA) tool to determine feasibility of the venture for selected beneficiary farming groups in the four main counties. A call for expression of interest to

entrepreneurs/business people was broadcast on the radio. Eight farming groups and two entrepreneurs were selected.

During Q3 and Q4, FED completed backward mapping exercise, rapid market assessments, focus groups discussion, and informal interviews to determine demand for high value vegetables and major constraints to the development of the vegetable value chain.

The interviewees revealed several constraints such as the lack of access to consistent supply and quality produce from local producers, leading them to rely on imported vegetables; inadequate storage, and lack of a cold storage facilities for vegetables resulting in traders and aggregators experiencing losses (a minimum of 30 percent) when they are unable to sell large quantities of vegetables bought from farmers (Figure 16). In addition, they cited the lack of reliability of farmers ( that is, farmers take loans from women to produce, but they do not sell their produce to the lender as agreed) as one of the constraints.



*Fig. 16: FED's rapid market assessment determined many markets are not conducive to vegetables.*

Finally, there is no efficient system for connecting farmers to markets or for aggregators and traders to purchase supplies. Farmers are communicating with Go Buy Chop Women (market retailers) on an ad-hoc basis for sales; and traders do not have direct access to farmers and are penalized by Go Buy Chop Women if they venture to conduct business directly. Farmers produce according to the traditional seasons, which causes periodic surpluses and deficits of supply in the market.

To determine the availability and use of cold storage facilities for vegetables, FED carried out another rapid market assessment in Monrovia. FED discovered all the cold stores available in the major market areas (i.e. Duala, Red Light) are set up for frozen meat or packaged water. The only vegetable cold stores found were at major grocery stores, which are not available for use by the traders and aggregators.

Throughout the assessment, traders and aggregators mentioned consistently the newest opportunity for local suppliers is the production of tomatoes. Tomatoes are now in high demand year round in Monrovia. All or most of the tomatoes traded come from the Ivory Coast, and due to the long distance and the lack of storage, traders report very low profit margins.

FED used the information from the assessment to develop improved linkages between the farmers and buyers for the produce that has the greatest demand in the local markets.

## **ACTIVITY 2.1C: LINKING VALUE CHAIN PARTICIPANTS**

### **HANDS Buyer/Supplier Meetings and Processing Center Site Visit**

During Q2, HANDS and FED collaborated to mobilize and build the capacity of farmers and processors to work together in providing 15 metric tons of gari every month for HANDS' feeding program in Grand Gedeh and River Gee. In January, buyer/supplier meetings were held in Nimba county (65 participants) and in Bong county (50 participants) to bring together stakeholders in the cassava value chain to address the immediate demand. Emphasis was placed on the need to strengthen the knowledge of processors and input suppliers on how to meet HANDS' quality requirements, and the need to assist cassava value chain stakeholders in organizing a consistent and reliable supply mechanism.

FED organized a site visit to the HANDS processing facility in Grand Gedeh for cassava processors based in Montserrado, Bong and Nimba counties; an instructional video was developed out of the FED communication staff's visit and is being used as a working tool to support processors. As a result of the training visit, FED linked three of the youth entrepreneurs who took part in FED youth business plan writing competition to farming groups and processors to submit a proposal to USADF grant program for initial funding to upgrade or set up new processing plants. The overall process led to identification of one strategic processor or entrepreneur in every county of FED operation; each identified processor and entrepreneur is located in a cassava producing area.

### **FED Collaboration with USAID's Sustainable Markets Initiative to Supply Fresh Vegetables**

In May 2013, FED signed an MOU with USAID's Sustainable Markets Initiative (SMI) to strengthen business linkages between value chain actors, particularly farmers and wholesalers, with large buyers such as mining companies, hotels, supermarkets, and caterers. Agriculture business networking events in

Nimba and Grand Bassa were organized to inform farmers about market opportunities being offered by ArcelorMittal (AM), one of the largest mining companies in Liberia. AM expressed willingness to buy Liberian-sourced goods to supply their canteens, namely Yekepa in Nimba county and Buchanan in Grand Bassa county. The verbal commitment is significant for FED farmers, because it involves feeding 800 staff three times a day, every day of the year. The first meeting in Ganta (Figure 17) was attended by 50 participants and the second meeting in Buchanan was attended by 100 participants,

*Fig. 17: SMI & FED Networking Event in Ganta.*



mostly farmers, aggregators, caterers, wholesalers, transporters and staff from international organizations such as WFP, EU, OXFAM, Land O' Lakes and IBEX.

As a followup to the events, FED interviewed several traders and farmers and discovered additional sales would not be facilitated simply through linkages. The process illuminated the major constraints in the value chain that need to be addressed, such as lack of market-oriented production, general lack of organization by the farmers, and lack of proper storage and packaging for the traders.

### **Investment Promotion Activities**

During Q3 and Q4, FED worked with UNDP, NIC, IFC/World Bank and EU to plan the Investment Facilitation Platform, an event meant to accelerate and foster private sector involvement and investment by implementing projects that support the Liberia National Agricultural Investment Plan (LASIP). The forum also aims to establish a collective platform to encourage the Liberian government to double its effort and commitment to hit and surpass its 10 percent and 6 percent CAADP targets. It also aims to identify the types of “foreign” investment that will be most desirable to buttress the domestic efforts that will be launched.

FED was tasked with the responsibility of identifying Liberian entrepreneurs who need financial and technical support from large investors in upgrading their agribusinesses. FED identified four Liberian entrepreneurs who would benefit from financial and technical support from large investors. In August, FED and Building Markets supported the entrepreneurs in the development of business plans for the conference presentation. Results of the forum are forthcoming.

The two-day conference took place in September with 135 participants representing seven financial institutions and prospective investors, such as IFC, Afriland Bank, African Development Bank, World Bank, LAADCO, local supporting donors such as USAID, European Union, and the United Nations Development Program, Government of Liberia such as the MoA, and the National Investment Commission, as well as entrepreneurs in agri-business.

## **ACTIVITY 2.1D: VALUE CHAIN WORKSHOPS**

### **Value Chain Training for FED Staff**

In Q3, FED held a five-day value chain training and consultancy for FED staff in Monrovia. The objective of the training and consultancy was to build the capacity of FED staff in best practices by selecting and utilizing successful business models that work with small-holder farmers. The training was facilitated by Agri-Impact, a Ghanaian-based consultancy firm. FED staff learned how to determine competitiveness, construct value chain maps, evaluate constraints, and build intervention strategies using various business models. The training utilized case studies from other West African countries as examples, and all group work utilized current FED activities. These tools were used to help construct the FY14 Workplan.

## **ACTIVITY 2.1E: TARGETED TECHNICAL SUPPORT**

### **New Generational Women**

*"The farmers are so grateful for this opportunity because we have been advocating for buyers. Now we have the opportunity to link ourselves to buyers and that will encourage many farmers to grow more. Usually when we plant, we harvest a lot and most of our produce spoils because there are not enough buyers. Through this event, we have been able to link up with aggregators who can buy our produce, meaning more income for farmers."*

**-Mark Gbadyu**, farmer and head of the FED-supported Good Gardiner Self-Help farming group in Grand Bassa.

FED partnered with Chevron Liberia Ltd. to assist New Generational Women (NGW), a group of 74 farmers (51 women, 23 men) in the production of vegetable and cassava on 75 acres of land in Montserrado County (See Fig. 13). FED provided improved inputs (cassava cuttings and vegetable seeds), technical assistance, business training and mentorship and food for work to the members of NGW. Chevron covered the cost of tools, agro-chemicals, labor, and the cost of equipment and construction of a processing center for cassava.

In Q2, with FED and Chevron support, the group brushed and cleared 38 acres. Between Q3 and Q4, the group prepared and planted the area with cassava, utilizing disease-free cuttings. They also employed improved production practices such as contour marking, ridge making, the use of vetiver to prevent soil erosion, and intercropping with peanuts and cowpeas to incorporate ISFM. The group also planted corn on one acre during the rainy season; the group plans to harvest 38 acres of cassava in March 2014.

In Q2, FED and AEDE, the NGO hired by Chevron to administer its grant to NGW, mentored NGW in their business registration process. In June, the group completed the registration as a for-profit corporation with share values set at LD \$5,000 (\$63 USD) per share. Members will have the next six months to raise the cash through income-generating activities on the farm, such as selling charcoal from the wood that has been cleared and selling corn and peanuts from their harvests.

In Q4, the group harvested 66 kg of peanuts and 2225 kg of corn and sold these in the local market across the St. Paul River for LD\$11,760 (USD \$157). FED hired business service providers to help train the group in organizational strengthening, financial and small business management and marketing.

The group constructed a farm road and a palava hut at the farm site. These will be used to help the group collect, sort, and package the produce for sale to the market or for use in processing. Construction of the cassava processing center, funded by the Chevron grant, commenced in August and is expected to be completed by November 2013.

In August, United States Senator Christopher Coons, and United States Ambassador for Liberia Deborah Malac visited the site.

### **Organization Strengthening and Financial Management Training**

In Q1 and Q2, FED conducted financial management training for four groups (135 participants – 56 women, 79 men) and organizational strengthening for 17 groups (613 participants – 406 women, 207 men). The financial management training covered topics such as cost management, basic record keeping, and making budgets. In the organizational strengthening trainings, improved organizational goal setting, membership participation, leadership effectiveness, conflict management, building the capacity to gain access to loans and expand farming businesses were discussed.

The trainings (Figure 18) were led by FED partners: AEDE, Pace Management Consultants, Educare, and Rights and Rice Foundation. As a deliverable, groups created action plans based on their short-term and long-term goals. The FED Enterprise Development Assistants (EDAs) then mentored these groups to create and improve their record-keeping systems, to open bank accounts, and to develop constitutions and by-laws.



*Fig. 18: FED provides business training to increase enterprise development among SMEs.*

All 21 groups reported making fundamental changes in how their respective groups function: 14 groups updated their constitution and/or created new by-laws; five groups elected new leadership; five groups opened new bank accounts; 17 groups improved record-keeping or have started record-keeping for the first time; eight groups noted higher attendance at meetings and work days; four groups started the process of business registration; and 12 groups recorded new sales as a result of FED intervention. In addition, the Enterprise Development Assistants mentored additional farming groups not included in the formal training program.

The following (Table 5) highlights some examples of successful groups.

#### **Pilot Rice Business Cluster**

In Q3, FED began planning the Pilot Rice Business Cluster project with eight farming groups and two entrepreneurs. In Q4, FED signed MOUs with participating farming groups. Some of these groups, such as Payee-Kolakeh, From God to Man, David Selma Town and Kwa-Pai-Geh, began gathering local materials and have begun clearing the sites in preparation for the construction of community stores/warehouse. The sites are expected to be completed by December 2013.

Table 5. Highlights of various farming and processing groups that have benefitted from FED interventions in FY13

County	Organization Name	FED Intervention	Result
Doumpa, Nimba County	From God to Man	In Q3, the group participated in Organizational Strengthening training and mentorship. The group requested assistance from FED to help them decide how to invest \$3,000 USD saved from FY12's sales. The group had requested a loan for \$100,000 to buy a bulldozer to build roads in their community to link farmers to markets. FED collected production cost and sales information from the group from their previous year's crops and discussed more reasonable options for investment like mechanized and post-harvest production. For a rice re-selling scheme, FED assisted with a cost/ profit analysis to show them that buying the rice closer to their town would be more profitable.	In July, the group invested \$2,500 USD in rice from Monrovia (125 x 25 kg bags) to re-sell in their community during August and September. The group sold all of the rice to the community for a profit, and due to their ingenuity, the group was selected to participate in the Pilot Rice Business Cluster and Input Voucher programs launched in Q4.
Nimba County	Koeteman Cassava Farmer's Association	38 members on a cassava demonstration plot participated in the Organizational Strengthening training in Q1.	The group elected new leadership and began keeping records. In Q4, the group sold 1,923 kg of cassava for a total of LD \$6,855.00. Harvesting and selling will continue into early FY14. The group plans to sell cassava cuttings as well.
Nimba County	The Innovative Nimba Women	This is a group of 18 women who received training in Q2 and Q3 in vegetable, fruit, and peanut preservation techniques from COSEO.	During the month of July, and with the help of the ED Assistant, the group opened a bank account and officially registered under their current name.
Totota, Bong County	Willing Women Initiative	In Q1, The Willing Women Initiative—a UDP demonstration site—participated in the Organizational Strengthening training and attended a town hall meeting on business registration conducted in conjunction with the MoCI.	The group has grown from a membership of 25 to 50 (46 women, 4 men), and opened a bank account with LBDI. They created a new constitution, keep financial records, and are in the process of registering with the CDA. The group sold LD \$10,500 of rice and now have money in savings. The group is in the process of registering with the CDA as a cooperative.
Palala, Bong County	Palala Rural Women	In Q3, FED consulted Palala Rural Women in Bong County, a registered group of over 400 women that	If approved for the loan the women may be eligible for a pilot loan of \$2000 USD from LEAD

County	Organization Name	FED Intervention	Result
		produces rice and vegetables in the Palala district. The group—a FY12 UDP demonstration plot—cultivated 18 plots of lowland rice in FY13. FED assisted the group in drafting a cash flow and loan plan to ensure they can afford repayment of the loan they intended to borrow.	for their venture.
Bong County	Welerkamah, Gbarnga	This is an FY12 cassava production group. It received FED support through extension services for cassava and vegetable production during the rainy season. In addition, the group participated in the Organizational Strengthening training.	The group wrote a new constitution, learned to keep records, and has increased its membership. Recently, they harvested 1.3 MT of cassava, and FED linked them to the post-harvest team at CARI, who taught the group raw cassava processing.
Bong County	Kerlekerjue Farming Group	The group participated in Organizational Strengthening training in Q2.	The farming group has learned to keep records and recorded a harvest of 32 50-kg bags of rice (11 bags of Nerica L19, and 19 bags FKR) that they sold for LD\$ 43,200 (USD \$576).
Grand Bassa County	Assorted Farming Groups	FED helped 10 groups finalize and adopt by-laws and constitutions and assisted 13 more groups with templates.	The Liberians United for Food Productivity and Development in District #1 reported sales of 280 kg of corn for LD \$4,364 (USD \$58). The money earned will be reinvested in inputs and tools for this next season.
Montserrado and Margibi	Assorted Farming Groups	FED held consultations with nine groups to pilot a short and simplified Farm Business Plan. The plan lays out the group's overall goals, prior year activities and plans for future season activities. FED staff then uses this information to show them what profit they can expect to make from their activities and help them plan how to generate resources. The FED staff used this information to inform LEAD, a local MFI.	Members of these groups may be eligible for short-term loans to expand their vegetable operations during FY2014. (see Activity 2.2.c.iv – Expand Micro Credit to Underserved Markets below.)
Lofa County	Assorted Farming Groups	The groups are reserving part of their earnings in savings to allocate a portion for reinvestment into income-generating opportunities and/or distribute a portion to members as income.	The groups across the four value chains sold LD \$220,475 (USD \$2,940) in produce.

## ACTIVITY 2.1F: DEVELOP CADRE OF BUSINESS DEVELOPMENT SERVICE PROVIDERS

### Business Service Provider IQC RFP

In Q2, FED identified qualified business service providers (BSPs) to provide training services for rural groups, microenterprises and small and medium enterprises (SMEs) in each value chain through a second Indefinite Quantity Contract (IQC) process. The IQC replaced the first business service provider IQC, which was only in place for six months. The new IQC was designed to find service providers located in the counties in order to provide more 'localized' services. Qualified BSPs were hired to conduct business training sessions, most notably on Farming as a Business, for farming groups during Q3 and Q4.

### Farming as a Business Curriculum Development

In Q2, FED partnered with USAID's LAUNCH to adapt and expand Farming as a Business (FaaB) curriculum, designed to reach illiterate farmers (Figure 19). The FaaB curriculum is adapted from previous USAID programs and expanded to emphasize planning, understanding the market, developing marketing strategies and utilizing savings as investment for agriculture expansion. In Q2, FED presented the manual to the MoA for feedback and the LAUNCH project conducted two ToT sessions utilizing the new FaaB curriculum in May for FED staff.

In FY13, nine business service providers were selected and hired under an IQC to provide business training to farming groups and agri-business entrepreneurs on an ongoing basis. In July, FED conducted a ToT for 50 business service providers (17 women, 33 men). In Q4, FED identified 31 farming groups from Grand Bassa, Montserrado, and Margibi counties to participate in a pilot training, using curriculum to develop simple farm business plans.



Fig. 19: A page from the FaaB manual, designed for illiterate farmers.

## ACTIVITY 2.1G: BUSINESS PLAN COMPETITION

### Pilot Youth Business Plan Competition

In Q2, FED sponsored the Pilot Youth Business Plan Competition; six groups presented business plans and ideas to a panel of judges from CHF, LEDFC, MoCI and FED. The competition encouraged college students to develop new business ideas that would improve linkages between producers, agro-input suppliers, commercial buyers and logistic/transport companies; provide stakeholders improved access to goods and services; improve quality of goods and services; or utilize innovative technologies in the agriculture sector.

Liberia Multi-Agriculture Venture (LIMAVE), Suakoko Cassava and Processors Organization (SCAPO), and the Liberia Food Enterprise (LIFE) were the top three winners, and are submitted business ideas concerning cassava production and processing. The winners continued to work with the FED team to improve and promote their business plan ideas (see Access to Finance section).

## ACTIVITY 2.1H: INCREASE ENTERPRISE REGISTRATION AND LOCAL GOVERNMENT ENGAGEMENT

### Ministry of Commerce and Industry Joint Activities

During Q1, FED partnered with the MoCI to conduct a joint outreach activity to communicate policy reform and fee standardization of the business formalization process, and to introduce authorized agents in six FED-operated counties for SMEs. For this campaign, radio jingles in nine dialects on 15 local county radio stations were broadcast, six town hall meetings were held and flyers detailing the formalization process and fees were distributed.

### MoCI's Micro/Small and Medium Enterprise 2013 Conference

In Q2, FED supported the first annual MoCI MSME 2013 Conference and Trade Fair: "From Vision to Implementation - Buying Liberian Building Liberia." The government of Liberia, with the support of IFC, LBBF, FED, Building Markets and other partners and stakeholders, brought together approximately 680 participants representing M/SMEs, banks, MFIs, and civil society for three days. About 50 M/SMEs (Figure 20) exhibited their products.



Fig. 20: Doris George of Glaw-Paw-Jah, agro-input dealer from Ganta, Nimba County and participant in MoCI Conference.

The trade fair also included a two-day conference that was based on the four pillars of the M/SME Division: Legal and Regulatory Reforms; Access to Markets; Access to Finance; and Building Skills and Knowledge. The event allowed the government to take stock of the M/SME sector in Liberia, deliver key training workshops to assist M/SMEs in all stages of development, and examine practical steps that other key players, including banks, micro finance institutions and concessionaires, can take to promote sustainable growth that can boost job creation.

In a feedback session with the MoCI, M/SMEs requested the following:

- Government sponsored long-term financing and support for acquiring capital equipment to match those in the sub-region.
- Include more rural participation in the next conference.
- Establish a national inter-sectorial business coordinating and monitoring unit that follows up on policies that impact on M/SMEs. This monitoring unit shall be charged with tracking corruption within commercial banks concerning granting loans to small businesses.
- Set up a M/SME database with easy access and tracks M/SMEs payments.
- Conduct enterprise awareness, startup, and business planning training for M/SMEs.
- Establish business incubator facilities and mentoring programs.

- Put in place a ‘seed’ policy to empower entrepreneurs to acquire seeds easily and also put in place a mechanism to consider procuring locally produced products, which will empower local producers.

*“I have never been to such an important conference that encourages the agriculture sector. I realized that the people really need our food, and I interacted with many different companies and institutions interested in our cooperative. We have started the process of identifying buyers for what we are producing. Before, Goba-chop women would come and buy our produce at the price they set, but this time we are making contacts in Monrovia. FED’s support to our cooperative has united us, and we are working together. I never knew anything about tax clearance or that there is no seed policy in Liberia. Thanks to the conference, now I know.”*

**-Zulu Zaza, Acting Chairman for Fuamah Multi-Purpose Cooperative, Bong County**

## **ACTIVITY 2.1: RADIO ENTREPRENEURSHIP OUTREACH**

See Task 2.3: Use of ICTs in Stimulating Liberian Agri-Business.

## **TASK 2.2 ACCESS TO FINANCE**

### **ACTIVITY 2.2A: FINANCIAL SERVICE POLICY REVIEW / MONITOR GAPS IN ACCESS TO FINANCE**

#### **Financial Services Consultant**

In Q2, a Financial Services expert, Mary Miller, studied the Access to Finance environment, mentored FED activities and recommended that FED focus efforts on the Village Savings and Loan Association (VSLA) programs for farmers and to work with banks with prior experience in agriculture lending.

### **ACTIVITY 2.2B: IMPROVE BORROWER READINESS**

In Q1, the Central Bank announced a \$7.5-million USD Agriculture Loan Facility to stimulate low cost borrowing in the agriculture sector (interest rates are capped at 8 percent). The facility was given to Afriland First Bank to be portioned out among the rubber, cocoa, palm oil, and other (FED’s value chains) sectors. As a result of the business plan mentorship training in Q4 of FY12, and the HANDS buyer/supplier meetings in Q2, businesses with business plans were identified to begin medium-scale cassava processing facilities. FED advised and assisted one entrepreneur, Tarlo Mixed Farms, in improving its business plan and apply for a \$30K loan from Afriland First Bank. Unfortunately, the entrepreneur did not acquire a loan due to lack of sufficient collateral and lack of history of operating a successful business in the sector.

In Q3, FED consulted with the leadership of Kokoya Multipurpose Cooperative, which was established in 2004 with the help of the WFP to process rice for their school feeding program. The group has a current membership of 286 and is located in Bong County. The leadership participated in the six-week business plan mentorship held in Q4 FY12 and had developed a business plan in which they requested over USD \$200K to purchase paddy rice from their membership.

*“We appreciate FED so much because the cooperative was already dead and FED has helped us wake up; has given us so much support in terms of materials, training and encouragement. Your constant visit and mentoring encourage us a lot.”*

**General Manager of the Cooperative**

As a result of the consultation, FED recommended the cooperative need only USD\$18-\$20K. The cooperative's record-keeping system needs to be improved before they can be eligible to apply for a loan. The group was referred to IBEX for further mentoring.

### **Funding from USADF for Farming Groups Processing Cassava**

In Q4, the ED cassava team was notified by United States African Development Agency (USADF) that it is awarding grants to four beneficiaries in cassava processing due to FED's assistance. This was a culmination of activities organized by FED to support the development of cassava processors, aimed at providing gari for the HANDS project. In April, FED brought 12 prospective processors (entrepreneurs and farming groups) and the three winners of FED's youth business plan competition to Grand Gedeh County to visit the HANDS cassava processing center. The youth then partnered with the cassava processors, who did not have the skills to write business plan, to help them write grant proposals for funding. Four farming groups were subsequently awarded grants. The estimated grant amounts are \$50K USD each. The FED project plans to continue to partner with USADF. (See below Activity 2.2.c.iv – Expand Micro Credit to Underserved Markets).

### **ACTIVITY 2.2C: VILLAGE SAVINGS AND LOAN**

In Q2, FED held meetings with CARE, UN Women, the Central Bank, and LAUNCH to discuss VSLA program options for the FED project. In March, FED decided to utilize the CARE model that had been implemented successfully by UN Women and the Central Bank. FED released an RFP to find business service providers that will conduct training for FED beneficiaries. In Q3, two business service providers, Liberia Initiative for Development Services (LIDS) and Educare were notified they would be awarded contracts to pilot VSLA training to 26 farming groups in FED's six counties.

The VSLA program will include training and mentorship, election of savings club leadership, and will emphasize the importance of saving and investing and record-keeping. A maximum of 30 members per group, composed mostly of women, will be trained and mentored in VSLA methodology. FED estimates 26 groups will generate a total of \$185K in related loans for the farmers at a 15.65-percent annual return for the savings group over a three-year period (estimate for year one is \$26K). The awareness phase and subsequent initial training were completed by the end of Q4, with 650 women farmers attending.

In the final month of FY13, FED launched a training seminar on VSLA strategy to strengthen savings and loan capacity. A total of 625 women and men who participated in the training learned basic record-keeping, savings and credit management skills. Through the training, the farmers were able to establish visible and credible history of business management that will increase their eligibility for more formal micro-finance schemes, such as the LCUNA credit union operating in Nimba and Grand Bassa counties. In addition to capacity building skills in savings and loan management, VSLA members form a point of contact for trade aggregators and agro-dealers who are intent on expanding their respective client bases.

### **ACTIVITY 2.2D: EXPAND MICRO CREDIT TO UNDERSERVED MARKETS**

In Q2 and Q3, FED met with the management of Liberia Entrepreneurial & Asset Development (LEAD), a local micro-finance organization that successfully conducted a pilot program that lends money to

groups of farmers in Bong and Nimba counties for the SHOPS and ACE programs. The organization would like to expand its lending program in agriculture, but lack the funds to increase its loan pool. LEAD received a grant from USADF, and a loan from the Central Bank for their non-agriculture lending programs. FED met with USADF to discuss the possibility of extending their grant for additional funding. FED will review in FY14 the possibility of partnering with USADF to help LEAD expand its operations. In the meantime, LEAD has approximately USD \$20K of funding they can extend to additional farming groups and is willing to conduct a pilot project with FED farmers.

## **TASK 2.3 USE OF ICT IN STIMULATING LIBERIAN AGRIBUSINESS**

### **Radio Specialists**

In Q2, two radio specialists were hired to support FED's radio extension activities. The specialists produced scripts, programs, and other outputs to disseminate information about agriculture best practices, promote agribusiness and enterprise development, and to increase the visibility of FED's activities and accomplishments in Liberia through radio and other media. Programs created targeted farmers, agri-businesses and other stakeholders within the agriculture sector.

### **ACTIVITY 2.3A: FED AGRICULTURAL COMMUNICATIONS SYSTEM**

#### **Mobile Data Collection Training**

In Q1, FED staff completed a 10-day training on transition management of FED's internal mobile data collection. Three interns, including two women, also completed the training aimed at building their skill sets in project management and technology in agriculture. Participants created a sample electronic survey on agriculture. The training was conducted by the FED ICT specialist and included presentations by Grameen Foundation, Episurveyor, and USAID LAUNCH. A listserv on mobile data collection in Liberia was also launched. Due to limited capacity and experience in using listservs in Liberia, a Facebook page on mobile data collection in Liberia was also launched as an alternative.

#### **Enterprise Development and GPS**

FED trained Subah Bella Associates (SBA) enumerators in Q1 to use mobile phones to collect GPS location points. This was conducted by the ICT specialist, M&E/GIS officer, and FED intern in cooperation with FED's Component Two team. SBA was responsible for conducting the Agriculture Stakeholder Profiling survey. The GPS data collected was used to create maps of the location of the stakeholders in each county.

### **ACTIVITY 2.3B: KNOWLEDGE GENERATION AND SUPPORT ON MARKET INFORMATION SYSTEMS**

USAID ICT specialists were in Liberia from March 4 to 15 to work with FED ICT specialist on an assessment of the viability of the effective use of Market Information System models in Liberia. During their trip, they traveled to Grand Bassa to visit markets and farmers. A final presentation of their findings led FED to focus ICT activities on improving production and address enterprise needs.

### **ACTIVITY 2.3C: MOA EXTENSION SERVICE ASSESSMENT AND IMPLEMENTATION**

FED conducted a rapid ICT assessment of MoA's extension system in Q1. Primary findings included 1) MoA extension forms are not standardized among counties, 2) Computer literacy is a barrier for County Agriculture Coordinators (CACs) using computers to send data to MoA and 3) the newly

implemented free calling/texting program has increased communication within the extension system, but not all members are aware of the conference calls.

### **ACTIVITY 2.3D: MOBILE MONEY WORKSHOP**

FED hosted a mobile money workshop at FED's county offices during Q1 to familiarize FED staff with possible usefulness of the system. The workshop was designed by the FED ICT specialist and featured Lonestar representatives. Mobile money is new to Liberia and Lonestar was the sole provider of the service at this time. Its usefulness in the agriculture sector has yet to be tested. FED will continue to monitor the development of this service and provide information on how mobile money can be used to address payment constraints in agriculture, particularly as it relates to agro-dealers in the rural areas.

Mobile money is the use of mobile devices (phones) for the electronic transfer of funds for business transactions. In agriculture, mobile money can be used to make payments to suppliers or accept payments from buyers where banking services and cash are not easily accessible. The adoption rate for mobile phones in sub-Saharan Africa has been well documented and in many places there is now a convergence with formal and informal banking technologies. This has created a significant impact and opportunity for those in agricultural value chains, both in terms of operational efficiency for business and greater financial inclusion for the currently unbanked farmer.



*Fig. 21: Chester Dolo in Nimba county participates with FED's rural radio agriculture program.*

### **ACTIVITY 2.3E: LOW-COST VIDEO WORKSHOP**

In Q1, USAID FACET consultant conducted a workshop on low-cost video production among FED staff and partners to improve the reach of agricultural extension messages. The consultant was paired with FED staff to build local staff capacity. In Q2 and Q3 the consultant returned to work with FED to 1) continue to build the skills of the communications team in story creation and video production, 2) conduct reconnaissance and fact-finding at BWI for creation of video and visual media strategy, and 3) conduct training in video dissemination and

facilitation strategies. In Q4, FED's first extension video was created and tested to demonstrate Urea Deep Placement in lowland rice cultivation. Lessons learned from the video-creation process were applied to current extension and knowledge management videos.

### **ACTIVITY 2.3F: RADIO PARTNERSHIP / RADIO STATION BUSINESS DEVELOPMENT**

#### **Radio Assessment**

In Q2, the radio specialist conducted a needs-and-skills assessment of 34 (17 women, 17 men) county radio journalists, representing 16 radio stations, utilizing focus groups research methodology. The information was used to design a radio program training module. The training aims to prepare the radio stations for future programming activities related to FED.

### **FACET Interactive Radio Training, Malawi**

In Q3, two FED radio specialists attended the FACET radio training in Malawi. Communication specialists were trained to use interactive radio for agricultural extension services. The workshop built on successful practices from the field, and provided practical skills for project staff. Lessons learned from the training were shared with technical staff and an action plan was developed to support FED’s interactive radio programs.

### **Interactive Radio Training for Liberian Journalists**

In Q3, FED radio specialists began a 10-day training and mentorship program for 28 Liberian radio journalists from 14 radio stations located in six FED counties. The program introduced the journalists to FED’s objectives, activities, and the state of Liberia’s agriculture. The journalists were also taught how to conduct effective interviews and implement radio programming appropriate for the agriculture sector.

As part of the training, journalists were divided into groups of five and asked to produce radio programs on agriculture topics based on what they had learned. The winning group produced a 30-minute program about fish and rice farming that was broadcasted in July 2013 in all of the counties.

Eight of the 14 community radio stations signed MOUs with FED and have begun producing and broadcasting farm radio programs on their various radio stations.

In Q4, the radio specialists traveled to Nimba, Bong, Lofa, Grand Bassa, and Margibi counties to continue the mentorship program. Radio station journalists were coached on how to establish a network of expert informants, how to conduct field visitations, interviews and focus group meetings with farmers. They were also taught studio management skills, and given tutorials on Adobe Cool Edit brush-ups to improve their farm radio production. As a result, the following radio stations produced and aired three radio programs each concerning rice, cassava, and vegetable production.

*Table 6. Some of FED’s Rural Radio Agriculture Program Participants and air times.*

<b>Radio Station</b>	<b>Program Name</b>	<b>Program Times</b>
Radio Kergheamahn, Ganta, Nimba County	“Soil the Bank”	Wednesday 7:30 pm; Sunday 11 am
Radio Saclepea, Saclepea, Nimba County	“Back to the Soil”	Saturday & Sunday, 7 pm
Magic FM, Buchanan, Grand Bassa County	“Farmers Talk”	Saturday 6 am; Sunday 7 am
LACSA Radio, Buchanan, Grand Bassa County	“Agriculture and You”	Wednesday at 9am; Sunday 7pm
SAWU FM, Kakata, Margibi County	“Farmers Talk”	Thursday 4 pm; Sunday 7 pm
Atlantic Radio, Kakata, Margibi County	“Back to the Soil”	Tuesday 9 am, Sunday 10 pm

## **TASK 2.4 ENABLING THE POLICY ENVIRONMENT FOR PRIVATE SECTOR GROWTH**

### **ACTIVITY 2.4A: PROMOTING WOMEN'S ACCESS TO LAND AND SECURE LAND TENURE RIGHTS / LOCAL TENURE ARRANGEMENTS AND COMMUNITY ORGANIZATIONS**

In Q2, Dr. Stephen Lawry, DAI's senior adviser for land tenure and property rights programs, conducted an assessment of land tenure and smallholder agriculture in Monrovia and its peri-urban areas. The assessment was meant to: understand how tenure arrangements affect access to land for intensive agriculture in the Monrovia peri-urban region; examine land access and tenure security in areas of private-deeded land and areas under customary tenure, and; find out how questions of land access and tenure security affect women farmers.

Dr. Lawry held discussions with FED and NGO staff members familiar with land tenure, reviewed selected studies on agriculture in Monrovia's peri-urban areas, and gathered data through interviews with farmers and farm owners in three study sites in Montserrado and Margibi counties. Dr. Lawry's final presentation showed that land tenure remains a major issue for all farmers, not just women. FED beneficiaries were able to find short-term solutions that allowed them access to agricultural lands.

### **ACTIVITY 2.4B: IMPROVING THE POLICIES AROUND SEED AND CROP PROTECTION CHEMICALS AND RICE POLICY**

A FED STTA rice policy expert was in country during Q3 to conduct a Policy Environment Assessment (PEA) of Liberia's Rice Value Chain and to study the commercialization feasibility of upland rice. The expert met with key officials from MoCI, MoA, LISGIS, and USAID's LTFC project to gather information. In addition, the expert visited Arjay Farms and the rice farmers of the Fuamah Rice Cooperative in Bong Mines to gather field data.

The final report concluded that upland rice production cannot be competitive in Liberia and FED should focus on the expansion of existing lowland rice for commercialization. Further recommendations included conducting an analysis of the impact of policy changes in relation to the rice sector, Liberia's acceptance into the World Trade Organization, and adherence to ECOWAS's common external tariff, among other things.

A crop protection chemical STTA expert was in Liberia during Q3. The expert worked with FED to facilitate the adoption of a policy/regulatory framework for crop protection (plant health), chemicals and pesticides. There is no legislative or institutional basis for pesticides control in Liberia. Current controls operate through import permits issued by MoCI for pesticides that are not banned. Recommendations included the formation of a multi-government agency task force to develop a voluntary Code of Practice/Farmers Guide on pesticides simultaneous with developing a regulatory measures system. Specific recommendations were made for the MoA to develop policies around plant protection, plant health, and pesticides control.

In Q3, a livestock policy specialist drafted Liberia's first Livestock Policy Document, which was presented to the MoA in May 2013. In the same period, FED participated in the first National

Consultative Multidisciplinary Stakeholder’s Workshop, which called for the establishment of a Liberian National Policy Hub for livestock. The Hub is to set to be established in FY14 under the ECOWAS Regional Veterinary Governance (VET-GOV). The primary objective of the VET-GOV initiative is to provide a national framework ‘hub’ for the review and validation of national policies in a particular sector that aims to include inputs of the private and public sectors in each of the ECOWAS countries.

The workshop was attended by 42 stakeholders representing government, civil society organizations, CBOs, private sector organizations, academia, the National Livestock Focal Point, and AU-IBAR VET-GOV program staff. The draft National Livestock Policy is scheduled to be the first policy document that will be reviewed by the newly established Liberian National Agricultural Policy Hub. (See Component One ‘Activity 1.5.5 Assist MoA with the Development of National Livestock Policy Guidelines’ for more information).

## **COMPONENT TWO LESSONS LEARNED AND RECOMMENDATIONS**

- Farmers often lack the incentive to work together when individual benefits are not immediately apparent. This is evidenced by a continual lack of leadership and trust among members and a high dropout rate. FED should address farmers as individuals, but in a clustered approach that responds to geographically assessed market needs. Only after achieving tangible results over time should farmers consider formally organizing into businesses or cooperatives. Whenever possible, FED should explore the use of indigenous cultural practices for encouraging the farmers to cooperate, such as the ‘kuu’ system, through which farmers share the workload.
- Many farmers do not know how to engage in market-oriented production, and they complain about their failure to find buyers for their products. Farmers often experience large crop surpluses and supply deficits that occur at predictable times of the year. In addition to off-season production strategy, FED should support the production of high-value crops and crops with markets in their processed form.
- Toward the end of FY13, the Component Two team began piloting a more simplified ‘farm business plan’. Under this revised business plan, extension agents walked farming groups through a simple cash flow to show profitability of their farms in preparation for the next planting season and for the possibility of accessing small loans. FED should continue testing this model with farmers, but must make sure that all extension agents and lead farmers are trained in the basics of farming as a business and record-keeping, This will ensure that FED can provide ongoing mentorship to the farmers going forward.
- Like in most underdeveloped value chains in most developing countries, mistrust (due to bad transaction experiences), misinformation, and lack of transparency prevail. Production is highly fragmented, resulting in inconsistent volumes and huge variability in quality. Traders play a very important role in this situation. FED should evaluate further how this stakeholder group can be supported in order to improve these marketing channels.
- Cassava (gari) processing produces very small margins and can only be feasible with sufficient supply of raw material that is priced competitively. FED needs to come up with models that combine different processed products. Locating processing plants in areas where there’s production volume assures raw material supply and cuts transport cost. This improves profitability of the processing business while absorbing surplus farm production. FED should structure farming clusters around processing areas.

- Entrepreneurs attempting to access formal financing from the banking sector had trouble with one or more of the following requirements: a history of profitable performance in their sector, proven experience working in the sector, and/or sufficient collateral. These requirements pose serious challenges to entrepreneurs trying to break into new sectors and start new businesses. Therefore, FED should focus on alternative sources of value chain financing, such as village savings and loan associations and embedded financing.

## **COMPONENT THREE: BUILDING LOCAL HUMAN TECHNICAL AND MANAGERIAL CAPACITY**

### **TASK 3.1 CREATING CENTERS OF EXCELLENCE (COE)**

In FY13, FED focused on activities relating to the development of pre-service, vocational agricultural education curricula in partnership with the Ministry of Education. FED supported the Bureau of Science, Technical, Vocational and Special Education (BSTVSE) through agricultural curricula development assistance and vocational teacher education training. FED developed a suitable technical and entrepreneurship course for the BSTVSE that is aligned with ECOWAS-TVET regional curricula. Upon stakeholder approval, FED sent the draft to the MoE for approval. The TVET agribusiness curriculum will be implemented in all FED assisted CoEs as the leading program for pre-service technical agriculture and entrepreneurship education.

FED signed MOUs with community colleges in Grand Bassa, Nimba and Lofa, and the Booker Washington Institute (BWI) for the improvement of the vocational agricultural education curriculum, instruction, library, ICT, demonstration farm, and other facilities that will support each institution to become a Center of Excellence.

In FY13, FED initiated land laboratories at BWI and NCCC and assisted both campuses with demonstration equipment for compost, drip irrigation, vegetable and rice cultivation and Urea Deep Placement. An integrated fish/rice demonstration site was also established at NCCC.

### **ACTIVITY 3.1A: NATIONAL DIPLOMA CURRICULUM FOR VOCATIONAL AGRICULTURE EDUCATION**

- FED developed the country's first National Diploma Curriculum for Agriculture (ND) and disseminated this to FED-supported CoEs (BWI, NCCC, GBCCC and LCCC) as well as the University of Liberia, Cuttington University, African Methodist Episcopal University, United Methodist University, and Stella Maris Polytechnic for testing. The curriculum is Liberia's first

vocational curriculum to get the approval of ECOWAS and represents Liberia's first step to standardizing educational curricula.

- FED designed a roll-out plan for the curriculum and trained a total of 15 instructors and administrators on the use of the ND Curriculum.

### **ACTIVITY 3.1B: INFORMATION RESOURCES & VOCATIONAL INSTRUCTOR CAPACITY BUILDING**

FED has placed great emphasis on improving the libraries of the CoEs by providing resources such as satellite internet service and textbooks. As a result of FED's assistance 1,880 students and instructors at BWI now have easier access to research and investigation publications as well as general information. FED began supplying internet services to BWI in year one of implementation and supported the service throughout FY13. FED will provide the community colleges with internet services in FY14.

In efforts to increase the capacity of vocational agriculture and business instructors, FED engaged and included instructors in a variety of skills training to ensure ownership and the suitability of the new material provided. FED trained vocational education officers in best practices of vocational education emphasizing the new curriculum. The training enabled certified vocational educators to be available at each CoE to monitor and supervise issues and concerns forwarded to them by trainers.

Specific accomplishments include:

- Provision of 435 textbooks to five partnering educational institutions, including BWI, LCCC, GBCC, NCCC and MOE-BSTVEC. Each institution received 87 books.
- Short Term Technical Assistance (STTAs) provided an assessment of CoE instructor training needs for effective delivery of ND vocational area
- Trained 22 instructors from the MoA, and the CoE's agriculture and business departments on the latest edition of practical mathematical application, agriculture and business textbooks for effective course delivery.
- Provided syllabus-creation workshop for 78 instructors — from the four CoEs and the MoA — with relevant and updated resources to create course syllabi and classroom presentations. This prepared the participants to use textbooks for class lectures and practical activities.
- Reproduced 100 copies of ND Curriculum for the MoE's Bureau of Science Vocational and Special Education (BSTVSE).
- Conducted professional development training on teaching and learning with 41 instructors (39 men and two women) from BWI, GBCCC and NCCC.
- In Q1, FED conducted a workshop with 56 NCCC administrators and instructors (48 men and eight women).

### **ACTIVITY 3.1C: PRACTICAL FARM DEVELOPMENT**

FED assisted CoEs in providing high quality, practical agriculture demonstration plots for teachers and students to learn side-by-side. FED aims to demonstrate each of the three crop value chains on the plots. The sites were intended to give students a chance to turn the activity into a source of income. FED first partnered with NCCC in Q1 of FY12 and began preparing the practical farm sites near the CoE. Site development and cultivation at three CoE — NCCC, LCCC, BWI — were done throughout FY13 and will continue into FY14. FED will establish a demonstration plot at GBCCC in FY14.

Specific accomplishments:

- FED conducted a technical evaluation review for the NCCC fish farming project for student agriculture demonstration purposes, and signed a MoU with NCCC for rice and fish farming (Figure 22).
- At Booker T. Washington Institute (BWI), FED completed a site preparation in a one-hectare lowland rice rehabilitation project in Q2 and planted improved rice varieties in August 2013. BWI students are expected to begin harvesting in early FY14.
- On a small vegetable demonstration plot, FED introduced BWI agriculture students to innovative drip irrigation systems. FED constructed bucket drip kits to showcase efficient use of water, particularly useful for off-season production during the very dry months of December to April. Students grew lettuce, cucumber, mustard grain and hot pepper for consumption.
- In Q1, FED planted two ha of demonstration plots for vegetable, cassava field and lowland rice at NCCC.
- In Q4, FED established an estimated 1.5 ha of lowland rice field at LCCC. Agriculture students will begin harvesting in Q1 FY14.



Fig. 22: The FED-supported demo plots and fish farm at the Nimba County Community College.

Table 7: Provides the numbers of agriculture students compared with total enrolled students at each Center of Excellence for the 2012/13 academic school year.

<b>STUDENT ENROLLMENT AT THE COUNTY COMMUNITY COLLEGES AND BWI (September 2013)</b>
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<b>INSTITUTIONS:</b>	<b>BWI</b>	<b>NCCC</b>	<b>LCCC</b>	<b>GBCC</b>
No. of Students:	1,385	1,500	1,000	1,300
No of Ag. Students:	400	158(M-98; F-60)	301 (M-204; F-97)	100(M-59;F-41)
No. of Ag. Teachers:	7	3	9	3

### **ACTIVITY 3.1D: STUDENT LEADERSHIP DEVELOPMENT**

The FED-supported Internship Program builds job-readiness skills and practical experience for students entering Liberia’s agriculture and business sectors. The program connects college education with community stakeholders and professional opportunities. Hundreds of CoE students have benefited from direct and indirect job placement with partner institutions, including FED itself. The FY12 Internship Program supported 60 recent graduates — 40 men and 20 women — to work as interns for three months in the agriculture and business sectors. Each intern is expected to complete a 16-hour workweek and provide monthly updates about the experience. In FY13, FED more than doubled the program (*Table 8 below*).

- FED recruited 164 recent graduates from participating institutions — 122 men and 42 women —for internships with private companies and organizations for three months of job training and professional experience.
- Conducted a student leadership workshop for 27 students from agriculture and business departments (19 men and 8 women) at GBCC.

*Table 8: FED’s two-year Internship Program illustrating intern demographics and employment success post-internship.*

<b>Period</b>	<b>Total Interns</b>	<b>Females</b>	<b>Males</b>	<b>Jobs Secured</b>
FY12	60	20	40	11
FY13	164	42	122	42

### **ACTIVITY 3.1E: STAKE HOLDER INVOLVEMENT**

FED supported the creation of department-relevant advisory committees that meet regularly and include vocational instructors, lead students and community stakeholders. FED held two stakeholder meetings at NCCC and BWI during FY13.

### **TASK 3.2 SHORT-TERM TECHNICAL ADVISOR SUPPORT**

FED-supported CoE have benefitted from STTAs in the following areas in FY13:

- Assessment of CoE instructors’ training needs for effective delivery of NDA vocational subjects.
- Workshop to address short-term training needs of instructors at the CoE, especially within the department of agriculture.
- Carried out assessment of TVET departments across the CoE.
- ToT workshop for the use of NDA-TVET draft curriculum.

- Organizational capacity assessment diagnostic, reflecting gaps, constraints, and challenges against current capacities.
- Training on practical lesson planning and practical agricultural mathematical skills for piloted NDA TVET curriculum.
- Land laboratory design and service learning.
- Instructed vocational educators at GBCC and BWI on how to serve the community with learning projects.
- Review of three soils courses in the ND Curriculum and recommendations to improve these.
- Student leadership course in the ND Curriculum.
- Integrated Soil Fertility Management.
- Modern and innovative technologies for growing vegetables, e.g., drip irrigation.

### **TASK 3.3 NON-FORMAL EDUCATION ACTIVITIES**

#### **ACTIVITY 3.3A: BACK TO SCHOOL GARDENS AND ADULT LITERACY CLASSES**

The Back to School Garden Competition project aims to revitalize agriculture activities in schools and provide agro-entrepreneurship skills to young people to encourage them to consider careers in the agriculture sector.

FED partnered with USAID Advancing Youth Program (AYP), along with five other stakeholders, in the Back to School Garden program in Grand Bassa. The other stakeholders include local Liberian NGO Community Youth Network Program (CYNP), MoA, the Ministry of Youth and Sport (MoYS), and the Farmers Union Network (FUN).

FED organized a group of 28 agriculture expert trainers to provide AYP student gardeners in 104 schools with the agricultural skills needed to plant, grow and harvest cassava and vegetables. In exchange, AYP offered farmers adult literacy classes in five counties. The 28 agriculture extension trainers are agriculture experts who formed part of the fifth batch of the UNICEF-funded National Youth Service Program of the MoYS. The Back to School Garden Program focuses on vegetables and cassava and took place in 20 schools in Grand Bassa county. FED will continue with the program in FY14 and is expected to reach over 12,000 students.

#### **COMPONENT THREE LESSONS LEARNED AND RECOMMENDATIONS**

- FED staff encountered challenges working with the administration of BWI, a vocational institution that has not upgraded its training curriculum for nearly 30 years. When FED planned curriculum training for 100 instructors, only 19 attended.
- Both energy and physical infrastructure at the CoEs are unreliable and in need of upgrading. FED recommends researching alternative power sources to better support Internet services and IT technology installed at the CoEs.
- The partner vocational institutions lack the resources to support the infrastructure and facilities that FED has already provided and plans to provide. There is a need to support these institutions to generate revenue streams to enable them to sustainably operate facilities and infrastructures provided by FED.

- Farming as a business is a concept that FED promotes to help farmers go beyond subsistence. CoE have vast tracts of land. If they can transform these lands into income-generating enterprises, it will be an effective demonstration of how to do farming as a business while contributing to much needed revenues for the CoE.
- Despite the success of FED's Internship Program, FED private sector partners have shown hesitation in accepting interns due to the widespread notion that Liberia's youth are unable to perform professionally and lack skills and knowledge. Convincing the participating partners to take ownership of the Internship Program is fundamental to delivering useful job experience for the interns. FED recommends extending the internship period from three to six months. However, since FED's mandate is really to help provide vocational technical and managerial human resources to the agriculture sector, FED will focus on developing the career resource and internship initiative in the CoE instead of a general internship program that was done in FY12 and 13.

# COMPONENT FOUR: CROSS-CUTTING ACTIVITIES

## TASK 4.1 PARTNERSHIP AND COORDINATION

Coordination is vital to the successful implementation and sustainability of FED programs. In FY13, FED worked with a number of government ministries including the MoA, MoCI, MoE, MoHSW, MoYS and the Ministry of Gender and Women's Affairs (MGWA). In line with the USAID-Forward principles, FED worked with 29 local firms and organizations to support value chain development and collaborated with a wide range of donor-implemented projects to build synergies and ensure the optimization of resources, both human and operational.

Ministry-level coordination is essential to ensuring that the relevant ministries are on board with FED's programs and involved in implementation. These government employees include county agriculture coordinators, extension staff, and university faculty, among others. Knowledge transfer and program ownership are key to ensuring government staff have the capacity and resources needed to continue programs once FED phases out.

In FY13, FED developed and piloted extension materials for MoA county-level extension officers, worked with the MoHSW in conducting the NAGA, provided technical assistance to the MoA in drafting the first National Livestock Policy, worked closely with CARI on both animal quarantine and the development of clean cassava cuttings nurseries and laid the ground work for establishing a national monitoring and evaluation system for the MoA.

Throughout FY13, FED hired, mentored, and partnered with a wide range of Liberian businesses and NGOs to procure goods and services. In many instances, FED staff spent a significant amount of time working with these organizations in building capacity and making them more efficient, competitive businesses.

FED coordinated with other donor programs including: ZOA on a joint Cassava market study; LAUNCH on nutrition and the Farming as a Business training; LMED on data collection and special studies; PROSPER on forest protection and environmental standards; LESSP on renewable energy alternatives; the Advancing Youth Program on the School Gardening Program; UNICEF for the National Youth Volunteers in the Agriculture Sector, and; USDA Land O' Lakes for the goat restocking program.

The FED team also continued to develop its Public Private Partnerships (PPPs) with Chevron to strengthen women farming groups. This relationship is expected to grow significantly in FY14 as Chevron looks to expand its portfolio. In Q4, FED met with Coca-Cola's 5by20 program, which seeks to work with five million women by 2020. FED is in discussion with the Coca-Cola team on a variety of activities for FY14 involving women and agriculture.

Throughout FY13, FED attended monthly MoA meetings at both the national and county levels, including the various County Agriculture Coordination Groups, National Agriculture Coordination Committee, National Cassava Sector Coordination Committee, National Rice Sector Working Group, and Peri-Urban Agriculture Working Group meetings. In FY14, FED will continue to coordinate with all of the stakeholders mentioned and will continue to explore opportunities to build synergies and leverage resources to the maximum extent possible.

## **TASK 4.2 MONITORING AND EVALUATION**

### **ACTIVITY 4.2A: SPECIAL STUDIES, BASELINE STUDIES, IMPACT SURVEYS, M&E**

FED's Monitoring and Evaluation (M&E) mainly focused on three tasks in FY13, namely: establishing an internal data collection and reporting system to inform management on progress and performance; collaborating with the MoA and MoCI to initiate a county-based data collection and reporting system, and; undertaking a number of baseline surveys and special studies to support value chain production and extension activities.

In FY12, FED established the internal monitoring system, which has been functioning in the six FED counties. Until now, FED has not established a collaborative relationship with the MoA, and there have been no discussions about it. Baseline surveys based on farmer-based sample surveys within each of the four value chains were used to set the stage for the FY13 activities with participating farmer groups. Over 30 studies and surveys have been completed in support of FED production and extension activities in the field. A list of the reports from these studies and surveys is in the STTA Report (Annex A). These studies have been conducted by local and expatriate short-term consultancies during the first two years of the project to support FED's various program areas.

Some surveys and studies listed in Contract Section C were not initiated in FY12 or FY13, but will now be considered for action in FY14. These include land use surveys and a local workforce survey. The land use survey will focus on the production strengths of villages in FED's four core counties to assist FED in determining geographic focus for the different value chains.

The Annual Performance Management Plan (PMP) for FED was completed and approved by USAID in March FY13. Since then, some indicators have changed and some of the targets that were in the original PMP have changed and subsequently finalized in June 2013. A revised PMP for FY14 activities is being prepared and will reflect the progress in FY13 and the new targets for FY14.

M&E activities in FY14 will focus on providing training, mentoring, and supporting the extension staff in the field in collecting data and report on activities. Record keeping at the farm level will be emphasized to broaden the base of data collection and supplement periodic sample surveys in support of specific indicators. Increased efforts will also be made to initiate a collaborative program to establish a MoA M&E presence in the four core FED counties to better understand the requirements for reporting to the MoA and what the cost entails to establish this program. This will enable the ministry to be more prepared in approaching prospective donors for its plan to expand to other counties.

### **ACTIVITY 4.2B: IMPROVING DATA COLLECTION SYSTEMS**

A major activity for FED in FY13 was the establishment of a collaborative relationship with the MoA M&E unit at the county level. The FED M&E team met with MoA staff on several occasions to discuss the plans and needs for developing a MoA M&E capability in the four core counties where FED has

offices. A draft summary proposal and budget were prepared and submitted to FED management for review. The proposal was based in part on a larger country-wide MoA proposal for a donor-assisted effort to establish an M&E presence in all 15 counties. The proposed budget for the three-year program is \$3.6 million USD. The FED proposal was modest in scope, and included items to be procured such as including motorcycles, laptops, and PDA and GPS devices for field use. FED provided computers to the MoA county agriculture coordinators in FY12.

The effort to establish a relationship with the MoA M&E unit gained traction near the end of FY13. A proposal was tabled until further efforts could be made to encourage other donors to join in a larger country-wide effort to provide support for all or some of the remaining counties. This effort has now been pushed into FY14 of the FED project.

To undertake baseline surveys for the rice and cassava value chains, FED contracted two local NGOs. In the process, two- to three-day trainings were conducted with the management, field supervisors and the enumerators. They were also trained in the use of GPS and Personal Digital Assistants (PDAs) devices for conducting surveys and interviews. With this training and subsequent followups in the field, the use of these devices for survey purposes proved efficient and successful.

County M&E and extension staff have been trained in the use of GPS devices and have used them in field work locations for measurements. The county M&E coordinators have been trained in and have used the PDAs in the field; they also assisted in the training of local NGO staff during the surveys conducted throughout the year. Additional PDAs have been procured by FED for increased use by extension staff in the field to enhance their reporting capability. The PDAs made it more efficient and timely to report issues and successes from the field.

#### **ACTIVITY 4.2C: BASELINE SURVEYS, IMPACT SURVEYS AND SPECIAL STUDIES**

The M&E team conducted several surveys for the FED value chains throughout the year. The initial rice harvest survey for the 2012 crop had some challenges in determining reasonable average yield from FY12 rice production program. By segmenting some of the groupings, it was established that the yield ranged from 1.94 to 2.6 MT for lowland rice and for upland rice; these yields were just 2.0 MT over than the traditional yield per hectare.

In FY13, a survey was conducted to set the baseline for the participants in the rice program with a sample of 192 FED farmers and 96 non-FED farmers from the same villages. The participants in this survey are being revisited to determine their use of inputs and new technologies during FY13 production cycle.

Surveys to measure the yield of cassava from FY12 have only been partially completed. The staggered method of harvesting cassava that goes on for several months did not allow determination of total yield in one survey. In two counties, yields are impressive at an average of 11 MT per hectare, although these are samples taken from only a few of the fields planted with cassava. These yields are being validated and will be compared to other measurements once they are received.

Record-keeping forms were provided to several production groups in all of the value chains for the lead farmers and some individual farmers to capture data on production inputs, yields, sales, and other information at the farm level. This will remain an ongoing activity.

A survey of the goat producer's participating in the FY13 program was completed at mid-year and will be updated to include the ongoing kidding process to measure the effect of the support and trainings provided in FY13. The goat extension officers are reporting information from producers that kid mortality has been reduced significantly as a result of FY13 efforts. A few goat producers from each group are maintaining production and sales records, which will be collected and analyzed in the first quarter of FY14.

Measuring the harvest yields from vegetable production is more complicated due to the fact that farmers harvest at various intervals from the same plots. An effort has been made to encourage farmers to rope off a segment of their fields and measure the off-take each time they harvest some of the crop. This has been met with mixed success and no results have been received yet.

A list of studies and surveys that was included in this section of the FY13 Workplan has been addressed by other components of the project. Several proposed studies and analyses are either ongoing or have been completed and are being monitored, including: impacts of iron toxicity and weed management; multi-location variety trials for value chain crops; and the appropriateness of labor saving machinery use, such as tillers, small rice mills and cassava grinders. A study that was completed in FY13 is the Nutritional Assessment and Gap Analysis (NAGA). A nutrition specialist who arrived recently is making a followup on this study.

#### **ACTIVITY 4.2D: ONGOING MONITORING AND EVALUATION**

In FY13, FED established an M&E system at the county level that feeds data and information to the Monrovia office. It also drafted an M&E Operations and Procedures Manual, which provides a step-by-step process for data collection and reporting. Since this is a living document, changes are added and the manual is updated when necessary.

The M&E county coordinator teams increased, including one data entry person, as per the recommendation of an LMEP Data Quality Analysis (DQA) completed late in FY12. The DQA produced seven recommendations for the M&E system, which have been incorporated in the program. LMEP has indicated its interest in conducting another mini-analysis sometime early in FY14.

Throughout FY13, LMEP provided three training sessions on managing for results, data quality assessment, and GPS use in the field. Overall, 13 M&E staff attended these sessions in varying numbers. Additionally, the M&E GIS specialist participated in a two-day ICT Workshop in Nairobi, Kenya during Q4 of FY13.

#### **Review of Indicators with Tables and Charts**

FED's progress is being tracked through 20 indicators that are listed in the Indicator Progress Report in Annex H. Of these 20 Indicators, 10 are reported annually and 10 are reported quarterly. Of the annual indicators, five are linked to specific crops, which span two fiscal years and therefore require a delayed reporting cycle. Rice and cassava that were planted in FY13 will not be harvested until FY14. Indicators like gross margins, sales to a large extent, and three indicators related to the application of technologies will not be known until Q1 and Q2 of FY14.

FED missed the targets for some indicators due to several factors like delays in technical startup, farmers dropping out of groups, lack of capacity to fund inputs for use on own lands, and entrepreneurs' inability or unwillingness to invest this early on in the project. The output of indicators such as investment in agriculture, jobs created, and agriculture and rural loans were lower than anticipated due

to the difficult process of bringing agro-businesses and the banking system into the commercialization of a predominantly subsistence agriculture sector.

As noted above, the application of new technologies by farmers is still being surveyed and the results are expected in Q1 of FY14 as harvest continues. Since this is the first year in which significant numbers of farmers have been exposed to these technologies, and first year acceptance rates in agriculture are generally low, FED expects to see an increase in the number of farmers applying new technologies in FY14. Nonetheless, FED will know whether FY13 farmers have applied new skills and knowledge to their own fields in Q1 FY14.

The amount of training continues to be the major indicator of farmer and household participation in the FED program. All group members engage in some form of training, either in the field or in classroom settings.

## **TASK 4.3 YOUTH**

### *Back-to-School Garden Program*

The Back-to-School Garden Competition project aims to revive agriculture activities in schools and provide agro-entrepreneurship skills to young people to encourage them to consider careers in the agriculture sector. The Back to School Garden Program took place in 20 schools involving 1,138 young adults in Grand Bassa County. FED and partners will continue with the program in FY14 and is expected to reach over 12,000 students.

FED partnered with USAID's Advancing Youth Program (AYP) along with five other stakeholders in the implementation of the Back to School Garden program in Grand Bassa. The other stakeholders include local NGO Community Youth Network Program (CYNP), MoA, Ministry of Youth and Sport (MoYS), and the Farmers Union Network (FUN).

### *National Youth Service Program*

FED signed a MoU with UNICEF to enhance the capacity of 28 agriculture extension trainers who will serve as trainers in schools and youth groups. The 28 agriculture extension trainers are agriculture graduates who formed part of the fifth batch of the UNICEF-funded National Youth Service Program of the MoYS. FED then signed a MoU with USAID's Advancing Youth Program (AYP) for the placement of these trainers in 150 schools (Nimba 31, Bong 31, Lofa 32, Grand Bassa 25, Montserrado 31) to provide student gardeners with the agricultural skills needed to plant, grow and harvest cassava and vegetables. FED carried out a ToT workshop for the 28 agriculture experts on extension outreach as well as on improved technologies and management practices for vegetable and cassava production. This activity was initiated during FY 2013 and will continue during FY 2014.

### *FED Internship Program*

The FED-supported Internship Program builds job-readiness skills and practical experience for students entering Liberia's agriculture and business sectors. The program connects college education with community stakeholders and professional opportunities. Hundreds of CoE students have benefited from direct and indirect job placement with partner institutions, including FED itself. The FY12 Internship Program supported 60 recent graduates — 40 men and 20 women — to work as interns for three months in the agriculture and business sectors. Each intern is expected to complete a 16-hour

workweek and provide monthly updates about the experience. In FY13, FED more than doubled the program (*Table 8 below*).

- FED recruited 164 recent graduates from participating institutions — 122 men and 42 women —for internships with private companies and organizations for three months of job training and professional experience.
- Conducted a student leadership workshop for 27 students from agriculture and business departments (19 men and 8 women) at GBCC.

FED organized a site visit to the HANDS processing facility in Grand Gedeh for cassava processors based in Montserrado, Bong and Nimba counties. FED communication staff helped produce an instructional video, utilizing the video technology taught by USAID's FACET. The video is now being used as a working tool to support processors. As a result of the training visit, FED linked three of the youth entrepreneurs who took part in FED youth business plan writing competition to farming groups and processor. They helped the groups in writing and submitting a proposal to USADF grant program to get initial capital to upgrade or set up new processing plants. The overall process led to identification of one strategic processor or entrepreneur in every county of FED operation; each identified processor and entrepreneur is located in a cassava-producing area.

#### **TASK 4.4 GENDER**

FED continues to target women throughout all components and value chains. As noted in the M&E section, in FY13, women represented roughly half of FED's beneficiaries. FED hopes to further increase women's participation in FED activities throughout FY14.

In Q3 of FY13, FED hired Linda McGovern as a senior program specialist to help manage and oversee crosscutting programs including youth gender, ICT, and nutrition.

In Q3, the Women in Business Officer worked with Marcia Odell, Plan International's gender specialist, to develop a gender-related curriculum and practical guide to mainstream gender in FED's projects. The specialist worked with FED staff to adapt three of the six modules to Liberian context:

1. Gender-inclusive project design
2. Leadership for women in farm-based organizations (FBOs)
3. Development and delivery of gender-sensitive training for business service providers
4. Access to finance for women
5. Gender-sensitive lending for banks
6. Gender-sensitive products and marketing for agro-input dealers

In Q3, FED delivered the Gender Mainstreaming and Leadership training for 25 women in FBOs in Bong County aimed at helping women boost their confidence to encourage them to assume more leadership roles both within FBOs and within their communities.

In Q3, FED delivered an orientation session on the development and delivery of gender-sensitive training for 25 participants representing FED service providers, extension officers and partners to instill the importance of gender mainstreaming in project delivery.

In Q4, FED delivered Gender Mainstreaming in Agriculture orientation to 21 participants including MoA agriculture officers, national agriculture volunteers, and held a ToT session for interns working on the Back to School Garden Program (See Component Three and Task 4.3).

In Q4, FED met with 27 Go-Buy-Chop women (vegetable traders) from the Red Light Market near Monrovia to build synergies between farmers and traders and alleviate the mistrust that pervades the



Fig. 23: The 'Productive Women's Group' in Totota was trained by COSEO on food processing.

sector. The women discussed with FED the lack of infrastructure to support cold storage and the farmers' inability to maintain verbal and written agreements. In addition, imported vegetable goods from neighboring Guinea and Mali are often sold below market rate, which forces sellers to sell local vegetables at very low prices, resulting in little or no profit from local produce. There is a dearth of viable seeds, tools, fertilizers, chemical and equipment available for purchase. The group concluded that ratifying the land ownership on which the Go-Buy-Chop women and the Liberia Marketing Association Head Office are situated would ensure a progressive business environment.

FED partner and local NGO COSEO trained 164 female farmers in food processing and preservation skills in Bong, Nimba, and Montserrado counties. The intervention spanned over six months and provided input and instruction three times every week. As a result of the activity, community members, including farmers, youth, and members of women groups have acquired food processing and preservation skills that will provide additional economic support to their families.

## TASK 4.5 NUTRITION

In Q2, FED and STTA consultants Dr. Kathleen Kurz and Alison Gardner, conducted a Nutrition Assessment Gap Analysis (NAGA) to obtain updated information for FED's nutrition interventions. As part of the NAGA data collection process, the team completed the following tasks:

- Conducted research and field visits to describe the nutritional landscape in Liberia and use the data collected to inform FED's FY13 nutrition strategy;
- Designed FED's nutrition activities in collaboration with USAID programs, MYAPs, MoHSW-Nutrition Division, MoA-Food Security and Nutrition Program, WFP, UNICEF, and others; and
- Shared a draft report and briefed USAID on findings.

FED participated in the Essential Nutrition Actions ToT, which was organized for LAUNCH, local NGOs, and government staff. In addition, FED negotiated with LAUNCH, in collaboration with MoHSW, to train FED's agriculture extension officers and MoA agriculture extension officers in

Essential Nutrition Actions, an approach used by MoHSW to alleviate, and address nutrition issues in Liberia. This will be an FY14 activity.

FED participated in the National Nutrition Program Annual Review Meeting in July 2013. The National Nutrition Review Meeting is an annual event organized and sponsored by MoHSW with support from other INGOs. Jonathan Brown represented FED at the meeting, which provided a forum for nutrition stakeholders to discuss and review the implementation and achievements of the program at the county level.

In collaboration with the MoHSW, FED developed radio jingles focusing on women's nutrition and infant and young child feeding (IYCF) and placed advertisements in local papers for a Liberian professional production company or individuals to produce the messages in a studio. Radio jingles will be aired in Q1 of FY14.

In September 2013, 29 lead goat farmers (24 men and five women) received training on optimal dietary practices and intake of micronutrient foods like protein, vitamin A, iodine and iron.

### **CROSCUTTING ACTIVITIES LESSONS LEARNED AND RECOMMENDATIONS**

- Youth have little interest in agriculture as a career and prefer a quick return on labor and investment. FED should concentrate on introducing vegetable production for the unemployed, demonstrating to them that three-month turnarounds can be significant.
- Knowledge of farming was lost during the Liberian conflict and farming infrastructure was decimated. As a result, young people are more willing to try new methods; FED will take advantage of this willingness to learn new techniques and technologies.
- Land tenure in rural areas is tenuous and elders verbally give farmers the right to cultivate land and can rescind that decision at any time, providing no incentive for young people to invest in agriculture. FED and partners should look for more sustainable plots, like school gardens, to avoid this problem.
- Liberian women are marginalized in society and literacy is one of the greatest constraints women face. The illiteracy rate among rural women is around 78 percent. Increasing literacy rates for women and expanding the numbers of girls going to school, especially into secondary school, would level the playing field. FED will introduce more literacy and numeracy modules as part of its Farming as a Business training in FY14.
- Liberians, especially in rural areas, have little knowledge of nutrition and its importance to human health. For rural Liberians, the high rate of illiteracy and isolation of the rural areas contribute significantly to this absence of knowledge. In FY14, FED will target rural people with nutrition messaging using community radio; often this is the only communication infrastructure available.
- Liberian diets are high in starches and low in nutrition. Most rural farmers plant only a few crops and do not even consider planting other varieties of vegetables. As part of FED's FY14 extension and nutrition efforts, FED will promote a more varied diet among beneficiaries.

END OF REPORT