



PHOTO CREDIT: MELISSA STONE

LEARNING, EVALUATION, AND ANALYSIS PROJECT-II (LEAP-II) FINAL REPORT

DISCLAIMER This publication was produced for review by the United States Agency for International Development. It was prepared by International Development Group, LLC.

LEARNING, EVALUATION, AND ANALYSIS PROJECT-II (LEAP-II)

Final Report

Contract No. AID-OAA-I-12-00042, **Task Order No.** AID-OAA-TO-14-00046

Cover photo: Entrepreneur in Sierra Leone

DISCLAIMER The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States government.

CONTENTS

EXECUTIVE SUMMARY	I
INTRODUCTION	I
ACTIVITIES	I
PERFORMANCE EVALUATIONS	I
#1 – LIBERIA MUNICIPAL WATER PROJECT (LMWP) MID-TERM EVALUATION	I
#2 – PARTNERSHIP FOR GROWTH (PFG) MID-TERM EVALUATION	3
#3 – FINAL PERFORMANCE EVALUATION OF THE LIBERIA ENERGY SECTOR SUPPORT PROGRAM (LESSP)	4
#5.A EVALUATION OF THE BEYOND ADVOCACY FUND (BAF) IN SOUTH AFRICA	5
#7 – FINAL EVALUATION OF THE USAID ME/TS IMPROVING WATER AND SANITATION SERVICES IN THE MIDDLE EAST AND NORTH AFRICA REGION (IWSMR) ACTIVITY	7
#10 – MID-TERM PERFORMANCE EVALUATION: LIBERIA INVESTING FOR BUSINESS EXPANSION PROJECT (IBEX) AND SUSTAINABLE MARKETS INITIATIVE – LIBERIA (SMI-L)	8
#17 – FINAL PERFORMANCE EVALUATION OF THE “TACKLING YOUTH EMPLOYMENT IN TUNISIA” PROJECT (MASHROU3I)	9
#28 – MID-TERM PERFORMANCE EVALUATION: USAID/INDIA COUNTRY DEVELOPMENT AND COOPERATION STRATEGY DEVELOPMENT OBJECTIVE 4	11
#29 – FINAL PERFORMANCE EVALUATION OF THE FURTHER ADVANCING THE BLUE REVOLUTION INITIATIVE (FABRI)	19
#30 – MID-TERM PERFORMANCE EVALUATION OF THE BIZ+ PROJECT	20
IMPACT EVALUATIONS/LARGE HOUSEHOLD SURVEYS	23
#4 AND #14– SENEGAL YAAJEENDE MIDTERM EVALUATION AND KOLDA REGION BASELINE IMPACT EVALUATION	24
#11 – LIBERIA FEED THE FUTURE ZONE OF INFLUENCE INTERIM ASSESSMENT	27
#15 SENEGAL FEED THE FUTURE ZONE OF INFLUENCE INTERIM ASSESSMENT	29
#25 LIBERIA FOOD AND ENTERPRISE DEVELOPMENT (FED) IMPACT SURVEY	31
ECONOMIC ANALYSES	35
#0.A – CARGO PREFERENCE ANALYSIS	35
#5.A – ANALYSIS TO DEVELOP A TRADE INTERVENTION AGENDA: PRIORITIZING COUNTRIES AND ACTIVITIES IN SOUTHERN AFRICA	35
#25.B – LIBERIA CROSS BORDER TRADE ASSESSMENT	37
#27.A – TIMOR-LESTE CUSTOMS ASSESSMENT AND DESIGN	39
#27.B – TIMOR-LESTE IMPORT AND EXPORT REGULATIONS ADMINISTERED BY GOVERNMENT AGENCIES	41

#13 AND #16 – AGRICULTURAL COMMERCIAL, LEGAL, AND INSTITUTIONAL REFORM (AGCLR) DIAGNOSTICS IN SIERRA LEONE AND GUINEA	43
#33 – ANALYSIS OF THE USAID-CILSS INTERREGIONAL TRADE MONITORING DATA	49
COST-BENEFIT ANALYSIS (CBA)	53
CBA METHODOLOGY	53
#18 – COST-BENEFIT ANALYSIS OF USAID/SENEGAL’S RICE VALUE CHAIN	55
#19 – COST BENEFIT ANALYSIS OF USAID/RWANDA’S DAIRY VALUE CHAIN INTERVENTION	56
#20 – COST BENEFIT ANALYSIS OF USAID/LIBERIA’S RICE AND GOAT VALUE CHAIN INTERVENTIONS	58
#21 – COST BENEFIT ANALYSIS OF USAID/MALI’S SORGHUM AND MILLET VALUE CHAIN INTERVENTIONS	60
#23 – FEED THE FUTURE COST-BENEFIT ANALYSIS SYNTHESIS REPORT	63
#26 – INTEGRATING GENDER IN COST-BENEFIT AND COST-EFFECTIVENESS ANALYSIS	67
#6 – HAITI: INCREASING THE EFFICIENCY FOR PUBLIC INVESTMENT PROJECT	70
#12 – KENYA PROGRAM ON INTEGRATED INVESTMENT APPRAISAL AND RISK ANALYSIS	71
#31 – COST-BENEFIT ANALYSIS-COST-EFFECTIVENESS ANALYSIS OF USAID ACTIVITIES IN NIGERIA AND ZIMBABWE	73
#32 – CBA OF USAID RESILIENCE IN THE SAHEL ENHANCED	84
OTHER ACTIVITIES	90
#0.B – LOGISTICAL SUPPORT TO THE SECOND ECONOMISTS REGIONAL WORKSHOP	90
#8 AND #24 – ADVISORY SERVICES TO THE POWER AFRICA COORDINATOR’S OFFICE	90

LIST OF FIGURES

FIGURE 1: ACCELERATING INNOVATION, TRANSFER, AND DIFFUSION IN DEVELOPING COUNTRIES.....	14
FIGURE 2: INNOVATION PROXIMITY.....	19
FIGURE 3: ECONOMIC AND FINANCIAL ANALYSIS.....	53
FIGURE 4: MAP OF FTF PROJECTS FOR CBA SYNTHESIS (2015 VC ONLY).....	63
FIGURE 5: INCREMENTAL ECONOMIC NET PRESENT VALUE (ENPV).....	64
FIGURE 6: INCREMENTAL ECONOMIC NET PRESENT VALUE (ENPV) (USAID PERSPECTIVE) BY VALUE CHAIN	65
FIGURE 7: POVERTY ALLEVIATION OF REGIS-ER’S AND REGIS-AG’S INTERVENTIONS.....	87

LIST OF TABLES

TABLE 1: LEAP-II ACTIVITIES BY TYPE	I
TABLE 2: COUNTRIES, MARKETS, AND COMMODITIES COVERED BY THE USAID-CILSS TRADE DATA.	50
TABLE 3: PCE CBA IMPACT FIGURES	55
TABLE 4: RDCP II CBA IMPACT FIGURES	57
TABLE 5: INCREMENTAL ANALYSIS OF FED PROJECT (USAID PERSPECTIVE).....	58
TABLE 6: ARDT_SMS CBA IMPACT FIGURES	62
TABLE 7: CBA SYNTHESIS HIGH-LEVEL FIGURES	64
TABLE 8: INCREMENTAL ECONOMIC NET PRESENT VALUE (USD)	74
TABLE 9: INCREMENTAL ECONOMIC NET PRESENT VALUE (USD)	82

LIST OF ACRONYMS

ACWUA	Arab Countries Water Utility Association
AEO	Authorized Economic Operators
AgBEE	Agriculture business enabling environment
AgCLIR	Agricultural Commercial, Legal, And Institutional Reform
AGUIPEX	Agence Guinéenne de Promotion des Exportations
AI	Artificial insemination
ASYCUDA	Automated System for Customs Data
ATE	Average treatment effect
BAF	Beyond Advocacy Fund
BCR	Benefit-cost ratios
BFS	Bureau for Food Security
BLSA	Business Leadership South Africa
BSO	Business services organization
CA	Constraints analysis
CBA	Cost-benefit analysis
CADS	Cluster Agricultural Development Services
CAPI	Computer Assisted Personal Interviewing
CAQDAS	Computer assisted qualitative data analysis
CBL	Central Bank of Liberia
CBSPs	Community-Based Solution Providers
CBT	Cross-border trade
CD	Customs Directorate
CDCS	Country Development Cooperation Strategy
CEA	Cost-effective analysis
CF	Conservation Farming
CIEPEX	Centre International d'Echanges et de Promotion des Exportations
CILSS	Permanent Interstate Committee for Drought Control in the Sahel
CIP	Capital improvement project
COR	Contracting Officer Representative
CRDH	Centre de Recherche pour le Developpement Humain
CRI	Cambridge Resources International, Inc.
CRP	Customs Reform Project
CTPEA	Centre de Techniques de Planification et d'Économie Appliquée

CWG	Citizen Work Group
DALY	Disability adjusted life year
DCA	Development Credit Authority
DD	Difference-in-difference
DEC	Development Experience Clearinghouse
DO	Development Objective
E3	Economic Growth, Education and Environment
ECOWAS	Economic Community of West African States
ENAF	Ecole Nationale d'Administration Financiere
ENPV	Economic net present value
EP	Office of Economic Policy
ERR	Economic Rate of Return
EVD	Ebola Virus Disease
FABRI	Further Advancing the Blue Revolution Initiative
FCT	Federal Capital Territory
FED	Food and Enterprise Development
FGDs	Focus group discussions
FNPV	Financial Net Present Value
FRC	Fiscal Reform Commission
FTCC	Fast Track Commercial Court
FTF	Feed the Future
FTFZ-CD	Feed the Future Zimbabwe Crop Development
FTFZ-LD	Feed the Future Zimbabwe Livestock Development
GAHP	Good Animal Husbandry Practices
GAP	Good Agricultural Practices
GDA	Global Development Alliance
GOH	Government of Haiti
GOI	Government of India
GOG	Government of Ghana
GOK	Government of Kenya
GOM	Government of Mali
GON	Government of Nigeria
GOS	Government of Senegal
GOSL	Government of Sri Lanka

GOT	Government of Tanzania
IBEX	Investing for Business Expansion Project
ICBT	Informal cross-border trade
ICER	Interventions Combined Incremental Cost-Effectiveness Ratios
IDG	International Development Group LLC (IDG)
IRB	Institutional Review Board
IRR	Internal Rate of Return
JCAP	Joint Country Action Plan
HH	Household
HP	Hewlett Packard
IWSMR	Improving Water and Sanitation Services in the Middle East and North Africa Region
KII	Key informant interview
KSG	Kenya School of Government
LEAD	Linkages for Economic Advancement of the Disadvantaged
LEAP-II	Learning Evaluation and Analysis Project-II
LESSP	Liberia Energy Sector Support Project
LGA	Local Government Areas
LMWP	Liberia Municipal Water Project
LSA	Liberia Strategic Analysis
M&E	Monitoring and evaluation
MARAD	US Maritime Administration
MCC	Milk Collection Centers
ME/TS	Middle East Bureau/Technical Services
MENA-NWC	Middle East and North Africa Network of Water Centers of Excellence
MIE	Midterm impact evaluation
MOF	Ministry of Finance
MPEC	Ministry of Planning and External Cooperation
MRU	Mano River Union
MUAC	Mid-upper arm circumference
NRVCC	Nutrient-rich value chain commodity
NRW	National Single Window
NUPAS	Non-US Organization Pre-Award Survey
O&M	Operation and maintenance
OAA	Office of Acquisition and Assistance

ODK	Open Data Kit
OGAs	Other Government Agencies
OHADA	Organisation pour l'Harmonisation en Afrique du Droit des Affaires
PBS	Population-based surveys
PCE	Economic Growth Project
PFG	Partnership for Growth
PICS	Purdue Improved Crop Storage
PIO	Public International Organization
PIP	Public Investment Program
PPA	Public private alliance
PPP	Public-private partnership
PSM	Propensity score matching
QED	Quasi-experimental designs
QPI	Qualitative Personal Interviewing
RAF	Risk assessment framework
RD	Regression discontinuity
RDCP	Rwanda Dairy Competitiveness Program II
REGIS-AG	Resilience and Economic Growth in the Sahel – Accelerated Growth
REGIS-ER	Resilience and Economic Growth in the Sahel - Enhanced Resilience
RISE	Resilience in the Sahel Enhanced
ROCTP	Regional Operator Certification and Training Program
SBS	Business support organizations
SEforALL	Sustainable Energy for All
SILC	Savings and Internal Lending Communities
SME	Small and medium enterprise
SMI-L	Sustainable Markets Initiative – Liberia
TCLP	Total Consumption Poverty Line
TFA	WTO Trade Facilitation Agreement
TLTIP	Timor-Leste Trade Information Portal
TOT	Training of trainers
TVET	Technical Vocational and Education Training
UEMOA	West African Economic and Monetary Union
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development

VC	Value chain
VE/VA	Value engineering/value analysis
WASH	Water, sanitation and hygiene
WCO	World Customs Organization
WEAI	Women's Empowerment in Agriculture Index
WCO	World Customs Organization
WCS	Warrantage credit scheme
ZIMSTAT	Zimbabwe National Statistics Agency
ZOI	Zone of Influence

EXECUTIVE SUMMARY

PROJECT OVERVIEW

The Learning, Evaluation, and Analysis Project-II (LEAP-II) provided economic analysis and monitoring and evaluation support services to satisfy the overall operational objectives of USAID's Bureau for Economic Growth, Education and Environment (E3). LEAP-II was a \$14m project with a period of performance of October 2014-September 2018. The objective of the project was to provide a mechanism for the Office of Economic Policy in E3 (E3/EP) and for Missions and Bureaus to increase access to rigorous, independent technical evaluation and analysis within and beyond USAID. LEAP-II provided a vehicle for USAID Washington and USAID Missions to contract for analysis services to be executed for projects within their economic growth or other portfolios. LEAP-II was structured as a contract mechanism implemented through buy-ins.¹ Services under LEAP-II's scope of work included:

- Cost-benefit/cost-effectiveness analysis
- Macroeconomic and financial analysis
- Single- and multi-country evaluations
- Randomized controlled trials (RCTs)
- Policy Analysis Matrix/Domestic Resource Cost Analysis
- Constraints Analysis/Inclusive Growth Diagnostics
- Other Analytical and Project Support
- Integrating Gender Equality and Female Empowerment

In addition to the activities listed above, LEAP-II provided for the presentation and dissemination of analysis findings and lessons to help guide the design, implementation, and subsequent evaluation of economic growth and other sectors' activities. LEAP-II also provided a vehicle for USAID Missions to support capacity building of partner government and civil society counterparts.

Mission and Bureaus interested in engaging LEAP-II services submitted a SOW to the Contracting Officer Representative (COR). The COR determined if the proposed activities were within the SOW of

¹ A buy-in is defined as a funds-transfer to LEAP-II during a fiscal year where the buy-in objectives are consistent with LEAP-II objectives and Mission use of the mechanism will advance common strategic objectives.

the contract, and if so, provided the SOW to IDG. IDG would then prepare and submit to the designated Activity Manager at the Mission or Bureau and COR a business proposal including a brief technical approach, work plan, budget, and the CVs for the proposed team. Business proposals were submitted to the Activity Manager, COR, and CO for approval. Once the approvals were in place, IDG would quickly mobilize the team and launch the activity, often within just two weeks of receiving approval.

PROJECT RESULTS

LEAP-II was immensely popular and by year 3 could no longer accommodate new buy-ins. Thirty-six activities in 30 countries were implemented over the four years of the project including 15 performance and impact evaluations and 21 economic analyses covering a wide range of technical areas: water, energy, trade policy and trade facilitation, agriculture and agribusiness, nutrition, access to finance, SME development, youth, gender, infrastructure, workforce development, education, and health. (See table I below for LEAP-II work orders by activity time.)

LEAP-II's key achievement was generating evidence for development. LEAP-II activities contributed to improving the effectiveness of USAID programming through generating evidence and actionable recommendations for its use to inform policy and programming decisions for maximum impact. Learning was at center of LEAP-II activities and the majority included learning events such as presentations and workshops so results yielded change.

LEAP-II services helped Bureaus and Missions apply USAID Program Cycle Principles and increased compliance with the USAID Evaluation Policy (January 2011, updated in October 2016) and ADS 201 (revised in September 2016). LEAP-II also helped Bureaus and Mission to manage resources effectively by providing the data and information required to align resources against country strategies, make difficult trade-offs, and re-allocate resources toward activities that are demonstrating meaningful results.

LEAP-II deliverables presented findings, conclusions, and recommendations that are based on facts, evidence, and data, and supported by quantitative and qualitative information that is reliable, valid and generalizable. Deliverables included: an introduction; a full description of the methodology used; findings and results; limitations; conclusions and inferences; and options or recommendations, as appropriate. Recommendations were specific, action-oriented, and scalable and with defined responsibility for the action allowing USAID to integrate key findings into strategic plans and program management decisions. LEAP-II deliverables can be found on the Development Experience Clearinghouse (DEC) under contract no. AID-OAA-I-12-00042/AID-OAA-TO-14-00046.

TABLE 1: LEAP-II ACTIVITIES BY TYPE

PERFORMANCE EVALUATIONS	IMPACT EVALUATIONS/ LARGE HOUSEHOLD SURVEYS	ECONOMIC AND TRADE ANALYSES	COST-BENEFIT ANALYSIS	OTHER ACTIVITIES
#1 – Liberia Municipal Water Project (LMWP) Mid-term Performance Evaluation	#4 – Senegal YaaJeende Midterm Impact Evaluation	#0.b – Cargo Preference Analysis	#6 – Haiti: Increasing the Efficiency for Public Investment Project	#0.a – Logistical Support to The Second Economists Regional Workshop
#2 – Partnership for Growth (PFG) Mid-term Evaluations	#11 – Liberia Feed the Future Zone of Influence Interim Assessment	#5 – Analysis to Develop a Trade Invention Agenda in Southern Africa	#12 – Kenya Program on Integrated Investment Appraisal and Risk Analysis	#8 – Advisory Services to the Power Africa Coordinator's Office
#3 – Final Performance Evaluation of the Liberia Energy Sector Support Program (LESSP)	#14 – Senegal YaaJeende Kolda Impact Evaluation Baseline	#13 – Agricultural Commercial, Legal, And Institutional Reform (AgCLIR) Diagnostics in Sierra Leone	#18 – Cost-Benefit Analysis of USAID/Senegal's Rice Value Chain Intervention	#24 – Advisory Services to the Power Africa Coordinator's Office II
#5.a – South Africa – Evaluation of the Beyond Advocacy Fund (BAF)	#15 – Senegal Feed the Future Zone of Influence Interim Assessment	#16 – Agricultural Commercial, Legal, And Institutional Reform (AgCLIR) Diagnostics in Guinea	#19 – Cost-Benefit Analysis of USAID/Rwanda's Dairy Value Chain Intervention	
#7 – Final Evaluation of the USAID ME/TS Improving Water and Sanitation Services in the Middle East and North Africa Region (IWVSMR) Activity	#25 – Liberia Food and Enterprise Development (FED) Impact Survey	#25.a – Liberia Cross-Border Trade Assessment	#20 – Cost-Benefit Analysis of USAID/Liberia's Rice and Goat Value Chain Interventions	
#10 – Mid-term Performance Evaluation: Liberia Investing for Business Expansion Project (IBEX) and Sustainable Markets Initiative – Liberia (SMI-L)		#27.a – Timor-Leste Customs Assessment and Design	#21 – Cost-Benefit Analysis of USAID/Mali's Sorghum and Millet Value Chain Interventions	
#17 – Final Performance Evaluation of “Tackling Youth Employment in Tunisia”		#27.b – Timor-Leste Import and Export Regulations Administered by Government Agencies	#23 – Feed the Future Cost-Benefit Analysis Synthesis Report	
#28 – USAID/India Country Development and Cooperation Strategy Development Objective 4 Mid-term Performance Evaluation		#33 – Analysis of the USAID-CILSS Inter-Regional Trade Monitoring Data	#26 – Integrating Gender in Cost-Benefit and Cost-Effectiveness Analysis	
#29 – Final Performance Evaluation of the Further Advancing the Blue Revolution Initiative (FABRI)			#31 – Cost-Benefit Analysis-Cost-Effectiveness Analysis of USAID Activities in Nigeria and Zimbabwe	

TABLE 1: LEAP-II ACTIVITIES BY TYPE

PERFORMANCE EVALUATIONS	IMPACT EVALUATIONS/ LARGE HOUSEHOLD SURVEYS	ECONOMIC AND TRADE ANALYSES	COST-BENEFIT ANALYSIS	OTHER ACTIVITIES
#30 – Mid-term Performance Evaluation of the BIZ+ Project			#32 – Cost-Benefit Analysis of USAID Resilience in the Sahel Initiative	

#9 – Sierra Leone and Guinea Cost Benefit Analysis Activity was canceled.

#22 – Cost-Benefit Analysis of USAID/Malawi's Value Chain Interventions was canceled.

INTRODUCTION

This report presents summaries of the 36 activities implemented under LEAP-II. The report is divided into the following sections: Performance Evaluations, Impact Evaluations, Economic and Trade Analyses, Cost-benefit Analysis, and Other Activities. Each section begins with a brief description of LEAP-II's approach. Each activity summary includes the following sub-sections: Introduction, Methodology, Key Results, and Learning.

ACTIVITIES

PERFORMANCE EVALUATIONS

LEAP-II conducted 10 performance evaluations oriented toward methodological rigor, utility to USAID, and cost effectiveness. LEAP-II applied a set of six quality standards – utilizing a set of checklists and rating/review tools – to ensure close attention to quality at each step of an evaluation: 1) ensuring a clear statement of purpose regarding a given evaluation; 2) defining or refining evaluation questions directly linked to the evaluation purpose; 3) developing an evaluation design matrix that ensures evaluation questions are effectively addressed; 4) developing high-quality data collection instruments that are linked to outcomes and indicators of interest; 5) employing a range of approaches to data analysis and data visualization to allow for the identification of important trends and patterns in the collected data, thereby ensuring that evaluation findings drive conclusions and conclusions inform recommendations; 6) completing all evaluation products – reports, debriefs, recommendation work plans – with a special focus on quality and utilization. The majority of performance evaluations utilized mixed methods research with data collection involving a desk review, key informant interviews (KIIs), focus group discussions (FGDs), online surveys, and site visits.

#1 – LIBERIA MUNICIPAL WATER PROJECT (LMWP) MID-TERM EVALUATION

INTRODUCTION The primary objective of LMWP was to support the design, tendering, execution and operation of water supply infrastructure improvements in the three Liberian county capitals – Robertsport (Grand Cape Mount County), Sanniquellie (Nimba County), and Voinjama (Lofa County). The LMWP implementing partner, Tetra Tech, was tasked with assisting local and national authorities in developing plans for water supply and sanitation improvements, overseeing construction of this capital improvement project (CIP), supporting initial operations of water supply infrastructure improvements, and establishing local capability to sustainably operate and maintain constructed water supply systems.

LEAP-II conducted a mid-term evaluation to determine whether LMWP was meeting its objectives, and if adjustments were needed as USAID advanced plans to begin capital works in line with the plans developed by LMWP for the three cities. The evaluation addressed the following three key areas: (1) Effectiveness of infrastructure planning/construction oversight approach, (2) Effectiveness of institutional framework and capacity building, and (3) Overall project positioning and strategy for phase-out of USAID assistance.

METHODOLOGY LEAP-II's approach to the mid-term evaluation included a desk review, key informant interviews, and a field visit to Liberia from November 24 to December 15, 2014. The evaluation team reviewed LMWP's deliverables and cross referenced them against the expected deliverables as outlined



Key informant interview in Robertsport, Liberia
PHOTO CREDIT: SAM KODUAH

in the Objectives and Scope of Work. The team conducted over 20 key informant interviews and consulted over 15 organizational stakeholders. Field activities included visits to the cities of Robertsport, and Kakata. The evaluation was conducted during the Ebola outbreak in 2014 and required proper training for the team and extensive operational support from the IDG home office.

LEAP-II utilized a risk assessment framework (RAF) to evaluate potential risks and impacts of recommended CIP improvements including analysis of the operation and maintenance (O&M) cost recovery and sustainability, capacity building and institutional strengthening. The RAF was used as a strategy for prioritizing and sharing information about the risks to infrastructure investment. The evaluation team analyzed the risks and rewards of a decision using data collected during the evaluation.

KEY FINDINGS The evaluation team found that while LMWP employed key tools and concepts in designing the CIP, it did not apply a value engineering/value analysis (VE/VA) for the design (which is suggested by international best practice). As a result, the O&M cost recovery period of one to three years which is projected by LMWP is not realistic. The evaluation team conducted a sensitivity analysis and found that the O&M cost recovery period was closer to seven years. Another key finding was that the institutional framework and capacity building provided by LMWP was effective and one of the project's key achievements.

LEARNING The final report presented the RAF and detailed findings supported by evidence and data to the evaluation questions. The report included three levels of priority recommendations to reflect the degrees and levels (1-3) of importance (high-low) of the proposed recommendations to allow timely and concurrent, yet priority-driven improvements to the project. Priority recommendations included conducting VE/VA prior to and during construction; re-evaluating the economic and financial analysis including identifying trade-offs through sensitivity analysis; and utilizing performance-based contracting with provisions for incentives; and providing support to the government to overcome external and internal institutional challenges. To facilitate learning, the

evaluation team presented the results to USAID/Liberia and discussed in detail the recommendations and how to implement them.

#2 – PARTNERSHIP FOR GROWTH (PFG) MID-TERM EVALUATION

INTRODUCTION The Partnership for Growth (PFG) initiative aims to achieve accelerated, sustained, and broad-based economic growth in selected partner countries through bilateral agreements between the USG and the partnering countries' national governments. PFG requires rigorous, joint analyses of countries' individual constraints to growth, joint action plans to address the most pressing of these constraints, and high-level mutual accountability for the goals and activities selected to alleviate them. In February 2011, the Governments of Ghana and Tanzania committed to work with the USG to accelerate and sustain broad-based and inclusive growth in Ghana and Tanzania through the PFG initiative. This included a commitment to jointly prepare a Constraints Analysis (CA) using the Growth Constraints approach of Hausmann, Rodrik, and Velasco (2006). The CA's for Ghana and Tanzania were finalized in August and September 2011 respectively. These were used as the basis for the development of the five-year Joint Country Action Plans (JCAP) for Tanzania 2012-2016, issued in April 2012 and for Ghana which was finalized in March 2013 with the five-year program running to February 2018.

LEAP-II carried out the mid-term evaluations in Ghana and Tanzania included examining PFG's effectiveness in addressing binding constraints identified in each country (energy and access to finance in Ghana, and energy and rural roads in Tanzania). The mid-term evaluations sought to determine whether the PFG process represent an improvement over the pre-PFG assistance approach. The evaluations also examined whether PFG analyses and activities are sufficient for addressing the identified constraints, realizing the desired outcome and attributing the impact of PFG interventions on reducing the constraints.

METHODOLOGY The evaluation team used three data collection methods: 1) A desk review based on the program documentation received primarily from USAID for the PFG initiatives as a whole, as well as documents that refer exclusively to the core focal areas addressed under the PFG in each country. 2) Semi-structured interviews with key PFG stakeholders, including high-level leadership, leadership, architects, goal leads, implementers, and independent experts in the US, Ghana, and Tanzania. The team spoke with 83 people in Ghana and 129 people in Tanzania. 3) A web-based survey of officials and technical specialists.

KEY FINDINGS Key findings from the evaluation include:

- At the midterm, PFG is regarded as a successful initiative by GOG, GOT and USG leaders, designers and goal leads.
- All parties involved (interviewed) stated their belief that the PFG process had contributed to improved dialogue as partners in a shared commitment to development.
- The processes with the CA, JCAP, log frames and a developing a commitment to M&E advanced understanding and encouraged deeper thinking on causal linkages.

- The JCAP in both Ghana and Tanzania were ambitious and optimistic taking into account the difficult development challenges.
- PFG approach adopted and owned in the power sector, but more challenges were experienced in access to finance in Ghana and rural roads in Tanzania.
- Many of the PFG interventions are on target and substantial progress has been made on a range of challenging policy and regulatory issues in a relatively short period of time.
- PFG is partially on track in Ghana and Tanzania for the power sector, which has received additional financial resources.
- There has been limited progress in Ghana on the access to finance constraint, and modest progress in Tanzania on rural roads connectivity.

LEARNING LEAP-II produced three evaluation reports: Ghana, Tanzania, and a crosscutting report. The reports addressed country specific questions for Ghana and Tanzania, and crosscutting questions. They included detailed recommendations on the PFG process and targeted sectors. The evaluation team also produced detailed case studies of the power sector in each country that addressed: public-private partnerships, policy, regulatory and institutional challenges; energy mix and power generation sources; and power usage and transmission and distribution system coverage as well as case studies on the roads sector in Tanzania and access to finance in Ghana. The team presented the results and recommendations to USAID/Ghana, USAID/Tanzania, and USAID/Washington.

#3 – FINAL PERFORMANCE EVALUATION OF THE LIBERIA ENERGY SECTOR SUPPORT PROGRAM (LESSP)

INTRODUCTION LESSP (implemented by Winrock International) aimed to achieve the following objectives: 1) Increased, sustainable access and affordability of electricity within selected urban and rural poor communities; 2) Improved performance of local governments, civil society and the private sector in monitoring, regulating and managing the use of renewable energy; 3) An increase in the percentage of households and businesses utilizing clean energy, and a corresponding increase in economic activity; and 4) Policy changes that improve the investment climate for the energy sector. In 2014, the effects of the Ebola epidemic began to impact project performance. Winrock International requested a no-cost extension through March 2015. However, given the uncertainties with the project performance, contract compliance, and expected construction end dates, USAID did not grant an extension to the contract, and let the project end in October 2014 as originally scheduled. The construction of the pilot projects at Sorlumba, Kwendin, and Gbarnway were incomplete at project close out.

The primary purpose of the evaluation was to determine whether the assistance provided by LESSP met the stated development objectives, and identify lessons learned. The evaluation provided a detailed picture of the major accomplishments and weaknesses of the project since inception, including management issues, and indicating the recommended changes in implementation approach to future energy programs, and USAID's project design/programming approach to assure successful completion of the project objectives. The evaluation questions were organized into three categories: 1) Effectiveness of infrastructure planning / construction oversight approach; 2) Effectiveness of institutional framework and capacity building; and 3) Overall project positioning and strategy for phase-out of USAID assistance.

METHODOLOGY Data collection methods included a comprehensive desk review of relevant documents and reports and KIs of key actors and stakeholders both in the U.S. and in Liberia (the field work took place April 17 – May 12, 2015). The evaluation team conducted KIs with 27 key stakeholder organizations and approximately 60 participants in the US and Liberia. In-country interviews were supplemented by visits to the three LESSP pilot sites located in Gbarway (solar in Lofa County), Sorlumba (biomass in Lofa County) and Kwendin (biomass in Nimba County) as well as two visits to the Booker Washington Institute to assess the situation on-the-ground with respect to sustainability of activities.

KEY FINDINGS 1) The program scope was too broad with too many initiatives each of which required time and resources. The lack of focus created implementation challenges. Ultimately by overreaching, the program was unable to accomplish its objectives. 2) The program design was not strategic and stakeholder driven making it difficult for stakeholders to claim ownership to facilitate sustainability. 3) At the time of the evaluation, there was little evidence that LESSP built any meaningful relationship within the GOL. Most parties outside of GOL had positive interactions with LESSP but had high expectations of what would still be delivered based on their interactions with LESSP. 4) Capacity building did not emphasize organizational performance improvement sufficiently and did not have a rigorous evaluation mechanism to determine long term impacts. 5) The pilots initiated by LESSP did not achieve their original purpose – the demonstration of sustainable mechanisms to provide modern energy service in rural poor communities. Putting pilots in remote areas (in a post-conflict country) where there are technological and logistical challenges requires more resources to facilitate effective implementation which should have been identified during the due diligence.

LEARNING The evaluation report included specific, action-oriented recommendations including improving and expanding stakeholder partnerships, aligning initiatives with national goals and objectives, strengthening M&E, and conducting a sensitivity analysis. The report also identified priority areas that should be the focus of possible future programming in the Liberian energy sector, including the renewable energy market and rural development strategies. The evaluation team presented the results of the evaluation to USAID/Liberia.

#5.A EVALUATION OF THE BEYOND ADVOCACY FUND (BAF) IN SOUTH AFRICA

INTRODUCTION Beyond Advocacy Fund (BAF) was established through a Memorandum of Collaboration signed between USAID and Business Leadership South Africa (BLSA) in November 2013. BAF, which was co-financed by matching commitments of US\$1.5m each from USAID (in cash) and BLSA (in cash or in-kind contributions), was scheduled to operate for an initial period of three years, which was extendable depending on performance and the availability of funds. BAF was conceived as a tool to help address South Africa's major development challenges by catalyzing BLSA's members (private sector businesses) to work with the Government of South Africa on collaborative projects that address SA's most pressing development challenges. The Fund aims to promote partnership-based approaches between government and business to identify, test and replicate innovative and lasting solutions to major development challenges in South Africa.

USAID/South Africa requested that LEAP-II conduct an evaluation to determine how effective and efficient BAF is in achieving its goals. It also assessed BAF's efforts to promote better government-private sector relations through funding small projects. The findings were designed to inform adjustments and improvements to current activities and a second three-year funding phase.

METHODOLOGY Data collection methods included:

- Desk review of project documentation. The evaluation team reviewed documents relating to BLSA and BAF strategy and management, quarterly and annual reports, selection criteria, project proposals, and background reports.
- Key informant interviews (KIIs) with key project stakeholders and grant recipients.
- Field observations. For two projects the evaluators visited sites where the projects are active in order to better understand project issues and assess potential project effects. For other projects, there were no physical locations to visit or work had not yet begun.

KEY RESULTS

Selection process. BAF selection procedures, driven by informal connections and discussions, can be characterized as relationship-driven. By not advertising widely or marketing BAF, the program does not attract a large pool of applicants.

Projects. The evaluation team's review of the projects found that each indeed focuses on facilitating systemic change, freeing blockages, and acting as a catalyst for further growth and development. In this respect, they align clearly with a core BAF objective. The team also found that the selection process and focus of BAF has evolved over time, with later projects showing a clearer and stronger case for private-public sector collaboration.

Closer engagement between government and private sector. While the facilitator role BAF plays is clearly important, it is not a guarantor of ultimate success. The question over the longer-term is whether there is enough support to hold the various initiatives together and keep them moving forward – especially once/if the facilitator leaves. The grantees are usually the facilitators, but in some projects their long-term engagement is not assured.

Evidence of program outcomes. BAF funded projects rate highly in terms of relevance. Although the focus of projects has evolved, most have demonstrated, or show the potential to demonstrate, ways in which partnering between the public and private sector has addressed complex barriers which have to date curtailed South Africa's development.

Private sector interest and awareness in BAF. BAF has been able to show that there are private sector players willing to engage in a new approach to South Africa's development challenges. They realize their contribution cannot simply be a donation and photo opportunity arranged by the marketing department. To date, a number of partners have also been willing to put substantial amounts of money and effort behind this.

LEARNING The evaluation team produced a comprehensive evaluation report providing evidence and data to address the evaluation questions. The report included a summary of BAF's projects' key features and performance, and case studies of six projects that examined in detail the elements that contributed to their successes or lost opportunities. The team presented the results to USAID/South Africa. The results were used by USAID/South Africa to inform the extension of BAF and to improve the operational efficiency and the management of the activity.

#7 – FINAL EVALUATION OF THE USAID ME/TS IMPROVING WATER AND SANITATION SERVICES IN THE MIDDLE EAST AND NORTH AFRICA REGION (IWSMR) ACTIVITY

INTRODUCTION IWSMR was a two-year, \$1.9 million water activity, managed by USAID's Middle East Bureau/Technical Services (ME/TS), and implemented by Chemonics International, Inc. IWSMR was designed to work with Arab Countries Water Utility Association (ACWUA) and members from USAID-eligible countries to build capacity (both that of ACWUA's and utility company members), and to develop training and certification programs. ACWUA is a non-governmental organization that operates as a local, regional, and international platform offering opportunities to exchange knowledge, best practices in water and wastewater management, and experiences among stakeholders. As of June 2015, ACWUA had 330 members in 18 countries in the Middle East North Africa (MENA). Of these, the USAID Bureau for the Middle East supports 10 countries: Algeria, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, Tunisia, West Bank/Gaza, and Yemen.

PURPOSE The purpose of the evaluation was to generate insights into IWSMR's success in building ACWUA's capacity to sustainably carry out its mandate to promote certification and accreditation, capacity development and information exchange among water and wastewater utilities and professionals during and beyond project completion. The evaluation also assesses ACWUA's ability to sustain itself as a regional entity and manage funds given its future role in the region and its capacity at end of activity.

METHODOLOGY The evaluation team used the following methods to conduct the evaluation:

- Document review
- KIs (55 key informants, of which 48 were in person, six were by telephone, and one was by email)
- Focus group discussions (FGDs) in Jordan and Egypt (two groups with six persons each)
- Online survey of the Regional Operator Certification and Training Program (ROCTP) participants (13 responses out of 40 participants contacted)

Key informants were selected from a broad range of stakeholders (representing nine different groups) based on the desk review and recommendations from USAID, ACWUA, and Chemonics/IWSMR staff, in order to obtain diverse institutional perspectives. The evaluation team spent seven days in Jordan and five days in Egypt and traveled to seven cities for interviews with utility company management (Amman, Aqaba, Karak, Salt, and Tafila in Jordan; Alexandria and Cairo in Egypt).

KEY RESULTS

- ACWUA management viewed the Pre-award Survey as an effective tool to develop an understanding of needed changes, including the tools to ensure ACWUA's operational efficiency and effectiveness. By adopting a more transparent accounting system, in line with the Pre-award Survey recommendations which incorporates a breakdown of funding sources, ACWUA should be able to better manage member funds.
- ACWUA's leadership demonstrates an understanding of the importance of accountability, transparency and sustainability in its management and financial practices. IWSMR has, despite leadership challenges, equipped ACWUA with financial and managerial tools to strengthen a foundation for ongoing reforms and improvements. There is reason to believe the organization will

continue to grow and show prudent financial performance after the IWSMR activity ends. ACWUA's ability to continue acting as a service provider will most likely depend on the following factors: i) the quality of the services it provides; ii) the resources (staff, organizational capacity, etc.) it has to organize and provide services; iii) its reputation; and iv) demand for services.

- The positive feedback from both trainees and utility companies on the training organized by ACWUA has strengthened the organization's reputation among members who have benefited from it.

LEARNING LEAP-II produced an evaluation organized by theme that analyzed in detail ACWUA's mission and objectives, accomplishments to date, and sustainability and growth post-IWSMR assistance. The report also examined in detail the results of ACWUA's Non-US Organization Pre-Award Survey (NUPAS) and the status of implementation of the recommendations. Key recommendations included: conducting a follow-up pre-award survey of ACWUA; introducing internal M&E; implementing a financial audit mechanism, follow-on technical assistance to ACWUA (developing management capacity, building staff capacity, improving communications with membership, reducing the cost of training, expanding individual training programs, and benchmarking performance indicators appropriately); updates to ACWUA's business plan; and increasing the number and capacity of trainers. The annexes to the report included a table with a summary of findings, conclusions, and recommendations that was designed to facilitate learning.

#10 – MID-TERM PERFORMANCE EVALUATION: LIBERIA INVESTING FOR BUSINESS EXPANSION PROJECT (IBEX) AND SUSTAINABLE MARKETS INITIATIVE – LIBERIA (SMI-L)

INTRODUCTION The purpose of the mid-term evaluations of the IBEX and SMI-L projects was to assess whether the programs were on course to meet their overall goals and objectives, to determine the effectiveness, efficiency, sustainability, and added value of these programs in Liberia, and to recommend specific opportunities to enhance programmatic effectiveness and impact. The three main objectives of the evaluation were:

- Map efforts of private sector strengthening in Liberia and determine where USAID/Liberia should focus its efforts for future programming;
- Identify factors that help or hinder projects' achievements of expected outcomes and determine specific opportunities to enhance programmatic effectiveness and long-term sustainability;
- Evaluate the existing Development Credit Authority (DCA) credit guarantee programs with Ecobank and International Bank (IB) Liberia.

METHODOLOGY The evaluation drew on three types of data sources: 1) secondary data and information contained in activities and non-activities documents (both qualitative and quantitative), 2) KIs, and 3) a survey of IBEX and SMI-L-assisted SMEs. The evaluation took place October to December 2015. The evaluation team conducted 35 semi-structured interviews with key stakeholders, including USAID, program staff, beneficiaries (SMEs and banks), donors, and government officials. The evaluation team analyzed qualitative data collected from KIs for patterns that address the relevant questions and speak to effectiveness, efficiencies, relevance, potential sustainability, impeding/facilitating factors, and cause and effect.

The evaluation team also implemented a survey of IBEX and SMI-L client SMEs using Survey Monkey software. The survey was designed to collect data on the quality of services provided by IBEX and SMI-L, the ease at which SMEs can obtain financing, and general obstacles to doing business in Liberia. The survey was conducted primarily over the phone; several were completed in-person. A total of 121 surveys were completed (117 were conducted over the phone or in-person by the evaluation team and four were completed online by SMEs). Of the 200 SMEs selected for the survey, only 121 were completed given the time and budget constraints.

KEY FINDINGS Overall the IBEX and SMI-L programs are performing as or better than expected at generating new loans for SMEs that are enhanced by the DCA guarantee (IBEX) and in creating value chain linkages between lead firms and SMEs (SMI-L). A review of program performance against targets shows that each program has achieved or was on its way to completing or exceeding its goal performance, and the SME Survey rates services from each program as good to excellent. SMI-L's services and training are well-regarded by SMEs. However, the sustainability of loan facilitation is a major concern. Both IBEX and the banks view IBEX's role as that of a gatekeeper rather than a loan facilitator.

Overall the DCA facilities in Liberia have been successful at increasing access to credit for particular businesses but change of behavior among the banks is expected to be more limited. The banks indicate that the Central Bank of Liberia (CBL) expects for loans to be fully secured. By contrast CBL stated that the banks establish their own collateral requirements. The banks in the DCA program prefer land and buildings as collateral but are also broadening collateral categories to include contracts and assignment of proceeds. Banks and their loan officers could benefit from establishment of a national credit bureau, improved enabling environment, longer-term funding for loans, and training on collections and on serving women-owned SMEs.

LEARNING IDG produced a comprehensive evaluation report with specific, actionable recommendations on how to expand the use of local BDS providers to deliver training and loan facilitation services to SMEs, suggested improvements to the projects' M&E systems, how to systematically collaborate with the IFC and Central Bank on the DCA program, and making DCA guarantees for sourcing longer-term financing, training for commercial banks. The report also discussed in detail adjustments/areas of improvement to ensure IBEX and SMI-L achieve their objectives. At the USAID/Liberia's request, the report included a section on private sector developing programming which covered the provision of broader access-to-finance assistance, and for placing access-to-finance programming within broader private-sector development competitiveness programming so that SMEs are being assisted not only with access-to-finance but also in a range of areas where help is needed. To facilitate the application of the recommendations, the report included annexes with descriptions of successful DCA programs and illustrative scopes of work for competitiveness projects. The evaluation team also presented the results to USAID/Liberia.

#17 – FINAL PERFORMANCE EVALUATION OF THE “TACKLING YOUTH EMPLOYMENT IN TUNISIA” PROJECT (MASHROU3I)

INTRODUCTION The “Tackling Youth Employment in Tunisia” project (Mashrou3i) aimed to create employment for young Tunisians in four interior governorates: Le Kef, Kairouan, Kasserine, and Sidi Bouzid. USAID support was provided through a Global Development Alliance (GDA) with Hewlett Packard (HP), the United Nations Industrial Development Organization (UNIDO), and the Government

of Italy (GOI). The activity is implemented by UNIDO in partnership with the HP Foundation and local Tunisian partner organizations. The purpose of the final performance evaluation was to document and assess the ways and extent to which Mashrou3i succeeded in creating sustainable employment/livelihoods for its target populations.

METHODOLOGY The evaluation was conducted in March-May 2016, with fieldwork taking place in Tunis, Sousse, and Kairouan, Tunisia. The evaluation drew upon qualitative and quantitative methods to obtain evidence sufficient to support conclusions and recommendations addressing the evaluation questions. These methods included: document review; 41 KIs; one focus group discussion (seven participants); four group meetings (17 participants total); one HP-LIFE training observation; and five business site-visits. The evaluation team also conducted two online surveys of project participants: (1) an individual and enterprise beneficiary survey (which covered entrepreneurs trained and/or coached by HP-LIFE, start-ups, and existing enterprises that received project services), and (2) an institutional beneficiary survey (which covered small business support organizations (SBSs) that received capacity building services from Mashrou3i). The individual and enterprise beneficiary survey generated a total of 272 valid responses out of a total of 1,463 participants to whom the survey was sent, constituting a response rate of 18.6 percent. The institutional survey was sent to 23 regional SBS organizations, of which 13 responded, constituting a response rate of 57 percent.

KEY FINDINGS

- Considered in the context of political, social and economic instability during 2014-2015 and the challenges posed by the current security situation, Mashrou3i has made notable progress in generating sustainable employment for youth in the four interior governorates in which it has been implemented, slightly surpassing its target for direct jobs creation and thereby demonstrating the efficacy of its intervention approach.
- The support to young entrepreneurs and support to existing enterprises have been the most effective programmatic components of Mashrou3i in creating jobs. This may be related to the more intensive training and coaching associated with these activities.
- Although women have participated in the program at slightly higher rates than men, the evaluation data do not indicate differential program outcomes by region or gender. Approximately 75 percent of men and women reported that Mashrou3i had helped them find a job or start or expand a business.
- The GDA approach, including the Italian Development Cooperation and USAID, and the engagement of an experienced Public International Organization (PIO) as the major implementing partner, leveraged financial resources, human capital, and institutional experience in support of program results; enlisted the extraordinary technical expertise of a major private sector corporation; and demonstrated the value and potential of such a unique multi-donor public-private partnership (PPP) model.
- UNIDO's cooperation with SBSs has contributed both directly and indirectly to employment creation. However, program participants do not consistently rate the quality and impact of the services delivered by some local partners as acceptable.

- HP-UNIDO does not have a formal definition for ‘employment creation’ that is linked to a specific action or set of actions undertaken or supported by the activity. HP-UNIDO measures employment creation through enterprise surveys that compare enterprise employment levels at different points of time.

LEARNING The evaluation team produced an evaluation report that presents findings supported by evidence to address the evaluation questions. The report included a detailed discussion on the complexities of measuring jobs created and their costs since this was a key goal of the project. The team developed recommendations on: improving the unique management structure of the project; strategies for increasing job creation in the interior region of Tunisia; how to work through private business support service providers to provide enterprise development, entrepreneurship, and employment services to contribute to the sustainability of the project; details on strengthening and ensuring the reliability, validity, and utility of the Mashrou3i job creation data; and specific ideas for working with GOT employment programs and business centers to contribute to job creation more broadly. The evaluation team presented the draft report to USAID/Washington and discussed in detail the key findings and jointly expanded the recommendations with USAID.

#28 – MID-TERM PERFORMANCE EVALUATION: USAID/INDIA COUNTRY DEVELOPMENT AND COOPERATION STRATEGY DEVELOPMENT OBJECTIVE 4



In Kenya, solar dryers are more expensive and cooperatively owned, leading to adaptation of the funding structure and implementation model in the new environment
PHOTO CREDIT: STEPHANIE SCHMIDT

INTRODUCTION USAID/India’s five-year (2012-2017) Country Development Cooperation Strategy (CDCS) reflects the transformation of the USAID-India relationship from that of donor-recipient to a peer-to-peer partnership whereby India and the U.S. collaborate to solve global development challenges. Through this approach, USAID/India catalyzed new partnerships to test and scale innovative solutions regionally and globally and in keeping with its joint Statement of Guiding Principles on Triangular Cooperation for Global Development with the Government of India (GOI). Development Objective (DO) 4 of the CDCS is: Innovations proven in India increasingly adopted in other countries. This mid-term performance evaluation assessed the progress of the DO4 activities supported by USAID/India.

This mid-term performance evaluation assessed the progress of the DO4 activities supported by USAID/India. The primary purpose of the evaluation was to understand what has worked well, what has not worked, and identify lessons that can be drawn to enhance the performance

of ongoing activities, future project designs, and investments for the mission. The mid-term evaluation measured progress in incubating, testing, and scaling innovative solutions, working towards Intermediate Result (IR) 4.1: Indian innovations for development impact shared with other countries.

METHODOLOGY The evaluation covered 30 innovative solutions from five offices: Health, Food Security, Energy, the Center for Innovation and Partnership, and the Office of Social Sector Initiatives. The USAID/India Mission selected the innovations from at least 342 that the Mission has supported in incubating, testing, scaling, and/or transferring. USAID/India selected the 30 innovations (all innovations supported under DO4, as well as several from DO3 and DO2), and the evaluation team did not review the full portfolio. The team spent three weeks in India and one week each in Kenya and Malawi. The team used a qualitative approach that included document review, 82 KIs, 22 FGDs, and 11 site visits. These informed a comparative analysis of enablers and barriers across the 30 innovations and an institutional analysis. The team also developed five case studies on select innovations: Solar Conduction Dryer, Technoserve Water Interventions, wPower, Millennium Alliance Platform, and Operation ASHA.

KEY RESULTS

Transfer: Of the 30 innovations reviewed, 21 are being tested in another country. This does not mean they have necessarily been adopted. However, terms such as ‘innovation,’ ‘test,’ ‘proven,’ ‘scaled,’ and ‘transferred’ are not used consistently or clearly defined in practice. This can sometimes create ambiguity in understanding the effectiveness of DO4 activities. Most of the innovations transferred are from FSO (six of eight to Kenya and three of three to Malawi) and have not scaled yet or reached a point of sustainability.

Impacts: Field observations and discussions with end-users suggest high potential value of many innovations in that they are targeting relevant, real-world needs in a new way. This evaluation is unable to draw firm conclusions on the impact of the 30 innovations as a whole (or on the likelihood that any of the innovations reviewed will lead to development impacts). Many activities are still at an early stage when it would be unreasonable to expect to see significant development impacts. Although the evaluation cannot draw firm conclusions regarding the impact of either transferred or domestic innovations, it proposes factors which appear to contribute to higher adoption rates and successful transfer.

Institutional Context: Institutionally, USAID is not set up for Mission-to-Mission interaction. Though some Missions welcome collaboration, this tends to succeed due to informal ties or because the cooperation opens up opportunities rather than because of formal systems. Trilateral projects and partner Mission strategies are not always in alignment. This limits engagement and opportunities for scale-up but has potential to improve innovation activity design and sustainability.

Enabling Environment: In some cases, there is limited analysis of the varied institutional and social context between countries at the design stage. Without a clear understanding of the new context, different conditions may then require reengineering of the innovation or changes in approach. Partner country selection is based on few factors and limited analysis. FSO geographies were based on Feed the



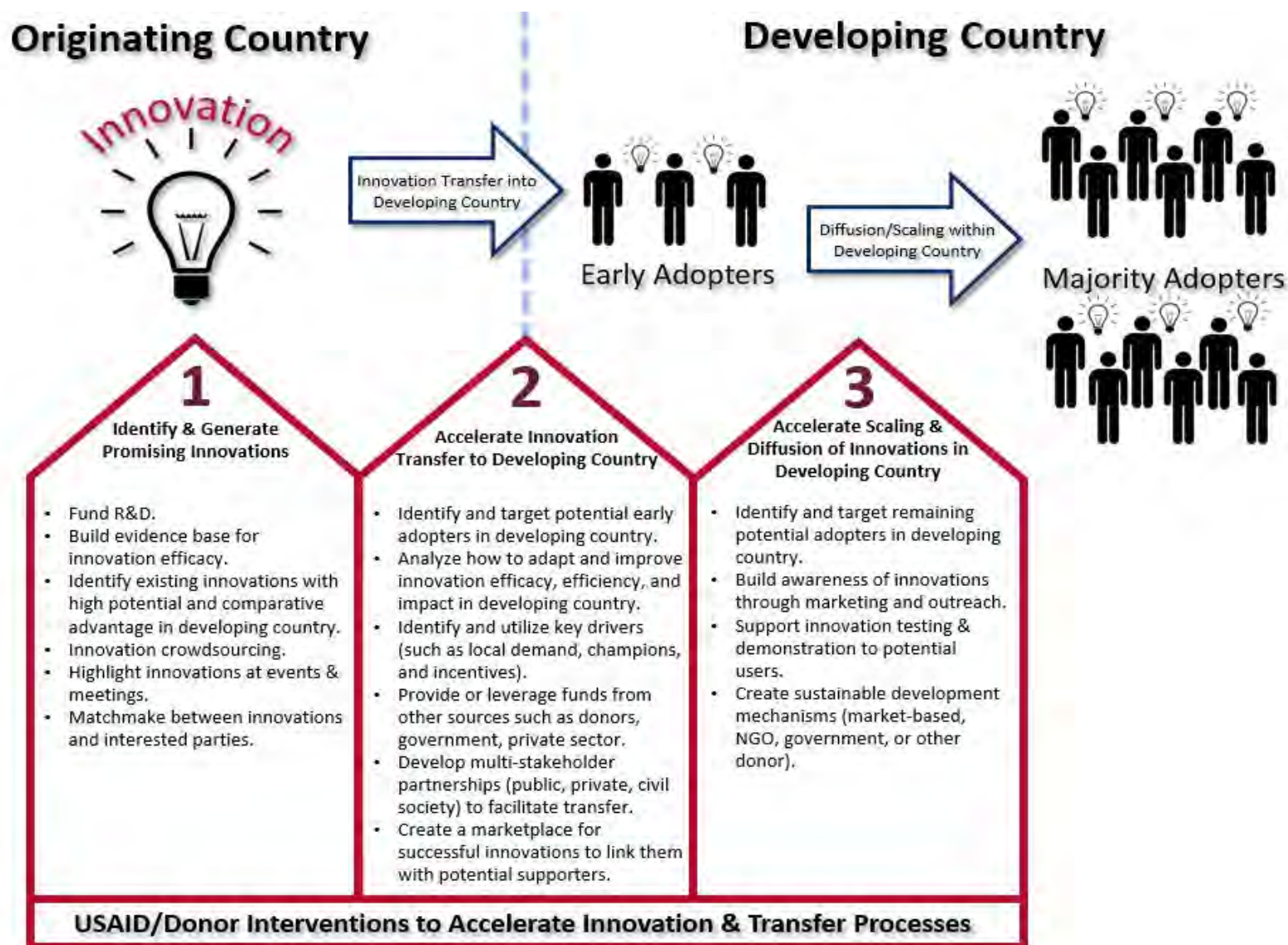
Morning milk collection and testing at the IL&S Suka Farmers' Milk Co-op in Kenya
 PHOTO CREDIT: STEPHANIE SCHMIDT

Future focus countries. A different enabling environment – such as access to credit, cost of inputs, population density, or social norms – can change the economic, social, or political costs or benefits of using an innovation and affect adoption.

PROGRAM ACTIVITIES AND APPROACH: USAID/India offices implement DO4 mostly through a 'project approach.' Projects did not account fully for the potential effects of a shift from individual to collective ownership in transfer from India to Africa. Targeting innovations at the 'bottom of the pyramid', i.e. the poorest members in a system, can result in challenges to diffusion and scaling.

The evaluation team also examined the different activities donors can undertake to accelerate innovation transfer into developing countries. Figure I (next page) presents phases of transfer as well as how donors such as USAID/India can support these processes.

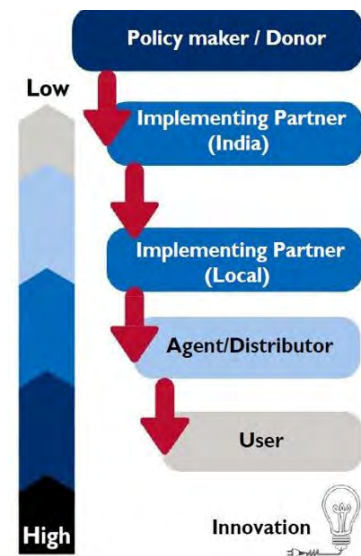
FIGURE 1: ACCELERATING INNOVATION, TRANSFER, AND DIFFUSION IN DEVELOPING COUNTRIES



LEARNING Building on the responses to the evaluation questions, the team developed the concept of innovation proximity to consider how to best utilize USAID/India's resources (see Figure 2). Key recommendations included:

- Develop common definitions for the innovation process/terms and DO4, and provide training for Mission staff and implementing partners: This will improve systematic measurement, comparison, and consolidation of findings.
- Improve cooperation among USAID Offices, Bureaus, and Missions: USAID should deepen communication and coordination on trilateral projects.
- Key roles that USAID should play in innovation transfer include: technical expertise, knowledge repository, funder, networker, mentor, convening power, agenda-setting, leveraging power, and spotlight.

FIGURE 2: INNOVATION PROXIMITY



The evaluation team traveled to India to present the results of the evaluation to USAID/India as well as implementing partners.

#29 – FINAL PERFORMANCE EVALUATION OF THE FURTHER ADVANCING THE BLUE REVOLUTION INITIATIVE (FABRI)

INTRODUCTION FABRI was a five-year project whose primary objective was to promote sustainable management of water resources in MENA by: 1) fostering collaboration and partnerships between major research institutions, 2) establishing a network of professionals and stakeholders in water management, 3) promoting dialogue among policy makers, and 4) encouraging continued communications between experts and policymakers. Program designers and implementers established the Middle East and North Africa Network of Water Centers of Excellence (MENA-NWC) as the main platform for the performance of these activities. The purpose of the evaluation was to validate results achieved by FABRI and assess the program's progress in building an operational and sustainable network of MENA water centers.

METHODOLOGY The evaluation drew on four data sources: 1) secondary data and information contained in project documents (both qualitative and quantitative), 2) KIs, 3) group interviews, and 4) an online survey of NWC participants. The evaluation used qualitative data collection and analysis methods, supported by quantitative data and analysis where possible. The evaluation sought to capture perceptions, intents, and activities of the key stakeholders, including Government officials, research institutions, MENA-NWC staff and board members, and researchers (grantees). A number of analysis methods were used to analyze the data including USAID's Organizational Capacity Assessment Tool (OCAT), frequency of response/trend pattern analysis, correlation and triangulation of data, and outcome mapping of qualitative data.

KEY RESULTS

- MENA-NWC's current organizational structure is not sufficient for it to conduct the activities necessary for achieving sustainability. Roles and responsibilities of the governance structure exist, but

they are weak and do not fully align with the organization's current vision and structure. While the NWC Secretariat has basic capacity in program management, its human resource system is weak.

- MENA-NWC has the necessary funds to maintain operations at the current level. However, funding is the most critical constraint to MENA-NWC. To retain current funding levels including membership fees and donor contributions, MENA-NWC needs to develop a clearly defined purpose. The organization requires capacity building in the area of fundraising.
- The primary benefits to participating in MENA-NWC is its ability to support collaboration and bring scientists together. FABRI was successful in building the capacity of researchers and women scientists. Researchers in universities and academic research institutes are the most engaged in the MENA-NWC.
- The small research grants and research pilots have been generally successful in fostering research collaboration in the region. The small research grants program also fostered cooperation within countries. However, the results generated by the research pilots do not seem to have been sufficiently used by policymakers, government agencies, and the private sector to inform water resources planning and management. Additional grants programs and regional workshops or meetings are the most likely initiatives to increase research collaborations.

LEARNING The evaluation team produced a comprehensive evaluation report with a series of recommendations including short-term recommendations on improving the MENA-NWC organizational structure and on strengthening its ability to support research collaboration and information sharing; long-term recommendations for MENA-NWC on member engagement, management structure, public outreach programming, a pathway to financial stability, developing local networks, and promoting the inclusion of women; recommendations for future USAID water programming covering how to capitalize on the network of regional water centers established during FABRI, increasing participation of stakeholders during the project design phase, conducting a comprehensive assessment of past water projects, building the capacity of women scientists and technicians, and maximizing the impact of FABRI's pilot research projects; and recommendations for future USAID regional network programs including timelines, developing business plans with a clear path towards financial sustainability, and how to design the organizational governance framework.

#30 – MID-TERM PERFORMANCE EVALUATION OF THE BIZ+ PROJECT

INTRODUCTION The BIZ+ cooperative agreement between USAID and VEGA/Land O'Lakes was signed in October 2011, two years after the end of a 26-year civil conflict in 2009 between Tamil rebels and the Government. The Program Description in the original agreement described the project 'Goals and Objectives' as: Increased Jobs and Income Generation in Northern and Eastern Sri Lanka through Enterprise Development. The targets included the creation of 10,000 jobs and \$30 million of annual income for vulnerable households. The program utilizes a public private alliance (PPA) methodology issuing approximately 2-year matching investment grant agreements with SMEs.

The purpose of the mid-term performance evaluation of the USAID VEGA/BIZ+ project is to assess the effectiveness and sustainability of the project in stimulating economic growth and job creation in targeted regions in Sri Lanka. To inform the expansion of the BIZ+ project to other geographic areas, the evaluation provides recommendations and lessons learned to help USAID,

implementing partners, the Government of Sri Lanka (GOSL), and other donors implement similar type of projects in economically lagging areas.

METHODOLOGY The evaluation employed a mixed methods approach that included analyses of secondary data from BIZ+ project documents, an on-line survey in three different languages (English, Sinhala, and Tamil), and face-to-face KIs with grantees, BIZ+ management and staff, and USAID. The evaluation team conducted an on-line survey using Survey Monkey software to attempt to: 1) collect data from the 30 grantees who were not included in the KIs; and 2) have comparable survey data on all 50 grantees. The evaluation team relied on a project participant list provided by the BIZ+ Project implementing partner, Land O'Lakes, to identify participants. The team conducted KIs with 20 grantees (13 from Phase 1 and seven from Phase 2), a business services organization (BSO) (Ceylon Chamber of Commerce), the BIZ+ Chief of Party and senior staff of the BIZ+ Project. The team selected a sample of 20 grantees to interview in coordination with USAID that was as representative as possible of the different characteristics of grantees (e.g. location, phase, sector, size, gender, and ethnicity).

KEY RESULTS

Overall: BIZ+ has been successful in creating employment and increased incomes for the vulnerable populations in the North, East, North Central, and Uva provinces of Sri Lanka. BIZ+ has enhanced income levels by creating, rebuilding, and expanding enterprises in the four target provinces. It has been successful in uplifting the lives of the vulnerable populations, nullifying the feeling of powerlessness and rejection felt by the disadvantaged, due to the lack of earning opportunities in the post-crisis transition villages and low-income areas. Survey data show that more than 90% of respondents have increased employment in the past three years. While only four of the 20 enterprises visited by the evaluation team attained their targets for total job creation, it is, nevertheless noteworthy that over 90% of surveyed businesses reported increased total wages. Food processing firms had the most success in achieving total job targets in Phase 1, while manufacturing firms have been in the lead in Phase 2. Businesses organized for profit have a higher rate of success in reaching job targets than non-profits.

Political Environment: While the political environment during BIZ+ has been a contentious one, has had an impact on USAID funding decisions, and at times has made it difficult for the project implementer to operate, it has not had been a strong factor in affecting the business results of BIZ+ grantees. Grantees rated the political environment as the least important factor in their achievement of project objectives.

Sector Business Enabling Environment: Government sectoral and trade policies play an important role in the success or failure of several BIZ+ grantees, especially for those who depend on import tariffs to protect them from strong foreign competition from larger producers in India and China.

Accessing Finance: On average BIZ+ enterprises considered access to finance as only a moderate constraint to their businesses. However, the Evaluation Team noted that existing financial regulations and financial instruments are generally not conducive to SME growth, and existing financial institutions are not responsive to SMEs' needs for short and long-term debt.

Gender: While respondents to the survey and the KIs minimized the role of gender in determining project outcomes, female-owned businesses lagged male-owned businesses in achieving employment targets. This does not appear to be due in any way to the business acumen of female owners and

managers, many of whom are at least as motivated and qualified as their male counterparts. This suggests that during Phase 3 of BIZ+, additional attention needs to be given to promoting qualified and motivated female owners and managers.

Management Capacity and Marketing Orientation: The most important determinants of project success are strong management and a focus on market needs and requirements.

LEARNING In addition to the evaluation report, the team produced an infographic summarizing the results of the evaluation to facilitate learning. The evaluation report identified a number of recommendations to help BIZ+ achieve its goals and improve the design of future programs. Recommendations included: how to design the best project model to support target SMEs; alternative approaches to promoting access to finance; redefining the criteria to select beneficiary firms based on market orientation, management, and financial and economic viability; strengthening occupational safety, health, and the environment; and improvements to BIZ+'s performance management system.

IMPACT EVALUATIONS/LARGE HOUSEHOLD SURVEYS

The impact of a program is essentially the difference between beneficiary outcomes after program implementation (treated outcomes) and the outcomes that would have been observed had the program not happened (counterfactual outcomes). The main impact evaluation problem is that while the treated outcomes are observed, the counterfactual outcomes are not observed. To measure program impacts, LEAP-II used a variety of rigorous techniques to determine counterfactuals. LEAP-II successfully used quasi-experimental designs (QEDs) to construct counterfactual groups, often through various matching techniques, wherein the counterfactual group is as similar as possible to the treatment group to ensure attribution of results. Propensity score matching, where a range of characteristics was used to identify a “propensity score,” or likelihood of project participation, used to match treatment and potential comparison units. When strict selection criteria for project participation existed, LEAP-II designed and implemented regression discontinuity (RD) designs. This analytically sophisticated quasi-experimental method estimates the local average treatment effect by comparing outcomes among those just above and just below a cut-off threshold. LEAP-II’s methodology for large-scale survey evaluations generally included the following steps:

- **Design evaluation.** Draft a complete evaluation plan including specifying the activity theory-of-change that the evaluation is assessing, calculate sample size, design and select sample (usually a two-stage randomized selection, at village and household levels, for a difference-in-difference model), determine power calculations, draft data collection instruments and protocols, design the quality assurance plan, and establish data collection timeline for USAID review and stakeholder input.
- **Select local data collection firm.** Conduct a procurement to select local data collection firm through a competitive process.
- **IRB Approval.** Obtain IRB approval in the host country or US, as required.
- **Prepare data collection tools.** Procure electronic tablets and program the survey on electronic tablets (in primary and local languages). LEAP-II surveys used Open Data Kit (ODK) and SurveyBe software.

Training Content for Household Surveys

Introduction to the survey: understanding survey objectives, sample, survey modules, survey implementation, confidentiality, and survey team roles/responsibilities

Fieldwork procedures: field team members’ roles and responsibilities, control sheet, managing the interview in the household, reporting to the supervisors, following up missed interviews, ensuring high data quality

Conducting the interview: general guidance, approaching the household, building rapport, refusal conversion, obtaining informed consent, ensuring privacy, asking questions, probing, interacting with interpreters, interviewing instructions on the questionnaire and tablet, flagging issues to be discussed with the Supervisor or CAPI Specialists

Questionnaire content: understanding the structure and the content of the instrument, agreeing with the usage of terms in the questionnaire, distinguishing options to questions

Completing modules: general instructions, how to administer each module/ask questions/enter responses (question by question)

Entering and managing data on the tablet: tablet and screen components, starting a record on the tablet, general navigation, advancing through modules and groups, entering responses, and dealing with refusals

Reporting/communications: schedule and procedures for reporting to the supervisor and issues that require immediate communication

- **Finalize the survey instrument and protocol.** Pre-test the survey instrument with select team members to determine if the flow between questions/modules work well, whether questions are comprehended, and for closed responses whether the full-range of appropriate responses are available. Make, document, and test corrections before enumerator training. Pilot survey in a non-study area and make final adjustments to the survey instrument.
- **Train enumerators.** Provide training to survey supervisors and enumerators, particularly in the tricky aspects of anthropometry (see box for content of training).
- **Implement the survey.** Conduct the survey, with realtime quality assurance and feedback to survey teams on an ongoing basis. In addition to the local survey firm's management, LEAP-II provided Computer Assisted Personal Interviewing (CAPI) and Qualitative Personal Interviewing (QPI) Specialists to oversee the survey with the survey firm's teams of enumerators.
- **Analyze data.** Code qualitative data and analyze using a computer assisted qualitative data analysis (CAQDAS) software in-depth for patterns, common trends, and outliers that address the relevant research questions. Analyze quantitative data with statistical software (STATA, SPSS, etc.) which could include: descriptive statistics to characterize conditions before, during and after interventions; linear and non-linear regression analysis of survey and other data to identify correlation and causal relationships; various statistical tests to try to identify and correct for analysis biases, validity, significance, etc.; and others.
- **Evaluation Report.** Prepare the evaluation report following the USAID Evaluation Report Template with a focus on utilization.
- **Disseminate Results.** Organize learning events so results yield adaptive change.

Under LEAP II, five large-scale surveys were implemented in Liberia and Senegal for evaluations of Feed the Future activities.

#4 AND #14– SENEGAL YAAJEENDE MIDTERM EVALUATION AND KOLDA REGION BASELINE IMPACT EVALUATION

INTRODUCTION To investigate the impact of the program on the communities where it operates, USAID commissioned an independent midterm impact evaluation (MIE) of the Senegal Yaaajeende program. The Yaaajeende program, which means “abundance or prosperity” in the local Pulaar language, aimed to accelerate the participation of the very poor in rural economic growth and to improve the population's nutritional status.

The implementation of Yaaajeende started in 2011 in the Matam, Bakel and Kédougou regions and expanded to Kolda region in April 2014. Yaaajeende interventions in the Kolda region of Senegal differed from the three other regions and IDG. In parallel to the Yaaajeende MIE, LEAP-II also produced up-to-date baseline indicator values for the Kolda region.

The main objectives of the MIE and the Kolda Baseline were:

- Measure whether YaaJeende is on track to produce positive discernible impact on its beneficiary populations by the end of the program with respect to its globally mandated Feed the Future (FTF) high level goals and 16 key indicators.
- Provide guidance on how to adapt the YaaJeende program to enhance impact or, if needed, change course.
- Established the baseline measures in preparation for a final impact evaluation of YaaJeende activities in the Kolda region of Senegal.

METHODOLOGY The MIE utilized a mixed-method approach involving a non-experimental quantitative strategy and qualitative techniques. For quantitative data collection, a large household survey was administered to 2,720 households in treatment and control villages across 19 communities (sampling areas) in Bakel, Matam, and Kédougou. Working with a local data collection firm (Centre de Recherche pour le Développement Humain, CRDH), data were collected electronically on tablets by 68 enumerators using CAPI from May to June 2015, to correspond with the baseline. Use of CAPI increased the speed of data collection and entry, allowed for real-time compilation of collected data to facilitate monitoring and correction of shortcomings as the work unfolds, and dramatically reduces the extent of data errors.

A multistage cluster sampling approach was used to select households that participated in the 2011 baseline survey along with households from 27 “new intervention villages,” enabling both panel and cross-sectional analyses. The MIE’s assignment to treatment or comparison group was observed at the village level. Every household in the treatment village is considered as a treatment household, regardless of whether the individuals in that household personally participated in project activities. The project’s activities are broadly organized into packages for nutrition, agriculture, and governance; and high intensity villages that received all three packages. The comparison group was comprised of villages where YaaJeende did not operate. The comparison group was mainly concentrated in Kédougou, and the treatment group is concentrated in Matam and Bakel.

Data analysis used a difference-in-difference (DD) approach combined with propensity score matching (PSM) to compare changes in key indicators over time between treatment and control villages, focusing on the impacts of interactions between the three activity packages on key indicators.

Qualitative research methods included 54 KIIs and 14 FGDs conducted by a qualitative research field team consisting of 6 persons with differing language skills. This team met with YaaJeende regional staff upon arrival in each region to get an overview of project activities particular to that region and to plan the breakdown of KIIs and FGDs.

KEY FINDINGS

- **Nutrition.** YaaJeende’s treatment effects on the nutritional status of children under age 5 were found to be beneficial, but generally failed to attain statistical significance. Women of reproductive age improved food diversity, food preparation, and hygiene, especially during pregnancy, yet resource constraints often remained a barrier to enhanced nutrition. Prevalence of a minimum acceptable diet (MAD) for infants underwent a steep overall decline between 2011 and 2015, but not due to a YaaJeende treatment effect. YaaJeende programming related to agricultural production increased resilience as measured by the duration of annual food stress. YaaJeende also exhibited synergistic benefits with regard to wasting and underweight, even when the project treatment effect was not statistically significant.

- **Healthy Household Practices.** Nutrition programming had a statistically significant and favorable impact on increased food diversity in program areas. However, Yaaajeende did not have a statistically significant impact on the prevalence of hygienic kitchen practices or safe food storage in intervention areas. Similarly, between 2011 and 2015, the proportion of beneficiaries treating their drinking water rose from 7 percent to 26 percent, but the improvement could not be attributed to Yaaajeende because the comparison group saw an increase of 27 percentage points over the same period. Yaaajeende also had mixed results on essential nutrition actions (ENAs), such as exclusive maternal breastfeeding and salt iodation.
- **Agricultural Practices and Production.** Each of the Yaaajeende program packages was statistically associated with a reduction of the poverty rate in intervention areas by about 2.5 to 2.9 percentage points. While both the treatment and the comparison groups experience decline in total household production and revenue during the period of study, Yaaajeende had a positive effect against the declining trend, nearly sufficient to offset the downward trend in income. Land planted for horticulture increased under Yaaajeende, with a treatment effect of about one-eighth of a hectare in the average household and Beneficiaries invested more in agriculture inputs, such as improved seed, than the comparison group.
- **Nutrition-led Agriculture (Synergies).** Statistical evidence for the synergistic effects of the agriculture and nutrition components of Yaaajeende is limited, but suggestive. It was found that individuals and households who benefitted from both project components experienced a greater reduction in prevalence of underweight children (by about 11 percentage points based on the baseline village sample) than would have been expected based on the marginal effects of nutrition and agriculture interventions taken alone. Similarly, while there was found to be a favorable impact of the nutrition and agriculture treatment synergy on child wasting by 9 percentage points using the baseline village sample, this impact fell just short of statistical significance and the overall estimated treatment effect on wasting was less than a one percent reduction. Moreover, the synergy effect of the high-intensity intervention on hygienic kitchen practices was large, indicating that low-intensity villages deteriorated while high-intensity villages remained similar to the comparison group. No evidence of synergy was found on the poverty estimate.

LEARNING Based on the MIE, IDG identified a number of strategy adjustments for the Yaaajeende program to build on its successes, re-distribute its resources, and focus on addressing the missing links. IDG provided statistical evidence to support expansion of activities within the Yaaajeende where program participants were experiencing nutritional and financial benefits (the livestock lending program and the Community-Based Service Providers). Where there is good evidence that treatment and control villages were experiencing similar rise in nutritional and health indicators, IDG recommended USAID to ascertain the drivers of change and focus on opportunities to leverage the existing efforts of local government and NGOs (access to clean water and hygiene). For areas where results were modest, missing links were identified based on qualitative data for Yaaajeende to expand its scope. For instance, IDG suggested USAID to expand its Citizen Work Group (CWG) activity within Yaaajeende to focus on community asset building, such as water and electricity, which are beyond the means of individual households. To share its main findings and its learnings with a broader international development community, IDG drafted an article reporting on the main findings of the MIE and submitted to a peer-reviewed journal for publication.

#11 – LIBERIA FEED THE FUTURE ZONE OF INFLUENCE INTERIM ASSESSMENT

INTRODUCTION USAID monitors its Feed the Future performance in part by periodic assessments of a number of standardized indicators. These indicators reflect data collected through population-based surveys (PBS) in the geographic areas targeted by Feed the Future interventions, known as the Feed the Future Zones of Influence (ZOIs). IDG conducted the interim assessment of Feed the Future's population-based indicators for the ZOI in Liberia, which is comprised of six counties (Bong, Lofa, Nimba, Grand Bassa, Margibi, and rural Montserrado excluding Monrovia) and covers around 48 percent of the Liberian population.

The purpose of the interim assessment was to provide USAID Bureau for Food Security (BFS), USAID/Liberia Mission, the Liberian government, and other development partners with information about the current status of the 16 ZOI indicators. The assessment is designed for use as a monitoring tool, and as such provides point estimates of the indicators with an acceptable level of statistical precision.



An enumerator (right) interviews beneficiaries in Liberia.

HYOSUN BAE, IDG

METHODOLOGY For the baseline, the ZOI survey conducted in 2013 was used for five indicators and secondary sources were used to derive baseline results for other indicators. For the ZOI interim survey, IDG conducted a large household survey with a sample size of 1,885, revisiting the same Enumeration Areas (EAs) that were surveyed during the ZOI baseline survey, excluding those EAs in the Greater Monrovia district. Working with a local data collection firm (ADEAS), The interim survey employed a population-based two-stage cluster sample method where the first stage involved the selection of clusters, stratified among the six counties. The clusters were defined by the boundaries of the EAs used for the 2008 National Population and Housing Census. Within each county, EAs were selected with probability proportional to the number of households, as recorded in the 2008 Census. Overall, the ZOI interim survey visited a total of 73 EAs. The second stage involved selecting individual households. Upon reaching each EA, the survey teams counted the number of households located within

the EA boundaries, using GPS-enabled tablets to identify those boundaries. All households in each EA had a chance to be included in the survey and 26 households were selected randomly from each EA. The ZOI interim survey was conducted with five teams with each team comprising of eight members (one supervisor, one anthropometric measurement expert, and six enumerators). The five survey teams were supported by the Principal Investigator, the Senior Field Survey Specialist, and four CAPI Specialists. In addition to interviewing household heads (both male and female), IDG measured height and weight of women between the ages of 15-49 years and height, weight, and mid-upper arm circumference (MUAC) of children under 24 months. The survey was conducted in November and December 2015.

KEY FINDINGS

- **Household Economic Status.** Average per capita expenditure was estimated at \$1.93 per day (in 2010 USD), although the percentile distribution reveals a highly skewed distribution of wealth. Forty percent of households in the ZOI fell below the poverty line of \$1.25 per day (in 2005 USD). The depth of poverty in the ZOI was 19 percent, which indicates that the average gap between consumption levels of the population and the poverty line is \$0.60 (2005 PPP). As with per capita expenditures, larger households were more likely to experience poverty than smaller households. There was no significant variation in daily per capita expenditure based on gendered household type or household educational attainment.
- **Women's Empowerment in Agriculture Index indicators (WEAI).** Among the nine empowerment indicators assessed in the interim survey, women in the ZOI demonstrated the highest level of achievement in the "Group member" category, with more than 76 percent of women belonging to at least one community, social, or professional organization. The high levels of group membership, however, did not necessarily indicate that women have influence in group decisions: less than half of women report being able to speak in public without a great deal of difficulty. Related, only 15.2 percent of women reported that they have input into the household's farming, livestock raising, or other activities.
- **Hunger and Dietary Intake.** More than 20 percent of Liberian households suffered from food insecurity, although only 1.3 percent of households experienced severe hunger in the month prior to the survey interview. Within the ZOI, women between the ages of 15-49 years consumed an average of 4.63 food groups in the previous 24 hours, on a scale of 0 to 9. Overall, 56.2 percent of women achieved the minimum dietary diversity and this proportion significantly differed based on educational attainment, gendered household type, household size, and household hunger. Analysis of child diet revealed many deficiencies. Within the ZOI, 52.1 percent of infants under-6 months were exclusively breastfed in the previous 24 hours, with no significant differences between male and female infants or by caregiver's educational attainment. Few children between 6-23 months achieved minimum acceptable diet. Breastfed children were significantly more likely to achieve a minimum acceptable diet than non-breastfed children. Within the ZOI, 96.8 percent of women between the ages of 15-49 years consumed at least one nutrient-rich value chain commodity (NRVCC) while only 66.2 percent of children between 6-23 months consumed at least one NRVCC.



An anthropometric measurement expert measuring the height of an infant in Liberia.

HYOSUN BAE, IDG

- **Nutritional Status of Women and Children.** Approximately 6.5 percent of women in the ZOI are classified as underweight, with the rate of underweight younger women (aged 15-19) two or three times higher than for women in the older age group. Children show a high prevalence of malnutrition, both under- and over-nutrition. More than one third of children surveyed were stunted; of these nearly half were severely stunted. About 8 percent of children met the definition for wasting and around 3 percent were severely wasted. More than 15 percent of children were underweight; 5 percent were severely underweight, reflecting acute and chronic undernutrition. In general, growth measurements were worse in older children.

- **Mission-Specific Indicator/Prevalence of Ebola.** The survey indicated that more than 10 percent of households in the ZOI are estimated to have a family member who either died or was infected by the Ebola virus at some point since the start of the outbreak. Households with less than primary or primary education were slightly more likely to be affected by Ebola than households with no education or those with secondary education or higher. Households directly affected by the Ebola virus were more likely to experience food insecurity and hunger than unaffected households. No significant relationship was detected between exposure to Ebola and household consumption or poverty.

LEARNING Despite economic recession and the devastating effects of Ebola, USAID learned from the ZOI interim survey that Liberia continued to demonstrate progress in reducing poverty and hunger. The interim survey estimates a reduction in poverty of approximately 10 percent between 2012 and 2015. Hunger has also fallen dramatically. However, the ZOI exhibited a highly unequal distribution of wealth, and women had fewer opportunities than men. Overall, a little over half the women surveyed achieved the minimum dietary diversity, suggesting that a large proportion of women are at risk of micronutrient deficiencies, such as anemia. Analysis of child diet revealed many deficiencies, specifically inadequacies for non-breast fed infants were prevalent. Therefore, the survey suggested a targeted approach and continued need of interventions to address nutritional status of non-breast fed infants.

#15 SENEGAL FEED THE FUTURE ZONE OF INFLUENCE INTERIM ASSESSMENT

INTRODUCTION As part of USAID's efforts to monitor the Feed the Future performance, IDG conducted the interim assessment of

Feed the Future's population-based indicators for the ZOI in Senegal, which is comprised of ten regions (Fatick, Kaffrine, Kaolack, Kedougou, Kolda, Matam, Saint-Louis, Sedhou, Tambacounda, and Ziguinchor). Two regions (Diourbel and Louga) included in the baseline survey (2012) were excluded from the interim survey ZOI. Like the Liberia ZOI interim assessment, the purpose of the Senegal interim assessment was to provide USAID BFS, USAID/Senegal Mission, the Senegalese government, and other development partners with information about the current status of the 16 ZOI indicators.

METHODOLOGY IDG conducted a large household survey with a sample size of 3,830 and in total, 3,801 households completed the survey. Similar to the Liberia survey, Senegal's interim survey employed a population-based two-stage cluster sample method where the first stage involved the selection of clusters, defined by the census enumeration units (Districts de Recensement, DRs). The second stage involved selecting individual households per DR. Lists of households for selected DRs were provided by the National Statistics Office and 20 households were randomly selected from the list.

Collaborating with a Senegalese data collection firm (CRDH), the ZOI interim survey was conducted with 17 teams with each team comprising of six members (one supervisor, one anthropometric measurement expert, and four enumerators). Similar to the Liberia interim survey, the survey teams were supported by the Principal Investigator, the Senior Field Survey Specialist, and CAPI Specialists. The survey targeted the same group of individuals as did in the Liberia survey; household heads (both male and female) were interviewed and women between the ages of 15-49 years were measured for height and weight, and children under 24 months were measured for height, weight, and MUAC. The survey was conducted between December 2014 and January 2016.

KEY FINDINGS

- **Demographics.** In general, households in rural Senegal were very large, with an average household size of 11.4 members. Educational level of the population was low with nearly one-fifth of adults having no education and 30 percent obtaining a primary or less than primary level of education. Religious education was common in Senegal: 44 percent of adults received Koranic schooling. Among females, attainment of a primary level of education reduced as age increased and this result was statistically significant.
- **Household Economic Status.** At the \$1.25 poverty threshold, prevalence of poverty was 39 percent, with depth of poverty measured at 14 percent of the poverty line. Prevalence of poverty was significantly lower among male only households (10 percent) and small households (16 percent) than among male and female headed households (39 percent) and large households (45 percent). At the national poverty threshold of \$2.22, 77 percent of the ZOI fell below the poverty line.
- **Women's Empowerment in Agriculture Index indicators (WEAI).** In general, Senegal's ZOI showed a low level of women's empowerment in agriculture. Only 40 percent of women had ownership, access to, and decision-making power over the purchase, sale, or transfer of productive resources such as land, livestock, agricultural equipment, consumer durables, and credit.
- **Hunger and Dietary Intake.** One fifth of surveyed households in the ZOI suffered from moderate or severe hunger, with the prevalence of severe hunger measuring at less than 3 percent. The data showed that households with more members, with a secondary or higher education level, and which are not experiencing hunger are more food secure, at a statistically significant level. The percentage of women achieving minimum dietary diversity was significantly associated with household size,

measuring at 46 percent in small households and 60 percent in large households. Less than half (40 percent) of children 0-5 months of age were exclusively breastfed, with no difference by gender. Moreover, less than 10 percent of children aged 6-23 months received a MAD.

- **Nutritional Status of Women and Children.** Approximately one in five women was underweight and this prevalence is highest among women age 15-19 years at 33 percent. There was a significant difference in women's underweight status by household experience of hunger, with 23.2 percent of women in households with moderate to severe hunger measuring as underweight. The prevalence of stunting among children aged 0-59 months in the ZOI was 25 percent, the prevalence of wasting 8 percent, and the prevalence of underweight children 6 percent. The prevalence of stunting, wasting, and underweight children were all higher among male children than female children at statistically significant level.

LEARNING The Senegal ZOI interim survey suggested that children's nutritional status differed between male and female children. There were statistically significant differences between boys and girls for the prevalence of stunting, wasting, and underweight. This suggests a need for USAID to further research the cause driving male and female children's nutritional status. Overall, the ZOI exhibited a highly unequal distribution of wealth and decision making power in agriculture based on gender. For its future FTF programs in Senegal, USAID's approach to nutrition and agriculture should consider the disproportionate level of poverty and nutritional status based on gender.

#25 LIBERIA FOOD AND ENTERPRISE DEVELOPMENT (FED) IMPACT SURVEY

INTRODUCTION The objective of the impact study was to capture the magnitude of the impact of USAID/Liberia's value-chain investments in FED on agricultural productivity and profitability, investment and earnings, and quality of life. The impact evaluation had three primary goals:

- Measure the difference in key indicators between FED beneficiaries and a comparison group of farmers, making use of standardized FTF performance indicators to the maximum extent possible;
- Disaggregate this impact across four value chain commodities; and
- Estimate to the extent practicable the impact of FED programming by year of initial program intervention. The evaluation employed a mixed-methods approach, involving both quantitative and qualitative methods. The quantitative component utilizes a household survey, and the qualitative component involves KIIs and FGDs.

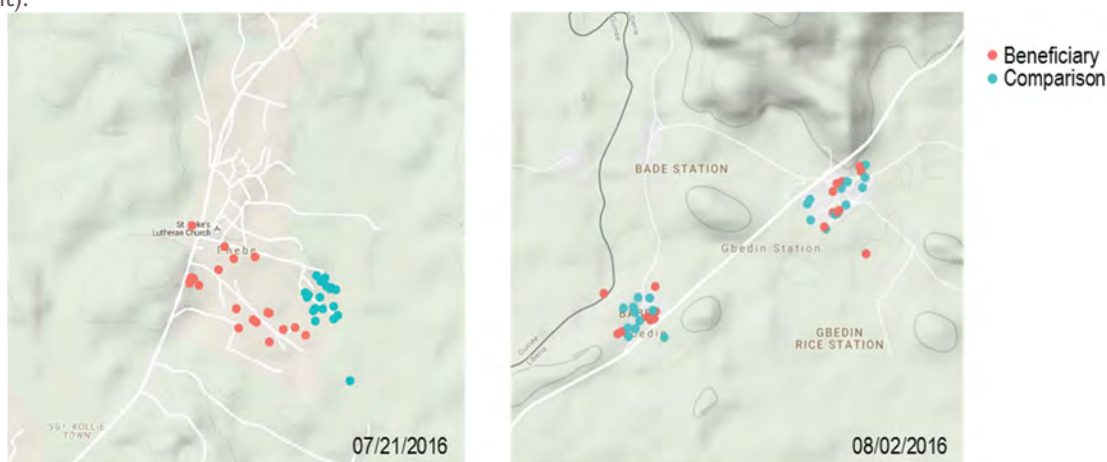
METHODOLOGY IDG selected key variables from the 2012 FED baseline survey as well as key Feed the Future indicators to measure the impact of FED on agricultural productivity and profitability. The primary evaluation strategy used a population-based matching design to estimate impact. While a comparison with a control group would have been ideal to determine project impact, no control group had been surveyed at baseline so a Difference-in-Differences (DiD) model was impossible, and FED project locations had been carefully selected based on prospects for impact, meaning other villages might make for unsuitable comparison. IDG overcame these challenges by rigorously selecting comparison farmers from within the same communities targeted by FED but who had not participated in FED programs, and adjusting results with propensity score matching, offering a methodology that is

common in research literature but not well-known within USAID—a good second-best alternative when DiD is not possible.

In each survey location, randomly-selected beneficiaries are compared to another group of randomly-selected farmers who did not participate in the FED program. A screener questionnaire ensured that these comparison farmers did not learn new farming methods or receive inputs from FED beneficiaries, or from other similar agriculture projects. An average treatment effect (ATE) was calculated among these groups, and propensity score matching (PSM) was used as a robustness test. A secondary strategy for detecting impact involved choosing comparison villages, which are villages that did not receive FED assistance but are similar to the communities where FED operated according to a propensity score.

Using Innovative Technology for Realtime Data Quality Assurance

Because surveys are conducted on electronic tablets, IDG can monitor data quality as it is uploaded daily to the cloud, to catch any issues during data collection and to fix problems in real time: aggregating and analyzing survey data as it is collected and uploaded to the cloud; identifying any problems such as poorly performing enumerators, confusion over questions, or survey tablet malfunctions; drafting instructions for responses to the problems (e.g., on-the-go training to enumerators or software fixes); and overseeing the personnel implementing the fixes. Based on the real-time analysis of data collected, we provide reports to the team that identify specific issues and specific underperforming enumerators, and that provide solutions for identified problems. We often provide scores to enumerators, in this way everyone can see how they are performing compared to their peers on the previous day. This rapid feedback vastly improves data quality. For example, for the FED survey, teams were instructed to randomly select comparison farmers in the same region of the village where beneficiary farmers resided. A GPS mapping from an initial day of surveying (below left) showed that teams were not following this instruction, with blue comparison households not overlapping the red treatment households). We gave corrective guidance to enumerators, who quickly improved their approach—at a later date, the overlap greatly improved (below right).



Working with a local data collection firm (ADEAS), a total of 1,440 surveys were conducted, including 597 surveys with FED beneficiaries and 843 comparison group surveys. Locating the specific, randomly selected beneficiaries was the greatest challenge. The team managed to locate 71.3 percent of the names on the survey sample lists.

The qualitative research provided context and greater insight into the statistical estimates. It helped to verify the causal pathways defined in the Program's Results Framework, and identify possible explanations for project participation, adoption or non-adoption of new practices, technologies, and/or crops being promoted by FED, and changes in productivity, gross farm income, and household income.

The study team conducted 21 FGDs and 69 KIs with FED beneficiaries and other project stakeholders in all three targeted counties and four value chains.

KEY FINDINGS

- **Application of New Practices, Technologies, and/or Crops.** Surveys showed that FED farmers are significantly more likely to utilize improved practices compared to non-FED farmers in their same villages for all value chains. In all cases, except for the deep placement of urea fertilizer, the use of improved practices was dramatically higher for FED farmers. More specifically, FED-trained goat farmers are 74.7 percent more likely to use goat shelters than other goat farmers in the same villages, while FED-trained cassava growers are 41.9 percent more likely to plant their cassava on mounds and ridges, rather than flat ground. However, 15 of the 25 improved practices were employed by fewer than half of the FED farmers.
- **Investment from Beneficiary Farmers.** The survey results on capital equipment expenditures revealed no significant differences between the beneficiaries and the comparison farmers, or between female and male beneficiaries. The estimates varied widely due to the relatively small number of farmers who reported spending money on capital equipment. Among the FED beneficiaries, rice farmers made the largest investments. Ownership of capital equipment is another indicator of investment, and the survey showed that FED farmers do own significantly more hand tools than the comparison farmers.
- **Profitability and Productivity.** FED-supported goat farmers had significantly higher gross margins per unit of production than the comparison farmers. Rice, cassava and vegetable farmers did not exhibit significantly higher gross margins. When using the propensity score matching, the magnitude of the FED impact was reduced for all value chains, but remained significant for the goat value chain. There were also indications that the long-term effects of FED participation exceeded the short-term benefits.
- **Household Income.** None of the methods used to measure household incomes showed significant differences between the beneficiary and the comparison groups. The household income method revealed no significant differences between beneficiaries and comparison farmers in household incomes, either overall or among any of the counties or value chains. Among FED beneficiaries, male farmers reported higher incomes than female farmers. Although beneficiary goat farmers revealed higher gross margins than comparison farmers, these gains do not appear to translate into higher household income. As before, earlier cohorts have higher expenditures than the FY15 cohort, which may suggest that the benefits of the FED program increase after the first year of participation.
- **Quality of Life.** Subjective indicators of happiness revealed major differences between the FED beneficiaries and the comparison farmers. FED beneficiaries were significantly more likely to be satisfied with their current financial situation, their job, and their life as a whole. Similar trends were observed in the subjective wealth indicators. FED-supported households are 54 percent more likely to describe their current situation as “comfortable”, and 20 percent more likely to expect their situation in three years to be comfortable.

LEARNING The impact survey of the Liberia’s FED program indicated that USAID should carefully select value chains that demonstrate comparative advantage, and for which anticipated assistance benefits are worth the associated costs. Specifically, the survey provided evidence to suggest that it is

important to work with local government, businesses, and consumers on removing any barriers or distortions that impede purchase of supplies or selling of goods to markets. IDG also identified improvements in the program to capitalize on promising areas for each of the four value chains targeted. In addition to strengthening local institutions as implementing partners and service providers, the impact survey also taught the importance of improving performance monitoring and evaluation system at the outset of each program.

ECONOMIC AND TRADE ANALYSES

LEAP-II conducted three economic analyses including an analysis of cargo shipping costs and two Agribusiness Commercial Legal and Institutional Reform (AgCLIR) diagnostics. LEAP-II also conducted five trade analyses including identifying constraints to trade in Southern Africa, gathering data on informal cross-border trade in Liberia, assessing the customs sector in Timor-Leste, and analyzing inter-regional trade monitoring data in the Sahel. For each activity, the team developed and agreed the design of the analysis with the Mission, implemented primary and secondary data collection, analyzed the data using rigorous methodologies, drafted a comprehensive report, and presented results to facilitation learning.

#0.A – CARGO PREFERENCE ANALYSIS

The Office of Acquisition and Assistance (OAA) requested LEAP-II assistance to revise the methodology for a cargo preference analysis and updates to the existing model. OAA was arguing against two clauses in the Coast Guard Bill that is currently under consideration by the Senate: (1) to raise the US carrier requirement level from 50% to 75% for food aid shipped by USAID, and (2) to give the U.S. Maritime Administration (MARAD) greater supervision of food aid shipping. OAA was in negotiations with Senator Rockefeller's office, and MARAD is pushing for a decision to be taken in December 2014. LEAP-II incorporated cargo bid data into the model, established a counterfactual at the 50% and 75% compliance levels, quantified cost swings from allowing US flag carriers less than three years old, quantified the environmental impact of using vessels often greater than 25 years old, and quantified the cost and impact on beneficiaries. LEAP-II produced a succinct memorandum answering the OAA's questions.

#5.A – ANALYSIS TO DEVELOP A TRADE INTERVENTION AGENDA: PRIORITIZING COUNTRIES AND ACTIVITIES IN SOUTHERN AFRICA

INTRODUCTION All the Southern African countries consider increasing exports as a key growth driver. Despite this commitment, outside of resource based exports, the region continues to underperform in the global economy. Relative poor trade performance has been attributed to one or more of three constraints: the high cost of trading across borders; uncompetitive production costs; or uncertainties (economic, political or institutional) that inhibit firms from engaging in international trade. LEAP-II was tasked with drafting a discussion paper that identified the necessary and sufficient conditions required for maximizing the impact on growth from trade assistance in nine countries in Southern Africa (Botswana, Lesotho, Madagascar, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe).

METHODOLOGY IDG developed a creative methodology to analyze trade constraints in nine countries in Southern Africa. IDG analyzed the countries based on three sets of constraints: trade costs, production costs, and macroeconomic and political stability. These criteria follow the growth constraints approach formulated by Hausmann, Rodrik and Velasco (2005) as adapted by Hallaert (2009) for focusing on the sources of weak trade performance. Each country was ranked according to six indicators for each of the three broad constraints: macroeconomic and political risk, production costs, and trade costs.

IDG ranked each country according to six indicators for each of the three broad constraints; macroeconomic and political risk, production costs, and trade costs. These indicators were drawn from: the World Bank, Doing Business, Worldwide Governance Indicators, Services Trade Restrictiveness Index, Logistics Performance Index, and Enterprise Surveys; the IMF Trade Restrictiveness Index; Transparency International's Corruption Perception Index; and the Heritage Foundation's Index of Economic Freedom.

KEY RESULTS For each of the Southern African economies, IDG compared the three broad constraints at the individual country level and against two rapidly growing exporters (Vietnam and Cambodia). For countries facing high trade costs, the team used a heuristic guide for prioritizing competing trade-related interventions according to political economy and technical criteria. Comparing the trade costs indicator to the production costs and macroeconomic and political stability indicators reveals the relatively weaker performance for trade costs. The study found that on average Southern African economies pay a premium of between three and 12 times the costs defined by global best practice to export a container. Longer and more unpredictable delivery times compound the cost constraint through increasing firms' working capital requirements. Although generally high, within the region trade costs vary widely depending on whether the country is landlocked or a member of the Southern African Customs Union (SACU). Exporters in the three landlocked economies of Malawi, Zambia, and Zimbabwe face significantly higher costs relative to South Africa, with both Zambia and Zimbabwe paying more than twice the cost. Within SACU Botswana records significantly higher transport costs. The high trade costs along the supply chain indicate the significant potential benefits from prioritizing effective trade interventions. IDG identified the top two priority foreign assistance interventions for each country such as: removing core non-tariff barriers, implementing a national single window, improving border coordination and management, developing a logistics strategy, and implementing a National Trade Facilitation Committee, among others.

LEARNING IDG produced a report with the following sections: 1) Identification of the consensus approach on the essential building blocks that will encourage potential investors – domestic and foreign – to take advantage of increased trade opportunities, starting with the growth constraints approach as developed by Hausmann, Rodrik and Velasco (2005) and modified to focus on trade constraints (Hallaert, 2009). 2) Country specific indicators for the three major categories of constraints – trade costs, production costs, and the macroeconomic and political environment. Potential supply side constraints may be divided into productive constraints such as the availability of reliable and efficient infrastructure – electricity, telecommunications, roads, ports – and trade related constraints such as trade policy and trade facilitation. Complementary policies relating to macroeconomic stability and a reasonable quality of governance with a particular focus on absence of civil instability, the rule of law and protection of property rights, are essential requirements for countries seeking to benefit from adopting more open trade policies. 3) a schema for prioritizing trade interventions, which is then used to identify priorities for trade interventions. USAID/Southern Africa used IDG's input to design a regional trade project.

#25.B – LIBERIA CROSS BORDER TRADE ASSESSMENT

INTRODUCTION Small scale trade, both formal and informal, represent an important component of Liberia's economy and plays a key role in providing sustainable livelihoods for a significant proportion of the lower income population. Most small-scale traders are female with their earnings from trading contributing more than one quarter of their total income. Liberia and its Mano River Union (MRU) neighbors - Cote d'Ivoire, Guinea, and Sierra Leone - have committed to increasing regional integration and intra-regional trade. Against a background of political instability resulting in border closures and large-scale movements of people seeking to avoid the conflicts, intra-regional trade was suppressed. Over the past decade the restoration of political stability has encouraged the growth of cross-border trade (CBT). This has been facilitated by large scale investments in improved road infrastructure along the Monrovia-Ganta/Yekepa corridor with Guinea. Further population, and particularly young people, have migrated to several of Liberia's border towns. While these developments have been reported in the press, the official trade statistics continue to show negligible trade between Liberia and the neighboring economies.

The diagnostic assessment focused on the formal and informal trade flows between Liberia and it's Mano River Union (MRU) neighbors, Cote d'Ivoire, Guinea and Sierra Leone. The study identified the key stakeholders involved in cross-border trade (CBT) and utilized a new survey of formal and informal cross-border trade (ICBT) completed under the Liberia Strategic Analysis (LSA) activity.² The report discussed Liberia's cross-border trade in the context of broader complementary research on both formal and informal cross-border trade in Sub Saharan Africa, West Africa, and the MRU. Through presenting a more nuanced understanding of Liberian cross-border traders, the study sought to

Informal Cross Border Trade

Cross border trade is the sum of both informal and formal trade. Informal trade may refer to trade in illegal goods (for example, banned products) or the way in the which the goods are traded (through evading trade regulations and duties). While there is almost certainly a trade in illegal products (counterfeits, drugs etc.) the primary focus of this report is on legal products which cross the border unrecorded. Informal trade may take place when the area around the formal border is unpoliced and reflects the traditional movement of livestock and crops within the region. This trade often predates the establishment of the formal border. Informal trade may also take place because traders wish to avoid declaring the goods to save time and money by evading duties and taxes. Goods may be imported unofficially with goods destined for a third country being falsely declared as an import rather than as transit for transshipment. Further, a product may be imported legally into a country with lower duties and an efficient port and then transshipped unofficially to a neighboring country to evade their higher duties, quantitative restrictions, other non-tariff barriers, and onerous regulations.

² The Khana Group, 2018, Informal Cross-Border Trade Survey, Final Report prepared for USAID/Liberia under the Liberia Strategic Analysis Activity.

identify appropriate policies and regulatory responses that will support job creation and income generation for both large and small-scale traders.

METHODOLOGY The assessment would draw on existing studies of ICBT and utilize a new survey carried out in February-March 2018 at 16 borders in Liberia's Nimba and Maryland Counties with Guinea and Cote d'Ivoire. A new survey of more than 350 formal and informal cross border traders was completed under the LSA Activity. The survey also carried out 87 KIIs with a wide range of stakeholders involved either directly or indirectly with cross border trade and conducted nine FGDs.

The surveys and interviews collected information on the characteristics of the cross-border traders, identifying the products, and detailing their experiences in moving goods into and out of Liberia to the neighboring countries of Guinea and Cote d'Ivoire. The data collected from the interviews was used to shed light on the validity of assumptions regarding economic linkages, potential missing domestic revenue, and the importance of border trade for poverty alleviation and food security.

KEY FINDINGS

- The movement of goods across Liberia's land borders pre-dates the 'formal' boundaries. Longstanding incentives for CBT include: the existence of the same ethnic groups (including extended kinship networks) living on both sides of the border, a history of weak enforcement along long and porous borders, and regionally uncoordinated trade and other domestic policies resulting in large price differences.
- The formal trade data show that imports are more than twice the value of exports, and 80 percent of imports originate from outside the MRU. Monrovia Freeport accounts for 75 percent of all imports.
- The survey found that women accounted for 70 percent of all traders interviewed. This is consistent with earlier work which reported that women represented the majority of cross-border traders. The men engaged in CBT have significantly higher education levels, with almost two-thirds having at least completed secondary education, relative to women where two-thirds had only completed primary education.
- The LSA survey found increased trade and economic linkages across border between members of the same ethnic grouping. Virtually all of the interviewed traders (95 percent) either owned their own business or jointly with their spouse. Approximately half of all the traders crossed the border once a week with a further 25 percent crossing monthly. Less than 4 percent crossed either daily or several times a day.
- Respondents identified the uncertain and depreciating exchange rate between the Liberian Dollar and the currencies of the neighboring economies as their most significant challenge.
- CBT represented the main income source for 86 percent of respondents. The median monthly income from CBT was \$61 and \$53 for female and male traders respectively.
- Approximately 70 percent of formal CBT was in commercial transport, compared with less than half for informal trade. More than half of all ICBT used motorcycles to transport their goods across the border.

- Imports into Liberia accounted for the overwhelming share of CBT and although agricultural and food products dominated, consumer products (clothing, shoes, and electronic goods) were also present. In contrast, exports from Liberia were modest in size and limited to a narrow range of agricultural products. Almost all of the imports into Liberia were sold in the neighboring border market shed, although a small share of the consumer products (clothes, cosmetics) were sent on to Monrovia.
- Over 70 percent of cross-border traders admitted making informal payments to an official at the border. More than half of all the respondents made multiple payments.

LEARNING

The team identified interventions at the national and regional levels to increase the efficiency of cross-border trade:

- The GOL should recognize the important contribution of the informal business community as a national asset which contributes to economic well-being.
- The GOL should prioritize the development and adoption of a charter for cross-border traders. This will require all stakeholders, government, private traders, and civil society to engage in a dialogue to develop the code of conduct with rights and responsibilities for all parties. This will contribute to ensuring information on the rules and regulations is publicly available.
- LRA should install ASYCUDA World at the land borders, upgrade the infrastructure, and install electronic data systems for all transactions with a direct link to the LRA Head Office in Monrovia. All staff training should include an integrity module.
- Introduce a simplified trade regime for small traders. Currently any individual importing less than \$100 of goods is not required to complete customs formalities. Increasing the limit would exempt many more small traders and would encourage increased use of the official border posts with minimal impact on revenue.
- Commit to increasing Border Agency Coordination, through streamlining procedures, introducing risk assessment and joint inspections.
- Promote Cross-Border Collaboration at the bilateral, sub-regional (MRU) and regional level (ECOWAS).

The team presented these recommendations to USAID/Liberia.

#27.A – TIMOR-LESTE CUSTOMS ASSESSMENT AND DESIGN

INTRODUCTION In response to a request from the Government of Timor-Leste, USAID/Timor-Leste requested that LEAP-II is conduct an assessment of the status and operations of the customs sector, including the legal and regulatory environment, the operations and capacity of the Customs Department and related, supporting institutions and entities, including the Ministry of Finance, sea and air ports, importers-exporters, freight forwarders, customs brokerages, and carriers. In particular, LEAP-II was asked to address the expressed needs of the Ministry of Finance Commission on Fiscal Reform and the Customs Department, including in the areas of customs enforcement training and curriculum

development, internal investigations and integrity training, bonded warehousing, airport screening of passengers and cargo and post-clearance auditing, assistance preparing for the ASEAN "single-window," and assistance with the design and functioning of land border posts. Based on the assessment, LEAP-II identified priority areas for reform and developed recommendations for strengthening the technical capacity of the Customs Directorate to meet international norms.

METHODOLOGY This Customs assessment was based on a document review and in country meetings with a wide variety of stakeholders from the Customs Directorate, government ministries, the private sector and international cooperating partners. Site visits were made to Dili Port, Nicolau Lobato Airport, and Batugade border post. The Customs Directorate (CD) and the Ministry of Finance (MOF) also made available internal customs reports and prior assessments by the World Customs Organization (WCO) and the World Bank. Inevitably with first hand key informant interviews it is frequently not possible to independently verify the information. For all the key customs tasks interviews were held with a wide range of key informants with the objective of understanding the different perceptions of customs operations.

KEY RESULTS The main findings of the assessment of the status and operations of the Timor-Leste customs sector are the following:

- Risk management at Dili Port was found to be ineffective and was not taking place at either the Nicolau Lobato airport or the Batugade Border post. There are no links with other customs organizations for routine information sharing.
- Customs are not accepting the transaction value for clearance purposes. Once the documents are submitted, but prior to lodgment (declaration), the transaction value is checked against the valuation database and in many cases the value is routinely uplifted.
- Post clearance audit is not functioning in any meaningful way, with only basic checks being performed rather than detailed audits.
- Both public and private stakeholders expressed concern on integrity and transparency issues in the Customs Directorate. The institution does not have a strategic anti-corruption strategy and officials do not have routine training on integrity issues.
- Currently information on the rules, procedures and guidelines relating to customs clearance may be found on the Ministry of Finance website. There is no procedure in place to answer queries online, by phone or even in person at the customs head office.

LEARNING The team produced an assessment report with recommendations covering:

- **Risk management and intelligence.** Implement a comprehensive overhaul of existing risk management processes and procedures. Prepare a procedural manual for introducing risk management setting out the criteria for risk management. Activate the Automated System for Customs Data (ASYCUDA) link from HQ to the port and the airport.

- **Clearance Procedures.** Eliminate existing practice of establishing arbitrary customs values. Prepare an internal procedures manual along with an action plan and training program for introducing updated and WTO compatible clearance procedures.
- **Post Clearance Audit.** Establish a 'Post Clearance Desk Audit unit' as the first step towards establishing a WCO 'best practice' PCA. Draft the Timor-Leste audit methodology and procedures based on the WCO model and develop a capacity building program. Once finalized, the audit methodology and procedures should be publicly available.
- **Integrity Design and implement a National Trade Portal.** This provides information on all customs legislation, regulations, procedures, and guidelines governing the movement of goods across borders. Ensure all relevant Customs information is readily available to the public and other stakeholders through public information brochures and radio/TV briefs. Consider introducing an Advice or Call Center, staffed by competent customs staff that can respond to inquiries from all stakeholders.
- **Authorized Economic Operators (AEO).** Continue with the pilot AEO self-assessment exercise. Introduce a 'trusted trader' or AEO scheme following improvements in Risk Management, Customs Clearance, and Post Clearance Audit.
- **Strategic Management and Human Resource Management.** Prepare an Annual Strategic Plan which at a minimum sets out the priorities, objectives and targets relating to trade facilitation, integrity, revenue, staffing, training, resources, and audit. Design comprehensive human resource management policies and procedures which reflect best practices including basing staff selection and promotion on merit. Develop specific terms of reference and job descriptions outlining roles and responsibilities for all customs positions. Finalize the Cooperative Agreement between the Primary Border Agencies at the Integrated Border Post at Batugade, Salele, and Sakato.

The team then turned the assessment and recommendations into a comprehensive solicitation package for the USAID Customs Reform Project (CRP) including a scope of work; deliveries or performance; instructions, conditions, and notices to offerors or respondents; and evaluation factors. USAID/Timor-Leste used the solicitation to procure the new customs project.

#27.B – TIMOR-LESTE IMPORT AND EXPORT REGULATIONS ADMINISTERED BY GOVERNMENT AGENCIES

INTRODUCTION In accordance with Government Resolution 24/2017, and in pursuance of compliance with Article 10.4 of the WTO Trade Facilitation Agreement (TFA), the GOTL has commenced appropriate preparatory work to create a National Single Window (NSW). The effective application of the NSW strategy will rely upon the Custom Authority's ability to apply appropriate regulatory controls on behalf of Other Government Agencies (OGA's) connected with the import or export of goods entering or leaving the territory of Timor-Leste. These OGA's will include but should not be limited to: Ministry of Agriculture (Quarantine, Biosecurity, and Veterinary Services), Ministry of Transport, Ministry of Health, Ministry of Petroleum and Mineral Resources, National Petroleum Authority, Ministry of Foreign Trade, Foreign Trade and Land Transport Department. In partnership with the Fiscal Reform Commission (FRC), the USAID Customs Reform Project (CRP) were developing the Timor-Leste Trade Information Portal (TLTIP) to provide important information identifying relevant regulatory requirements or procedures pertaining to the import or export of goods for both Customs

and OGA's. USAID/Timor-Leste requested that LEAP-II collect information from OGAs, in close collaboration with the FRC and CRP, to inform the development of the TLTIIP.

METHODOLOGY The GOTL uses ASYCUDA World as the software program for processing goods for import and exports. ASYCUDA World allows the user to specify the regulations, procedures and risk criterion for each 6-digit Harmonized System (HS) tariff line. Timor-Leste has transitioned to using the 2017 Harmonized System, however, for the purposes of the current assignment HS 2012 is used to approximately map the regulatory requirements to the codes. This activity identified the regulatory requirements which are the responsibility of OGAs.

KEY RESULTS The identified OGAs include the Ministry of Agriculture, Ministry of Health, Ministry of Petroleum and Mineral Resources and National Petroleum Authority, Ministry of Transport and the Land Transport Department. The team obtained the information shown below for each of these OGAs:

- Broad list of commodities subjected to control by the OGA;
- Conversion of the narrative list of commodities to specific commodity codes (identified utilizing 6 digits of the of the World Customs Organization (WCO) Harmonized System, version 20123);
- Detailed description of regulatory requirement (i.e. license required, sample needs to be taken, etc.);
- Level of regulatory control required – i.e. physical examination of goods identified; documentary examination of paperwork, etc.;
- Specific regulatory control action required to be undertaken by the DGCA (i.e. check license, take sample, notify OGA, etc.); and
- Any other relevant information.

The team put together annexes including a detailed list of commodities requiring approval from OGAs, a list of decree laws and regulations (in English and Portuguese), application forms for import permits, and an outline mapping of harmonized system custom classification to designated government agencies.

LEARNING Mapping the existing laws, regulations and processes applied by OGAs was an essential milestone in developing the online portal. USAID Timor-Leste and CRP used LEAP-II's findings to develop the online portal.

³ This is appropriate for discussions on establishing specific risk profiles for products that will take place between the FRC, Customs Administration, and each of the Other Government Agencies. Following agreement on appropriate risk profiling the products remaining subject to import permits should be mapped to specific HS2017 codes. This is a separate and specialized exercise.

#13 AND #16 – AGRICULTURAL COMMERCIAL, LEGAL, AND INSTITUTIONAL REFORM (AGCLR) DIAGNOSTICS IN SIERRA LEONE AND GUINEA



Lawassa Garden Vegetable Farm in Kissidougou, Guinea

PHOTO CREDIT: RICHARD ROUSSEAU

INTRODUCTION USAID/Sierra Leone and USAID/Guinea commissioned Agribusiness Commercial Legal and Institutional Reform (AgCLR) diagnostics to inform and assist in prioritizing the constraints and recommending reform activities for the AgBEE in each country. The AgCLR diagnostics focused on identifying the policy and regulatory constraints affecting agricultural production and investment. Specifically, the diagnostics examined the relevant laws, institutions, and social dynamics of Sierra Leone’s and Guinea’s agriculture sectors to identify and address constraints facing micro, small, medium, and large agribusinesses. The following topics affecting the business enabling environment for agriculture and agribusiness were examined: Starting a Business, Dealing with Licenses, Employing Workers, Paying Taxes, Enforcing Contracts, Competing Fairly, Trading Across Borders, Registering Property, Accessing Market Infrastructure, Protecting Investors, Accessing Credit, and Gender and Youth Considerations.

METHODOLOGY The AgCLR process integrates data from multiple sources across a broad spectrum of pre-designated subject matter areas, identifying issues, spotting trends, highlighting obstacles and opportunities, and suggesting courses of action. The AgCLR methodology is also inspired and influenced by the World Bank’s ‘Doing Business’ series, which since 2006 have focused largely on the business enabling environment for businesses operating in urban areas and outside of the realm of agriculture. The team undertook a desk of relevant documents for each of the 12 areas. The desk review included an analysis of the countries’ World Bank Doing Business indicators against other West African countries. The team then traveled to Guinea for approximately three weeks to gather primary data through key informant interviews and focus group discussions.

KEY FINDINGS GUINEA

Starting a Business: While Guinea enacted major reforms in 2015, connecting all creation-and post-creation related services under the one stop shop are still

challenges to be overcome. Registering cooperatives has a clear procedure, but the serious lack of infrastructure and human resources for the process results in a lack of transparency on existing cooperatives. Recommendations: a) expedite implementation of Organisation pour l'Harmonisation en Afrique du Droit des Affaires (OHADA) Statut de l'Entrepreneur law; b) create a more transparent and efficient registration and licensing process for cooperatives, NGOs, and other associative movements; c) strengthen capacities of APIP Guichet Unique at central level and in-country; and d) build capacities in application of OHADA Uniform Acts.

Dealing with Licenses: As in most developing countries, Guinea's licensing regime is rather complex, with licenses delivered by a wide range of government offices. Access to information is extremely difficult. None of the ministries concerned have websites, legislation is only available in hard copies, and there is no catalogue of required licenses or manual on how to obtain them. Recommendations: a) Abolish the existing tendering system for fertilizers and pesticides, and replace it with a system that encourages private operators; b) Create a manual, posted online, that catalogues the various licenses and permits required and explains the processes to obtain them; and c) Develop a training kit on the proper application of fertilizers, pesticides, and herbicides and provide extensive training to farmers.

Employing Workers: The major challenge in building an efficient agricultural sector work force is to ensure that education and workforce development match the needs of the Guinean economy. Incentives for young people to choose agricultural education and to re-migrate from the urban centers to their rural homes are needed. In particular, agriculture Technical Vocational and Education Training (TVET) needs strong reinforcement. Recommendations: a) Improve agricultural TVET institutions and graduate more and better qualified specialists and technicians; b) Improve dialogue between agriculture and education sector stakeholders to ensure training meets the needs of private sector.

Paying Taxes: In Guinea one main challenge in raising revenues lies in the existence of a pervasive informal economy (79.9 percent), which includes most agricultural activities. At the same time, Guinea ranked 184 among 189 comparator economies for ease of paying taxes and ranks lowest among Sub-Saharan comparator economies. Recommendations: a) Assign every natural or legal person a Unique Identifier Number and create an electronic database for public services working with businesses; b) Reinforce the Agence Nationale de Lutte contre la Corruption et Promotion de la Bonne Gouvernance (ANLC) in anti-corruption and good governance; c) Communicate more clearly and transparently regarding taxes and development progress to citizens and businesses.

Enforcing Contracts: Courts in Guinea, especially the lower courts, are challenged by limited resources, shabby physical infrastructure, poor information technology, insufficient technical knowledge, and officials who sometimes engage in rent-seeking. Recommendation: The GoG should devise a strategy and action plan for increasing the use of written contracts in the agriculture sector.

Competing Fairly: There is currently no integrated competition policy in the agriculture markets of Guinea, expressed either as law, regulation or otherwise; existing perspectives on competition are expressed at level of transactions. Recommendation: The GoG should adopt a modern competition policy, a competition law, and accompanying regulations, in accordance with best international practice, that embrace the themes of market access and market parity, and address antimonopoly enforcement, natural monopoly regulation, and consumer protection.



Mothers selling food by the side of the road in Freetown, Sierra Leone
PHOTO CREDIT: CHRIS THOMPSON

Trading across Borders: Expansion of trade is a key component of Guinea's development strategy. Facilitating cross-border trade and creating an environment conducive to exports are therefore essential ingredients for success of Guinea's poverty reduction and food security strategy. Guinea's trade potential in agriculture is enormous but barely exploited. Recommendation: a) Improve cooperation and interconnection between different departments and agencies involved in trade and customs clearance; b) Make Agence Guinéenne de Promotion des Exportations (AGUIPEX) fully operational, develop a national export strategy, and agree on a cooperation framework among AGUIPEX, Centre International d'Echanges et de Promotion des Exportations (CIEPEX), and other actors working on export promotion; c) Upgrade laboratories.

Registering Property: The land (foncier) and cadastral systems of Guinea in tandem confer authority on the act of property registration for their formalities and adherence to tradition. The two systems, both on the face of official documents and as interactive processes, do not fully capture interests tied to the land as represented by the presence of capital, management, and especially of labor. Recommendation: The GoG should create a super-ministerial Task Force for Land Ownership and Use with the ultimate goal of enhancing the knowledge of the small and often family based producer.

Accessing Marketing Infrastructure: The poor condition of marketing infrastructure results in high domestic transportation costs, high utility costs, and unfavorable pricing arrangements for critical agricultural inputs and outputs. Though laws and policies for operation and maintenance of agricultural market infrastructure exist in Guinea, implementation is a considerable problem. Recommendation: a) Strengthen market information systems by increasing the role of private sector; b) Strengthen the capacity of Ministries of Public Works and Agriculture to build, connect, and maintain feeder roads; c) Study the current system of planning, developing, constructing, and operating storage facilities and increase the role of the private sector.

Protecting Investors: The legal and institutional framework for protecting investors has been updated within the past year (2015). Nevertheless, the overall environment for attracting new investment in agriculture remains weak, lagging behind that of neighboring countries and more importantly, what is needed to reduce rural poverty. Recommendations: Create a more level playing field among all agriculture-related businesses by ensuring

that: a) businesses are established under the appropriate legal regime; and b) eliminating the practice of providing agricultural inputs and capital free of charge.

Accessing Credit: Farmers and agribusinesses often cite the lack of reasonably priced bank loans with long enough maturities as one of their principal constraints. Ironically, the financial sector in Guinea is governed by a modern set of laws and regulations, is largely free from direct interest rate controls and credit rationing, is comprised of well-run private institutions, most of which have reputable foreign investors, and overseen by a Central Bank that has a reputation for professionalism and integrity. However, the high risks of loans to the agriculture include: risks associated with production cycles, especially weather; the uncertainty of land titles; lack of knowledge of the value chain; poor access to inputs; and the lack of a ‘culture de credit’. Recommendations: a) Establish a comprehensive credit reference bureau that covers all extensions of credit; b) Provide training in agricultural lending, financial analysis, and financial statements preparation to farmers, related business groups and financial institutions; c) Improve existing systems that support credit based on moveable property; d) Provide loan guaranties to commercial banks for loans to microfinance institutions and other intermediaries for financing farmers, storage depots, and processors on commercial terms.

Gender and Youth: Among the fundamental economic challenges facing Guinea is the inefficient contribution of women and the youth, who, to a large extent, lack education and training, means of production, and access to markets. Despite their important participation in the agricultural and agrobusiness sectors, women and the youth are far from utilizing their full potential. Important measures have been taken by the Government to address the gender situation, but much remains to be achieved: redefining the legislation to take into account their needs, allocating realistic budgets to improve their education and well-being and finding ways to socially, economically and politically empower them to participate more effectively in the development of their country. Recommendations: a) Support programs and activities that inform women and youth about their legal and economic rights; advocate for their enforcement; and ensure that the needs of rural women and youth are addressed through quotas and other means; b) Provide vocational and educational training, including in literacy, numeracy and entrepreneurship for rural women and the youth. Link women and youth into the value chains and markets.

SIERRA LEONE

Starting a business: Sierra Leone’s economy is dominated by informal enterprises and self-employed individuals. Although the legislative framework provides a relatively straightforward and liberalized process for opening a business, the number of businesses registered in Sierra Leone remains very small relative to the population and the size of the economy. Approximately 12,500 companies are currently registered, and authorities estimate that only 50 percent of these are actually functional. This informality leaves a significant part of the economy—particularly agriculture—outside of the formal networking and marketing structures, reduces potential access to credit, and deprives the state of needed revenues.

Paying taxes: The high level of informality in the economy, particularly in rural agriculture, as informal or unregistered businesses are not participants in the tax system. Another key factor is the relative underdevelopment of the tax collection system, as grants made up more than a third of government revenues in 2015. Sierra Leone has also been progressively complicating its income tax and import tariff system by grafting on broad and ambiguous exclusions in separate standing legislation, resulting in implementation difficulties, particularly at the border. It is also requiring investors to engage in

memoranda of understanding negotiations with government ministries via complex and non-transparent processes to secure these tax advantages. Finally, the local revenue environment remains underdeveloped despite local government legislation having been in place since 2004, with revenue collection functions being ambiguously allocated between local councils and traditional local chieftains. Recommendations: it will be important for Sierra Leone to reconsolidate its tax legislation at the central level and move forward on standardizing the revenue collection processes at the local level.

Protecting Investors: Attracting investment capital is required for the agricultural sector to grow and provide jobs for Sierra Leoneans. The GoSL has enacted constitutional and legal protections for investors against expropriation, but investors still face significant risk from the accumulated effects of investment and trade policies that cause operational delays and cost money. The opacity and uncertainty of the process of securing land for agriculture under the customary land tenure system is another significant risk. Investors also reported that corruption—enabled by the ad hoc system of granting investor incentives, land concessions, and work permits—creates a disincentive for investment.

Accessing Marketing Infrastructure: Sierra Leone is served by an agricultural marketing system that is poorly coordinated, fragmented, and informal. Small producers, who make up the bulk of the sector, have little or no access to pricing information and are typically cut off from the market through poor transportation infrastructure. Inputs are dominated by government- and donor-supported program interventions, leading dealers to focus on stocking and selling inputs rather than working with small farmers.

The current system deprives small agribusiness operators of reliable access to inputs, to appropriate investment financing, and to wider markets. Small farmers in particular are forced to make their production decisions without reliable and timely market price information on key commodities they produce, and without assurances that they will be able to sell consistent quantities to known buyers, at a reliable market driven price. Most farmers lack the access to credit to purchase inputs or finance production. Retail banks do not offer agricultural lending products, and the donor-supported community-level banking system commands very high interest rates for short-term loans (and few, if any, medium-long term loans). Farmers also generally do not have the proper dry and cool storage facilities to allow their products to reach markets.

Competing Fairly: Sierra Leone is currently operating without a comprehensive statutory or institutional framework for protection of competition. A process of drafting policy and legislation for protection of competition and consumers has taken place since 2012, but it is not clear when such basic legislation will pass. Without a comprehensive policy and legislative framework in place, many basic principles of fairness may remain unobserved and unenforced in the country. If such legislation does pass, Sierra Leone will need significant capacity-building support to develop the institutions and processes needed for effective implementation.

Enforcing Contracts: As in other subject matter areas of this report, contract enforcement contends with Sierra Leone's dual legal systems—a formal English common law model, as well as a parallel system at the local level based on customary law. Most contracting in the agricultural sector is informal in nature, and the process of land titling is unclear. The 2010 unveiling of a Fast Track Commercial Court (FTCC) intended to improve access to expeditious dispute resolution. Unfortunately, after just five years, the donor-supported creation of this important judicial institution now suffers from severe lack of equipment and resources, inhibiting the FTCC from fulfilling its mission. The court system at other

levels also remains underfunded and slow, discouraging arbitration and investment, and also faces allegations of bias and corrupt tendencies. Enforcement processes are similarly stymied by cumbersome bureaucracy, and arbitration laws and institutions are out of date or nonexistent.

Registering Property: Sierra Leone has a dual land tenure system stemming from the country's parallel legal systems. In the urbanized Western Area around Freetown, freehold tenure prevails. However, more than 99 percent of Sierra Leone's arable land is governed by customary land tenure norms that vary according to ethnic group. Most of the land is owned by families on a communal basis, with traditional chiefs serving in a trustee role over the land. Most rural landholdings have neither been surveyed nor registered, and who has the right to lease or convey this land is not always agreed upon. Sierra Leone has developed a draft national level land policy that would start to address some of these issues, but it does not appear to have moved forward in its adoption and implementation.

Food Security, Gender, and Youth Considerations: Food security is critical to the health and productivity of Sierra Leone's population. The 15-month state of emergency imposed as a result of the Ebola Virus Disease (EVD) magnified food security challenges in Sierra Leone by interrupting crucial points in the agricultural production and marketing processes, affecting daily food availability and malnutrition indicators. EVD-related food security issues are expected to continue until at least March 2016. In addition to EVD impacts and challenges resulting from poor sanitation, disease, parasites, and environmental toxins, it appears that food processing is a key omitted step in the crop to market value chain. To improve food security, reduce waste, and ensure that more food reaches needy mouths around the year, greater investment and effort need to go into developing processing and preservation activities.

Gender equality and youth participation in agriculture pose serious challenges in Sierra Leone, given that women and youth (age 15 to 35) constitute over 70 percent of the population and a large majority of farmers. They may still prove to be Sierra Leone's greatest underutilized source of wealth in terms of human capital. Since the end of Sierra Leone's civil war in 2002, the country has developed new legislation and structures for promoting women's legal equality with men, though its implementation has encountered stop-and-go progress partially because of resource shortages. Land tenure remains a significant problem area for gender equality. At the local level, paramount chiefs retain control over land through their traditional custodial authority, managing the use of male-headed, family-owned lands. While there are no gender differences in a Sierra Leonean's likelihood of being employed, men earn nearly three times as much as women in wage employment and almost double in agricultural self-employment. Women are deeply underrepresented in governance, and female genital cutting remains the most preventable factor contributing to high maternal and infant mortality rates. The rights of children and youth are of particular concern in Sierra Leone; for example, over half of female children become pregnant before they reach the age of consent, which typically quells subsequent opportunity for education.

Employing Workers: Self-employment is the predominant characteristic of the labor market in Sierra Leone. This is especially true in agriculture, with almost two-thirds of the working age population in agricultural self-employment and only around three percent of the working age population earning wages. Much of Sierra Leone's labor market regulation is antiquated and out of step both with modern market economies and the peculiarities of Sierra Leone's economy. Its employment laws discourage formal wage employment by obstructing recruiting and imposing unreasonably high costs for severance.

“Trade group” collective bargaining agreements reach only a small fraction of workers, and occupational safety and health monitoring is inadequate. Several factors—poor market infrastructure, import and export obstructions, tax exemptions that discriminate against smaller farmers, and an uncertain land tenure system—prevent farmers from employing themselves and others beyond a subsistence level. In short, the legal system for employing workers needs to be substantially updated and rationalized with Sierra Leone’s actual conditions and policy priority needs.

Trade Across Borders: Sierra Leone’s greatest challenge in trading is a lack of centralized direction and coordination of the agencies charged with setting export goals and the further lack of an action plan for meeting those goals. Sierra Leone has a trade strategy that has not been implemented or updated in the five years since it was developed. In the meantime, markets have changed significantly to Sierra Leone’s disadvantage in many non-agricultural areas, and yet many agricultural opportunities remain. Stagnation in the agricultural export sector over the past three years highlights one of the greatest challenges now confronting Sierra Leone—how to direct and coordinate the work of the various ministries and agencies engaged in setting and implementing international trade policy (both agricultural and non-agricultural) as well as reacting quickly to changed circumstances. Sierra Leone needs to revitalize its trade policy formation and implementation environment if it is to take advantage of its abundant natural resources. These changes should include refreshing trade policy priorities and restructuring trade implementation bodies in government.

Dealing with Licenses: Licensing regimes are used to govern business or professional activities. Licenses—sometimes referred to as “permits”—are used by authorities to ensure protection of legitimate government; social, health, safety, and environmental interests; or other clearly articulated public policy interests. In a well-developed and transparent system, licensing requirements are used to ensure that clearly described minimum requirements are achieved before a business may engage in regulated activities. In poorly organized systems, license requirements and processes may be vague, resulting in significant opportunities for corruption and disruption of business opportunities.

LEARNING LEAP-II produced reports for Sierra Leone and Guinea that identified the business enabling environment constraints, discussed the implications of constraints on local agribusinesses, described cross-cutting issues, and contained topic-specific analyses in the 12 areas. The reports were designed to assist government institutions, donors, non-government organizations, the private sector, and others in developing strategies, policies, programs and activities in support of agricultural enterprise and economic growth. The reports included specific, prioritized recommendations, including policy reform, introduction, and implementation. The Guinea AgCLIR report included a separate chapter with recommendations prioritized by estimated impact, cost and risk. The AgCLIR teams held roundtables at the end of the fieldwork in Sierra Leone and Guinea to present AgBEE opportunities and constraints to a wide range of stakeholders.

#33 – ANALYSIS OF THE USAID-CILSS INTERREGIONAL TRADE MONITORING DATA

INTRODUCTION The Permanent Interstate Committee for Drought Control in the Sahel (CILSS) is USAID’s oldest development partner in West Africa. USAID provides support to the CILSS Market Access Program (MAP), which is designed to support ECOWAS and UEMOA commitments to increase the volume and value of trade in agricultural products (cereals and grains) and livestock at the regional level. Specifically, the MAP monitors the movement of selected key value chains along selected trade corridors in West Africa.

TABLE 2: COUNTRIES, MARKETS, AND COMMODITIES COVERED BY THE USAID-CILSS TRADE DATA

Country	Number of Market Collection Points	Commodities
Benin	11	Local rice, livestock
Burkina Faso	18	Maize, millet, sorghum, cowpea, local rice, livestock
Côte d'Ivoire	3	Livestock, maize, millet, sorghum
Ghana	3	Livestock, maize, millet, sorghum, cowpea
Mali	3	Maize, millet, sorghum
Niger	3	Livestock, cereals/grain
Nigeria	1	Maize, millet, sorghum, livestock
Senegal	5	Livestock
Togo	3	Banana, tomato, cassava, pepper, yam, groundnuts, colanuts, fish

The rationale of the program is two-fold. First, in a customs union like ECOWAS or UEMOA, the removal of intra-regional trade barriers poses difficulties for the collection of intra-regional trade data. While extra-regional trade data can be collected from customs declarations as normal, there is no longer a revenue incentive to verify intra-regional declarations. A second, and quite separate, rationale behind a specific program to collect intra-regional trade data is that informal trade in the region is very significant, so it is likely that official trade data substantially understate the true level of flows.

METHODOLOGY IDG conducted an assessment of the USAID-CILSS data from an input (methodology) and output (potential use) perspective (see Table 2). IDG: 1) examined the data collection and treatment methodology in more detail, focusing on areas where performance could be improved, and where CILSS has been active in developing new systems and procedures, 2) assessed the statistical capacity of CILSS, 3) examined the changes that would be necessary for the data to be accepted as official statistics, alongside customs data, as is currently proposed in the region, 4) examined the potential usefulness of the data in supporting policy and private-sector decision making, 5) conducted an analysis of the data, focusing on a comparison with other sources, and extraction of trend and seasonal components, 6) examined data access, presentation, and use, 7) made recommendations focused on improving analytical processes, and 8) examined the question of cost effectiveness.

KEY RESULTS The dataset has undergone significant changes over time. While experimenting with different products, countries, and routes is an important process, it means that the historical dataset provided to us is difficult to use consistently from a statistical point of view. In particular, there are

sometimes large swings in reported trade flows within a short period, and it is not clear whether these changes reflect actual market dynamics, changes in methodology, or other issues related to data collection and treatment. The most fundamental issue in relation to the data is that they have not been developed within a rigorous statistical framework: to our knowledge, no baseline survey of market conditions was conducted, and there is thus no sampling framework. Although it was stated that the data capture “all” transactions, this does not equate to the relevant population from a statistical point of view, given extensive differences in the number of markets covered in each country. The data are, in effect, a sample, but its representativeness cannot currently be assessed.

Moving forward, it is possible to deal with these issues by relying more heavily on trained statisticians, both based externally, and in the region, to develop rigorous protocols. This is on the agenda, as there is momentum in the region to use these data in an official capacity within the region, as a complement to traditional trade data.

LEARNING The team made recommendations on improving the reliability, integrity, and completeness of the data. Specifically, on data collection:

- Conduct a statistical mission in conjunction with national statistics offices from the region to establish a rigorous sampling frame and protocol.
- Conduct a statistical capacity building mission with CILSS, in conjunction with national statistics offices from the region, to develop understanding of how sampling issues affect the data’s usefulness, as well as techniques for systematically cleaning the data.
- Moving forward, limit changes in data coverage (products and markets) to deal with concerns about year-on-year comparability.
- Focus data collection on key commodities, namely: rice, millet, sorghum, maize, and cowpea (cereals); and cattle, sheep, and goats (livestock).
- Consider focusing data collection only on those countries where CILSS is already well represented in terms of market coverage, to limit concerns about completeness in large markets, like Nigeria, where presence is more limited.
- Ensure that the tablet-based data collection application makes maximum use of drop-down menus to avoid data entry errors in fields including origin and destination, and product.
- Ensure that numbers are entered in numerical format through use of appropriate data entry restrictions in the tablet-based application.
- Explore the feasibility of building systematic cleaning methodologies into the tablet-based application.

The team also made recommendations in relation to data treatment:

- Correct the historical data to deal with obvious transcription and data entry errors that impede straightforward analysis, such as inconsistent use of capital letters.

- Standardize the historical dataset by retaining key commodities only, namely: rice, millet, sorghum, maize, and cowpea (cereals); and cattle, sheep, and goats (livestock).
- Standardize the historical dataset by recording prices and quantities in numerical, not text, format, and removing superfluous characters.
- Clean the historical data by removing left and right tails of the quantity and value distributions.
- Make the data available to researchers on an “experimental” basis, with a methodology paper and appropriate caveats regarding interpretation.
- Work with national statistics agencies from the region to develop a robust methodology for extracting trend and seasonal components from the data.
- Work with national statistics agencies from the region to develop a private forecasting platform using these data, and systematically track the accuracy of forecasts over time, using different time horizons, such as one month, three months, six months, and one year.
- Following establishment of a sampling frame and protocol, ensure that the methodology is applied consistently over a significant time period (several years), so that output can be systematically tested and evaluated.

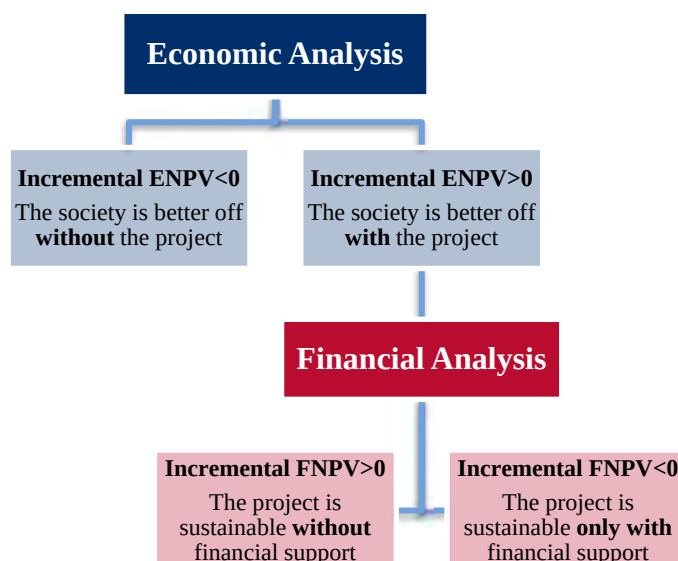
COST-BENEFIT ANALYSIS (CBA)

LEAP-II conducted 12 activities involving CBA for E3, BFS, and Missions in Haiti and Kenya. Ten activities involved analyzing interventions in value chains on USAID agriculture projects and a synthesis of CBAs of 12 value chains across 11 countries in Sub-Saharan Africa. Two activities involved providing capacity building and training to government officials in Haiti and Kenya on using CBA techniques to select investment projects with a goal of institutionalizing the use of rigorous criteria of economic efficiency in project evaluation, contributing to reducing inefficiencies in public spending with the long-term goal to improve transparency in the decision-making process in public spending decisions.

FIGURE 3: ECONOMIC AND FINANCIAL ANALYSIS

This section first presents a brief description of the methodology used for the CBA activities followed by summaries of the activities.

CBA entails 1) valuing benefits (such as increased crop yield or crop price) and costs (such as increased costs of input or labor) over a certain period of time, generally a long horizon, and 2) comparing these benefits and costs to determine whether a project is financially or economically viable. Benefits and costs of various economic agents participating in the project are estimated for “with-project” and “without-project” scenarios over the evaluation period.⁴ By comparing these two scenarios, incremental benefits and costs are calculated.



Financial analysis examines whether a financial investment in a project can be recovered, given the expected incremental costs and benefits.⁵ A project is considered financially viable if the financial net present value (FNPV) is positive and the internal rate of return (IRR) on the investment exceeds the

⁴ Benefits and costs of a project are measured for the lifetime of the project. This is not necessarily equal to the USAID project funding or implementation period (on average 4-7 years). The lifetime of the project (10 to 20 years) refers to an economic life of the project. This is a period of time during which the project can be expected to contribute to the economy. USAID's standard project lifetime is 20 years, unless otherwise stated.

⁵ Juan A. B. Belt and Clarence Zuvekas Jr., “Strengthening Cost-Benefit Analysis in USAID, 2011-2013: Lessons Learned and Future Directions” (U.S. Agency for International Development, March 11, 2014), http://pdf.usaid.gov/pdf_docs/pa00jqsp.pdf.

threshold financial rate of return. If the incremental FNPV is below zero, the project is not sustainable without support (see Figure 3).

Economic analysis determines the viability of the project for the society as a whole, either from USAID's perspective. In order to express the benefits and costs at their true economic values to the society, the economic analysis adjusts the financial analysis to correct for a variety of economic distortions, such as taxes and subsidies. Similar to the financial analysis, a project is considered economically viable if the economic net present value (ENPV) is positive and the economic rate of return (ERR) on the investment exceeds the economic opportunity cost of capital and is above 12 percent (a relatively high rate of return threshold used as an unofficial USAID threshold).⁶ It is typically recommended that a project with a negative incremental ENPV be rejected, discontinued, or corrective measures taken to redesign the project.

CBA Terms

GENERAL TERMS

- **Discount Rate:** Measure of converting future values into their present-day terms taking into account the time value of money

FINANCIAL ANALYSIS

- **Financial Net Present Value (FNPV):** Total discounted value of incoming cash flow after deducting the total discounted value of outgoing cash flow
- **Internal Rate of Return (IRR):** Discount rate that produces an FNPV equal to zero

ECONOMIC ANALYSIS

- **Economic Net Present Value (ENPV):** Total discounted value of social benefits after deducting the total discounted value of social costs
 - *USAID perspective:* ENPV considering USAID's investment costs
 - *Economy perspective:* ENPV of the local economy without considering USAID's investment costs and thereby showing overall economic benefit to the host-country
- **Economic Rate of Return (ERR):** Discount rate that produces an ENPV equal to zero
 - *USAID perspective:* ERR considering USAID's investment costs
 - *Economy perspective:* ERR without considering USAID's investment costs and thereby showing overall economic rate of return for the host-country
- **Benefit-Cost Ratio (B/C Ratio):** Net present value of benefits divided by net present value of economic costs

The types of CBAs conducted by LEAP-II include:

- **Ex-ante CBA:** carried out prior to or at the very beginning of a project to inform and guide project design.

⁶ Traditionally, the World Bank uses 10% or 12% while the ADB uses 12% for the project rate of return threshold. USAID does not have an official threshold but uses 12% as a benchmark.

- **Midterm CBA:** carried out at the midpoint of a project to determine initial effectiveness and to inform any necessary alterations to a project's trajectory.
- **Ex-post CBA:** carried out after project closeout to evaluate the actual, final impacts of a project and to inform the design of future projects.

#18 – CBA OF USAID/SENEGAL'S RICE VALUE CHAIN

INTRODUCTION USAID/Senegal's Projet de Croissance Economique (PCE, Economic Growth Project) in Senegal falls within a portfolio of U.S. Government interventions in Senegal to improve food security through the Feed the Future initiative. PCE was implemented in line with Government of Senegal (GoS) development strategies aimed at achieving food security for small farmers and national self-sufficiency in rice production. PCE provided a range of interventions along rice value chains (VCs) aimed at enhancing productivity. In the irrigated rice VC, paddy yields on average increased from five MT/ha (metric tons/hectare) to six MT/ha. In addition, improved quality of paddy and strong contractual frameworks created by the project resulted in an increase of 25 percent in price of paddy. In the rain-fed rice VC, the project managed to double the yields of paddy from one MT/ha to two MT/ha, resulting in greatly improved food security for paddy producing households. LEAP-II conducted an ex-post CBA of PCE's support to rain-fed and irrigated rice value chains.

KEY RESULTS As a result of PCE activities in the irrigated rice VC, annual income of paddy-producing households has more than tripled from US\$ 108.3 to US\$ 388.6. In the rain-fed rice VC annual income increased from US\$ 59.0 to US\$ 221.9. Certified seeds producers and processing industries also benefit as a result of USAID investments.

The financial gains to certified seed producers, paddy producers, and millers over the 20-year evaluation period are estimated to reach US\$ 88.49 million (expressed in 2010 dollars). The USAID investments in the rice VCs have reached US\$ 12.55 million in 2010 dollars. In addition, the estimated cost of GoS subsidies amounted to US\$ 22.00 million. As seen in Table 3, below, the Economic Net Present Value (ENPV) of the PCE is US\$ 53.95 mill. The Economic Rate of Return is 24 percent.

TABLE 3: PCE CBA IMPACT FIGURES

VALUE CHAIN	ENPV	ERR
Irrigated Rice	US\$ 50.68 million	25%
Rain-fed Rice	US\$ 3.27 million	18%
TOTAL	US\$ 53.95 million	24%

LEARNING The analysis made four key recommendations:

- Senegal's rice-production sector exhibits multiple distortions that are the result of significant support extended by the donor community and the GoS. The long-term positive impact of the PCE therefore requires that donors and government alike develop a clear exit strategy, whereby farmers are

gradually encouraged to pursue agricultural activities with limited or no assistance from the GoS and other donors, including USAID.

- The wide promotion of rice cultivation and consumption may impose significant health risks, particularly in the low-income rain-fed regions. During interviews, farmers repeatedly and proudly stated that they now are consuming only rice throughout a day (breakfast, lunch and dinner). Such poor nutrition will negatively affect health conditions of farmers. Donors and the GoS should promote diversification of cultivation to include other staple crops as well as educate the population on nutrition and the importance of a diverse diet.
- Availability of certified seeds still remains a risk factor for the long-run economic returns of PCE interventions. It is recommended to closely monitor factors affecting availability of certified seeds and continue improving domestic seed production during the Naatal Mbaay project.
- The analysis revealed that the PCE addressed many issues resulting in low quality local rice production in the Senegal River Valley. Therefore, new assistance should also focus on addressing existing infrastructure gaps, such as poor conditions of milling infrastructure. In rain-fed rice producing areas, the focus should also be on market creation, diversification of production to improve dietary habits, and access to micro credit.

In addition to producing a comprehensive report presenting results and detailed recommendations, the team developed a summary report summarizing key results and recommendations and explaining the methodology in layman terms. Other deliverables included the CBA model in Excel for each value chain.

#19 – CBA OF USAID/RWANDA'S DAIRY VALUE CHAIN INTERVENTION

INTRODUCTION LEAP-II was tasked with evaluating FTF activities implemented under the Rwanda Dairy Competitiveness Program II (RDCP II). RDCP II aimed to increase the competitiveness of Rwandan dairy products in regional markets and to improve rural households' incomes by increasing quality and efficiency throughout the dairy VC. The project provided a wide range of interventions along the VC aimed at increasing the quality of milk, enhancing farm level productivity, strengthening vertical and horizontal linkages in the VC, and promoting domestic milk consumption.

LEAP-II conducted a midpoint CBA of interventions affecting numerous dairy value chain activities - with a focus on market efficiency, milk quality, smallholder farmer productivity, access/use of inputs, and services implemented under RDCP II.

KEY RESULTS USAID investments resulted in an increase in the annual incomes of dairy farmers by more than 40 percent. The analysis also revealed that because of project interventions, the VC reached a stage when investments in dairy farming are financially feasible without government or other donors support. The analysis estimates consumer gains at US\$ 18.83 million. However, these gains cannot be exclusively attributed to RDCP II or to any other specific stakeholder in the dairy VC. Therefore, while the finding is important, the analysis does not include the gains as a benefit in its estimate of economic returns of RDCP II.

TABLE 4: RDCP II CBA IMPACT FIGURES

PERSPECTIVE	ENPV	ERR
Rwanda	US\$ 48.5 million	23%
USAID	US\$ 36.4 million	18.7%

The project produced positive financial and economic returns with an ERR of 18.7 percent and an ENPV of US\$ 36.4 million. The key risk areas include:

- The biggest milk processing plant, Inyange Industries, is the main, and in certain regions the only, purchaser of raw milk. This monopsony power to set the price of raw milk represents a significant risk factor to RDCP II activities and to dairy farmers over the long term.
- The use of artificial insemination (AI) services is low, with just 58 percent of farmers having access to the service. Timely access to such services is a critical factor in the reproductive performance of dairy cattle. The limited accessibility of AI services in some parts of the country can partially explain the low adoption rate, which is a risk variable to project returns.
- A forthcoming Ministerial Order regulating the handling, collection, transport, and sale of milk is expected to boost the quality of raw milk throughout the VC. However, it is also likely that the new rules will push a number of milk collectors and milk kiosks out of the market, with a short-term negative effect on the farm-gate price of milk.

LEARNING The team developed the following recommendations to improve the implementation of the project at the mid-term:

- **Expand domestic production of dairy products.** First, RDCP II's dual focus on expanding milk production at the farm level and improving milk quality throughout the VC has resulted in positive economic returns. However, future efforts should be directed toward increasing the market for raw milk. This can be achieved by promoting local, small-scale production of pasteurized milk, butter, yogurt, cheese, and other dairy products. The project piloted domestic production of butter, cheese, and yogurt and found to be highly successful. There is strong evidence to suggest that major gains from market creation are passed to dairy households through an increase in the farm-gate price for milk.
- **Explore options for grass-conservation.** A critical constraint to the expansion of dairy herds is limited landholdings for grazing. This issue can be addressed through the introduction of legumes, which enable the feeding of more cattle from the same acreage. Training on grass-conservation schemes will help to stabilize seasonal fluctuations in the milk supply.
- **Transfer Milk Collection Center Ownership.** Ownership of Milk Collection Center (MCC) facilities should be transferred from the GoR to farmer cooperatives. This will improve farmers' access to

credit while incentivizing milk cooperatives to reinvest financial returns and to further improve their productivity and profitability.

In addition to producing a comprehensive report presenting results and detailed recommendations, the team developed a summary report summarizing key results and recommendations and explaining the methodology in layman terms. Other deliverables included the CBA model in Excel for each value chain.

#20 – CBA OF USAID/LIBERIA’S RICE AND GOAT VALUE CHAIN INTERVENTIONS

INTRODUCTION USAID/Liberia’s Food and Enterprise Development (FED) project falls within a larger portfolio of U.S. Government interventions in Liberia to improve food security under the Feed the Future initiative. FED utilizes a generalized “effective post- conflict economic development” framework with the objective of enhancing food security by creating an “indigenous incentive structure” built upon improved technology for productivity and profitability; expansion in the use of improved and mechanized input supply and extension systems; increased commercial production, marketing and processing; and improvements in enterprise services and workforce development while partnering with the government of Liberia. FED also aims to improve the value chains of staple crops including rice and cassava, develop new value chains (vegetables and goat), and improve the enabling environment for private sector investment in agriculture.

The overall objective of this activity was to conduct a midpoint CBA of interventions affecting Liberia’s rice and goat value chain activities. The team conducted a CBA on interventions in the rice value chain include productivity improvement interventions, such as training on improved agronomic practices, and establishment of community mills, warehouses and power tillers. In the goat value chain, the CBA analyzed the establishment of goat management sites consisting of three shelters for goats (general, maternity and quarantine).

KEY RESULTS USAID’s investment in the rice VC amounts to US\$ 19.53 million. The present value (PV) of this cost is US\$ 17.06 million, which is deducted from the PV of net economic benefits to calculate the ENPV of the FED project from the USAID perspective. In the goat VC the USAID investment totals US\$ 4.61 million with the corresponding PV of US\$ 3.96 million. A summary of the economic analysis is presented in Table 5.

TABLE 5: INCREMENTAL ANALYSIS OF FED PROJECT (USAID PERSPECTIVE)

VALUE CHAIN	ENPV	ERR
Rice	-US\$ 6.58 million	8.6%
Goat	-US\$ 3.6 million	1.5%
TOTAL	-US\$ 10.19 million	7.6%

The main finding of this analysis is that farmers with no market access might not continue FED promoted activities in the second year of the project when the FED no longer provides free inputs. However, the group of project beneficiaries that do have access to markets will generate significant financial returns of 1,857 and 2,420 USD/hectare (ha) for upland and lowland rice production, respectively. Beneficiaries

without market access will simply return to the pre-project practices, resulting in a very low adoption rate of the FED interventions. The current analysis assumes a 40 percent adoption rate. The break-even point for the adoption rate is estimated at 68 percent. That is, over 68 percent of rice produced needs to be sold in order to generate positive net present values for the assistance.

LEARNING The team developed detailed recommendations to help USAID/Liberia and the implementing partner to improve FED's performance during its final years. The analysis concluded the following key factors contribute to the negative returns:

- FED's selected technologies result in high paddy yields. Such yields are significantly above the in-house consumption of an average Liberian household. However, as there is limited access to markets (discussed below), the consequence is extremely high post-harvest losses because farmers are unable to sell the paddy.
- Limited access to markets prevents the timely sale of paddy and increases post-harvest losses even further. The analysis, therefore, assumes that 40 percent of farmers can market their production. The negative rates of return for this product are highly sensitive to an assumed low rate of market sales. As discussed below, raising the share of rice produced that is sold to markets would yield positive rates of return.
- The increase in the cost of farming activities along with almost no access to credit prevents farmers from continuing with the improved production technologies when the provision of free inputs from FED is not in place.



Rice farmer in Liberia
PHOTO CREDIT: SUNNY BAE

If rice farmers are able to sell a greater share of their product, over the 68% break-even point according to our analysis, the interventions would yield positive net present values. It is critical in order to achieve these high sales levels for USAID to analyze and understand why current sales levels are so low, and what can be done to improve them. There may be market demand in Monrovia that could be satisfied by rice producers up country in a profitable way, if conditions were to change. Possible factors to explore are:

- Increase and improve rural primary and secondary roads to increase market access and decrease cost.
- Spread lower cost grid electricity to locations where mills will operate.
- Invest in sufficient mills to handle increased supply.

#21 – CBA OF USAID/MALI'S SORGHUM AND MILLET VALUE CHAIN INTERVENTIONS

INTRODUCTION The Africa RISING' large-scale diffusion of technologies for sorghum and millet systems (ARDT_SMS) project falls within a larger portfolio of U.S. Government interventions in Mali to
USAID.GOV

improve food security through the Feed the Future initiative. ARDT_SMS was implemented in line with Government of Mali (GoM) development strategies toward achieving the food security of small farmers and national self-sufficiency in sorghum and millet production. ARDT_SMS aimed to increase production and incomes for sorghum and pearl millet farmers. ARDT_SMS was focused in two regions of the country, Sikasso (sorghum VC) and Mopti (millet VC). The two main activities of the ARDT_SMS projects were:

- Establishment of the farmers' field schools to enhance farmers' knowledge of new sorghum and millet production technologies
- Establishment of demonstration plots to demonstrate the potential productivity of utilizing new productive technologies.

The overall objective of this activity was to conduct a mid-point CBA of interventions affecting sorghum and millet VCs implemented under ARDT_SMS.

KEY RESULTS Production technologies promoted by the project allow farmers to increase yield of millet by up to 30 percent. In addition, the project introduced the intercropping of millet with cowpeas, allowing farmers to not only to increase millet yield but to harvest two crops. As a result, the annual income of the millet farmers has increased from 27 to 126 USD/hectare (ha).

Sorghum production in the Sikasso region has declined gradually over the last 10 years. Government and donor promotion of cotton and maize production can partially explain this trend. However, the analysis also revealed that existing production technology results on marginal financial benefits (FNPV 194.6 USD/ha), which explains the phenomena. The production technologies introduced by the project allow farmers to increase sorghum yield by 60 percent. As in the millet VC, the project introduced intercropping of sorghum with cowpeas. The annual income of farmers increased from 50 USD/ha to 115 USD/ha.

Despite the potential of new production technologies to improve the households' income, limited attention of ARDT_SMS on other than productivity related issues, such as market access, access to micro credits, and etc. raises the major concern. The analysis, therefore, assumes that only 50% of the targeted households will adopt the production practices introduced by ARDT_SMS. Under this assumption the project has produced positive financial and economic returns, with an ERR of 25 percent and an ENPV of USD 19.29 million.

The analysis also revealed significant fiscal savings due to reduced subsidy on fertilizers, which can be attributed to the project. Maize production is dominant in the Sikasso region; therefore, the CBA assumes that 60 percent of area affected by the project will shift from maize to improved sorghum. In contrast to maize, sorghum cultivation requires lower fertilizers and other chemicals application. In addition, currently sorghum producers are not able to benefit from the 50 percent price subsidy on fertilizers. The annual fiscal savings for the GoM from reduced subsidy requirement are estimated at 1,097,748 USD. The PV over project life amounts to 9.18 million USD. Moreover, the project led to positive environmental impacts due to reduced fertilizer consumption.

TABLE 6: ARDT_SMS CBA IMPACT FIGURES

PERSPECTIVE	ENPV	ERR
Mali	US\$ 28.76 million	N/A
USAID	US\$ 19.29 million	25%

LEARNING The analysis makes four key recommendations:

Expand GoM subsidy of fertilizers. The GoM provides a 50 percent subsidy on chemical fertilizer (Sikasso region) used for production of cotton, maize and rice. A significant number of project beneficiaries are expected to shift from cotton and maize production to the improved sorghum production, therefore, releasing fiscal pressure. It is recommended to include sorghum into the list of crops that can obtain subsidies on fertilizers. Such a measure will allow farmers to increase annual income from 115 to 134 USD/ha. This additional financial incentive will boost the scaling up dissemination of the production technologies.

Assure access to hybrid and improved seed varieties. The problem of cultural reluctance of farmers to purchase seeds for their production should be addressed by the project. Currently, the project provides free sorghum and millet seeds to attendants of field schools and farmers have limited exposure to purchasing seeds directly from the market. With Phase II, the project is expecting to improve access to high quality seeds by increasing seed production. Farmers, however, have only one farm period to begin purchasing seeds directly from the market before the anticipated project end date. This is a very short period for addressing any problems that may arise in this process and can potentially threaten sustainable access to new seed varieties.

Facilitate coordination at the implementing partner level. Coordination of activities between current project implementing partners is fairly weak, resulting in a “silo approach” to project implementation in certain areas, which can reduce efficiency and overall impact of project. In the 2014-15 farm year, there were instances of the same farmer in the Sikasso region receiving ARDT_SMS training from two different implementing partners and with two different methodologies. This risk can be managed by introducing consultative platforms for partners working in the same region and at the lead implementing partner level (such as through ICRISAT).

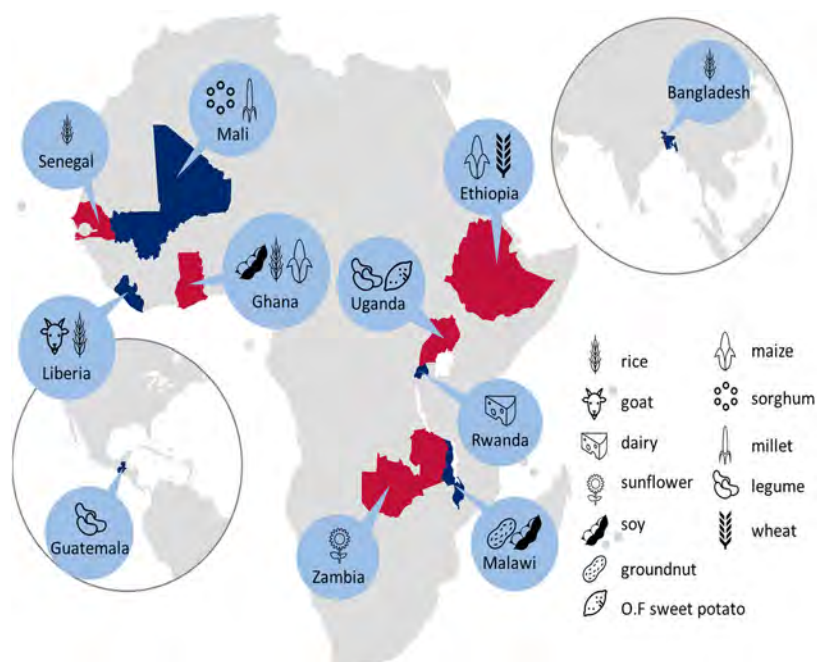
Leverage synergies with other projects carrying out similar work in the Sikasso and Mopti regions. Adoption of new technologies requires a certain level of commitment by farmers to change current production practices. This commitment can only be obtained when farmers have access to all required inputs, including access to credit and access to markets to sell their production. Limited attention of ARDT_SMS on issues other than productivity raises major concerns.

#23 – FEED THE FUTURE CBA SYNTHESIS REPORT

INTRODUCTION To ascertain the potential effectiveness of FTF projects and inform future project design, BFS conducted CBAs of 45 projects in 23 countries between 2012 and 2014. In 2015, as many projects were nearing their midpoint or had drawn to a close, BFS conducted another round of CBAs in 11 focus countries to determine impacts of the projects. In order to more effectively analyze overall effects, BFS requested that LEAP-II conduct a comparison of the findings of the initial and follow up CBAs conducted in 11 focus countries, spanning 12 agricultural value chains

(Bangladesh, Ethiopia, Ghana, Guatemala, Liberia, Mali, Malawi, Rwanda, Senegal, Uganda, and Zambia). LEAP-II synthesized the findings of these CBAs to highlight important outcomes and lessons learned to inform future project design.

Figure 4: Map of FTF Projects for CBA Synthesis (2015 VC only)



The overarching objective of this activity was to provide a high-level, general overview and comparison of a selection of FTF agricultural projects. The activity sought to identify recurring patterns and common themes from cross-country and cross-VC comparisons and to understand how specific CBA results were used to inform programming decisions. In addition to summarizing and analyzing CBA results, the analysis also identified the challenges and limitations of synthesizing the CBAs and provides recommendations on best utilizing CBA in designing and implementing future USAID projects.

KEY FINDINGS The nominal cost of USAID investments covered in the Synthesis Report is USD 162 million over the life of the various projects. The total number of direct beneficiaries affected by the projects is estimated at 1.69 million farmer households. This report defines the total number of beneficiaries as farmer households directly affected by USAID (one direct beneficiary equals one farmer household). The number of households was not always reported in individual CBAs, and in some instances for the synthesis model had to be derived indirectly.

TABLE 7: CBA SYNTHESIS HIGH-LEVEL FIGURES

HEADLINE FIGURE	VALUE
Project Cost	USD 162 million
Number of Beneficiaries	1.69 million farmer households
FNPV	USD 420 million
ENPV (USAID)	USD 326 million
ENPV (Economy)	USD 454 million
ERR (USAID)	22.99%

Overall, the projects covered under the Synthesis Report have resulted in an incremental Financial Net Present Value (FNPV) of USD 420 million. The incremental Economic Net Present Value (ENPV) is USD 326 million from USAID's perspective (with the project investment costs) and USD 454 million from an overall economy perspective (without the project investment costs). The ratio of benefits to project cost is approximately 2.01, implying that the benefiting countries received on average USD 2.01 for each dollar invested by USAID. The incremental Economic Rate of Return (ERR) of the Synthesis Report projects is 22.99 percent, nearly 11 percentage points higher than the unofficial USAID threshold of 12 percent.

Country-level results. The economic return from USAID's investment varied greatly among the countries. Figure 5 illustrates the incremental ENPV of the 11 focus countries from USAID's perspective. For countries that invested in more than one VC, the ENPV results were aggregated to represent a country-level estimate. The ENPV ranged from negative USD 10.18 million to USD 92.35 million.

Eight out of 11 countries achieved a positive incremental ENPV for the projects and value chains covered in this report. Bangladesh achieved the highest incremental ENPV of USD 92.35 million on its rice VC, followed by Uganda with

USD 79.77 million on the OFSP and legume VCs. The average incremental ENPV is USD 29.61 million and Mali has the median ENPV among the 11 countries with an incremental ENPV of USD 19.29 million.

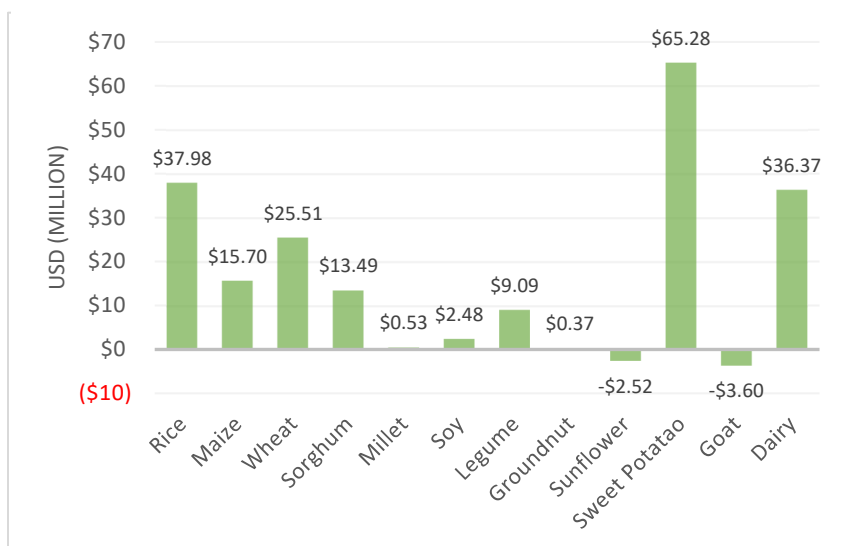
Figure 5: Incremental Economic Net Present Value (ENPV)

Value chain-level results.

The economic returns on USAID's investments in the 12 VCs also showed mixed results with no clear observable patterns. Figure 6 shows the ENPV by value chain from USAID's perspective.

The incremental ENPVs were aggregated for VCs that had more than one country with USAID investment. OFSP had the greatest ENPV of all VCs at USD 65.28 million – greater by USD 27.3 million than the next highest ENPV, rice. The rice value chain had the second highest ENPV at USD 37.98 million. Dairy also had a high ENPV of USD 36.37 million.

Figure 6: Incremental Economic Net Present Value (ENPV) (USAID Perspective) by Value Chain



Value chain-specific findings. Rice and maize are the two most commonly targeted VCs by the 11 focus countries covered in the CBA Synthesis Report; four CBAs covered rice and four covered maize. Both rice and maize are major staple crops in their focus countries and in each case, project interventions varied in scope and type.

The four rice projects and their project details as reported in the 2015 CBAs are summarized below:

- Bangladesh's Accelerating Agricultural Productivity Improvement (AAPI) project invested USD 31.83 million in rice VC and targeted farmers to increase the use of fertilizer deep placement (FDP), reducing the use of other fertilizers by 28 - 36 percent on average.
- Ghana's Agricultural Development and Value Chain Enhancement (ADVANCE) project invested USD 8.3 million in rice VC and trained farmers in improved production technologies to increase yield, promoted production of aromatic rice.
- Liberia's Food and Enterprise Development (FED) project invested USD 19.53 million in rice VC and provided training and farming inputs to improve agronomic practices and worked to build capacity along the rice VC.
- Senegal's Economic Growth Project (PCE) invested USD 14.62 million in rice VC and aimed to help farmers increase yield and quality of rice and improve efficiency of the overall VC.

The four maize VC projects and their results as reported in the 2015 CBAs (Ethiopia, Ghana) and in the 2012 CBAs (Senegal, Zambia) are summarized below:

- Ethiopia's Agribusiness and Market Development (AMDe) project invested USD 0.74 million in maize VC and focused on improving farmer access to hybrid maize seed and improving operating processes of farmer cooperatives.

- Ghana's ADVANCE project invested USD 8.3 million in maize VC and trained farmers on improved production technologies and promoted the use of imported hybrid seeds.
- Senegal's PCE invested USD 5.57 million in maize VC and worked to expand access to improved maize seed and inputs, and introduced improved cropping methods. PCE also worked with private insurance companies to facilitate development of insurance for maize farmers.
- Zambia's Production, Finance, and Improved Technology (PROFIT+) project invested USD 12 million in maize VC and introduced improved farming technologies and expanded the use of small-scale storage facilities to decrease post-harvest loss.

LEARNING Throughout the process of synthesizing the CBAs, the Team determined several recommendations for utilizing CBA in the future and for comparison across CBAs in future CBA syntheses:

Data Collection and M&E

- **Integrate CBA** with other project appraisal efforts (such as impact evaluations) and maximize the use of data collected.
- **Incorporate key CBA data parameters into M&E for projects** to decrease the administrative cost of data collection for conducting CBAs while increasing accuracy.
- **Monitor farm-gate prices and yields closely** during project implementation to track sensitive variables affecting project outcome.

Institutionalizing CBA

- **Ensure future CBAs follow USAID CBA Guidelines** on CBA methodology to maintain consistency and ensure high quality.
- **Conduct CBA to quantify social or environmental benefits** of common interventions types, such as valuations of nutritional benefits or environmental benefits from improved production technologies.
- **Adopt a methodology to conduct rigorous stakeholder analysis in all CBAs** to more accurately determine a project's returns and help inform project design.
- **Adopt a standardized record keeping-approach** for USAID investment costs across VCs and activities to facilitate analysis of USAID investment cost.
- **Improve the CBA report template to enhance consistency and comparability** across countries and VC. Ensure future CBAs closely follow the standardized definitions in the USAID CBA Guidelines regarding beneficiaries, and macroeconomic and financial assumptions to ensure accuracy and comparability of CBA.
- **Incorporate ex-ante CBA into the project design** and decision-making process to maximize the benefit of conducting a CBA.

- **Institutionalize a process to apply CBA recommendations** to project implementation.

Project Design

- **Identify and target key VC constraints** to maximize the returns on USAID investments.
- **Conduct a thorough Value Chain Analysis in addition to or as part of CBA** to improve both vertical and horizontal linkages between VC actors and ensure the consequences for actors along the VC (both on the supply and demand sides) are taken into account.⁷

#26 – INTEGRATING GENDER IN COST-BENEFIT AND COST-EFFECTIVENESS ANALYSIS

INTRODUCTION There are significant interactions between gendered norms, gender gaps, and international development projects. Integrating gendered impacts in cost-benefit or cost-effectiveness analyses (CBA or CEA) presents opportunities for gender advocates to build rigorous evidence about the impact of advancing gender equality and for CBA practitioners to capture a more accurate picture of project impacts. Institutional efforts undertaken to mainstream gender include the adaptation of institutional goals and policies, introduction of new institutional units and procedures, provision of resources and staff training, and creation of a culture with higher responsibility, clarity, and accountability with respect to gender. While institutions have a common understanding of the importance of mainstreaming gender, efforts to date have had little impact on widespread integration of gender in CBA. Practitioners of CBA lack evidence and knowledge, which limits the degree to which they can integrate gender and leaves many doubts on whether CBA can be used to assess the feasibility of gender projects at all. To bridge this gap, it is critical for institutions to provide the required resources, introduce new procedures, and alter their project cycle in a way that allows them to facilitate inclusion of gender in CBA and address the gap in evidence over time. Furthermore, institutions can restructure the way data is collected and shared to better facilitate gender mainstreaming in CBA.

METHODOLOGY From a technical standpoint, mainstreaming gender into CBA comes with three adjustments to conventional practice:

- **Disaggregation of stakeholders by gender:** Disaggregation by gender only requires knowledge of how the existing impacts differ based on the gender of the stakeholder and the gender composition of each stakeholder group. Gender disaggregation of stakeholders can provide a better understanding about the project's impact and result in a more accurate picture of costs, benefits, and the net impact of the project.

⁷ A helpful overview to a value chain approach can be found at <https://microlinks.org/good-practice-center/value-chain-wiki/overview-value-chain-approach>

- **Identification of additional impacts:** Identifying and including additional impacts that are distinct from direct welfare impacts is more complicated. The estimation of direct welfare impacts must reflect how benefits of an education intervention differ by gender. If it is impossible to estimate the gap in expected return on education between boys and girls due to lack of data or evidence, then the analyst may choose to include “improved gender” equality as an alternative way to reflect the benefits rather than as a complementary value. Even after such impacts are identified and have passed the double-counting check, including them in the analysis requires quantification and, for CBA, monetization. These may include distributional impacts, such as those included in the analysis of tax policies. Distributional impacts reflect the value members of the society, or donors, place on the benefits earned by a stakeholder group beyond the value of direct welfare gains enjoyed by the members of that stakeholder group. The valuation of such impacts is not a straightforward process.⁸ Alternatively, one can consider finding the most cost-effective intervention to achieve a given level of equality. Cost-Effectiveness Analysis (CEA) makes it easier to utilize a quantitative framework and efficiently achieve the target without the need to put a value on distributional impacts.
- Quantification and monetization of the additional impacts.

Once such additional distributional impacts are identified, there are three steps to integrate them into the model:

- Select an indicator;
- Establish evidence of the change in the indicator that can be attributed to the project; and
- Assign a monetary value for the assumed change.

Monetization may not be required in the case of CEA for direct investment in gender, where the benefits of the project can be included in the form of an effectiveness measure such as “percentage gained in participation of women in labor force.” In either case, the choice of indicator can be challenging when dealing with gender gaps and cultural norms. There are many trade-offs to consider such as quantifiability, representativeness, ability to monetize, and ability to monitor efficiently.

Indicators are also used for M&E. Oftentimes, the indicators used for M&E are different from the ones used in CBA. This provides the flexibility for each team, CBA and M&E, to choose the indicators that best meet their specific needs. However, this difference limits the ability to verify CBA assumptions after the project and use the project as an opportunity to learn and improve the design of future projects.

⁸ See Harberger, Arnold C., “On the use of distributional weights in social cost-benefit analysis,” *Journal of Political Economy* 86.2, Part 2 (1978): S87–S120, for an explanation and commentary on distributional weights.

LEARNING The team developed a series of recommendations for policy makers and practitioners:

Provide flexibility at the project design and approval stages, rather than mandating the use of specific criteria, such as economic rate of return (ERR) and approval thresholds for those criteria.

- **Promote learning**, including the following:
 - Require the CBA teams to identify and report knowledge gaps on gender considerations of each projects.
 - Provide the resources that enable the M&E teams to use the learning opportunities in each project to fill the knowledge gaps in gender for future projects.
 - Provide the operational flexibility required to make changes in the design of ongoing projects based on the learning outcomes at midline.

Develop indicators to measure the level of a gender gap or state of a cultural norm in a way

- Finance research in:
 - Estimating the value of changing the state of gender gaps and cultural norms in different countries and cultures;
 - Understanding how interventions interact with cultural norms and gender gaps; and
 - Determining the magnitude of impact that can be associated with specific interventions in alternative settings.

Record and publish data that permit others to use learning outcomes in their decision-making and analytical processes.

Include stakeholder impact assessment as a mandatory part of economic analysis.

Establish a stronger link between the analyses performed before and after the project, highlighting the knowledge gaps that the monitoring and evaluation process or additional research can potentially fill for future use.

Use experimental and quasi-experimental design. Design projects in such a way that the evaluation process can result in learning about the impact of each component in alternative settings.

Adopt creative ways to accommodate the knowledge gap but integrate gender impacts into CBA without relying on poor evidence.

Collect data with contextual details that facilitate its use for other projects.

#6 – HAITI: INCREASING THE EFFICIENCY FOR PUBLIC INVESTMENT PROJECT

INTRODUCTION The Haitian government (GOH), as part of its development and macroeconomic strategy, has been working towards improving its fiscal management and capacity. Several donors are supporting the government's efforts in particular in further developing and improving the Public Investment Program (PIP). USAID is supporting the government's efforts through a focus on developing public sector capacity with public investment rationalization.

The two-year Haiti activity aimed to improve government capacity to design, analyze, and select public investment projects with CBA tools. The project is being implemented in collaboration with the Ministry of Planning and External Cooperation (MPEC), Centre de Techniques de Planification et d'Économie Appliquée (CTPEA) and Ecole Nationale d'Administration Financière (ENAF). IDG implement the Haiti activity with subcontractor CRI.

METHODOLOGY LEAP-II's approach to building sustainable CBA capacity within the public institutions in Haiti was to provide in-depth training combined with hands-on support to take projects from start to finish through the appraisal and funding process. The process included a Training-of-Trainers (ToT) component to facilitate the involvement of Haitian nationals in the implementation and also ensure that the resulting capacity is sustained after the completion of this program.

KEY RESULTS Key accomplishments include:

- IDG delivered four capacity building programs of two weeks each in 2016 with the first two programs being delivered for the second time in 2017. Each of these programs are full time courses of two weeks each and are equivalent to a semester length graduate professional course in development finance and economics. 73 Haitian government officials have successfully completed at least one course.
- Eight government officials participated in a one-month Program on Investment Appraisal and Risk Analysis (PIAR) at Queen's University, Canada in 2016 and 2017. One graduate of the Queen's PIAR also completed the Training of Trainers Program at Queen's University in 2016.
- Several Haitian investment projects were identified, appraised, and are being converted into a series of case studies and training materials for use in both the general and sector specific courses:
 - Saint Marc PPP Water Project
 - Gonaives–Ennery Road Project
 - Péligre Electricity Transmission Line Rehabilitation Project
 - Caracol Electricity Generation Project
 - Project for the Enhancement of Maize Cultivation Practices.
- The academic content was developed for the establishment of a Master's degree program in "Project and Policy Evaluation" at CTPEA. The academic content consists of 4 foundation courses and 8 subject matter courses. IDG developed syllabi and lecture notes for four subject matter courses,

along with the syllabi for the foundation courses. The result was course packages that can be used either for master's level graduate courses or for modular executive courses.

LEARNING IDG built the capacity of local Haitian faculty members to teach the courses. Nine local Haitian faculty members have been trained through the joint delivery of the four programs in 2016 and the two training programs of 2017. During all the programs delivered in 2016, the afternoon practical sessions were run completely by Haitian faculty who previously attended the Queen's University PIAR course through USAID sponsorship. CTPEA faculty members also started delivering lectures.

#12 – KENYA PROGRAM ON INTEGRATED INVESTMENT APPRAISAL AND RISK ANALYSIS

INTRODUCTION This activity continued the development of the capacity of Government of Kenya (GOK) staff in key institutions and helped institutionalize the use of rigorous criteria of economic efficiency in project evaluation, contributing to reducing inefficiencies in public spending with the long-term goal to improve transparency in the decision-making process in public spending decisions. USAID partnered with the GOK through the Kenya School of Government (KSG) with strong GOK support and coordination to deliver two four-week CBA training courses in May 2013 and April 2014. This activity worked to establish an integrated program in public investment appraisal with benchmarks established in terms of capacity building and policy directives in improving public investment decision making.

The objectives of the activity were:

- Provide 2 structured CBA training programs to build the capacity within key institutions in the GOK,
- Initiate the support to institutionalize rigorous economic analysis and criteria in project selection through the establishment of internal policy directives that would require meeting technical standards and procedures for projects to be appraised and evaluated, in line with the adoption of a national policy of project evaluation, and
- Partner with key GOK institutions in building local capacity to provide these training courses in local institutions for long term sustainability of building skills in investment appraisal.

METHODOLOGY IDG and CRI worked together to provide public investment CBA training in Kenya to advance government processes and officials' skills to make evidence-based decisions on public expenditure and managing funds transparently and accountably. The team use the Investment Appraisal and Risk Analysis of Public Investment Projects developed by Glenn Jenkins and Al Harberger.



CBA instructors and training participants from six counties in Kenya
PHOTO CREDIT: CRI

KEY RESULTS

- LEAP-II provided a four-week training course of the Investment Appraisal and Risk Analysis Program. The program was delivered in two two-week modules. The program was designed to create a solid foundation on project modeling and risk analysis for participants who will also participate in the second part of the training, focused on economic and stakeholder analysis. A total of 37 participants attended the first two-week training. Participants were from the Ministry of Agriculture, Livestock and Fisheries; Ministry of Tourism; Lapsset Corridor Development Authority; Ministry of Health; Energy and Regulatory Commission; Kenya Electricity Generating Company (KENGEN); State Department of Public Works; State Department of Housing and Urban Development; Ministry of Water and Irrigation; Kenya National Highway Authority; Ministry of Energy and Petroleum; Nairobi and Taita Taveta Country Governments; Ministry of Devolution and Planning. Twenty-one participants attended the second module of this training program. Participants were from the Ministry of Agriculture, Livestock and Fisheries; Lapsset Corridor Development Authority; Ministry of Health; Energy and Regulatory Commission; Kenya Electricity Generating Company (KENGEN); State Department of Public Works; State Department of Housing and Urban Development; Kenya National Highway Authority; Ministry of Energy and Petroleum; Taita Taveta Country Governments; and Ministry of Devolution and Planning. The participants found the program valuable.
- LEAP-II sent three Kenyan professors (two from KSG and one from KSMS) to the Queen's University one-month Program on Investment Appraisal and Risk Analysis (PIAR) course in 2015, and a civil servant from the National Treasury in 2016. IDG and

- IDG and CRI provided training to public officials from counties across Kenya to give them the knowledge and tools required for financial, economic and stakeholder analysis evaluation of public investments. The three-week training program focused on various aspects of financial, economic, stakeholder and risk analysis. A total of 14 participants attended this training program from different county governments including: Bungoma, Nyeri, Kitui, Machakos, Turkana, and Embu. The participants found the program quite valuable.

LEARNING A key component of the program was to build sustainable CBA capacity within Kenyan public institutions. To this end, IDG worked closely with the Kenya School of Government (KSG) and the Kenya School of Monetary Studies (KSMS) to build their faculties' capacity to deliver CBA training courses. KSG hosted a series of training courses implemented by IDG and CRI on project modeling, risk analysis, and economic and stakeholder analysis.

#31 – COST-BENEFIT ANALYSIS-COST-EFFECTIVENESS ANALYSIS OF USAID ACTIVITIES IN NIGERIA AND ZIMBABWE

NIGERIA – CBA OF THE AGRICULTURE VALUE CHAINS

INTRODUCTION The Feed the Future (FTF), Nigeria Livelihoods project, supports 42,000 impoverished households growing their agriculture production and incomes, and improve nutrition, ensuring their move along the Pathway to Prosperity. It targets a total of seven Local Government Authorities (LGAs) in the three selected states; four LGAs in Sokoto, two in Kebbi, and one in FCT. The Livelihoods project has an implementation period of five years, with support from USAID and cost share from Catholic Relief Services (CRS) and partners. It involves four main components of cross-sectoral community-based interventions, also known as sub-Intermediate Result (IR), namely; agriculture production and productivity (IR1), income generation and education (IR2), nutrition and WASH (IR3), and governance and social safety net (IR4).

LEAP-II conducted a CBA of the agriculture production and productivity component of the Livelihoods project (IR1). The total USAID investment cost in this component is USD 5,129,027⁹. More than 20,000 impoverished farmers have received assistance under this component. The CBA assesses the financial and economic benefits of adopting best agricultural practices by these farmers.

METHODOLOGY To quantify the benefits and impact(s) of the agriculture intervention from the HHHs' and the Government of Nigeria's (GoN) perspectives, integrated investment appraisal (IIA) was used. IIA is a method of CBA that measures benefits and costs in financial and economic terms making it possible to identify, quantify and allocate costs and benefits to the appropriate parties. The analysis was done on an incremental basis, that is, what the financial and economic outcomes are under the traditional agronomic practices (referred to as "without" scenario) and what they would be when best agronomic

⁹ The investment cost figure is made up of USAID's cash contribution of around 82%, and CRS' and partners' "in-kind" contribution of the remaining 18%.

practices are adopted (“with” scenario). The financial and economic analysis was done on an assumed farm size level of one hectare per family and the incrementality was measured at an aggregate level, that is, the total area under cultivation for each VC.

KEY RESULTS The CBA reveals that the project interventions result in a positive rate of return on USAID investment of 22.88%. This rate of return is significantly above the benchmark of 12 percent used in the analysis. The ENPV from USAID’s perspective is USD 2.37 million¹⁰. It should be noted that the economy of Nigeria benefits by USD 6.74 million, given that USAID bears full cost of the project

TABLE 8: INCREMENTAL ECONOMIC NET PRESENT VALUE (USD)			
VALUE CHAIN	ENPV PER BENEFICIARY	NUMBER OF BENEFICIARIES	AGGREGATE ENPV
Cowpea	1,989	567	809,413
Groundnuts	609	556	234,760
Maize	467	591	216,669
Soybeans	32	686	15,333
Cowpea, millet, and sorghum	639	10,373	5,459,552
ENPV from Nigeria Perspective:			6,735,727
Present Value USAID Costs:			4,362,021
ENPV from USAID perspective:			2,373,707
IRR from USAID perspective:			22.88%

The analysis reveals that the project is expected to improve the annual income of the farmers across all targeted crops. On average, the annual HHs income increases by an estimated USD 251.

One of the main objectives of the Livelihoods Project is to lift extremely poor households above the poverty threshold. This threshold is established at USD 795 per person per year and average household size in Nigeria consists of five family members. The HHs income is still below the extreme poverty threshold for all the crops except cowpeas. The annual income from the rest of the value chains is less than 50% of what is achieved by the farmers producing cowpeas.

¹⁰ These returns include both USAID’s and CRS’ and partners’ returns according to their investment contributions of 82% and 18%, respectively.

While the agricultural component of the Livelihoods Project does improve the HHs income across all VCs, this assistance alone will not allow the HHs to move above the poverty line threshold. Households need to rely on other than land productive factors, including livestock, or non-farm employment to graduate from extreme poverty. USAID assistance that reduces the HHs costs, such as WASH component of the project, also does contribute to the improved welfare of the HHs.

It should be noted that the strong results in the cowpea value chain are to a large extent driven by the 20% tariff protection resulting in the high domestic prices for the crop.

The agronomic practices introduced by the project have significantly increased the cost of production, with an average increase of 175%. The cost of production with improved agronomic practices ranges from USD 171 to USD 335 for soybeans and maize, respectively. On average the labor cost has increased by 131% indicating employment created by introducing enhanced agronomic practices. The cost of commercial inputs, in turn, increased by 285% on average. Increase in the labor cost and the cost of commercial inputs points out the importance of the market access to realize employment benefits, as well as to ensure sustainability of the project.

In order to achieve the expected results presented above, a number of variables need to be closely monitored by USAID and the implementing partner. Three critical variables that significantly affect economic returns as well as income of the benefiting households that need to be closely monitored are: post-harvest losses, change in the expected yield, and change in market price.

LEARNING In addition to the three variables above, the Livelihoods Project and USAID should closely monitor the availability of commercial inputs (fertilizers, certified seeds, etc.) and market access. The two are closely related as without ability to sell the produce, farmers will not be able to purchase the commercial inputs even when they are available:

Access to commercial inputs – Field visits revealed that the majority of farmers cannot access the fertilizers that were prescribed by best agronomic practices. In most cases, fertilizers and pesticides at best are obtained with a significant delay thereby reducing the yields. The average yields, although improved when compared to previous practices, are significantly lower than the potential yields. If the continuous supply of the certified seeds and fertilizers will not be ensured after the project is completed, the economic returns from the USAID perspective are likely to become negative.

Market access – ensuring that the farmers can sell at least 17% (cowpeas) to 40% (soybeans) of their produce is essential for the long-term sustainability of the interventions. In the absence of the market access, farmers will return to the subsistence farming immediately upon completion of the Livelihoods Project assistance. In Nigeria, rural poverty is estimated at 90% and 80% of the poor mainly depends on agriculture or farm labor (Olive, 2006). Poor farmers are likely to divert their limited farm income towards basic needs such as feeding and medication rather acquiring improved seeds and fertilizers.

The sustainability of the interventions will be further strengthened if the Government of Nigeria, USAID, and other development partners will work on providing access to credit at the affordable rates. Although the Livelihoods Project has made significant progress on the promotion of Savings and Internal Lending Communities (SILCs), SILCs charge 10% monthly interest rate that is prohibitively high to finance agricultural inputs. SILCs are found highly beneficial by the households; however, such interest rates are justified only when a household faces an emergency such as sickness.

A review of the household expenditures on food in Nigeria reveals that beans and peas constitute a large share of food expenditure in both urban and rural areas. In urban areas, expenditures on beans and peas accounts for 8.98% of total food expenditures and ranks third after tubers/plantains and vegetables. Of the total rural food expenditures, beans and peas have a large share at 10.09%.¹¹ The field visits and discussions with farmers also shows that improved varieties of cowpeas introduced by the project have been found very beneficial. These varieties not only result in a higher yield but are also pest resistant and easier to cook.

Agricultural practices recommended by the project require households to spend from USD 73 to USD 157 every year on the commercial inputs, for the groundnuts and maize, respectively. This is in a situation where about 64% of population (more than 80 million people) live on less than USD 1.90 per day¹². If timely market access is not ensured, it is recommended to design an exit strategy based on the agronomic practices that will allow farmers to achieve moderate increase in the yield without significant financial outlays.

NIGERIA – CEA OF WASH AND NUTRITION ACTIVITIES

INTRODUCTION The Feed the Future (FTF), Nigeria Livelihoods Project, supports 42,000 impoverished households growing their agriculture production and incomes, and improve nutrition, ensuring their move along the Pathway to Prosperity. It targets a total of seven Local Government Areas (LGAs) in the three selected states; four LGAs in Sokoto, two in Kebbi and one in Federal Capital Territory (FCT). The Livelihoods Project has an implementation period of five years, with support from the USAID and cost share from CRS and partners. It involves four main components of cross-sectoral community-based interventions, also known as sub-Intermediate Result (IR), namely; agriculture production and productivity (IR1), income generation and education (IR2), nutrition and WASH (IR3), and governance and social safety net (IR4). This cost-effective analysis (CEA) focuses on the WASH and nutrition component.

The objective of the WASH and nutrition component (IR3) is to promote optimal nutrition, provide water and sanitation access, and improve hygiene practices through interventions in WASH and nutrition areas. The total investment costs for IR 3 component is \$3,170,587 as provided by CRS. This amount covers the costs of all interventions under IR3 namely; i) improved water supply, treatment & safe storage; ii) improved sanitation; iii) improved hygiene practices with focus on handwashing; and iv) improved nutrition practices including promotion of exclusive breastfeeding.

METHODOLOGY This CEA covers all interventions mentioned above, however, on nutrition intervention; only promotion of exclusive breastfeeding has been included in the CEA. Other nutrition interventions such as complimentary feeding for children over 6 months, promotion of balanced diet,

¹¹ Consumption Pattern in Nigeria 2009/10, National Bureau of Statistics, March 2012.

¹² <http://dailypost.ng/2016/09/05/nigeria-one-poorest-countries-world-80m-living-poverty-line-un-report/>
USAID.GOV

etc. are not covered by the CEA as further explained in section 2.4. Therefore, the total investment costs considered in the CEA are thus reduced to US\$ 2,681,739.

KEY RESULTS The Livelihoods Project is expected to make a significant contribution in improving health and livelihoods of the beneficiary communities. The project is expected to prevent 2.1 million diarrhea cases among children under-5 years as well as to prevent 3,800 deaths due to diarrhea. For older ages (over six years), promoting WASH interventions would potentially prevent 3.5 million cases of diarrhea and 102 deaths.

All-Interventions Combined Incremental Cost-Effectiveness Ratios (ICER): The analysis adopts WHO-CHOICE approach to estimate ICERs. Under the current base case assumptions, the WASH and EBF interventions of the Livelihoods Project have demonstrated to be cost-effective, with an estimated ICER of all-interventions combined of US\$ 63.8 per disability adjusted life year (DALY) averted. This ratio is well within the commonly used thresholds established by the World Bank (US\$ 150/DALY averted) and WHO's Commission on Macroeconomics and Health (measured by Nigeria's GDP per capita of US\$ 2,092 in 2017).

The cost of an outpatient visit to the primary health center in Nigeria is NGN 507, while the cost per bed per day is NGN 2,211. Reduction in the incidents of diarrhea will also imply US\$ 6.9 million of health sector savings. When these cost savings are included in the calculation of ICER, the ratio falls to US\$ 16.6 per DALY averted.

ICER for Individual Interventions: Improved sanitation is the most cost-effective intervention among all the interventions at an ICER of US\$ 18.5 per DALY averted, after taking into account both USAID investments and household costs. The ICER is primarily driven by the low cost at the household level, given a requirement to replace sanitation platform (SanPlats) once in several years. However, at any given point in time, a cash expenditure required to construct SanPlat may impose a challenge to the households given common cash constraint situation. The next two most cost-effective interventions are the promotion of good hygiene practices, and EBF, at ICERs of US\$ 98.7 and US\$ 168 per DALY averted, respectively. The least cost-effective intervention is improved water supply, water treatment at POU and safe storage with an ICER of US\$ 507.6 per DALY averted. Cost of obtaining water mainly drives the higher cost of this intervention. The livelihood project involves rehabilitation of the existing water points, most of which are located at longer distances from people's houses (particularly in Sokoto). Households are currently walking an average length of 2-6 km to reach the water points. Moreover, during the dry seasons, the demand is very high that people have to queue up for an additional 30-40 minutes before they can obtain water. Although the project addresses the quality issue, where people are now able to get clean water from water points, the challenge of longer distances to water facilities still exists in the beneficiary states, which is reflected in the cost of effort and time taken to obtain water. This important observation highlights the need to facilitate improved access to clean water throughout the beneficiary states.

Health Care Cost Savings: Adoption of the project interventions also results in savings in costs related to health care services, patient treatment, and transport. The total health care cost savings have been estimated at US\$ 25.4 million in present value terms, comprising US\$ 18.5 million savings in households' direct costs and US\$ 6.9 million from direct expenditures averted by the healthcare facilities. These cost savings will free up resources that can be channeled to other productive activities. When these cost savings are used to offset the costs of the interventions, the net ICER significantly improves to US\$ 16.6

per DALY averted. In other words, these savings alone more than outweigh US\$25.2 million of direct costs at the household level.

Sensitivity Analysis Results: The sensitivity analysis conducted on the base case model highlights two key variables that have a significant impact on project results. These include the discount rate and interventions adoption rates.

LEARNING This CEA demonstrated that there is a substantial financial and economic case for investing in integrated interventions in improved WASH services as well as promoting child health and nutrition through exclusive breastfeeding for infants under six months. The expected incremental health benefits far outweigh the incremental costs of investing in these interventions.

The impact of the livelihood project in improving the WASH infrastructure and livelihoods in the target states is undoubtedly huge as demonstrated by the CEA. Despite this progress, the challenge of inadequate WASH infrastructure persists in these states, especially the availability of clean water, and sanitation and hygiene facilities.

The team developed the following recommendations to further improve WASH services and reduce the prevalence of diarrhea disease in the target states:

A program on rural water supply. This may result in significant economic returns and may address the prevailing shortage of clean water supply in the beneficiary states. While additional analysis is required to justify the rural water supply program, this study indicates potential high economic returns of such a program.

Direct engagement of community leaders and/or local government authorities to support the WASH committees is strongly encouraged. This would help to ensure sustainability of the current business model of maintaining the rehabilitated water points. The communities have taken ownership of the rehabilitated water points and are making regular contributions to cover operating and maintenance costs. Actively involving communities' leaders would ensure WASHCOM continues its efforts even beyond the period of USAID/CRS' involvement.

Sensitization efforts in use of tippy taps should be encouraged and extended to household level and also included in the school WASH agendas. This would contribute to further improvement in handwashing and hygiene practices, particularly in schools.

Adoption of Rotavirus Vaccine: We highly recommend that the government of Nigeria intensify and expand its current efforts in the adoption of the vaccine to alleviate diarrhea disease burden in both rural and urban communities.

ZIMBABWE – CBA OF THE CROP DEVELOPMENT COMPONENT

INTRODUCTION The Feed the Future Zimbabwe Crop Development (FTFZ-CD) program is a 5-year USAID program implemented by Linkages for Economic Advancement of the Disadvantaged (LEAD) in partnership with Africare and Cluster Agricultural Development Services (CADS). The project is implemented in nine districts in three provinces: Manicaland, Midlands, and Mashonaland West.

The primary objective of FTFZ-CD is to sustainably reduce rural poverty, and to improve the food security, nutrition, and hygiene of 3,500 households on irrigation schemes and 25,000 households on dry land sites. To achieve this objective, FTFZ-CD provides training to farmers to increase agricultural productivity, to increase the volume of the marketed surplus of cash and food crops, and to improve the nutrition and hygiene of the beneficiary households. The project's activities are implemented through three interlinked core components: (i) high-value crops, (ii) staples and pulses, and (iii) nutrition and hygiene. These core components are supported by three crossing-cutting sub-components: linkages, gender and youth involvement, and environment. FTFZ-CD seeks to increase participants' net income per year by an average of US\$1,000 for high-value crops, and US\$ 500 for staples and pulses by year 5 of the project. The project targets also include doubling crop yields of horticultural produce.

METHODOLOGY The CBA focused on the maize, groundnuts, green mealies, and tomatoes value chains (VCs). Maize and groundnuts are both rain-fed staple crops, while tomatoes and green mealies are high-value crops cultivated on irrigated schemes. USAID's total investment for Components I and II of FTFZ-CD is US\$ 5,461,854.

KEY RESULTS The project is expected to improve the farmer beneficiaries' annual incomes across the four targeted crops, with the exception of the tomatoes value chain. At the base case yield level, the incremental annual household's net income per hectare generated by each value chain is US\$ 93 from maize, US\$ 144 from groundnuts, US\$ 489 from green mealies with a net loss of US\$ -3,912 for tomatoes. The net loss in the tomato value chain is mainly attributed to the lower than expected beneficiaries' yields and higher production costs due to commercial inputs. Loans to tomato farmers were provided with the expectation that investments would lead to yields of 80MT per hectare at the recommended level of input use. However, according to the raw M&E yield data for 2016 and 2017, the average yield value was significantly lower at 17.5MT per hectare.

The CBA assessed the increase of the project participants' net income, particularly from staple crops. The team observed that most farmers that grow maize also cultivate groundnuts since they received Good Agricultural Practices (GAPs) training for both value chains. Moreover, beneficiary farmers with access to irrigation also increased their income from green mealies production.

For staples, the average total annual household income has increased from US\$ 248 to US\$ 456 for an average actual cultivated land area of 1.0 ha and 0.65 ha for maize and groundnuts, respectively. FTFZ-CD has on average increased income to about US\$ 208 from the two staple crops only, positively contributing towards the improved income level of the beneficiary households cultivating these staple crops.

The analysis also assessed the economic viability of USAID assistance to Zimbabwe. From Zimbabwe's perspective (excluding USAID's investment) the ENPV is US\$ 1.33 million. The relatively low ENPV is influenced mainly by the negative returns from the tomatoes VC. The analysis assumes that the tomatoes VC intervention will be redesigned. Therefore, the respective ENPV is calculated assuming complete termination of the current tomato VC interventions.

From USAID's perspective, the ENPV is negative at US\$ -2.67 million. The negative ENPV in the maize and groundnuts VCs is primarily driven by the cost of USAID assistance. Amount of USAID's investment in the tomato VC is very small, therefore the ENPV from both USAID's and Zimbabwe's perspectives is almost the same.

The average subsidy of 35% on maize prices causes a significant difference between financial and economic returns. The aggregate FNPV is US\$ 13.85 million compared to an ENPV of US\$ 2.49 million from the Zimbabwean perspective.

Sensitivity analysis: Four critical variables have been identified that significantly affect the project's financial and economic results and which need to be continuously scrutinized are: Change in the expected yield, change in market price, change in post-harvest losses, and change in adoption rate.

LEARNING USAID assistance in the four VCs has resulted in a positive gain of US\$ 1.33 million to Zimbabwe when USAID costs are excluded. The present value of the total financial gains to beneficiary farmers is USD\$ 13.19 million. However, incorporating USAID costs, the economic returns are negative at US\$ -2.67 mill. These economic losses are primarily driven by:

- Negative financial returns in the tomatoes VC, where farmers failed to achieve an expected yield of 80 MT/ha and therefore ended up with significant arrears to pay back loans to the micro-finance institutions;
- Moderate to low economic returns in the other three VCs that are not sufficient to justify USAID's investment cost at a 12% discount rate; and
- High rate of maize price protection that results in the financial returns of the maize value chain interventions being significantly higher than economic returns.

It should be noted that with the exception of the tomatoes VC, farmers have improved their income.

Though FTFZ-CD is continuously working on improving market access for small-scale producers in the groundnuts VC, the farmers in most instances are only able to market a small proportion of their yields or allocate relatively small plots of land to groundnuts.

The analysis reveals several risk factors that need to be closely monitored by FTFZ-CD. Overall, the FTFZ-CD implementing partners should closely monitor yields as well as the availability of commercial inputs and market access to ensure sustainability of the program. In addition, the following measures are further recommended to improve the viability of the project:

Increased Market Access

- Although the project has significantly helped to link farmers to both inputs and outputs markets, access to markets is still minimal for most crops. To increase farmers' access to markets, we strongly recommend that the following measures be considered:
- Geographically map out market hubs and establish and field-test the creation of small-scale markets and aggregation points;
- Engage stakeholders such as Rural District Council and the Ministry of Transport to service the roads to minimize transit losses and reduce transportation costs;
- Avail commercial inputs at the farm gate after harvest when farmers have excess cash; and
- Reinforce interventions that create alternative markets for the farmers.

Improved Access to Loan and Repayment Capacity

- The project should continue to closely work with MFIs to further refine the existing credit capacity assessment procedure so that the cost of finance is proportionately linked to the perceived risk of the value chain instead of tying it to the “perceived” value or profitability of the value chain.
- Loans should be disbursed in time for farmers to procure inputs and plant.
- Additional capacity building in financial literacy and bookkeeping (receipts, etc.) for farmers is required.
- Stronger contractual frameworks or design of MoU to protect farmers from the poor performance of off-takers such as failure to collect produce from the fields in a timely manner, banks, or input suppliers is required.

Increased Training and Use of Recommended GAPs

The farmers’ use of herbicides for weeding is limited. The project should continue to encourage farmers to shift from the conventional hand weeding to more cost-effective and less labor-intensive herbicides.

Increase farmers’ access to improved seeds. For instance, groundnut farmers are still using retained seed due to the unavailability of certified seed on the market. Seed producers should scale up groundnut seed production to ensure certified seed is available on the market.

ZIMBABWE – CBA OF THE LIVESTOCK DEVELOPMENT COMPONENT

INTRODUCTION The Feed the Future Zimbabwe Livestock Development Program (FTFZ-LD) program is a five-year program (June 2015-June 2020) implemented by Fintrac. The program aims to reduce rural poverty and increase incomes and food security for 1,800 beef and 1,200 dairy smallholder producers by improving their hygiene and nutrition practices and building the capacity of local organizations to implement agricultural development activities funded by USAID. FTFZ-LD targets smallholder dairy farmers in Natural Regions III and IV, and beef farmers in Natural Regions IV and V. The total investment cost for the FTFZ-LD Program is US\$ 5,223,103 and was fully funded by USAID.

METHODOLOGY LEAP-II conducted a CBA of the FTFZ-LD program with a focus on the dairy and beef VCs.

KEY RESULTS FTFZ-LD’s interventions have a return on investment for USAID of 11.20%. This is below the internal rate of return (IRR) of 12% which was used as a benchmark in this analysis. The FTFZ-LD’s low IRR is driven by the -1.27% IRR for the dairy VC. The negative IRR in the dairy VC is primarily caused by:

- A very high USAID cost per beneficiary that adopts FTFZ-LD’s suggested practices (referred to as adopting beneficiaries) of US\$ 9,550. The high cost per beneficiary is explained by inability of the project to identify a large cohort of dairy farmers. Historically, dairy farming was done by white commercial farmers with large operations and rural farmers produced only for family consumption. Statistics from the Zimbabwe Association of Dairy Farmers (Zadf) show that the total herd over the 28-year period between 1987 and 2015 has dropped from a high of 119,220 dairy cows in 1990, to a

low of 26,502 in 2011-2013. There has been a significant decrease in registered dairy farmers with the number dropping from 559 in 1987 to just 199 in 2013.

- While FTFZ-LD has reached out to 1,200 dairy farmers the adoption rate of Good Animal Husbandry Practices (GAHPs) is low at only 25% due to a number of challenges, but predominantly due to the poor performance of local breeds and challenges in providing access to artificial insemination.

The investment in the beef VC, in contrast, generates a rate of return of 14.51%. The total ENPV from USAID's perspective is negative US\$0.76 million. The Zimbabwean economy gains US\$3.96 million from the FTFZ-LD program activities. The aggregate financial NPV is US\$0.65 million compared to ENPV of US\$0.11 million from Zimbabwe's perspective. It should be noted that the high import duty of 40% on milk drives the significant difference between the financial and economic returns in the dairy VC. The economic returns per VC are summarized in Table 9 below.

TABLE 9: INCREMENTAL ECONOMIC NET PRESENT VALUE (USD)			
VALUE CHAIN	NUMBER OF ADOPTING BENEFICIARIES	ENPV PER BENEFICIARY	AGGREGATE ENPV (MILLIONS)
Beef	3,092	1,244	3.85
Dairy	300	379	0.11
Total Incremental ENPV:			3.96
USAID PV Investment Cost:			4.72
ENPV from USAID perspective:			-0.76
IRR from USAID perspective:			11.20%

The CBA showed that with the project beef cattle farmers could expect to earn an average of US\$591 per year, up from US\$172 prior to FTFZ-LD. Although it falls short of the objective (US\$1,200), this is still a significant increase of US\$419 or 243% from what farmers were earning prior to the project. Adopting farmers in the dairy VC increased their income by US\$452. The Total Consumption Poverty Line (TCPL) was used as the poverty threshold. According to the Poverty Analysis by the Zimbabwe National Statistics Agency (ZIMSTAT)¹³, the TCPL per person per month for 2015 was US\$95.25. With an average household size of four, it translates into USD\$381 per household. This means that the

¹³ ZIMSTAT. http://www.zimstat.co.zw/sites/default/files/img/publications/Prices/PDL_10_2017.pdf
USAID.GOV

income from improved beef and dairy farming alone is insufficient to move farmers above TCPL. However, it should be noted that agriculture income contributes to 59%¹⁴ of the average annual gross income for households (HHs) in communal lands. Therefore, with income from other productive and non-productive activities, farmers may also be able to cover non-food expenses such as firewood and household equipment.

In order to achieve and improve on the expected results presented above, a number of variables need to be closely monitored by USAID and the implementing partner. Several critical variables have been identified that significantly affect the project's financial and economic results:

- Dairy Value Chain: adoption rate, calving interval, and daily milk yield
- Beef Value chain: adoption rate, the proportion of farmers who achieve the 395 days calving interval

LEARNING The ENPV of FTFZ-LD once the USAID cost is included is negative US\$1.45 million, indicating that the benefits of the interventions do not outweigh the costs from USAID's perspective. The rate of return is 10.40%, which is 1.60% lower than the threshold of 12% used in the analysis. The negative results are driven by the dairy VC. While the breed management has been widely recognized as a critical factor for productivity improvement in the dairy VC, the project's achievements in this area are limited. In its first year, FTFZ-LD implemented several interventions designed to introduce artificial insemination (AI) services, but with limited success. Artificial insemination activities were terminated when the project's budget was cut. More effort needs to be spent on breed management including the promotion of artificial insemination.

The low success rate of AI during the first year of the project was caused by several factors that must be addressed if this intervention is to be reintroduced. Insufficient AI technicians on the ground frequently prevent a timely reaction to heat detection. A strategy needs to be developed in collaboration with the Government and other donors to overcome this barrier to unlock productivity in dairy VC. Training of farmers in timely heat detection is essential to the success of the AI interventions.

Infrastructural and operational investments at the Milk Collection Centers (MCC) level through the facilitation of milk collection, bulking and processing with an aim to lower operating costs and increase the quality and price of milk are essential. However, given the limited budget available to the project these activities although feasible, may not be financially affordable.

There is a need to promote utilization of MCCs as market points for feed concentrates and other inputs. MCCs potential capacity can also be utilized for strengthening farmers general knowledge to

¹⁴ ZIMSTAT. Poverty Income Consumption and Expenditure Survey 2011/2012 Report.

improve on-farm feed supplementations and dairy husbandry practices. This will help to improve the current unsustainable cattle production among small dairy farmers.

In the beef VC the analysis revealed that annual income for beef cattle farmers would increase by US\$419. This amount is enough to cover the minimum consumption expenditure necessary to consume a minimum food basket representing 2,100 calories. These financial returns are driven by the significant increase in the costs associated with adopting GAHPs. Veterinary costs increase by 475% while feeding and labor costs increase by an estimated 169% and 148% respectively. Increase in the labor costs also points out employment creation benefits generated by the project activities in this VC.

Creation of alternative markets or market linkages are essential in the beef VC. Farmers frequently complain that traders deliberately reduce prices when no alternative market is available. Although additional analysis to estimate the cost of traders' activities is required in order to validate this statement, linkage of farmers to the market through the creation of market hubs or trade events is important.

As observed on the ground, some farmers are still not keen on selling their cattle as they perceive their social and cultural value to be higher than any financial or economic benefit. By linking farmers to formal markets, the project has partly dealt with this issue because it will improve production and marketing to the point that selling prices of cattle prove satisfying to the potential sellers. In addition, the project should educate farmers to make them see their cattle as economic assets as compared to just a means of acquiring prestige.

A number of farmers expressed interest in buying cows to increase their herd sizes however they were discouraged by some existing loan agreements. The project should assist the farmers in getting financing options that are tailored for their needs. Creation of farmer-based savings and credit groups may be one possible approach to provide alternative options for farmers to source capital required for investments.

#32 – CBA OF USAID RESILIENCE IN THE SAHEL ENHANCED

INTRODUCTION Resilience in the Sahel Enhanced (RISE) is a multisector program aimed at increasing the resilience of vulnerable HHs in the Sahel region who face climatic, conflict-induced, environmental, and economic shocks that adversely affect their livelihoods.¹⁵ The CBA focuses on two five-year USAID RISE projects in Burkina Faso and Niger: Resilience and Economic Growth in the Sahel - Enhanced Resilience (REGIS-ER) implemented by NCBA-CLUSA, and Resilience and Economic Growth in the Sahel – Accelerated Growth (REGIS-AG), implemented by CNFA. In Burkina Faso, both projects cover the Est, Centre Nord, and Sahel regions, and in Niger, the geographic areas covered include the Zinder, Maradi,

¹⁵ Resilience is, “The ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth” (USAID, 2012)
USAID.GOV

and Tillabéri regions. REGIS-ER aims to boost crop and livestock production, while REGIS-AG works to strengthen the horizontal and vertical market linkages necessary for farmers to effectively produce and market their crops and increase their incomes, what the projects call the “Push & Pull” strategy.

METHODOLOGY The CBA evaluates the projects’ interventions implemented in agriculture, poultry, and small ruminant VCs.

For agricultural VC interventions, REGIS-AG’s beneficiaries in Burkina Faso and Niger are 41,224 and 61,254 farmers respectively. These numbers include beneficiaries from other VCs that were not covered by the CBA.

The CBA assessed the “Sustainable Livelihoods Component” of REGIS-ER with a focus on Conservation Farming (CF). CF encompasses the use of an assortment of climate-adapted farming practices to intensify agricultural productivity in the cowpea, millet, and sorghum VCs, with the objective of increasing HH’s income and access to food. CF was introduced to 58,670 farmers in Burkina Faso and 24,280 farmers in Niger.

The CBA assessed REGIS-AG’s interventions in the cowpea VC (the project did not work in the millet and sorghum VCs). REGIS-AG reached 21,700 and 23,322 beneficiaries in the cowpea value chain in Burkina Faso and Niger, respectively. The project links farmers to credit through the warrantage credit scheme (WCS). This intervention allows farmers to store their surplus and sell it during the peak-price season, therefore, generating additional income. This intervention is the only REGIS-AG intervention covered by the CBA.

The CBA of the poultry VC analyzes the following:

REGIS-ER Poultry Habbanayé Intervention in which productive chickens are gifted to women from vulnerable HHs. The women are then expected to transfer the first offspring to other vulnerable HHs. This intervention reached 13,157 and 13,801 beneficiaries in Burkina Faso and Niger, respectively.

Chicken vs. Guinea-fowl Rearing USAID hypothesizes that chicken rearing is a high-risk high-reward activity as compared to guinea-fowl rearing which is a lower-risk lower-reward activity. The CBA scope of work requests that an analysis be conducted to test this hypothesis. Accordingly, the CBA team conducted a comparative CBA of chicken versus guinea-fowl rearing for farmers in Burkina Faso and Niger. It should be noted that REGIS-ER and REGIS-AG did not work in the guinea-fowl VC.

Small Ruminant VC: The CBA of the small ruminant VC analyzes the following:

- **REGIS-ER Goats Habbanayé Intervention** in which productive goats are gifted to women from vulnerable HHs. Similar to poultry Habbanayé, beneficiaries are expected to transfer the first offspring to other vulnerable HHs. This intervention reached 5,926 and 11,155 beneficiaries in Burkina Faso and Niger, respectively.
- **Goats vs. Sheep Rearing:** The CBA team conducted a comparative CBA of rearing goats versus sheep in Burkina Faso and Niger to identify which of these two inventions is more lucrative and should be prioritized.

- **Sheep Fattening:** The CBA seeks to evaluate if the intensive inputs required for sheep fattening translate into improved profit margins for farmers.

KEY RESULTS

Returns to USAID: Given that REGIS-ER and REGIS-AG are two independent projects which fall under the purview of the of USAID's RISE, the results from the CBA establish that in aggregate, the projects' interventions in both Burkina Faso and Niger produce a positive outcome from USAID's perspective. Overall, given a total cost with PV of US\$ 20.59 million, the two projects combined generate an ENPV of US\$ 25.07 million and an ERR of 27.2%, which is greater than USAID's benchmark discount rate of 12%. USAID's outcomes from the individual country's perspective given a PV of investment costs of US\$ 9.79 million and US\$ 10.80 million in Burkina Faso and Niger respectively, are as follows: in Burkina Faso the ENPV accruing to USAID is US\$ 15.91 million and the ERR is 28.5%, whereas in Niger the ENPV is US\$ 9.16 million and the ERR is 24.6%.

Returns to REGIS-ER: From an individual project perspective, the overall outcome of REGIS-ER's interventions in both Burkina Faso and Niger is positive. REGIS-ER in PV terms has invested US\$ 11.18 million, weighed against the benefits accruing to the project's beneficiaries. The results show that the project generates in aggregate an ENPV of US\$ 32.44 million and ERR of 29.7%.

Disaggregated by country, REGIS-ER's interventions generate a positive return in both Burkina Faso and Niger. The PV of investment costs in Burkina Faso is US\$ 5.46 million and US\$ 5.72 million in Niger. Taking into account the benefits created in each country, REGIS-ER's outcomes translate to an ENPV of US\$ 19.06 million and ERR of 30.3% in Burkina Faso. Whereas, in Niger, the ENPV from REGIS-ER's perspective is US\$ 13.39 million and the ERR is 28.90%.

Returns to REGIS-AG: The scope of the CBA with respect to REGIS-AG only covered the WCS in the cowpea VC due to the reasons mentioned in the preceding sections. The overall aggregate outcomes of REGIS-AG's WCS intervention were found to be negative. REGIS-AG's investment cost in the cowpea VC alone is higher than the REGIS-ER's total investment cost in all three agriculture VCs (cowpea, millet, and sorghum) resulting in negative returns due to high costs per REGIS-AG beneficiary. The total PV of REGIS-AG's investment in both Burkina Faso and Niger is equivalent to US\$ 9.41 million. The overall returns accruing to REGIS-AG given the aggregate benefits to its beneficiaries were ENPV US\$ -7.38 million and an ERR of -11.3%.

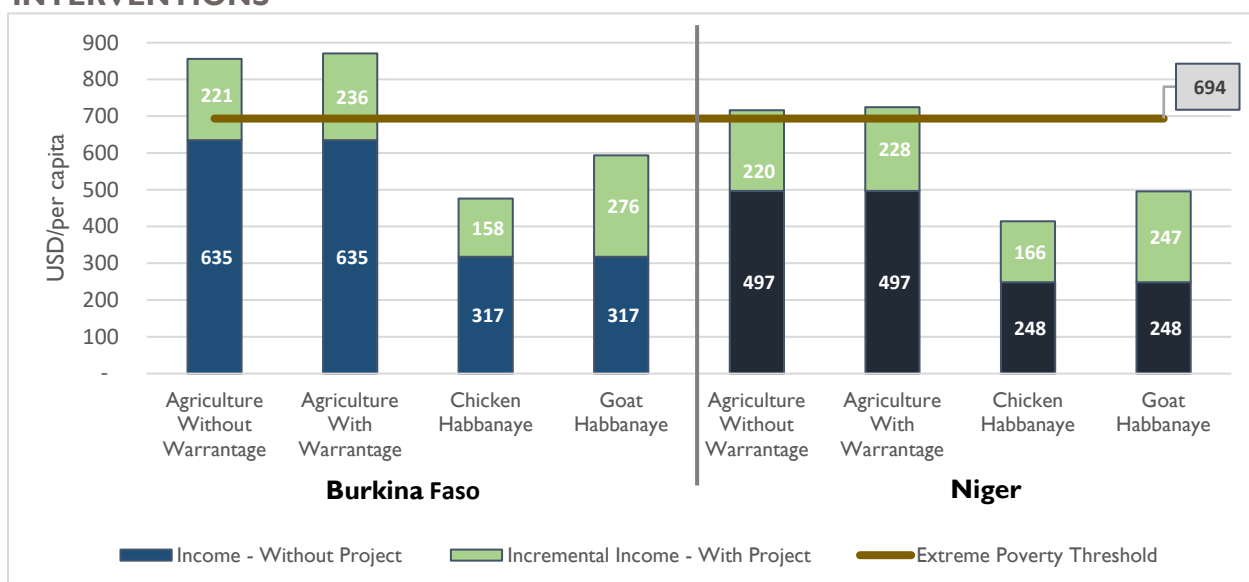
The PV of REGIS-AG's investment costs is US\$ 4.33 million in Burkina Faso and US\$ 5.08 million in Niger.¹⁶ The economic benefits generated by the REGIS-AG's interventions in the cowpea VC are not sufficient to

¹⁶ To assess REGIS-AG's interventions in the cowpea VC, the team used of estimates that are based on distributing the total aggregate cost over the total number of project beneficiaries to determine the cost per beneficiary. The beneficiary costs and the number of beneficiaries in each VC were then used to estimate the total costs in each VC per annum.

justify these costs. The ENPV and ERR from REGIS-AG's perspective in Burkina Faso are US\$ -3.15 million and -10.49% respectively. In Niger the ENPV is US\$ - 4.22 million and the ERR is -13.72%.

Impacts on Poverty Alleviation: One of the main objectives REGIS-ER and REGIS-AG is to increase the incomes of the projects' beneficiaries. This objective is tied to the overall objective of RISE, which is to lift the recipients of USG's assistance out of extreme poverty. Given an extreme poverty threshold of US\$ 694 per capita, in which case it is assumed that an individual spends on average US\$ 1.90 daily over the course of a year, Figure 7 illustrates how REGIS-ER's CF and goat and chicken Habbanayé interventions, and REGIS-AG's WCS are expected to contribute to alleviating poverty through the agriculture, chicken, and goat VCs.¹⁷

FIGURE 7: POVERTY ALLEVIATION OF REGIS-ER'S AND REGIS-AG'S INTERVENTIONS



Chicken vs. Guinea Fowl Rearing: The comparative CBA showed that with an investment of US\$ 70 for chicken (which is enough to purchase parent stock of chicken of 10 layers and one cockerel) and US\$ 151 for guinea fowls (which is enough to purchase 8 guinea hens and 4 cockerels), guinea fowl rearing is more profitable in both Burkina Faso and Niger with annualized incomes of US\$ 249 and US\$ 267, respectively. While guinea fowl rearing is more profitable than chicken rearing, it requires higher investment costs. In

¹⁷ Extreme poverty often refers to living on less than \$1.90 per day. (USAID, September 2015). <https://www.usaid.gov/ending-extreme-poverty>

addition, while Habbanayé chicken targeted women from poor households, the CBA team observed that guinea fowl rearing was mostly done by men.

Goats vs. Sheep Rearing: The analysis revealed that while both goat and sheep rearing is financially and economically feasible, goat rearing results in higher financial returns due the lower investment cost requirements. Sheep rearing, in turn, generates higher annual income when compared to goats. Also, farmers that are engaged in sheep rearing have the opportunity to profit from sheep fattening which generates additional income. It is recommended to advise farmers to invest their annual proceeds from the sale of crops into goat farming. Once farmers reach a financial position where they can afford the purchase of the first sheep herd, they should diversify into sheep rearing as well.

The only difference between goats/sheep rearing and Habbanayé from the farmers' perspective is the source of funding for the initial herd purchase. Therefore, most of the observations and conclusions of the Habbanayé analysis are also directly applicable to the goats and sheep rearing.

Sheep fattening: Sheep fattening allows farmers to obtain a profit margin of about US\$ 25/year assuming they fatten one animal twice a year. However, the sheep fattening intervention may not be appropriate for the most vulnerable beneficiaries since vulnerable households have competing cash needs and may find it financially challenging to feed sheep over a six-month period.

Field visits revealed that farmers that engage in the sheep fattening are not necessarily the same farmers that rear small ruminants. Sheep fattening is done by women as the investment of cowpea proceeds after the harvest or by those able to identify the commercial opportunity (high demand for lamb during festivals) and with the technical knowledge required to fatten sheep. Supporting sheep fattening will help farmers diversify their diversification, mitigate inflation, and create assets. The marginal cost of adding sheep fattening to other training conducted by REGIS-ER and REGIS-AG is likely minimal and should be explored.

LEARNING

Integrating Purdue Improved Crop Storage (PICS) bags outside of the cowpea VC should be explored. Though spoilage occurs with all three crops, farmers use PICS bags for only cowpeas, and only in rare instances did we find that farmers use PICS bags to store millet and sorghum. An analysis on the use of PICS bags shows that the benefits far outweigh the cost of purchasing the bags. The benefit-cost ratios (BCRs) show that farmers in all three VCs would benefit from the adoption of PICS bags. In Burkina Faso, the BCRs are estimated at 7.35, 6.70 and 4.48, and in Niger, at 7.26, 13.68 and 5.11, for the cowpea, millet, and sorghum VCs respectively. This analysis highlights that the cost of PICS bags is not the only constraint to farmers using them.

Improve access to inputs. Some targeted areas are remote and lack access to input markets, which makes it difficult and expensive for farmers to purchase recommended inputs such as fertilizers. As a result, some farmers cannot fully apply the recommended set of inputs, which negatively impacts the benefits of CF with regards to increased crop productivity. Though REGIS-ER has promoted Community-Based Solution Providers (CBSPs) to fill this gap, work should continue and be scaled up if possible.

Diversify household livelihoods. Burkina Faso and Niger have only one cropping season over the course of the year. In order to lift agricultural HHs out of extreme poverty and increase their resilience, HHs need to diversify their livelihoods. Farming HHs should be trained and encouraged to engage in alternative

income generating activities during the agricultural off-season. Though REGIS-AG has conducted training in the processing of cowpeas into various products such as snacks, flour, couscous, and baby foods, future projects should explore scaling up capacity building in processing. Adding value to the raw cowpeas would increase farmers' incomes and provide a source of income other than that from crop cultivation.

Consider future regional economic trade. Both Burkina Faso and Niger export significant amounts of their cowpeas in the West African region. However, the primary destination for Burkinabe and Nigerien cowpea is Nigeria. Nigeria, which is the largest consumer of cowpeas in Africa, has in the past had to import cowpeas to supplement its huge demand. However, the country's production is growing and is nearing self-sufficiency. Burkina Faso and Niger's cowpea export markets may need to be diversified to include other regional and international destinations. Though countries like Ghana, Benin, Togo, and Mali can absorb the output from Burkina Faso and Niger, their demand for the crop is not as strong as Nigeria's. It should be noted that there is a need to conduct a study on the comparative advantage of Burkinabe and Nigerian cowpeas versus other producers in the regional export market before any measures are taken to promote the crop.

Habbanayé intervention: The results indicate that the benefits of the Habbanayé intervention outweigh the costs from USAID's perspective. One of the frequent complaints about the Habbanayé intervention is that farmers do not transfer the first offspring to other vulnerable households. While it may be both challenging and costly to monitor the transfer, this should not prevent USAID from investing in Habbanayé, as the economic returns presented in this study are estimated assuming no transfers are carried out. Therefore, the Habbanayé intervention when coupled with the animal husbandry training is an efficient way to assist the most vulnerable households.

OTHER ACTIVITIES

#0.B – LOGISTICAL SUPPORT TO THE SECOND ECONOMISTS REGIONAL WORKSHOP

LEAP-II provided logistic support to the Second Economists Regional Workshop (the Workshop) to be held in Pretoria, South Africa, November 9-13, 2015. The objective of the Workshop was to bring together USAID economists to discuss broad subjects including monitoring and evaluation; economic growth and jobs; macroeconomics and domestic resource mobilization; poverty and its measurement; and project/program cycle. Approximately fifty-one (51) people participated, including forty (40) USAID staff, four (4) USAID-funded outside speakers, six (6) non-USAID-funded local participants.

LEAP-II received the request for assistance just over a month before the Workshop and successfully provided administrative and logistical support in preparation for the Workshop as well as during the workshop. In preparation for the Workshop, LEAP-II: identified and booked accommodations for external speakers; wrote and printed agendas, speaker bios, contact lists, and presentation materials; coordinated lunch, coffee/tea, and snacks; coordinated ground transportation and airport pickups for external speakers; set up training facility rooms for presentations, including projectors/laptops, etc.; pretested equipment to ensure it was working properly for presentations; and gathered all presentation materials. During the Workshop LEAP-II: registered guests; supported IT functions, including live-streaming and PowerPoint presentations; paid per diems to speakers and coordinate payment for services; set up lunch and snack breaks; straightened up Workshop rooms at the end of each day; and provided logistic support to the Workshop organizers, as needed.

#8 AND #24 – ADVISORY SERVICES TO THE POWER AFRICA COORDINATOR'S OFFICE

Power Africa represents a whole of U.S. Government, transaction-based development approach to increase access to electricity in sub-Saharan Africa. Power Africa works with African governments, the private sector, and other partners such as the World Bank and African Development Bank in six focus countries — Ethiopia, Ghana, Kenya, Liberia, Nigeria and Tanzania — to add more than 30,000 megawatts (MW) of cleaner, more efficient electricity generation capacity. By expanding mini-grid and off-grid solutions and building out power generation, transmission, and distribution structures, Power Africa will make electricity access available for 60 million household and business connections. At the same time, Power Africa will enhance energy resource management capabilities, allowing partner countries to meet their critical energy needs and achieve sustainable, long-term energy security.

The Sustainable Energy for All (SEforALL), a non-profit and global initiative launched by Former UN Secretary-General Ban Ki-moon that promotes universal access to modern and efficient energy sources in support of the SDG7's core objectives. On September 22, 2014, Power Africa signed an Aide Memoire for Cooperation Understanding in furthering energy access, electric power generation and market development, cross-border transmission network development, clean energy investments, off-grid energy generation, and energy project financing in sub-Saharan Africa.

The purpose of this activity was to provide support to both Power Africa and SEforALL in the design and review of investment Prospectuses, with specific focus in the five countries of overlap: Ethiopia, Ghana, Kenya, Liberia, and Tanzania. IDG advised SEforALL and the USAID Power Africa Coordinator's office in the design and review of transaction Investment Prospectuses, with specific focus in five countries: Ethiopia, Ghana, Kenya, Liberia, and Tanzania. IDG supported the Finance Sub-Committee of

SEforALL in operationalizing its strategy to enhance financial opportunities and products that further the goals of SEforALL both regionally and globally. Specifically, IDG assisted in elaborating a standardized structure and use-case for the transaction Investment Prospectus; supports the design of the transaction Investment Prospectus; identifies the primary content items needed to satisfy financing requirements, identifies areas for private and public-private interventions; supports coordination; helps to identify sources of capital and financing instruments; identifies sources of debt (and associated credit enhancements), equity, and fixed income capital for investment and financing instruments; and assists with the development of structures, such as financing platforms.