



Burundi Agribusiness Program: PY 5 Second Quarter Report 1 January – 31 March 2012

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Acronyms and Abbreviations

ACE	Alliance for Coffee Excellence
ADC	Agent de Développement Communautaire
AFAB	The Burundi Association of Women Entrepreneurs
AFCA	African Fine Coffee Association
ARFIC	Agence Régulateur de la Filière Café
ASBL	Association sans but Lucratif
AVEDEC	L'Association Villageoise d'Entraide et de Développement Communautaire
BAP	Burundi Agribusiness Program
BBIN	Burundi Business Incubator
BCC	Business Concept Course
BBN	Burundi Bureau of Normalization
CAPAD	The Confederation of Agricultural Producer Associations for Development
CECM	Caisse d'Epargne et Crédit Mutuelle
CERADER	Centre de Recherche Agronomique et du Développement Rurale (U Ngozi)
CNAC	Confédération National des Caféculteurs
CNTA	Centre Nationale de Technologie Agro-Alimentaire
COGS	Cost of Goods Sold
COE	Cup of Excellence
COP	Chief of Party
COTR	Contracting Officer's Technical Representative
CQI	Coffee Quality Institute
CTO	Cognizant Technical Officer
CURDES	Centre Universitaire de Recherche sur le Développement Socio-économique
CWS	Coffee Washing Station
DCA	Development Credit Authority
DCOP	Deputy Chief of Party
DG	Directeur Général (Managing Director)
DPAE	Direction Préfectorale de l'Agriculture et Elevage
EAFCA	East African Fine Coffee Association
EAWEEExN	East African Women Entrepreneurs Exchange Network
ESF	Economic Support Funds
EU	European Union
FAO	Food and Agricultural Organization of the United Nations
FBU	Francs Burundais
GAP	Good Agronomic Practices
GDP	Gross Domestic Product
GMP	Good Management Practices
GOB	Government of Burundi
HACCP	Hazard Analysis and Critical Control Point
HVC	Horticultural Value Chain
IAB	Industrie Agro-alimentaire de Buterere (dairy)
IFAD	International Fund for Agricultural Development
IGAA	Assn for le Progrès de la Femme et l'Enfant (Local NGO)
IMF	International Monetary Fund
INADES	Institut Africain du Développement Economique et Sociale

IQC	Indefinite Quantity Contract
IRAZ	Institut de la Recherche Agronomique en Zootechnie
ISABU	Institut de Recherche Agronomique du Burundi
ITAB	Institut Technique Agronomique de Burundi
IWCA	International Women's Coffee Alliance
KIST	Kigali Institute of Science and Technology
KTBH	Kenyan Top Bar Hive
LF/CV	Lead Farmer/Community Veterinarian
LOE	Level of Effort
LOL	Land O'Lakes
MCC	Milk Collection Center
MFI	Micro-Finance Institution
MINAGRIE	Ministère de l'Agriculture
MCC	Milk Collection Center
MOU	Memorandum of Understanding
MSU	Michigan State University
NGO	Non-Governmental Organization
OTF	On the Frontier
OCIBU	Office du Café de Burundi (Coffee Board)
PAGE	Projet d'Appui à la Gestion Economique
PHAST	Participatory Hygiene and Sanitation Transformation
PNIA	Plan Nationale d'Investissement Agricole
PRASAB	World Bank Funded Development Program in Burundi
PO	Producer Organization
PP/S	Participants per Session
SCAA	Specialty Coffee Association of America
SCAE	Specialty Coffee Association of Europe
SCEP	Service Conseil aux Efforts de Privatisation
SCP	Soil Conservation Practices
SIVCA	Société pour la Valorisation Industrielle du Café
SODECO	Société de déparchage du Café
SOGESTAL	Société de Gestion des Stations de Lavage
STTA	Short Term Technical Assistance
UHT	Ultra-High Temperature
USD	US Dollar
USG	US Government
VC	Value Chain
WB	World Bank

Executive Summary

The second quarter of BAP's fifth Project year was one of intense activity. Not only did the period see the second round of tenders of GOB coffee processing/milling infrastructure bear fruit with the sale of seven lots of washing stations (total 28 stations) and one of the SODECO dry mills, but BAP client cooperatives brought on line four new mini-washing stations- three with Penagos Eco-pulpers and one with a McKinnon eco-friendly pulper in the provinces of Bubanza, Gitega and Kayanza. BAP's small grants program moved into full implementation mode during this quarter with 71 grants in 7 different sectors underway at the same time. This push demanded a lot of staff time particularly on the part of BAPs DCOP, Grant's Component Leader and Horticulture Team and to a lesser extent our component leader in Gender and Micro-Enterprise. Start up delays principally due to unfavorable weather patterns in the early weeks of the quarter mean much of the production results from income generating and diversification activities related to women's groups and horticultural associations will be documented for the end of the third quarter. Other implementation delays were linked to procurement and transport difficulties for imported goods and equipment as well as customs clearance. The first operational milk collection center in Burundi refined its operations during this quarter; while the second MCC had finished its construction, procurement and installation of equipment. This MCC, in Rutegama, started collection operations during the second half of April. By the end of this reporting period the following results, by sector, had been achieved.

In Coffee, 139 farmers have adopted the best practices promoted at our demonstration sites in order to increase the productivity of their plantations and the quality of their cherry. BAP trained 533 DPAE agents and 53 administration officials in best practices for coffee as part of our reinforcement of extension efforts in collaboration with InterCafe and our overall end of project disengagement strategy. BAP received drafts from the University of Ngozi for the baseline study on coffee farmers and the case study of Utz certification at Kagombé. These were reviewed and final copies are expected at the end of May. BAP collaborated with the cooperative Kawa Nziza of Kagombé to institute anti-erosive bands of mixed multipurpose and fruit trees in cooperating farmer's plantations. Technical training in best practices facilitated by BAP ADC for lead farmers covering nine different modules were facilitated in 78 sessions at partner washing stations. Overall participation was 2.613 of whom 30% were women. These lead farmers in turn facilitated 268 sessions on their hillsides, covering seven different modules and bringing together 8.442 participants of whom 43% were women. BAP's coffee team trained 299 washing station managers and cooperative leaders in productivity for quality and improved processing methods designed to increase the number of qualifying samples for this year's Cup of Excellence competition, scheduled for August 2012. In addition, Paul Songer of ACE provided training to Burundian cuppers, roasters and potential auditors to improve their capacities and prepare them for the high standards of the competition. Installation, calibration and the start of processing occurred at four cooperative owned mini-washing stations. Management training was offered to cooperative leaders and mini-station managers, and we began the process of certifying the cooperatives and their mini-washing stations for Fair Trade. In terms of promotion and marketing, BAP assisted the Burundi Coffee sector in its

participation at the EAFCA Trade Show and Symposium held in Addis Ababa. At the Taste of Harvest competition, three of Burundi's coffees placed in the top 10 East African coffees.

In dairy, this reporting period was characterized by preparations for the opening of the second milk collection center at Rutegama, in-service training for the managers of the MCC Bukéyé and assistance to dairy processors and other downstream users of fresh, quality milk. Four interns were recruited and placed in the production zones to monitor the management of the MCC, to collect data on forage crop production and dissemination and to promote permanent stabling and in proximity veterinary services. We note that Lead Farmer/Community Veterinarians held 78 sessions for dairy farmers at 6 associations and grouped together 232 participants, 66.3% of whom were women. The main themes covered were disease diagnostics, preventive treatment and nutrition. Two of the six associations began implementing their local development plans. Activities related to introduction diversification and dissemination of improved forage crops continued in Bururi and Muramvya provinces. BAP continues to monitor the pregnancies of the first artificially inseminated cattle and is pleased to report a 76.2% overall success rate. Births should occur late in Q3/early in Q4.

In Horticulture, 13 new demonstration plots were established with farmers and farmer associations in six provinces; 1944 farmers were trained in Best Horticultural Agronomic Practices, as were 306 DPAE agents. An additional 606 farmers, 40% of whom were women participated in training in good management practices while 124 farmers of whom 51.6% were women received training in collaboration with CNTA in post harvest canning, drying and improved food preservation technologies. Nineteen DPAE agents participated actively in our demonstration activities, taking on greater roles in mentoring farmers in their communes and two farmer field days with press coverage were facilitated during this reporting period.

In gender and micro-enterprise, the second round of literacy activities through a grant with a local NGO IGAA got underway. Further, 493 members of 85 associations of whom 283 (57.4%) were women received capacity reinforcement in organizational, institutional and management capacities for their associations. Eight associations in Mwaro began income generating activities, seven of which were horticultural related and one of which was related to modern beekeeping. Twelve other women's associations also implemented IGA during this reporting period. Results from these IGA will be documented in future quarterly reports.

In Grants and Financial Intermediation, BAP completed analysis, approved and funded six (6) grant applications that were pending. Ten other grants were reviewed this quarter, four of whom were either rejected or withdrawn. If the push during Q1 was for short cycle horticulture grants; grants during this reporting period are more characterized by their diversity than anything else. Grant applications this quarter came from all project technical components. Results from the small grants push are not yet available but documentation of impact from these grants will be included in Q3 and Q4 reports.

In Community Water and Environmental Mitigation (Clean and Productive Environment), the quarter's principle activities centered on renovation of the Kigoganya community water system, supervising the construction of 6 new effluent control systems at coffee washing stations, the installation of water

recycling actions at two washing stations and the collection of pre-season water samples from both effluent mitigated washing stations and control stations where no mitigation has occurred for physical and chemical analysis and comparison. Finally, the component offered a training session for personnel at stations with environmental mitigation to review system maintenance, utilization protocols and monitoring to ensure maximum positive impact from these investments.

At the BBIN a very successful Shika Business Plan Competition ended in the judging of competitors and the awarding of prizes worth more than 18 million FBU. Additionally, the quarter was marked by a strategic retreat of the founding members to strategize continuation of activities post-BAP, eight training sessions were facilitated for 122 entrepreneurs of whom 47 (38.5%) were women. The quarter saw the start of Business Edge curriculum offerings, continued assistance and mentoring of the BBIN management team by consultants, acceptance of the external auditor's annual report and recommendations and a first attempt at documenting impacts of the BBIN on Burundi's private sector.

Value Chains

Coffee

Introduction

This reporting period was dedicated to preparing the 2012 coffee campaign. BAP's Coffee team focused much of its energy in partnership with grower's cooperatives in Kayanza, Gitega and Bubanza in finishing construction, installation, calibration and training at the sites designated for the mini-washing stations. Further much effort was expended training farmers and washing station managers in best practices for coffee production, harvesting and processing, as well as initiating the process of Fair Trade Certification for three of our client cooperatives and their washing stations. Assistance to women coffee farmers was offered through a workshop facilitated in collaboration with IWCA/Burundi that benefitted from participation from international coffee buyers, roasters and cuppers. A major transformation of the sector occurred when the second round of tenders for government owned coffee infrastructure was decided and 28 additional washing stations plus 1 dry mill transferred from government ownership to private sector operations. The majority of these went to Burundian investors/companies, though many of the Burundians had international investors as silent partners. BAP assisted the sector in its participation at the East African Fine Coffee Association Trade Show and Symposium in Addis Ababa and began preparations for a successful running of Burundi's Cup of Excellence 2012 with the setting up of the national organizing committee and participation of the Burundian National Events Coordinator at a worldwide meeting of Cup of Excellence countries held in Honduras.

Coffee Deliverables Matrix

Indicators	Results accomplished Q2 PY 5	Cumulative
Initiate a demonstration plot-based extension program to diffuse knowledge of improved production practices		
120 demonstration plots established with BAP Lead Farmers from years 1-3 with a minimum of two techniques implemented in each demonstration plot.	15 new demonstration plots initiated by farmers	139 demonstration plots established
10 InterCafé agronomic technicians trained	533 agronomists from the DPAAE trained (144 in Kayanza; 324 in Ngozi; 31 in Muyinga; and 34 in Kirundo)	552 agronomics technicians trained (546 from DPAAE and 6 from federations)
6 training workshops organized with InterCafé for DPAAE personnel and Communal Agronomists in Best agronomic practices for Coffee	6 workshops organized (2 in Kayanza; 2 in Ngozi; 1 in Muyinga; 1 in Kirundo) additionally 14 workshops were organized at the commune level in Kirundo, Kayanza and Ngozi on Best Agronomic Practices for Coffee	12 workshops organized +14 communal level workshops on Best agronomic Practices for Coffee
At least 4 Fiches in Kirundi and French produced for use by BAP and InterCafé on each of following techniques: organic fertilizer application; mixing organic and chemical fertilizer use; composting; water management & harvesting; sequencing the renewal of old trees on a plantation are conceived, published and distributed to farmers at pilot washing stations and extension personnel.		3 fiches produced on organic fertilizer application, on composting and on coffee diseases
Initiate an applied research program to capture demonstration plot results to identify most effective measures for reducing cyclicity		
Research Program study protocol and filed instruments produced		The protocol produced
Data collected from BAP demonstration plots and U. Ngozi/ISABU research plots		Data collected
Preliminary results report for 2011 season		The report produced
Final report for 2012 season		Not yet
Conduct a demand-driven training program for new CWSs not yet practicing improved processing techniques introduced by BAP in prior years		
30-40 representatives from new Pilot CWSs trained in quality enhancing techniques	97 SDL Managers Trained in improved processing techniques	97
At least 5 training workshops held in new pilot washing stations prior to the 2012 season	1 workshop held for leaders from 8 cooperatives managing either mini-washing stations or full scale washing stations as owner/operators	8 mini-washing stations and full sized cooperative owned and managed washing stations benefitted from training for 2 days including theory and practical exercises
InterCafé staff trained on improved processing techniques	371 persons from Institutional members of InterCafé trained	371
Work with InterCafé to set up and equip a Coffee Quality Center (CQC)		
MOU signed with InterCafé to launch CQC		Not yet
CQC Business Plan developed		Not yet
CQC equipped with cupping equipment and furnishings		Not yet
Expand the corps of professional cuppers		
Training sessions are held to identify a new group of highly leveled cuppers, integrating younger university and Technical school graduates		Done
At least 5 new lead coffee cuppers are selected	5 selected	5
Newly trained Burundian Cuppers undertake exchange visits and are invited to cup at regional coffee events in East Africa		Not yet
At least 2 Burundian cuppers receive internships with International Roasters to improve their capacities		Not yet
A Cup of excellence completion is held to identify the highest quality lots in Burundi	In process	In process
A Cup of Excellence is held in Burundi		Not yet
Put in place systems for controlling coffee washing station effluent run-off		
Pre-season, mid season and post season water analyses are completed and analyzed at 9 CWS with effluent control and 9 without effluent control systems	9 CWS w/ effluent control systems built in PY 4 +8 CWS where construction of systems is currently underway + 8 CWS where there are no treatment systems in place (controls) have been sampled	Done on 17 CWS with effluent control and on 8 without effluent control systems
6 new CWS are equipped with effluent control systems	8 new CWS have been equipped with effluent control systems (APROCO, Teka, Butemba, Gatara, Wingoma, Karinze, Mpemba and Korane)	17 CWS are now equipped with effluent control systems
3 influent treatment systems are piloted at CWS equipped with effluent control systems and at least 1 water recycling system implemented with industry support	2 CWS equipped with water recycling systems- Rohorero and Butegana	2 CWS
Support InterCafé to develop its capacity to promote and market Burundian coffee		
InterCafé participates with BAP training support to deliver presentations for one overseas trade mission, two international trade shows and at least one inward buyer mission	Participation at EAFCA in Addis Ababa	One mission organized in Korea; one trade show at EAFCA in Addis Ababa
InterCafé procedures manual developed for sending of overseas samples with attributed responsibilities		Not yet
Data base of Burundian buyers created and used at InterCafé	Database exists- updated for 2010-2011, needs updating for 2012. Use by InterCafé not yet effective	Database exists- updated for 2010-2011, needs updating for 2012. Use by InterCafé not yet effective
Expand the core of CWS certified by the UTZ Kapeh program		
MOUs with FLO and/or UTZ, InterCafé and relevant farmer Cooperative Federations to develop certification		Not yet
At least 2 new CWS receive some form of certification	3 new mini-CWS, Karinzi, Korane and Mpemba have begun the process of FLO certification	3 CWS in process for FLO (Fair Trade) Certification
InterCafé begins to promote certification		Not yet
Develop a coffee quality data base		
Data base created and provided to InterCafé		Exists
Sensory data classification scheme devised and systems set up for inputting cupping data		Not yet
Internet accessibility initiated		Done, a internet site functioning
Initial maps of taste profiles developed		Not yet
Construct 3 new Mini Washing Stations and build capacity of farmer cooperatives to run them with production trials in 2012 season		
3 Mini Washing Stations are built with support from BAP		4 Mini washing stations built: dusangirijambo of Bwayi, Mboneramiryangoof Korane, Dusangirijambo of Karinzi, Kanovera of Ntamba
3 Farmer Cooperatives are strengthened with institutional, managerial and technical training. All will produce Business plan.	4 Business Plans developed for 4 mini-CWS; 8 cooperatively owned CWS receive management training	4 Business Plans developed for 4 mini-CWS; 8 cooperatively owned CWS receive management training
Help coffee producer associations implement income generating and agricultural diversification projects		
20 BAP activity grants given to coffee cooperatives to support income generating projects		10 coffee associations received grants in horticulture sector
At least 200 households benefit		334 households benefitted
Contribute to the on-going policy dialogue on the evolution of coffee sector regulation and disseminate information about reforms		
26 new radio broadcasts per year on coffee reforms	8 emissions	13 new radio broadcasts produced
2 coffee reform panel discussions		Not yet
5 Workshops organized with Provincial Governments on coffee reforms		6 workshops organized in Kayanza, Ngozi, Muyinga, Gitega, Kirundo and Bubanza
1 radio publicity announcement per month		1 for the Cup of Excellence was produced during February
At least 1 white paper on coffee sector reforms		Not yet

Principle Realizations of this Reporting Period

Reforms to the Coffee Sector- The Long Road to Privatization

A second round of tenders for the divestiture of productive infrastructure in the coffee sector (washing stations and dry mills) to private operators was undertaken during this reporting period. In total of 104 stations and two dry mills offered for sale, seven lots comprising 28 washing stations and one dry mill were sold. Notification was sent by the GOB to the new owners on 7 February 2012.

Five new investors bid on the 7 lots with two of them purchasing a total of 15 of the 28 washing stations (53.6%). The procedures for closing the sales were not easy as there were a number of outstanding issues that needed resolution, one of which was determination of ownership and this liability for parchment already in stock and cherry already received from farmers. In the end, the determination was made that in cases where stations operated prior to the finalization of the sales, the old owner/operators would retain possession of the stock and retain liability for paying farmers for the cherry already taken in and in the process of being processed to parchment.

While there have been some hiccoughs in the transfer of goods, personnel and equipment from the previous managers to the new owners, there are also cases where equipment has been lent on a short term basis from existing stocks to assist the new owner/operators to be operational this campaign. A forgotten challenge in the hand over was determining who “owned” the records of the tendered washing stations- the list of farmers, their historic production, and the database to which this had all been consigned. In the end copies of partial farmer records were provided to the new owners- but many of these new owners still need to create/produce/or replicate existing systems for managing farmer provisions, inputs, inventory, transport/traceability etc...

It is likely that a third round of tenders for the remaining infrastructures still managed by the SOGESTAL and SODECO will occur before the end of 2012.

Productivity and the Stabilization of Year on Year Cyclicality

Activities with the demonstration plots continued in the provinces of Kayanza, Ngozi, Kirundo and Muyinga. First fertilizer and compost applications were applied in a timely fashion. However, second applications were delayed due to limited rainfall conditions occurring in January and February. The hydric conditions of January and February have greatly delayed the maturation process of the cherries across the country. There are qualitative indications that cherry from the demonstration plots, particularly those with compost treatments, matured quicker than other cherry.

Province	# of farmers participating			# of trees			X # trees/ farmer		
	2011	2012	% increase	2011	2012	% increase	2011	2012	% increase
Kayanza	26	49	88.5%	3050	5690	86.6%	117.3	116.1	-1%
Ngozi	38	50	31.6%	5293	8182	54.6%	137.9	163.6	18.6%
Kirundo-Muyinga	20	40	100%	2360	4120	74.6%	118	103	-12.7%
Total	84	139	65.5%	10.703	17.992	68.1%	127.42	129.44	1.6%

There has been an overall increase in the number of farmers adopting the technologies from the demonstration plots from 84 to 139, an increase of 65.5%. This increased adoption also translated to a 68.1% increase in number of trees receiving the treatments, but only a slight increase (1.6%) in the number of trees per farmer to which treatments are applied. In fact, the provinces of Kayanza, Kirundo and Muyinga actually decreased the average number of trees to whom applications were applied, while farmers in the Ngozi province increased by almost 19% the number of trees receiving applications per coffee plantation.

Training of DPAE agronomic staff and Community Administrators in practices for improved coffee production

In anticipation for BAP's scheduled closedown in September 2012 and to facilitate wider extension of techniques proven to increase coffee productivity, BAP, during this reporting period, facilitated the training of field level extension partners, principally of the DPAE, who have a contract with InterCafe to provide extension services to coffee smallholders; as well as administrative leaders from different communes in the project zone. This activity registered a high level of success in Kayanza and Ngozi provinces where support from provincial authorities motivated participation. In Kirundo and Muyinga, however greater efforts need to be made as no administrative authorities attended and only a minimal amount of DPAE agents participated in the training. In Kayanza, we lack quantifiable information on the number of communal administrators who attended this training, but have documentation indicating 144 agents of the DPAE participated

In total 533 DPAE agents and 67 Communal administrators participated in these sessions.

Zone	Personnel DPAE	Communal Administrators	Total
Kayanza	144	Not available	144
Ngozi	324	67	391
Muyinga	31	0	31
Kirundo	34	0	34
Total	533	67	600

Actions undertaken to improve soil fertility through incorporation of anti-erosive bunds in coffee plantations and intercropping of agroforestry trees in coffee farming systems

During this reporting period BAP, in collaboration with the cooperative Kawa Nziza of Kagombé, initiated an activity designed to improve the environmental conditions of 300 coffee farmers on six hillsides in Mwakiro Commune of Muyinga Province. The farmers planted 500.000 cuttings of forage crops (*Tripsacum* and *Pennisetum*) on bunds through their plantations to create dense living fencing in order to prevent soil erosion. In total 75 km of bunds were planted, an average of 250 m/household. In addition the 300 cooperative members planted a total of 12,500 agroforestry and fruit trees in their plantations. The forage, in addition to assisting in fighting against soil erosion will provide material for mulching the coffee plantations as well as forage for family livestock. Technical advice was provided by the agronomist based at the Kagombé washing station with assistance from BAP's ADC in Muyinga.

Capacity Reinforcement for Farmers and their Organizations

Training facilitated by ADC for Lead Coffee Farmers

During this reporting period ADC held 78 training sessions for 2.613 farmers, including 782 women (29.9%). A total of nine different modules were offered. Themes that retained the greatest interest of lead farmers were: a) Techniques for processing coffee (18 sessions with an average of 22.4 pp/session); b) Production of Certified Coffee (15 sessions with an average participation of 43.3 pp/session; and c) Fertilization (15 sessions, but only 36.2 pp/session). The most training sessions were held in Ngozi province (28 of 78 or 35.9%) followed by the province of Kayanza (22 of 78 sessions or 28.2%) and then the provinces of Muyinga and Muramvya with 9 sessions each). In Gitega during this reporting period, only 1 session was held with lead coffee farmers. The intensity of sessions correlates well with the concentration of BAP partner washing stations in any given province.

Synthesis of Training Sessions facilitated by ADC for Lead Coffee Farmers during Q2, PY 5

Theme	M	W	T	#s	pp/s
Composting Techniques	144	6	150	1	150.0
Environmental Management of Coffee Washing Stations	4	1	5	1	5.0
Producing Certified Coffee	354	296	650	15	43.3
Improved processing techniques for coffee	321	82	403	18	22.4
Fertilization	392	151	543	15	36.2
Agronomic maintenance of Coffee Plantations	248	50	298	12	24.8
Productivity	292	107	399	6	67.0
Nursery production of new coffee plants	10	48	58	1	58.0
Pest Management	66	41	107	9	11.9
Total	1831	782	2613	78	33.5

Training Sessions offered by Lead Farmers to Coffee Producers on the hillsides

Lead farmers organized a total of 268 training sessions on 222 different sub-hillsides in the project zone. A total of seven different themes were facilitated. In total 8,442 farmers participated in the training sessions of whom 43% were women. Effective participation (#SC x mean pp/s) was 6,993. The most popular theme was agronomic maintenance of coffee plantations (123 sessions on 86 sub hillsides with an average participation of 29.3 pp/s) followed by production of certified coffee (65 sessions on 63 hillsides with an effective participation of 2138 or 32.9 pp/s) and fertilization (50 sessions on 43 sub hillsides for an effective participation of 1346 or 31.3 pp/s). Women's participation was highest at sessions on Improved Coffee Processing Techniques, Production of Certified Coffee and Agronomic Maintenance of Coffee Plantations.

Training sessions facilitated by Lead Farmers for coffee farmers on hillsides during Q2, PY 5

Themes	M	W	%W	T	#s	#pp/s	#SC
Composting Techniques	16	7	30.4	23	2	11.5	2
Production of Certified Coffee	1214	922	43.2	2136	65	32.9	63
Pest Management	219	146	40.0	365	12	30.4	12
Agronomic maintenance of coffee plantations	2055	1545	42.9	3600	123	29.3	86
Improved Coffee Processing Techniques	148	225	60.3	373	9	41.4	9
Fertilization	898	666	42.6	1564	50	31.3	43
Coffee Productivity	262	119	31.2	381	7	54.4	7
Total	4812	3630	43.0	8442	268	31.5	222

Several lead farmers have initiated discussions on coffee productivity based on the results witnessed at BAP facilitated demonstration plots. Using these examples they are motivating farmers to adopt best practices for coffee production in order to improve their year on year productivity.

Lead Farmers in the provinces of Ngozi (116 sessions) and Kayanza (115 sessions) were most active during this reporting period, followed by those in the provinces of Kirundo (23 s) and Muyinga (14 sessions). Information on lead farmer training was not furnished during this reporting period by ADC in the provinces of Gitega, Muramvya, Bubanza and Cibatoké. Hopefully, these will be capitalized in our report at the end of the 3rd quarter of this project year.

Training sessions on Coffee Productivity, Coffee Quality and the Specialty Coffee Market

These sessions, facilitated by BAP's Coffee Team covered themes related to coffee productivity, coffee quality, targeting the specialty coffee market and preparing to compete in the Burundi Cup of Excellence competition. Sessions were offered in six provinces-Bujumbura, Kirundo, Muyinga, Ngozi, Kayanza and Gitega. Of 347 people invited, 299 or 86% of those invited, participated. Invited parties who chose not to participate in these sessions derive mainly from the WebCor and Sonicoff zones.

Lessons learned during these training sessions

During this final project year BAP expanded participants at these training sessions to include coffee farmer representatives and washing station managers from all over the country. During the workshops it was documented that many of the techniques promoted by BAP have already been disseminated and are being practiced at stations in all Sogestals of the country, save Mumirwa where the information was closely held by the staff at our three partner washing stations and never disseminated widely. During discussions we noted that certain washing station managers and technical supervisors were particularly adept at sharing their experiences and convincing others to adopt the new technologies these were:

The washing station managers of Murwi and Buhayira (Mumirwa), Gasura (Kirundo), Rugerero, Ngogomo, Kagombé and Murago (Muyinga), Murambi, Rutanga and Rugabo (Ngozi), Segec, Kinyovu and Musema (Kayanza), and Butemba, Mahondo, Teka and Kibuye (in Kirimiro- Gitega and Muramvya) as well as the technical supervisors from Kirundo.

Coffee Promotion and Marketing

Actions in this area during the current reporting period included preparations for the Burundi Cup of Excellence competition 2012, participation at the East African Fine Coffee Association trade show and symposium in Addis Ababa, preparations for the SCAA Trade Show, and the distribution of the quality premium to farmers who produced winning lots for the 2011 Burundi Prestige Cup Competition.

Cup of Excellence 2012

During this reporting period seven distinct activities related to the 2012 Burundi Cup of Excellence were accomplished:

1. The dates for the event were finalized and confirmed by ACE
2. The COE Burundi organization committee was established
3. The site for the COE was determined

4. The competition has been publicized both through radio spots and the production of posters in Kirundi that have been disseminated to all washing stations
5. Training sessions for Burundi cuppers, roasters and COE auditors was facilitated by Alliance for Coffee Excellence (ACE) personnel Paul Songer and Eric Taylor
6. Participation in a meeting of COE country coordinators in Honduras and
7. Sensitization/Training for farmers, washing station managers and heads of production from Burundi's coffee production zones on the Cup of Excellence competition and the methodology to be used in determining the best Burundian coffees of 2012.

Cupping Training

A refresher course for 24 potential National Jury candidates was held for three days. Nine cuppers work for ARFIC, five work for the Sogestal, 2 for WebCor, 3 are students at the University of Ngozi, one is a student at the University of Burundi, and 3 are young graduates of ITAB. Only 18 of 24 invitees participated as only 5/9 of invited ARFIC participants came, no-one came from the Sogestal Mumirwa and 1 of 3 students from the University of Ngozi was absent. The training focused on standard cupping preparation methodology and the capacity of individual cuppers to differentiate slight changes in the fundamental esters of coffee. Of the 17 who took the qualifying test, eight showed they had mastered both the sample preparation and were consistent in the differentiation, three others should a moderate skill level, while the remaining six still need apprenticeship in order to master the techniques.

Roaster Training

Roasting plays heavily in cupper's appreciation of high grade specialty coffee, especially coffees where the characteristics, profile, and quality are near to one another, as is often the case in Burundi. In order to assure use of standard roasting practices (quantity, temperature, time, color) in order to avoid having competition coffees eliminated for roasting defects, 10 candidates were trained according to ACE standards. Four are roasters with ARFIC, one is a quality control cadre with the Sogestal Kirundo-Muyinga, one performs the same function at WebCor, 2 were ITAB graduates that BAP has been training as cuppers, one student from the University of Burundi who served on last year's National Jury and one roaster from a new Woman owned and operated Burundian Roasting Company ExpressCafe.

Auditor Training

Auditors play a large role in ensuring objectivity, transparency and chain of custody through the COE competition in order to ensure the judges and cuppers are presented with properly coded double blind samples when cupping to determine the best coffees in the competition. Ten candidates, each with a mastery of English and good computer skills were chosen to participate in the two day training for auditor followed by five days of practical exercises. All candidates (6 men and 4 women) are University graduates who have not yet found employment. Testing showed that 2 of the candidates were apt as auditors with final grades above 90%. Three others scored between 80 and 90 %, while the other five scored below 80%. Those scoring above 80% will have their performance re-evaluated in July to see who will be hired for the duration of the competition.

Results from the Cup of Excellence Country Coordinator's Meeting in Honduras

The 10 country coordinators met with ACE Board members and Executive Staff during the month of February. It was a time to meet, network and exchange experiences. Each country coordinator presented the context within which COE has evolved in their country, underlining country specifics and differences. Once the differences were expressed, the ACE board met to determine the norms and standards for this year's competition. Recommendations emanating from the meeting were:

- Open the COE to all coffee farmers
- Be Transparent
- Ensure traceability from the farmer to the prize round of the competition
- Make every effort to geo-locate the growing zones producing the prize winning coffees
- The Organization Committee must be impartial
- The minimum lot size is 15 sacs of green (900 kg) milled and conditioned for zero defects, cupping at a minimum of 85 points/100.
- Solutions must be found for delays in expedition post auction
- The Coffee Farmers must be paid right away to keep them engaged and motivated

Future perspectives include:

- All winning coffees must be milled, vacuum packed and samples sent to all interested buyers BEFORE the internet auction
- Fact sheets giving the history of winning washing stations (with photos) should be developed for each winning lot. Without this type of documentation, lots will not be purchased

Preparation and Participation at EAFCA

The East African Specialty Coffee Conference was held in Addis Ababa Ethiopia from 15-19 February 2012. Though BAP anticipated sending five participants, only two were able to obtain visas and travel. The top Burundian Coffee Researcher and a BAP project agronomist travelled to Addis with proper documentation and letters of invitation to participate in the scientific symposium, conference and trade show only to be turned away by Ethiopian Immigration Authorities under the pretext that they did not figure on an "approved" list. They flew back to Burundi on the next flight. Because BAP's Specialist for Coffee Promotion and Marketing was also excluded from the list we cancelled her travel at the last minute. Thus it reverted to BAP's COP and Specialist in Coffee Quality to support the Burundian Delegation at this event. We assisted in setting up the exposition stand, arranging brochures, maps and pamphlets, and in hooking up the audiovisual equipment. The stand was advertised under the banner Café du Burundi and staffed by three cadres, two from InterCafe and one from ARFIC.

The symposium themes this year focused on sustainable productivity and market linkages. Unfortunately, other than BAP staff, participation at symposia by the members of the Burundian Delegation was severely limited and so much of the knowledge being imparted and discussions undertaken lacked the perspective of Burundi.

BAP's Coffee Quality Specialist, Tharcisse Niyungeko, participated in judging this year's **Taste of Harvest** as an observer. This year, only eight countries submitted samples- Burundi, DRC, Ethiopia, Kenya, Tanzania, Malawi, Uganda and Zambia. Five of 36 samples that made the competitive round were from Burundi. The jury, composed of 12 members from 10 different countries passed 18 of the 36 samples through with scores greater than 85. The three Burundian Coffees, respectively from Kirundo Muyinga, Kirimiro and Kayanza all cupped higher than 85. Burundi's highest scoring coffee, from Kirundo Muyinga scored 87.46. This year Burundi's samples were taken at random from those that were presented to the International Jury at the 2011 Prestige Cup. Burundi is disfavored in this competition because EAFCA takes place a full 7 to 8 months after Burundi's harvest has occurred. In the future it is recommended to vacuum pack samples and adopt objective criteria for their selection in order to best promote Burundian Coffees to judges from the world's foremost specialty coffee laboratories.

Facilitation of contacts. Meetings held at EAFCA included Daarnhouwer Coffee, Dunkin Brands, Dunn Brothers, Schluter, Café Imports, Armadjaro Coffee, Mercanta Coffee Hunters, Yara Fertilizer suppliers, Sustainable Harvest, Penagos, and Utz Certified. Discussions between M. Gert Jan Kos of Daarnhouwer Coffee resulted in the purchase of two containers of Kayanza Coffee from the 2011 season still in stock at the SIVCA dry mill and stored with Grain Pro liners. The price paid for these 38.4 mT of coffee was over \$178,000 USD. Further, the purchaser engaged the services of a Burundi freight forward company met at the conference and was so impressed by the quality of the coffee he is presenting it for competition at the Specialty Coffee Association of Europe meetings in Vienna in June 2012. Following his successful transaction, Mr Kos has begun negotiations for the direct sales purchase of coffees from the Sogestal Ngozi as well.

Distribution of the Farmer Premiums from the Burundi Prestige Cup

By the end of the reporting period all payments for Prestige Cup lots had been received from the buyers. Distribution of the premium to farmers contributing to winning lots was underway with a kickoff event at the Kiriya washing station in Kayanza who had the highest scoring lot in the competition. The ambiance at the event and the excitement of the winning farmers should be enough to encourage other farmers to produce for quality. While it is true that the volumes of coffee implicated in this type of event are not large, the premium distributed to individual farmers for their efforts, rather than to a collective of farmers, sets the stage for increased competitiveness in the sector as well as for positive emulation.

At the SEGEC washing station, Mpanga, the Prestige cup premium was distributed to only 30 farmers. The minimum premium received was 50.000 FBU, the maximum 209.000 FBU. This translates to an increase of 586 FBU/kg of cherry brought to the station by the farmer or an increase in the per kg price of cherry for the winning farmer of 93%.

Certification of Burundian Coffee

Activities designed to assist cooperative owner/operators of BAP sponsored mini-washing stations to become fair trade certified began during Q2. Principle steps to achieving FLO certification that were undertaken during this reporting period are:

1. Organizing training groups on hillsides and facilitation of sessions for Lead Farmers

2. Updating the register of cooperative members
3. Collection of pertinent background information needed for the FLO certification application
4. Preparation of the dossiers for cooperative affiliation to FLO-CERT
5. Signature by Cooperatives of the certification contracts
6. Payment of the certification fees
7. Finding a market for Fair Trade Certified Products.

Organization of Coffee Farmers on the Hillsides

ADC accompanied by the presidents of the cooperatives visited different hillsides in the mini-CWS draw zones and sensitized the coffee farmers to organize themselves into training cells in order to receive training related to certification from lead farmers. The first training sessions, held during February and March covered the following technical themes:

- Certification and why it is of interest to farmers and consumers
- Types of certification
- Criteria for becoming certified
- Advantages of certification.

Two hundred seventy five lead farmers, of whom 125 (45%) were women received this training and agreed to replicate it to the coffee farmers on their hillsides.

BAP's Coffee sector team leader developed a trainer's manual for ADC and federation agronomists on certification so that they could refer to it when training lead farmers. In order to illustrate the principles of certification examples were taken for other food products in specific regions of Burundi, notably palm oil and fish products from Rumongé and banana wine from Cibitoké.

For instance, most Burundians use palm oil in their daily sauces, but have never seen an oil palm or the palm oil extraction process. Thus they may wish to know the answers to certain questions – Where does the palm oil originate? Who produced it? How are oil palms grown? With what inputs and pesticides? What transformation is necessary to convert oil palm nuts to palm oil? What products are used? Does the producer's socio-economic situation enable them to guarantee annual production of a certain quantity and quality of palm oil? Do traditional growing techniques respect the environment? What are the conditions under which day labor is hired to work the plantations? Do they have sanitary facilities, proper tools and protective clothing? Etc..

Participation in certification training sessions.

COOPERATIVE	# of Sessions	PARTICIPANTS	Men	Women
DUSANGIRIJAMBO	2	128	51	77
MPEMBA	1	45	28	17
MBONERAMIRYANGO	1	102	71	31
TOTAL	4	275	150	125

Registration of Cooperative Members and their plantations

In Burundi it has historically been quite difficult to get an accurate count of association members, their gender and the size of their coffee plantations. Using the indicator of land area under coffee cultivation and dividing by an average of 2666 trees/ha BAP extrapolated the information in the following tables. The number of producers per association will be validated through the use of identification numbers issued for farmers who bring their coffee to the washing station

Cooperative Members

<i>Coopérative</i>	<i>Men</i>	<i>Wmen</i>	<i>Total</i>	<i># of Associations who are members</i>
<i>DUSANGIRIJAMBO</i>	287	55	342	30
<i>KAZOZA N'IKAWA</i>	232	40	272	38
<i>MBONERAMIRYANGO</i>	94	19	113	13
<i>TOTAL</i>	613	114	727	81

Coffee Trees and Land Area under Cultivation

<i>Coopérative</i>	<i># of farmers</i>	<i># of coffee trees</i>	<i>Land Area under cultivation in ha</i>	<i>Mean # of Trees per producer</i>	<i>Mean Land area under production per farmer in ares</i>
<i>DUSANGIRIJAMBO</i>	342	169 032	63,40	494	18,53
<i>KAZOZA N'IKAWA</i>	272	97 222	36,46	357	13,40
<i>MBONERAMIRYANGO</i>	113	54 759	20,53	484	18
<i>Total</i>	727	321 013	120,40	441	16,56

Market Opportunities for Fair Trade Certified Coffee

A French trader interested in Fair Trade Coffee was identified, Malongo Coffee. The owner of this company has planned a trip to Burundi in early may to visit the mini-washing stations and evaluate their potential to serve his clientele.

First Realizations from the Mini-Washing Stations

The Dusangirijambo Cooperative started receiving cherry on the 17th of February. By March 31 13 lots of coffee totaling 32 mT of cherry had been received from 889 different individuals. The station has hired 5 permanent staff members and 45 temporary workers of whom 19 (42%) are women. The Penagos Eco-pulper has proven itself able to process 1300 kg of cherry/hr vs its theoretical capacity of 1500 kg/hr.

The cooperative Mboneramiyango started receiving coffee on 27 March. By the 31 of March it had already received 5 lots totaling 9800 kg of cherry. They have hired 4 permanent staff members and 30 temporary workers, ten of whom are women. Their ecopulper can process 1300 kg/cherry/hr.

Initial Observations of Changes occurring because of the Mini-Washing Stations (Lessons Learned)

Job Creation for Cooperative Members

In their first days of operations the mini-washing stations have had no trouble in attracting farmers. The farmers appreciate the proximity of the stations and the transparency of their management, especially operations like the quality control and weighing of cherry at reception. Since its inception the washing stations have provided employment opportunities for their members and others in the community- first in the supply of building materials, then in the construction of the infrastructures to house the ecopulpers, the construction of the warehouse and the drying tables. Finally, upon opening, each station has hired at least four permanent staff and appx 30 day laborers of whom at least 30% are women. The mini-washing stations provide a gathering point and a center for training sessions in their draw zones.

Improved Solidarity among Cooperative Members

The construction of the Maruri Washing station served as a motivator for cooperative members, with assistance from the commune to construct a 700 meter access road to the station. The commune mobilized the population to trace the road, dig the ditches and pack the laterite into the roadbed. The cooperative paid for the laterite and the trucks to transport the laterite to the site.

Proud of their station, the population in proximity to Maruri has ensured the security of the site. Since work began, there have been no thefts at the worksite. Further workers and cooperative members at the site have developed systems to support each other in case of a breakdown of equipment or technical advising. When one mini-washing station's machine broke on the weekend, the second cooperative sent their technician to assist the second cooperative in repairing and calibrating their machine, all for the modest payment of transport costs.

Improved analytical and decision making capacity

The Musema cooperative has operated a mini washing station for two years. Their machine can process 500 kg/cherry/hr. The President of the Cooperative and his washing station manager shared their experiences with cooperative members from the new washing stations detailing the manner in which they've organized the work of managing the station and detailing the constraints they've encountered and solutions they've used to overcome these constraints.

Development of a strategy to produce "quality" coffee

Owner/operators of the mini-washing stations, having experienced the performance of their ecopulping machines have decided the following and sensitized farmers bringing their cherry to the station that:

- Every producer who brings their cherry to the station before 15h00 will benefit from a premium of 10 FBU/kg while those who bring cherry in between 15h00 and 18h00 will only receive a 5 FBU/kg bonus for their cherry.
- Producers who wait until they arrive at the station to condition their cherry will only receive the published base purchase price/kg.

The Case of Ruhororo Washing Station

The President and washing station manager from Ruhororo shared the following experiences from their first year of operations:

- The washing station lost 6 mT of parchment because they had not properly mastered the drying techniques. The first batch of parchment taken to SODECO for milling had over 12% humidity remaining. SODECO refused to mill the coffee. The Washing Station had to transport the coffee to Bujumbura, redry the coffee and in the process lost 6 mT of weight as well as a quality classification for their coffee
- Operations at the washing station began before the proper management tools were in place. This led to confusion in registering cherry purchases and created a crisis of confidence with the members as well as difficulty in calculating the transformation efficiencies to see if the machines were properly calibrated. According to the Vice President of Rohororo, having the proper tools in place and being trained to use them before the beginning of the season is one of the keys to operational success.
- The cooperative members were incapable of producing a financial statement of their operations and so needed to hire an outside contractor to do the work for them. This ended up costing them more money and reducing the profitability of operations for the members
- After analyzing the situation, the association's members decided they needed to change the washing station manager and sought someone with greater management experience.
- In order to remain competitive in the environment, where multiple actors are vying for producer's coffee, the association members decided to create small, decentralized collection centers (reception/weighing centers) for cherry to limit the distance farmers need to travel in bringing their cherry to the station.

Conclusion

The second quarter was one of intense activity for the coffee sector. Not only did the team focus on training activities to improve coffee productivity, coffee quality and the processing techniques, but we added to our training regimen seminars in best practices for DPAE extension personnel as well. The preparation of the mini-washing stations for the beginning of the campaign took much effort by all parties. Training the mini-washing station personnel for the management of their stations and beginning the steps to Fair Trade Certification required a concerted effort by the field agents and the coffee team. Promotion activities and preparations for the 2012 Cup of Excellence are well underway.

Principle Activities to be undertaken in Q3

- Collect harvest data from project demonstration sites
- Continue training of DPAE staff in best practices for Coffee
- Monitor the management of the mini-washing stations by the cooperative owners and offer timely support in case of constraints
- Assist the Burundi delegation in having a successful trade show at the Specialty Coffee Association of America meetings in Portland Oregon
- Continue preparations for the Cup of Excellence
- Pursue actions leading to Fair Trade Certification of our partner mini-washing stations

Dairy

Introduction

This reporting period was characterized by preparations for the opening of the second milk collection center at Rutegama, in-service training for the managers of the MCC Bukéyé and assistance to dairy processors and other downstream users of fresh, quality milk.

Dairy Deliverables Matrix

Indicators	Results accomplished Q2, PY 5	Cumulative
Start improved fodder cultivation/enclosed production training activities to build capacity of new livestock groups		
MTOUs signed between BAP and 6 new livestock groups with approval from Provincial DPAEs covering 140 new farmers		Not yet
20 new Lead Farmer training agents trained		Not yet
3 new Communal Agro-Technicians Trained in improved livestock techniques		22 new communal agro-technicians trained (9 in Ngozi, 6 in Makamba, 7 in Muyinga)
3 of the 6 Groups have enacted Livestock Development Plans initiated by the end of the year for improved production and associated economic activities	2 groups, one in Bukéyé and the other in Rutegama began implementation of their development plans during this reporting period	2
4 of the 6 groups operating with appropriate statutes and governance mechanisms		8 group operate with statutes and governance mechanisms
12 PO leaders/members participating in study tour to Kenya		Not yet
Sign agreements with new groups to support improved productive practices		
6 agreements with POs signed	Not yet	Not yet
6 improved fodder trial plots/nurseries established 20 enclosed stables constructed with participation of groups membres		6 fodder trials plots established
At least 20 kg of improved fodder seed and 10,000 cuttings of penisetum grass are produced by farmer multipliers in each of the 6 Groups/Group members in year 3. At least 10 chop boxes and a similar number of manual hay balers disseminated	Fodder seed for 4 varieties distributed to dairy herders in 3 associations in Matana Commune Bururi Province. Fodder species are Banana grass, Desmodium, Mucuna and Macrotyloma	Improved fodder seed and cuttings of penisetum have been distributed to farmer multipliers and the production will be available in quarter 3. 5 chopping box and 5 bailing cases disseminated. Three associations in the commune of Matana in Bururi received assistance for planting of 4 improved fodder varieties
Build on past progress with groups assisted in years 2 and 3 to increase production volumes and introduce key new fodder crops		
30 kg of fodder seed and 20,000 cuttings of hybrid Napier grass from ISABU are produced by farmer multipliers and distributed to group members in Bukéyé and Rutegama		Not yet
At least 4 agreements made to begin transitioning dairy ADCs extension agents/communal agro-technicians to Pos		Not yet
Implement a small farmer dairy productivity system		
500 "fiches de production" with milk production figures are distributed and being filled in by members in BAP assisted Pos		500 "fiches de production" with milk production figures distributed and filled in by members
Begin a program of Artificial Insemination (AI) to improve the genetic characteristic of small farmer dairy herd		
10 of Communal Agro-Technicians trained and equipped with AI Kits		15 communal Agro-Technicians trained but not yet equipped
300 farmers in milk draw zones adjacent to MCC receiving 500 AIs during year		42 farmers received AI
A target rate of success of 45% is achieved		A rate of success of 72.5% achieved
Implement a vaccination plan on a cost-share basis with POs around Milk Collection Centers		
A minimum of 2 agreements signed with Pos in Bukeye to set up a system of veterinary services		Not yet
At least 2,000 animals receive vaccinations		Not yet
Undertake a training program directed at Communal Agro-Technicians		
50 communal agrotechnicians trained in bovine health and dairy hygiene and equipped with basic veterinary kits		22 communal agrotechnicians trained
Construct Milk Collection Centers (MCCs) for BAP grantees in Bukéyé and Rutegama. Bukéyé		
2 Grants for MCCs approved		Already done (MCC Bukeye and MCC Rutegama)
2 MCCs equipped and ready to receive milk deliveries	Rutegama became operational during this reporting period	Two MCC equipped. Bukéyé is Operational. Rutegama became operational as of 16 April 2012
Support the establishment of other MCCs by farmer groups and private investors		
Assessment for 2 new MCCs	1 assessment in Bururi	1
Milk supply projections, animal census for 2 new MCCs	Not yet	Not yet
2 new MCCs enter operations	Not yet	Not yet
MCC Grantees receive capacity building in both technical and managerial requirements for operating MCCs		
Farmer households trained in hygienic milk handling and transport	Done	Done
Required staff/personnel hired and trained in MCCs operations (Bukeye and Rutegama)	Accomplished for Rutegama	Completed for MCC Bukéyé and Rutegama
MCC personnel study visit to Rwanda		Not yet
MCCs receive help in establishing linkages to dairy buyers		
Model contract completed		Done
Supply contract(s) negotiated with processors /retailers		MCC Rutegama is linked to IAB processor and Ngozi farmer groups to Nyabisabo processor
Contract performance monitored /disputes arbitrated		Done
Development of training program for Burundian processors		
Workshop on cold chain management and EAC hygiene standards for processors		Workshop held and 20 persons participated
Development of Dairy specific training modules in French on proper hygiene principles and sampling/monitoring for EAC health standards	Not yet	Not yet
Individualized training based on needs assessment for each operational dairy processor and their staff	8 dairy processors received individualized consulting services; 4 processors received training on the production of thermized long shelf life yoghurt products	8 dairy processors received individualized consulting services; 4 processors received training on the production of thermized long shelf life yoghurt products
Help the national veterinary laboratory initiate a program of milk quality testing		
Study tour to RARDA (Rwandan Animal Resources Development Authority)	Not yet	Not yet
Assistance in Standard laboratory procedure development, use of milk testing equipment and interpretation of results		Training already organized, the equipment not delivered
A workshop will be facilitated with dairy processors, NVL staff and BBN personnel to discuss EAC health and hygiene requirements for fresh milk products, roles and responsibilities of each entity and the challenges to achieving compliance		Done
Support artisanal cheese production		
At least 1 BAP Activity Grant for improved cheese production	Not yet	Not yet
1 business plans produced	Not yet	Not yet
2 new cheese products are developed and test marketed	Not yet	Not yet
Packaging and branding are improved	Not yet	Not yet

Activities Undertaken during this Reporting Period

Improving the Capacity of Dairy Associations by ADC

ADC in three provinces (Bururi, Muramvya and Ngozi) offered training to dairy associations during this reporting period. In total 10 different themes were offered to farmers on 11 different hillsides. Total participation was 150 of whom 35.9% were women. Effective participation (# s/collines x mean pp/s) equals 108.7 pp/s.

Themes/Prefecture	Participation			# sessions	#s/collines	X pp/s	% women
	Men	Women	Total				
NGOZI							
Importance of forage crops and their management	2	2	4	1	1	4	50.00
Exchange on the current situation of the Milk Collective	2	1	3	1	1	3	33.33
Organizing a producer association	5	1	6	1	1	6	16.67
Improved compost production	4	2	6	1	1	6	33.33
MURAMVYA (Rutegama)							
Evaluation of the current state of improved forage production	24	27	51	3	3	17	52.94
Organizing Milk Collection	7	4	11	1	1	11	36.36
Evaluation of the state of Leucaena and Calliandra	1	10	11	1	1	11	90.91
Organization and management of a dairy producer association			6	1	1	6	0.00
Using a triangle to trace contours	22	13	35	1	1	35	37.14
Milk Hygiene	5	1	6	1	1	6	16.67
BURURI							
Development of a project to increase and diversify forage production	8	3	11	3	2	3.67	27.27
Total	80	64	150	15	11	9.88	35.88

Training facilitated by Lead Farmer/Community Veterinary Agents

Members of six associations received a total of 11 technical themes during this reporting period. Total participation was 242 of whom 164 or 67.7% were women. Mean participants per session equaled 17.78 with a maximum of 28 pp/s and a minimum of 10 pp/s. Effective participation equaled 106.7. the most popular theme judged by total participation was prevention and treatment of bovine East Coast Fever followed by skin diseases, nutritional deficiencies and parasitic diseases.

Theme	Participants			% women	# Assn.	X pp/s
	Men	Women	Total			
Prevention of disease under permanent stabling	5	21	26	80.77%	1	26
Skin diseases	13	15	28	53.57%	1	28
Nutritional deficiencies	13	15	28	53.57%	1	28
Parasitic Diseases	13	15	28	53.57%	1	28
Prevention and treatment of Bovine East Coast Fever	13	45	58	77.59%	5	11.6
Forage crops and their use in an agroforestry soil retention system	5	6	11	54.55%	1	11
Milk Hygiene	2	8	10	80.00%	1	10
Elements to produce good quality milk	1	13	14	92.86%	1	14
Benefits of permanent stabling	4	9	13	69.23%	1	13
Symptoms your cow is sick	5	11	16	68.75%	1	16
Diseases that provoke cow miscarriages during pregnancy	4	6	10	60.00%	1	10
Total	78	164	242	67.68%	6	17.78

Development Plans for Dairy Associations

The development plans adopted by associations in Bukéyé and Rutegama are beginning their implementation phase. In Bukéyé, the ADC began with an evaluation of existing infrastructures available at the association level. At the present time there is 1 hectare improved through the placement of 10 anti-erosive bunds using Calliandra and Leucaena to retain the soil. In Rutegama, the ADC began with the construction of a wooden triangle to assist association members in determining the contours on their land for proper placement of the anti-erosive bunds.

Improvement and Diversification of Forage Crops

Diversification and improvement in forage crops remains a key element to producing larger volumes of high quality milk. In Bururi, BAP's ADC working with three associations in the commune of Matana has modified association member's behavior so the adoption of permanent stabling is beginning to take hold. In order to feed their animal association members now recognize that they need more land area under production with improved forages. With assistance from ISABU researchers the farmers have identified four forage species as adapted to their agro-ecological zone. These are: Banana grass, Desmodium, Mucuna and Macrotyloma. The associations have approached BAP to assist in procuring and transporting seed stock and in procuring organic manure. We note that the PARSE program has a planned Milk Collection Center for Matana which should be able to absorb the surplus production due to an increased availability of improved forage.

Dissemination of multipurpose leguminous forage trees

A nursery for multipurpose forage tree species was set up by dairy association members of the Nyaruke hillside of Rutegama Commune in the Province of Muramvya with assistance from BAP's ADC. The dairy farmers preferred to conduct their nursery w/o using plastic sacs to save costs and this transported bare roots for transplantation on their respective farms. A total of six farmers (including 1 woman) have already transplanted 900 Calliandra and 395 Leucaena from their nursery.

Genetic Improvement of Dairy Cattle through artificial Insemination

Eighty four cattle were inseminated during the training of AI technicians in November 2011. As of 31 March 2012, 20 of 84 (23.8%) had returned to heat and one cow suffered an mid term miscarriage. Thus 63 of 84 (75%) remain pregnant. Of these 34 (54%) are cows owned by the Bukéyé dairy farm and 46% are the property of rural dairy farmers who live in the draw zone of the Bukéyé MCC.

The Milk Collection Centers

Bukéyé

During this reporting period the MCC of Bukéyé purchased a total of 18,647 liters of milk at 550 FBU/liter. This injected 10.255.850 FBU (\$7326 USD) back into the community. While the number of farmers bringing milk to the MCC for sale has increased, the average number of liters per farmer per day has decreased over the past three months. A meeting of dairy association leaders held during March recommended the following changes:

1. Create a sales point at the MCC to supply veterinary inputs and feed supplements to farmers on credit. Said credit to be deducted from payments on milk these farmers bring to the MCC
2. Change the person at the MCC in charge of farmer payments because his attitude acts as a disincentive to farmers who bring milk to the center
3. Assist regular dairy farmer clients to open accounts at the post office or the COOPEC and transfer their payments directly into these accounts
4. Increase the price paid per liter of milk from 550 FBU to 600 FBU, effective April 1st to counteract measures being taken by the traditional milk collectors who have already increased their prices and are paying farmers up to two months cash in advance against agreements for future provision of milk to these same collectors.

5. Create a system of collection points and decentralized quality control testing on hillsides which are distant from the MCC
6. Farmers need to increase productivity of their cattle and change the milking regimen so that they are milking at least twice daily.

A monitoring mission of three days was arranged to Bukéyé to monitor operations and record keeping. An initial analysis showed that the management tools are up to date and reports are presented in a timely fashion. In order to facilitate data entry and data analysis a multilevel linked spreadsheet was developed in Excel. Recommendations derived from this monitoring visit include:

- Milk from the dairy farm should be monitored and tested just like that coming from outlying farmers
- Instead of globalizing the milk collected by the center, the collection from the farm and from the rural farmers should be disaggregated.
- A system of advancing payments to farmers in need who are regular customers of the MCC should be instituted.
- Farmers who are regular customers should receive milk buckets and cans w/o delay.
- Prices paid for milk at the MCC need to remain competitive to retain clients. Recently a traditional milk collector raised his price to 600 FBU/liter and eased credit terms for his clients. The MCC needs to be up to date with information on happenings in their draw zone and should quickly adopt new policies, if necessary to maintain a steady supply of quality milk to the center.

Rutegama

The construction of the center and its hookup to city electricity has been completed. The majority of the collection center equipment has been received and installed. The milk cans and buckets are en-route from Nairobi. The MCC is expected to open for operations on 16 April.

During this reporting period two series of training sessions were facilitated. The first was offered for the personnel hired to operate the center as well as representatives from the cooperative's management committee. Explanations were given on the operation of an MCC, the types of management tools to be used to track the operations and the financial knowledge necessary to monitor the transparency of the center's operations. Twelve people including 3 women and 4 committee members participated in this training. It was expected that the committee members would take their newly learned knowledge and share the information with the individual cooperative members on their hillsides. The second training was targeted for lead farmers and cooperative members and focused on hygienic milk collection, and the tests of quality which would be performed at the center before milk would be accepted and paid. Seventy seven participants attended this second session including two cadre from PRODEFI.

Assistance offered to other Milk Collection Centers

BAP facilitated contact between Bernard Biranyuranwa and the Bulgarian equipment dealer NIKOS. In the interim M. Biranyuranwa purchased a 300 ha farm near Rwira. He plans to convert this into a dairy farm with milk collection center and a mini dairy operation. Stables are being built based on plans provided to him by BAP. The operations in Muyange will be converted to a second milk collection center.

A request has been received by BAP from the dairy collective of Ngozi. At the present time they are seeking our support to procure proper milk equipment for transport from Ngozi to Bujumbura. They would like a milk collection center, but this, most likely will need to be financed by either PARSE or PRODEFI.

The Burundi Bio Agricultural Community has approached BAP for assistance in developing a dossier for a milk collection center to be created at Ryarusera.

Technical Support to Dairy Processors

During the month of March 2012, site visits and meetings were conducted with 9 processors and potential dairy processing sector investors by DAI Consultant M. Irwin Foreman. The topics discussed included equipment selection and purchase, product technology and plant operations.

1. Meetings with Processors

At meetings with individual processors and potential investors, discussions focused on equipment options, types of equipment, performance characteristics and choices of specific equipment conformations. Processing operations and management strategies were also discussed. Quotation requests for equipment were forwarded to Snowmans and Nikos.

1.1 Naznim Jiwan

The dairy business is very small, processing only a few hundred liters of yoghurt per month, and a smaller volume of ice cream. The processing operation and available equipment is on an artisanal scale, though the premises are excellent and have the potential to handle significantly larger volumes of products.

Mrs. Jiwan perseveres with the processing but is unable to develop and expand the operations due to demands of other businesses activities. She also does not have the technical knowledge required to develop the dairy product business. She said that she was at a cross-road with the dairy business, and had to decide whether to expand it or to close it down. The income generated did not justify the inputs required to maintain it at its present level.

She processes ice cream and yoghurt, in very small volumes. She imports small volumes of yoghurt from France for sale to retail shops. She purchases raw milk, but does not pasteurize it.

The consultant reviewed the scope of the present operations and suggested that she should consider expanding the volume of milk processed, which she could easily do without any need to increase the number of employees. By doing so, she could increase her cash flow by processing larger volumes and so better utilize the current staff. I also reviewed an artisanal method for the production of cream/white cheese in which she was interested.

She asked for help in identifying a dairy technician who she could hire to guide, expand and organize the dairy business. BAP recommended Egesa, and arranged a meeting for them, which took place.

The need for larger capacity processing items, and to include a batch pasteurizer, was also discussed, and I have connected her to Snowmans (Kampala). Assuming that Egesa becomes involved in the

business, he will be able to guide Mrs. Jiwan on the purchase of equipment, and develop and expand her dairy business.

1.2 Ntazimba

The visit was received by Mr. Serufunya Etienne.

The plant is experiencing a shelf life problem with the pasteurized milk they are processing. I reviewed the process in detail, as it is done in the plant, and suggested a number of improvements. Essentially, the problem is two-fold. The first problem is that the processing and filling equipment is not being properly cleaned and sanitized. It became apparent that the plant is not using appropriate chemical solutions, but using only detergent and soap. The second problem is that the filling equipment is constructed from valves and connections intended for water pipeline plumbing. It cannot be adequately cleaned and sanitized. The present equipment would be difficult to clean and sanitize even if the correct chemicals were to be used.

The consultant pointed out that the real solution is to invest in proper equipment, but as a temporary strategy they should use chipped ice to layer over the milk when the milk is in storage and transportation.

There is some doubt whether Ntazimba is any real intention to invest in appropriate processing equipment, the consultant suggests that DAI should follow up by assessing the intentions. The consultant expressed reservations about asking an equipment supplier to prepare quotations if the plant has no serious intent to invest. If DAI concludes that there is a real intention to invest then the equipment needed by this plant is a pasteurized milk filling and sealing machine and a chipped ice production machine. The required investment, is estimated to be appx \$20,000.

1.3 Buja Milk

The visit was received by Mr. James Okelo.

This artisanal processor is processing a few hundred liters of yoghurt per day. The processing operation is entirely manual, and takes place in an outhouse in the garden of domestic premises.

Mr. Okelo would like to expand the business, but is seemingly handicapped by lack of funds for investment in equipment.

The key constraint is access to packaging materials (yoghurt cups), which he has been buying in Nairobi. He asked to be connected to other suppliers. The underlying problem is that he does not have sufficient funds to enable him to buy a large supply in bulk. He would also like to invest in a small batch pasteurizer and other equipment items. It was suggested he contact Snowmans, though he later said that he knew Snowmans and would contact them.

1.4 Nyabisabo

The visit was received by Mr. Joseph Butoyi.

This plant was purchased directly in China. As yet, not all the equipment is operational. The plant is processing approximately 1200 litres/day, making pasteurized milk, and flavored yoghurt.

Mr. Butoyi would like to process long shelf life milk. It was explained to him that the pasteurization equipment in his plant, is actually a sterilizer and is suitable for processing long shelf life milk, as is done in China.

As he was also interested in processing long shelf life yoghurt, he was invited to participate in the pilot trial for thermized long shelf life yoghurt, which he did.

1.5 Ferme Biranyuranwa

The meeting was attended by Mr. Bernard Biranyuranwa and Edourd Bigirindavyi.

Following previous visit, Nikos (Bulgaria) visited Burundi and met with, and gave them a quotation for supply of an Extended Shelf Life (ESL) pasteurised milk and yoghurt turnkey plant. The approximate quotation price is 750.000 Euros.

The consultant reviewed and discussed the quotation in detail and answered their questions. They asked for an addition to the quotation, for a UHT sterilizer as a possible option to replace the ESL pasteurizer. This request was forwarded to Nikos.

Financing support was requested. They were informed that Nikos was able to arrange financing support through Bulgarian banks provided by the Bulgarian government to support Bulgarian exports. A request for details was forwarded to Nikos.

1.6 Milk Chel

The meeting was attended by Alice Remezo.

The discussion focused on the quotation yet to be supplied by Nikos, and communications with Elcester who have been selected to supply the UHT line.

Alice is also interested in financing support and asked Nikos to provide information on Bulgarian financing possibilities and a revised quotation. Nikos sent the information. Nikos can arrange financing for both the equipment they would sell, and also to cover the UHT processing line equipment from Elcester. The latter can be arranged, provided that Nikos is nominated as the primary contractor.

In a further meeting, the quotation was reviewed, and in an exchange of emails with Nikos, reduced the quotation total from 500,000 to 400,000 Euros.

Alice proposed that she would meet Nikos in Nairobi in a few weeks in order to meet together with Elcester and proceed to finalize the purchase.

1.7 IAB Plant

The visit was received by the owner Mr. Juma Mohammed and the production manager Mr. Nestor Sibomana.

They informed us that they have given an order for a UHT processing line to Tetra Pak, at an approximate cost of US\$1.5 million. Financing is being provided by grants from World Bank and other donors. Installation and commissioning is planned for October this year.

We discussed the technology of UHT processing and provided detailed descriptions of process and quality control operations. Areas that will require attention and inputs are process control and technical training. Access to larger volumes of raw milk should be developed without delay. UHT processing costs are high, and need to be offset by processing large daily volumes and developing distribution and marketing chains. The intention is to market the milk into Congo.

Financial viability will largely depend on consistently processing large daily volumes of milk. Work needs to be done with local producers to improve raw milk quality, a necessary requirement for UHT milk processing. I emphasized that they should develop a proactive attitude to working with producers to tackle quality issues, and I described how this should be done. They asked for DAI help, but as this seems to be unlikely due to the lifetime of the current project. A case was made for them developing their own in-house raw milk quality improvement plan. They asked me for help with developing a plan of action. This could be done under the present DAI project funding.

They should also be encouraged to purchase and set up their own network of milk collection centers, where they could closely monitor and influence the milk quality. This is the usual strategy followed by large processors in other countries in the region.

1.8 Stanislas Hakizimana

Mr. Hakizimana, who attended the processors workshop, requested a private meeting to discuss his plans to purchase a small processing plant. He is currently purchasing Friesian cows from Rwanda. He plans to buy a plant with a capacity to process 1000 l/day, to manufacture yoghurt, pasteurized milk, cultured milk, cream and butter. I connected him to Nikos (Bulgaria) with a request for a quotation.

Thermized, Long Shelf Life Yoghurt Products

A group of 4 processors were instructed in detail on processing thermized long shelf life yoghurt. A one kilogram sample of a specifically selected stabilizer, suitable for processing the product, was given to each processor, to enable each to conduct a pilot scale trial in their own plants, while the consultant was available in Burundi to assist with the trials.

The stabilizer used: Hydroxy propyl distarch phosphate (E 1442); Gelatine

The characteristics imparted to yoghurt by use of the specific stabilizer include,

- Prolonged shelf life
- Prevention of syneresis
- Improved creaminess and texture
- Improved cost-efficiency
- Control of acidification and flavor development

The process procedure was explained to a group of 4 processors, and a 1kg sample of the stabilizer was given to each, to enable them to conduct a series of small-scale pilot trials in their own plants. The processors were asked to conduct the first trial while the consultant was still in Burundi, so that advice could be given in the plants while the trial was going on.

Process for the Pilot Trial		
1	Standardise milk to desired fat percentage	2% - 3.5% fat
2	Add stabiliser	1.2%
3	Homogenise at 60-65°C at 175-250 bar (2500-3600 psi)	
4	Pasteurise at 90-95°C for 5-10 minutes	
5	Cool to incubation temperature	43 – 45C
6	Inoculation with yoghurt culture	
7	Incubation at 43 – 45C	5 – 7 hours Final pH4.3±0.1
8	Start to stir at pH4.3 – Slow stirring	
9	If pH is higher than 4.3 then adjust using citric acid	
10	Heat treatment at 70-75°C for 10-15 seconds in heating equipment designed for cultured products	
11	Cool and add sterile fruit and/or flavourings	
12	Fill hygienically	
13	Store samples of final product at room temperature and in refrigerator	
14	Test samples every 3 days and keep a record of the results	

1. Examine samples every 3 days

Visual appearance
 Flavour
 pH
 Syneresis

Participants

Plant	Name	Position
Ntazimba	Etienne Serufunya	Advisor
Ntazimba	Samuel Mwangi	Technical Advisor
Nyabisabo	Ernest Kana	Technician
Nyabisabo	Alphonse Ntamubaano	Production Manager
IAB	Ir. Nestor Sibomana	Production Manager
DM Exportations	Mrs. Naznim Jiwan	Owner

Note: Each participant received a 1kg sample of the stabilizer and was requested to contact DAI and request the consultant to visit the plant between Wednesday and Friday to observe the trial process.

Processing and Technology Workshop

A 2 day workshop on processing and technology was delivered to a group of 16 dairy industry stakeholders. 16 people attended the workshop. The presenters were Irwin Foreman and Egesa Mangeni.

Participants	Organisation & Position	Telephone	Email
Ferdinand NYAMOYA	Fromagerie de Ngozi, Owner	+257 78 566 520	
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Nestor SIBOMANA	IAB, Production Manager	+ 257 77 77 65 96	nestorndondogori@yahoo.fr
Jiwan NAZNIN	JIWAN Lait, Manager	+ 257 75 918 488/ 79 918 488	Jnaznin51@yahoo.fr
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Presentation of the Technical Program:

Introduction to the World of Bacteria
Dairy Processing: A Management View
Raw milk Quality and the Shelf Life of Dairy Products
How to Purchase Dairy Processing Machinery
The Technology of Cleaning and Sanitizing Dairy Processing Equipment
Processing Yoghurt
Processing Efficiency in Dairy Plants

Assistance to the National Veterinary Lab

No forward action during this reporting period. We have learned that the procurement being facilitated by Nathan Associates will be delayed until the latter half of August 2012

Assistance to Artisanal Cheese Manufacturers

The unavailability of Bruno Kellar for this STTA has delayed implementation of this activity. BAP has identified a Kenyan Cheese Production Specialist. Negotiations are underway and if all goes well training in this area will be offered during Q3.

Principle Constraints

The biggest constraint for the sector is one of sourcing goods, equipment and reagents. These are rarely found in Burundi, thus requiring extra time to identify suppliers, receive quotes and import the necessary goods.

Conclusion

After numerous delays, the Milk Collection Center in Rutegama will begin operations during the next reporting period. In order to avoid further time lag, equipment which is not currently available in country will be borrowed from excess stocks currently held in inventory at the MCC Bukéyé.

During this reporting period the dairy sector fielded four interns to monitor activities at the MCC and follow up on activities related to forage improvement and erosion control.

Principle Activities to be undertaken during Q3

- Training in the hygienic production of new cheese varieties
- Training lead farmers from new dairy association partners as Community Veterinary Agents
- Procurement of Artificial Insemination Equipment and the true start of insemination activities in proximity to the MCC
- Organization of a campaign for dairy cattle vaccination and treatment of internal and external parasites

Horticulture

Introduction

The current reporting period from January to March 2012 has been one of intense activity for the Horticulture Sector especially because it had to accompany the field staff in monitoring of the nurseries established by farmer groups currently producing vegetables with financial support of the project's small grants program.

During this period the transitioning of activities, partners and knowledge to interested DPAE began. To this end, HVC held training sessions with the DPAE staff members on various topics related to GAPs, extension bulletins and leaflets were elaborated and printed in order to serve as reference post-BAP.

With CNTA as a partner, training activities on post harvest technologies have been carried out with producer associations in order to reduce the seasonal post harvest losses recorded by the vegetable growers. Two of the technologies available in CNTA's repertoire have been selected for training and replication in four major horticultural production areas of Burundi. These are solar drying and food (fruit/vegetable) canning.

In addition, the HVC established and extended the number of demonstration plots for the 2012B season. Documentation of project activities results and impacts in the target areas have been a great concern as the project approaches close down.

Overall, results from the field show growing interest among our stakeholders and there is evidence that techniques being promoted are being replicated by others.

Quantitative data: summary of sector performance

Q 1 indicators	Results Accomplished during Q2	Cumulative Results vs Workplan Targets
Increasing productivity through improved agronomic practices		
Number of demo plots established	13 in 4 provinces	47
New farmers trained in modern agronomic techniques.	1 944 farmers are trained	4.633
Volume of vegetables produced increase	28 tons	81.79 mT
Revenue from vegetables increase	8,473 million FBW	20.3 million FBW
Improving Marketability of Products Introducing Best Practices		
Farmer groups trained on the use of the wooden boxes	2 associations (25 pp including 15 women)	8 Associations
Farmers trained on post harvest handling technologies	158 trained by the CNTA (43% women)	326
Farmers trained on GAPs and GMPs.	606 farmers trained	1.171
Link with Other Institutions and DPAEs to Support Horticultural Expansion		
DPAE staff trained	306 local DPAE agent trained	337
Open days facilitated	2 days in 2 provinces	8 field days facilitated

Summary of Activities Undertaken during the Reporting Period

- Monitoring the performance of demonstration plots implemented during the season 2012A
- Documentation of results of demonstration plots and their impacts
- Implementation of new demonstration plots for the season 2012B
- Assistance and monitoring of horticultural grantees
- Training of DPAE's staff and ADC's on Good Agricultural Practices (GAP)
- Multiplication of extension materials and their dissemination to ADC's ,DPAEs and other stakeholders
- Training of post harvest technologies: solar drying and food canning
- Training on the use of wooden boxes

Monitoring the performance of demonstration plots implemented during the season 2012A

In Burundi, the season A covers the period from September to February. The BAP HVC team initiated in December 10 demonstration plots located in the provinces of Muyinga (3), Kirundo(3), Ngozi(3) and Kayanza (1). Targeted crops were green pepper, tomatoes, onion and cabbages. Due to poor rainfall distribution and localized drought conditions recorded during January and February, one demo plot in Muyinga province (farmer group Tugirisuku) registered tomato seedling mortality rates while at the nursery stage that rendered this demonstration field untenable. For the other nine demo plots, monitoring activities consisted of different tasks:

- Procurement of inputs (ropes and trellis for tomatoes vertical staking)
- Trainings on Best Agronomic Practices (BAP) facilitated by ADCs or the horticulture technical coordinator (TC) on various topics including optimum planting density (row and crops spacing), raised bed cultivation, fertilization, pest management, spraying, mulching and trellising.
- Facilitation of 2 field days with media coverage as part of a method of to replicate extension and dissemination of particular achievements by land owners to others in their community. Participation during these field days attained 146 people especially neighboring farmer groups members of the demo plots and 2 representatives of the DPAE.
- Gathering of production data and revenues from marketed yield for the six demo plots which are already producing in order to compare the performance done by each plot (control vs the improved treatment) of the experimental design.



Farmers attending training on tomatoes trellising

Table 1 Demo plot established during the season 2012A

#	Location	Owner	Crop	Stage	Observation @ 31 March
1	Kirundo	Abasangirakivi	Green pepper	Harvest	4400 Fbu from 11 kg ,sales are going on
2	Kirundo	Kamenyiyobweze	Green pepper	Harvest	112 200Fbu from 145 kg that are already sold, harvest is going on
3	Kirundo	Twijukiribikorwa	Green pepper	Harvest	103 200Fbu from 172kg that are already sold, harvest is going on
4	Muyinga	Mudahemuka	Cabbages	Harvest	40 000Fbu from 270 kg that are already sold,harvest is going on
5	Muyinga	Abagwizanyanya	Tomatoes	harvest	114 000 Fbu of revenues, harvest is going on(approx. 200kg)
6	Muyinga	Tugirisuku	Tomatoes	Essay failed	Drought caused seedlings failure
7	Kayanza	MIGI	Cabbages	harvest	Revenues of 230 000 Fbu (From approx. 2300 kg)
8	Ngozi	Remeshamahoro	Tomatoes	Fruiting	Delay of transplantation
9	Ngozi	Dufashanye	Cabbages	Vegetation	Delay of transplantation
10	Ngozi	Duhuze	Onion	vegetation	Delay of transplantation
Comment	Approximatively 3 tons are already produced in the demo plots for total revenues of 603 800 Fbu. Sales are going on.				

Despite the drought caused by the irregular rains this cropping season, landowners are doing their best to save the maximum of production. Especially great efforts are done to ensure regular watering on the sites. However, this task has been very hard as the surface designed to conduct the demo plot is about 0.10ha, many farmer groups didn't get enough labor to water the fields with enough water, this led us to very low yield far away from our projections. Also, some groups had to delay the transplantation of seedlings because the tillage of the soil was not possible before rains fell on the ground.

Documentation of results and impacts of adopting farmer groups for 2012A season

During the season 2011C, BAP supported 24 farmer groups with technical assistance and capacity building for establishment of demonstration plots .The fields achieved interesting results that allowed many of the groups to extend their activities to further horticultural production for the season 2012A season. Many adopted techniques highlighted on their fields in the previous season. Their performances during 2012 A follows for the 24 adopting farmer groups:

Table 2 Results from adopting farmers for the season 2012 A

#	Adopting Farmer(group)	Province	Commune	Crops and area(ha)	Production (kg)	Revenues (x 000F)	Observation
1	Evariste	Buja Rural	Mubimbi	Beans (,10)	0	0	Crops failure
2	Abakenyezi Twisununure	Buja Rural	Mutimbuzi	-			Group involved in FY 5 grant program
3	Canut	Bubanza	Gihanga	Tomatoes(,15)	4 200	1 300	The farmer purchased farm for 900 000 F
4	DTU	Bubanza	Gihanga	Tomatoes(,15)	6 249	2 558	
5	TB	Bubanza	Gihanga	Onions(,10)	142	341	Tomatoes failed
6	Tunganyubu Zima	Makamba	Nyanza Lac	-			Group involved in FY 5 grant program
7	Eric	Bubanza	Gihanga	Rice(,10)	-	-	Harvest in May
8	Dufatane Munda	Bubanza	Gihanga	Green pepper,eggplant, onions,tomatoes (,20)	607	306	
9	Claver	Mwaro	Kayokwe	Tomatoes,onions, cabbages(1,20)	9 960	2 960	The farmer purchased a farm worth 1450 000 F
10	Imelde	Mwaro	Kayokwe	Cabbages(,10)	600	50	
11	Twitezimbere I	Gitega	Mutaho	Tomatoes(0,04)	N/A	21	
12	Dukorerehamwe	Makamba	Mabanda	Tomatoes(,50)	N/A	N/A	
13	MIGI	Kayanza	Muruta	Cabbages(,10)	2 300	230	
14	Remesha	Muramvya	Rutegama	-			FY 5 grant program
15	Kazoza keza	Gitega	Gitega	-			FY 5 grant program
16	Turwanyinzara	Gitega	Giheta	Rice (,10)	N/A	N/A	Harvest in May
17	Dufatanemundal I	Makamba	Makamba	-			FY 5 grant program
18	Girumwete	Buja rural	Kabezi	-			FY 5 grant program
19	TU	Gitega	Gitega	Cabbages(0,04)	600	60	
20	Francine	Mwaro	Kayokwe	Cabbages(,10)	500	50	
21	Turyekamwe	Kayanza	Matongo	Beans(,010)	N/A	N/A	Self consumed
22	Deo	Kayanza	Matongo	Greenpepper(,10)	-	-	Harvest in may
23	Clement	Buja rural	Kabezi	Leek(,04)	-	-	Harvest in May
24	Benoit	Kayanza	Matongo	Maracuja(,20)	-	-	Harvest in September
Comment		Approximately 3,42 ha planted, 25 tons of vegetables produced and 7,87 millions Fbu generated in sales.					

For the season, we estimate the volume of vegetables produced by partnering groups from the reinvestment of demo plots revenues at 25 tons fields have been established on approximately 3,42 hectares. Revenues generated are 7,87 millions Fbu. This is a great contribution of the project to the food security and revenue generation in the rural areas. Meanwhile more revenues are expected as the farmer groups are now investing in the production for the season 2012B and data will be available from the month of May. The targeted crops that the partnering groups have chosen are shown in the table below:

Table 3. The scheduled crops to be grown by those partners for the season 2012 B are shown in the table below

#	Adopting Farmer(group)	Province	Commune	Crops and area planted	Expected date of harvest
1	Evariste	Buja Rural	Mubimbi	Eggplant, tamarrillos (,20ha)	June 20
2	Abakenyezi Twisununure	Buja Rural	Mutimbuzi	Tomatoes(o,50)	June 13
3	Canut	Bubanza	Gihanga	Tomatoes(0,10)	June 20
4	DTU	Bubanza	Gihanga	Onion(0,20)	May 9
5	TB	Bubanza	Gihanga	Onion(0,20)	June 7
6	Tunganyubuzima	Makamba	Nyanza Lac	Tomatoes, eggplant 0,50)	June 20
7	Eric	Bubanza	Gihanga	-	May 10
8	Dufatane munda	Bubanza	Gihanga	Greenpepper, onions(0,10)	June 20
9	Claver	Mwaro	Kayokwe	Eggplant, cabbages (0,04)	June 20
10	Imelde	Mwaro	Kayokwe	Potatoes (0,1)	-
11	Twitezimbere I	Gitega	Mutaho	-	-
12	Dukorerehamwe	Makamba	Mabanda	-	-
13	MIGI	Kayanza	Muruta	Garlic(0,50)	July 21
14	Remesha	Muramvya	Rutegama	Cabbges (0,50)	May 20
15	Kazozo keza	Gitega	Gitega	Cabbages (0,50)	April 20
16	Turwanyinzara	Gitega	Giheta	Rice (0,10)	May 20
17	Dufatanemunda II	Makamba	Makamba	Garlic (0,50)	July 7
18	Girumwete	Buja rural	Kabezi	Onions(0,30)	May 24
19	TU	Gitega	Gitega	Cabbage s(0,10)	May 20
20	Francine	Mwaro	Kayokwe	Tomatoes (0,10)	July 15
21	Turyekamwe	Kayanza	Matongo	-	
22	Deo	Kayanza	Matongo	-	
23	Clement	Buja rural	Kabezi	-	
24	Benoit	Kayanza	Matongo	-	
Comment		Approximately 4,54 ha additional planted area for the season 2012B with investments from 2012 A revenues and/or FY5 BAP's grant direct funding			

The table of reinvestment for the season 2012B shows that additional 4,54 hectares have been established by the farmer groups that are receiving direct support of the project BAP through FY5 small grant program and the partners who decided to reinvest their revenues of 2012 A revenues into further horticultural production. The field staff has actively worked to develop appropriate data collection forms to ensure the maximum collection of quantitative data by the farmers. Harvest Results and Impact from these activities will be furnished in Q3 and Q4 reports.

Implementation of the new demonstration plots for 2012B season

The season 2012B is particular for HVC as its harvest will coincide with the end of field activities for the BAP staff members. Given this, the duration of particular crop cycles has been one of the important

factors in the validation of crops to be used in the demonstration plots for the season. The HVC added 13 additional demonstration plots during this reporting period. Activities undertaken include:

- Identification and validation of sites and choice of crops to be grown. This activity was facilitated by the ADCs in collaboration with the partnering groups in the provinces of Bubanza (1), Bujumbura rural (3), Makamba (2), Mwaro (1), Ngozi (3), Bururi (3). The target crops are tomatoes (2), cabbages (5), onions (3), French (green) beans (2) and amaranth (1).
- Discussions with partnering groups on terms and conditions, establishing timelines and responsibilities. These discussions have been concluded by a signature of an MOU in both Kirundi and French between the BAP and selected farmer groups.
- Procurement of necessary inputs and equipment with the farmer groups for nursery establishment and /or field maintenance(seeds, manure, shed nets, water cans, sprayers,.....)
- Practical training on the establishment of nursery where necessary or other BAPs (planting density for French bean).

Table 4: Demonstration plots established for the 2012 B season

#	Farmer group	Province	Commune	Crops (on 0,10 ha)	Expected harvest date	Technical achievement
1	Urunani	Ngozi	Ngozi	Cabbages	July 28	Nursery implemented on March 27th
2	Twiyungu nganye	Ngozi	Ngozi	Cabbages	July 27	Nursery implemented on March 26th
3	Garukirinka	Ngozi	Ngozi	cabbages	July 28	Nursery implanted on March 27 th
4	TUTEDU	Makamba	Mabanda	Cabbages	August 5	Nursery implemented on April 5 th
5	Dukoretwizeye	Makamba	Makamba	Cabbages	August 4	Nursery implemented on April 4 th
6	ECOFA	Bubanza	Gihanga	Tomatoes	August 12	Nursery implantation on april 12 th
7	Nkenyererakivi	Buja rural	Kabezi	French beans	July 16	Sowing scheduled on april 16 th
8	Tuduzikivi	Buja rural	Kabezi	amaranth	June 10	Nursery implanted on april 11 th
9	Mpuzabarimi	Buja rural	Kabezi	French beans	July 17	Sowing scheduled on april 16 th
10	Abagwanashaka	Bururi	Matana	onion	Sept 15	Nursery implementation on april 12 th
11	Tugwizimboga	Bururi	Matana	onion	Sept15	Nursery implementation on april 13 th
12	Terimbere	Bururi	Mugamba	onion	Sept 15	Nursery implementation on april 13 th
13	Kaze dukore	Mwaro	Kayokwe	tomatoes	August 11	Nursery implementation on april 12 th
Comment		The activity will allow to establish 1,3 hectares of vegetables as the area designed for each demo plot is 0,10 hectares				

Follow up of small grants approved for Horticultural Associations

In order to support the production and marketing of horticultural crops that are deemed to be profitable for our partnering groups, BAP processed small grants for 56 groups of which 29 are in the HVC sector. Ten others are derived from the coffee sector. These associations are looking to diversify their production and income streams to reduce their dependency on coffee. Seventeen other associations are women's groups undertaking horticulture revenue generating activities. The grants are designed as blended fixed obligation/in kind grants aimed the purchase of small equipment and inputs, whereas the

pesticides, mineral fertilizers and labor are procured by the partnering groups as part of their contribution (cost share) to the project.

During the reporting period, activities that have been accomplished include:

- 4 Training sessions by the ADCs in Makamba (3 groups) and Cibitoke (1 group) on establishment of improved nurseries.
- Monitoring of nurseries established at the end of December by grantees. The establishment of an improved nursery is considered as the correct completion of milestone 2 of the horticulture grants and triggered the provision of inputs and the second grant disbursement. All the ADCs certified that farmer groups successfully established the nurseries according to recommendations
- Procurement of inputs for the second disbursement to the groups. The inputs were manure, mulch and trellising for tomatoes, and treadle or moto pumps for irrigation. The remaining equipment pending for grantees are materials related to harvest like sacks, hanging scales, wooden boxes, etc,.
- Training on GAPs have been held by the ADCs in all provinces where small projects are being implemented (planting density, raised beds, fertilization, spraying, mulching, trellising, irrigation..). The trainings benefited from extension leaflets developed by the project in Kirundi that have been distributed to the ADCs, and extension personnel in the grantee zones as well as members of our client partners.
- The marking of each project site using signs with the USAID logo is in progress. Also, equipment provided through these grants has been marked with stickers bearing the USAID logo.
- The gathering of field information to feed BAPs M&E system and to catch the trends, main challenges, and impacts related to our training, demonstration, production and market linkage efforts



Installation of a petrol powered pump(Nyanza Lac)

Nursery of cabbage seedlings(Muramvya)



Cabbagae head



Manure transportation

Table 5 Updated achievements for each grantee

#	Farmer group	Region	Type of group	Targeted crops	Achievment/cycling stage	Expected harvest date
1	Dushirukubute	Butaganzwa, KAYANZA	Coffee	Green pepper (.2ha)	Planting/Vegetation	May 27
2	Dufatanemunda	Matongo, KAYANZA	Coffee	Cabbage (.1ha)	Planting/vegetation	May 28
3	Dusanuribidukikije	MUYINGA	Coffee	Onion (.5ha)	Planting/vegetation	June 6
4	Tugwizumwimbu Bwayi	Matongo, KAYANZA	Coffee	Cabbage (.15ha)	Planting/vegetation	May 29
5	Najenje	KAYANZA	Coffee	Onion (.5ha)	Planting/vegetation	May30
6	Shigikirabarimyibikawa	KAYANZA	Coffee	Onion (.5ha)	Planting/vegetation	May 30
7	Kamenyiyobweze	Busoni, KIRUNDO	Coffee	Garlic (.25ha)	Sowing/vegetation	July 29
8	Twungubumwe	Busoni, KIRUNDO	Coffee	Cabbage (.5ha)	Planting /Ripening	April 14
9	Murimiyiwikawagirijambo	KAYANZA	Coffee	Garlic (.5ha)	Sowing/vegetation	July 21
10	TWIJUKIRIKAWA	KAYANZA	Coffee	Green pepper (.12ha)	Planting/vegetation	May 30
11	TUGWANYUBUKENE-tugwizumwimbu	Buj Rural	Hort	Japanese plums (1.5ha)	Planting/vegetation	December
12	TUNGANYUBUZIMA	Nyanza Lac, MAKAMBA	Hort	White eggplants(.5ha)	Planting/vegetation	June 20
13	DUFATANEMUNDA	MAKAMBA	Hort	Garlic (.5ha)	Planting/vegetation	July 07
14	Dusozanye	NGOZI	Hort	Cabbage (.14ha)	Planting/vegetation	May 20
15	Tugarukiramatunda	NGOZI	Hort	White eggplant (.144ha)	Planting/vegetation	May 29
16	Girivyizigiro	MUYINGA	Hort	Carrot (.05)	Sowing/vegetation	June 29
17	Turwanyubukene	MUYINGA	Hort	Amaranth (.05)	Planting/harvest	March 24
18	Twizigirane	Mutimbuzu, BUJ R	Hort	Cabbage (1ha)	Planting/vegetation	June 13
19	Urumuri Rw'Abarimyi	Isale, BUJ R	Hort	White eggplant (1ha)	Planting/vegetation	June 20
20	Assaka	Rugombo, CIBITOKÉ	Hort	Onion(.5ha)	Planting/vegetation	July 30
21	Twisunge Ibihe	Kabezi, BUJ R	Hort	Onion(.15ha)	Planting/vegetation	May 27
22	Sohora Isuka	MWARO	Hort	Onion (.25ha)	Planting/vegetation	May 21
23	Tugwizumwimbu	Giheta, GITEGA	Hort	Garlic (.1ha)	Sowing/vegetation	July 20
24	Kazozo keza	GITEGA	Hort	Cabbage (.2ha)	Planting/vegetation	April 20
25	Twitezembere II	MURAMVYA	Hort	Cabbage (.35ha)	Planting/vegetation	May 9
26	Majambere	MURAMVYA	Hort	Cabbage (.25ha)	Planting/vegetation	May 29

27	Remesha	Rutegama, MURAMVYA	Hort	Cabbage (.2ha)	Planting/vegetation	May 7
28	Tugarukiruburimi	KIRUNDO	Hort	Cabbage (.5ha)	Planting/vegetation	June 15
29	TERIMBERE	KIRUNDO	Hort	Eggplant ((.25ha) Cabbage(.25ha)	Planting/vegetation	June 10 May 22
30	Tugwizumwimbu	NGOZI	Hort	Tomato (.12ha)	Planting/vegetation	June 09
31	Twiyungunganye	NGOZI	Hort	Tomato (1ha)	Planting/vegetation	June 05
32	TWIJUKIRE UBURIMYI BW'IMBOGA N'IVYAMWA	KAYANZA	Hort	Cabbage (.15ha)	Planting/vegetation	June 1
33	ABAKAYENZI TWISUNURE	BUJUMBURA RURAL	Hort	Tomato (.5ha)	Planting/flowering	June 13
34	Twiyungunganye	KAYANZA	Hort	Cabbage (.2ha) Carrots (.1ha)	Planting/head set Sowing/vegetation	May 9
35	Tuzamurane	MWARO	Hort	Carrots (.25ha)	Sowing/vegetation	
36	ABASANGIRAJAMBO	Bukeye, MURAMVYA	Hort	Cabbage (1ha)	Planting/vegetation	May 21
37	Sangwe	Bukeye, MURAMVYA	Hort	Cabbage (.25ha)	Planting/vegetation	May 14
38	Dufashanye	Bukeye, MURAMVY	Hort	Cabbage (.25ha)	Planting/vegetation	May 17
39	DUSASIRIKAWA	KAYANZA	Hort	Tomato (.12ha)	Planting,trellising in progress/ fructification	May 10
40	TUGWIZUMWIMBU	Kayokwe, MWARO	Women	Tomato (.5ha)	Planting/flowering	May 13
41	DUSHIREHAMWE	Kayokwe, MWARO	Women	Cabbage (.5ha)	Planting/vegetation	May 15
42	TUREMESHANYE	Kayokwe, MWARO	Women	Onions (.5ha)	Planting /vegetation	May 30
43	TWIZERANE	Kayokwe, MWARO	Women	Onions (.25ha) Cabbage (.25ha)	Planting/vegetation Planting/vegetation	May 21
44	TWIYUNGUNGANYE	Kayokwe, MWARO	Women	Onions(.5ha)	Planting/vegetation	May 28
45	Abarwizanyanya	MUYINGA	Women	Onion (.5ha)	Planting/vegetation	June 15
46	Kazemumahoro	Gashikanwa, NGOZI	Women	Cabbage (.07ha)	Planting/vegetation	May 10
47	Twizerane Nyabibuye	butaganzwa, KAYANZA	Women	Cabbage (.15ha)	Planting/vegetation	May 10
48	Abishizehamwe	Busoni, KIRUNDO	Women	Cabbage (.5ha)	Planting/vegetation	April 13
49	Girumwete	Kabezi, BUJ R	Women	Onion (.3ha)	Planting/vegetation	May 24
50	Vyizigiro	Mabanda, MAKAMBA	Women	Amaranth (.25ha) Cabbage (.25ha)	Planting/Ripening Planting/vegetation	April 10 May 30
51	Dukorerehamwe Twungurane Ubumenyi	Gihanga, BUBANZA	Women	Onion (.2ha)	Planting/Bulbing	May 9
52	ECOFA	Gihanga, BUBANZA	Women	Green Pepper (.2ha) Onion (.2ha)	Planting/Flowering Planting/bulbing	May 2 May 2
53	Twiyungunganye Bakenyezi	Gihanga, BUBANZA	Women	Onion (.2ha)	Planting/Bulbing	May 7
54	Abasangirakivi	BURURI	Women	Cabbage (.25ha)		May 14
55	Turwanyinzara	GITEGA	Women	Cabbage (.1ha)	Planting/head set	May 2
56	Murima Wacu	Matana, BURURI	Women	Cabbage (.4ha)	Planting /heed set	May 13
Comment		More than 22 ha are scheduled to be planted in support of the production				

The table above shows that all the farmer groups receiving small grants met the second milestone. As a result, the project provided the equipment required for the proper agronomic maintenance of field and

the field activities are progressing according to the established timeline. Some farmer groups have planned the harvest in the second half of April, that's why scales have been provided at certain sites.

However, some constraints have been reported and have been the main challenges for our partner groups. Many groups planned to grow rain-fed vegetables but faced an irregular rainy season for the 2012 B crop. In response to this climatic inconvenience, farmers had to move their production to other fields in proximity to water sources. Many groups didn't get enough free space to reach the planned planting area. The total planned planting area is about 22,11 ha for all grants, but indications are that real land area under production was reduced due to environmental constraints. Data to support this hypothesis are being collected and will be documented in upcoming quarterly reports.

Also, there were delays in the planting, caused also by the drought. Fields could not be prepared until the rains arrived. Technically, no major seedling failure has been reported, except in Mwaro where the group Tuzamurane registered a low germination rate on its carrot raised beds.

The different training sessions that have been provided to the partnering farmer groups are listed in **annex 1**.

Training of the DPAEs and ADCs on GAPs

The transition plan for BAP has been anticipates transferring responsibility for activities/technologies with a proven track record of results to other stakeholders who are likely to continue the extension after the project ends. In this way, the DPAEs, as the representatives of MINAGRIE, working in proximity to BAP's targeted communities, are well positioned to ensure the continuity of technological adoption and replication of proven field successes.

As a result, the training of DPAEs makes sense in order to share the project's experience on what has worked, build up capacities of local extension agents and to allow them to be more effective in monitoring and scaling up farmers' activities. The training sessions have been held in two provinces: Ngozi (all the nine communes have been covered in collaboration with the coffee sector) and Muramvya (one day session in which partner groups of the province were also invited)

This activity consists in:

- Sharing experiences and lessons learned on the horticultural demo plots methodology for field research and development
- Sharing of extension leaflets on management of vegetables (tomatoes, onions, cabbages, amaranth, tamarillos, etc.
- Sharing the modules developed on demo plots (nursery, trellising, wooden boxes, drip irrigation)
- Sharing of preliminary results of the 2011C demo plots projects.

The extension leaflets have been handed to those technicians for review and comments, their contributions, cross-checked with the ISABU specialists have been added in the leaflets before final printing and large scale distribution to nationwide level.



Training session of the DPAE staff members and partnering farmer groups in Muramvya

Printing of extension materials and their dissemination to ADC's, DPAEs and other stakeholders.

The project has developed a training handbook for demonstration fields and a set of technical bulletins on specific crops for extension agents and lead farmers. These tools, in Kirundi, were submitted to ISABU and MINAGRIE for review and technical approval. They are now ready for printing (3600 handbooks and 3600 sets of extension bulletins). The beneficiaries of these documents will include the extension staff of the DPAEs, farmer groups in partnership with BAP, ISABU, the University of Ngozi and the University of Burundi, the urban and rural horticulture projects, Lead farmers, the FAO, IFAD and other projects and NGOs working in the agricultural sector in order to assist them in capitalization of BAP achievements and experiences after the end of the project.

Training on post-harvest technologies: solar drying and food canning

The training was contracted to CNTA (National Center for Food Technology) with logistical support of BAP through a grant agreement between CNTA and BAP.

The training sites are located in five communes: a) Gihanga commune in Bubanza province; b) Nyanza lac commune in Makamba province, c) Bugabira commune in Kirundo, d) Busoni commune in Kirundo province, e) Rugombo commune in Cibitoke province.

Four training sessions of five days each were held during this reporting period in Gihanga, Nyanza Lac, Bugabira and Busoni communes. A total of 158 people attended the sessions (90 men and 68 women). Among the participants, 34 were members of DPAEs, 58 were members of associations, 5 were representatives of NGOs (CRS,AAA) and 27 are individuals who are dealing with fruits and vegetables production, processing or marketing.

Each training session composed of 2.5 days of theory and 2.5 days of practice. Solar drying was applied to tomatoes, cassava leaves, amaranth and zucchini leaves while conservation in bottles (canning) was applied to tomatoes and fresh beans.

Training site	# farmers groups members			% W	#assns	Individuals			NGOs staff	DPAE's staff			Total of participants
	M	W	T			M	W	T		M	W	T	
Gihanga	6	25	31	81	4	6	0	6	0	3	0	3	40
Nyanza Lac	4	10	14	71	1	11	10	21	4	4	1	5	40
Bugabira	10	13	23	57	12	0	0	0	1	16	1	17	40
Busoni	21	8	29	28	21	0	0	0	0	9	0	9	38
TOTAL	41	56	97	58	38	17	10	27	5	32	2	34	158



Training session in Gihanga



Tent solar dryer prototype in Nyanza Lac

A minimum equipment kit was left with the host associations so that their members and neighbors in the community can make practice the techniques on their own.

A sample of tomatoes and beans in bottles (4 bottles from Gihanga and 4 bottles from Nyanza Lac are being analyzed by CNTA to check if there is any contamination from the canning process and to confirm quality control for the products.

Dufatanemunda members have made a test with amaranth and cassava leaves by their own, and the results were similar to the ones they produced with mentorship from CNTA during training.

Training on the use of wooden boxes

This activity was carried out by the intern Valence Ndayisenga in Kirundo province. Twenty five (25) people participated in the training among whom 10 men and 15 women from 2 associations (Abasangirakivi and Twijukiribikowa) of Kirundo commune in Kirundo province. Both of the associations are growing green pepper in demonstration plots.

Date	Association	Province	Commune	Nb de participants		
				TOT	H	F
29.03.12	Abasangirakivi	Kirundo	Kirundo	12	1	11
30.03.12	Twijukiribikorwa	Kirundo	Kirundo	13	9	4
Total	2			25	10	15

Lessons learned

As the field activities are progressing, we have come across some lessons that we learned and that can be useful for future planning.

First, the small grant projects that have been implemented are supposed to run only on one season before the end of BAP period. This has been considered insufficient as time is not enough to document impact by the equipment provided by the grant or to quantify the effects of the trainings on improved techniques of production of legumes.

Another challenge is that with 57 grants that are running at the same time, \ the HVC team found it was hard to keep up with collecting qualitative and quantitative data. Therefore, there is urgent need to develop a simplified tool for data collection that would allow farmer groups, in close collaboration with the ADCs, to provide more relevant data documenting the trends toward the achievements of the main milestones designed in the grants.

Planned activities for the quarter 3

- Follow up of demo plots and grants running for 2012B season
- Training of post harvest technologies (the second round)
- Establishment of simple irrigation system demonstration
- Trial of two prototypes of produce displays on local markets

Horticulture Success stories

Farmers in Mwaro who have adopted improved techniques displayed on the demo plots, experience high yield and improve their livelihood through increased volume of quality production for sale

In the province of Mwaro, BAP launched demo plots activities during the season 2011C by establishing three demo plots located at Musama and Nyagitongati hillsides of Kayokwe commune. The objective of the demonstration plots was practical exposure of neighboring farmers on improved techniques for producing vegetables. The experimental design consisted in two plots each of 0.05 ha. The control plot was conducted according to the landowner's usual practices. The treatment was conducted with BAP selected modern agronomic methods. The contrast between yields between the two plots is used as an incentive to push for the adoption of modern techniques. BAP best horticultural practices resulted in better crop performance and were deemed superior to the local farmer's traditional practices.

As part of mass extension methods, farmer field days were facilitated on the demo plot of Musama, owned by Mrs Imelde Ngendankazi. Participating farmers got an opportunity to see the results of her demonstrations and to learn about the techniques that were displayed.

As the treatment plot (Best Agronomic Practices) performed twice as well as the traditional control, some farmers who participated in the field day decided to try the techniques in their own fields. Some adopting farmers succeeded in increasing their yields and are attributing the higher production to the techniques they adopted.



Mr. Emmanuel Kadegeye a 50 years old, father of 5 children living on the hill Nyagitongati and who is actually a DPAE extension agent on the hill learned the promoted technologies from the demo plot owned by Claver Baryuwiwe. He then implanted his own trial on his farm using 0,04ha of land. He followed all the improved techniques in management of indeterminate tomatoes from the nursery to the trellising. The sales of his 800 kg marketed tomatoes (yield of 20T/ha) yielded

400 000 FBU. With the money, he invested in purchasing a cow worth 250 000 FBU. With the rest of the money, he bought onion and eggplant seed and mineral fertilizers to start two extra fields. Seed investment costs were gave out 100 000 FBU from onions and 50 000FBU for eggplant. The money has been invested in purchasing a farmland of 0,03 ha where he started growing white eggplants. M Kadegeye recognizes that even if he is a local extension agent, he had never harvested such a quantity of tomatoes and he is decided to start the extension of the techniques to farmers in his zone.

In the same zone, Mr. Karimanzira Jean, 47 years old and father of 8 children, tested adoption of the improved techniques on 0,035 ha of tomatoes. He earned 220 000 FBU that he used to purchase two goats, one pig and mineral fertilizer.

Finally, Mr. Bernard Ndikumasabo, 61 years old, father of 3 children, grew just for trial a 15x27m plot of tomatoes. From his sales, he made enough profit to buy two goats. The rest of the money purchased mineral fertilizers to grow beans for 2012B agricultural season.

Horticultural Success Story

BAP's supported extension efforts win showcase visit through Dufatanemunda farmer group in Makamba

Dufatanemunda farmer group was created in 2010, in the commune of Makamba of the province of Makamba. It is composed of 65 members (30 W/35M). The group is a client with BAP since November 2011.

Since the assignment of the BAP ADC in Makamba, he approached the group to work with him in horticulture. The ADC assisted the group in developing a banana plantation covering 1,5ha. Propagation material was provided by the DPAE of Makamba. As the banana was growing, BAP initiated, in partnership with the group, a demonstration plot project with onions from June to November 2011. The demonstration field produced 500 kg of onions that were sold for 500 000 FBU. Also, for the season 2012B, the BAP project awarded a small grant to the association in support of their project to produce and market 0,50ha of garlic. BAP provided seeds, manure and equipment including a fuel powered motor pump for irrigation. The anticipated production is 3,5 tons with a value of almost 10 million FBU. In February 2012, the gender sector started literacy activities with the group to increase the level of literacy which is currently of 23%.

All these actions are showing impact, not only among the members of the associations (replication of techniques as nurseries, raised beds and planting density in their family farms), but the achievements are spreading beyond the association to the other partners.



the changes brought by BAP in the group

The DPAE of Makamba, impressed by the achievement of the farmer group referring it as a showcase of what farmer groups can achieve in the fight for food security.

The joint efforts of BAP and the Dufatanemunda group received official recognition when on March 30, a delegation of guests hosted by the DPAE of Makamba during the launching of a MINAGRIE-FAO joint project OSRO/117/BEL “Sensitization to the fight of banana diseases” paid a field visit to the group as a case study of what farmers can achieve in ensuring food security and as a practical demonstration of alternative solutions to the fight of two principal banana diseases (BXW and BBTv). The visitors, included the Director General of Agriculture Mister Ndikumagenge Sébastien, the 16 representatives of DPAE, ISABU specialists, NGOs and FAO staff. The delegation congratulated the group and advised the DPAEs to find incentives so that other groups can follow their good example.



Dufatanemunda group hosting a high level delegation field visit in its banana plantation

Cross-Cutting Activities

Women's Leadership and Micro-Enterprise Development

Introduction

This reporting period was characterized by three principle activities: a) the start of the second phase of literacy training; b) monitoring of income generating activities being implemented by women's associations; and c) capacity reinforcement for women's producer associations in institutional and organizational development.

Deliverables Matrix

Gender and Micro-Enterprise Deliverables	
Outputs/résultats	Results achieved @ 31 March 2012
1 or more grants made to local NGO to institute literacy activities targeting women leaders of producer associations	1 Grant signed w/ IGAA. Preparatory activities undertaken
160 women leaders have their capacity reinforced	283 women leaders trained during Q2. Total women leaders with capacity reinforced during PY 5 =817
20 business plans for income generating activities developed by women's association	20 Business Plans developed by women's associations have resulted in small grants for IGR
At least 35 women's groups establish bank accounts at micro-finance institutions and leverage access to credit	Not yet accomplished
At least 20 AFAB members complete training in Business English	Not yet accomplished
3 Groups receive assistance for beekeeping activities	1 Association in Mwaro assisted
1 PO receives assistance for improved processing of fruits or vegetables	Not yet accomplished
4 groups receive assistance in developing traditional basketry activities for commercial sale	Not yet accomplished
4 groups receive assistance in developing tailoring enterprises	Not yet accomplished
8 PO assisted with grants for the production of food crops and horticultural products	20 associations féminines appuyées dans la production des légumes
400 women involved in income generating activities	442 femmes participent dans les activités génératrices de revenu dans le secteur horticole et apicole
Women producers are assisted to participate in regional commercial fairs	Not yet accomplished
Women producers are assisted to participate in local commercial fairs	5 women participated in a trade show associated with the EAWEEEXN
Women leaders receive project assistance to participate in workshops	Not yet accomplished

Activities accomplished during Q2

1) Beginning Second Phase Literacy Activities

IGAA, a local NGO, received a grant to coordinate this activity. After numerous meetings and a prolonged negotiation, the agreement was signed and IGAA began to mobilize. During this reporting period a two day workshop was held with BAP ADC and IGAA provincial supervisors to inform different actors of the objectives and the implementation calendar of this year's literacy activities. In total 272 literacy trainers have been identified and 136 literacy centers will be opened on 92 hillsides of 32 different communes. A majority of the literacy center facilitators were trained by BAP last year in conjunction with SNA.

2) Income Generating Activities under Grants

During this reporting period 20 associations undertook income generating activities with support from BAP's small grants funds- 18 of these are in horticulture, 1 is for beekeeping and the last is for soap making/marketing. All 18 associations undertaking horticulture used improved nurseries, have transplanted their production to the fields and expect harvest to start during the month of May. The beekeeping union *Tugwizumutsama w'ubuki* began the migration of their bee populations from traditional hives to their 96 modern Top Bar hives. By the end of the reporting period 101 of 130 of the modern hives had populations of bees transplanted to them, however in 17 cases the populations fled, leaving only 84 (64.6%) populated .

The soap making association *Twumvikane* has received material from Bap to upgrade their operations. Production is scheduled to start in April.

3) Institutional and Organizational Capacity Reinforcement of Producer Associations

These activities occurred in 7 of the 12 provinces covered by BAP during this reporting period. Fourteen different modules were facilitated. The module receiving the greatest geographic spread was simplified accounting for transparent management where 33 sessions were held in 35 associations of 5 different provinces. Themes related to association governance and implementation of AGR were also well subscribed. A total of 503 association leaders, of whom 293 (58.3%) were women. As income generating activities and technical training sessions related to best practices kick in and more associations are managing grant funds for the realization of these activities we note there has been a deconcentration of effort put into institutional and organizational viability of PO but more intensity and emphasis given to technical themes and communal field work.

	Provinces	# Assns	Participation			# sessions	pp/s	% Women
			Men	Women	Total			
Interest in creating an association; mobilizing a solidarity account for member social needs	3	9	65	42	107	4	26.75	39.3%
Procedures for holding an election	1	1	8	12	20	2	10.00	60.0%
Governance in the association	3	16	16	58	74	11	6.73	78.4%
Planning of Activities	1	1	5	5	10	1	10.00	50.0%
Simplified Accounting	5	35	66	57	123	33	3.73	46.3%
Cash Flow Management	1	1	4	8	12	1	12.00	66.7%
Depreciation of durable goods	1	2	4	4	8	1	8.00	50.0%
Internal mobilization of funds	1	1	5	5	10	1	10.00	50.0%
Fixed vs Variable costs	1	1	5	5	10	1	10.00	50.0%
Identifying a Market	1	1	1	2	3	1	3.00	66.7%
Identification and Planning of AGR	1	1	0	10	10	1	10.00	100.0%
Eligibility of AGR	1	5	19	33	52	5	10.40	63.5%
Preparing an AGR project proposal	2	3	11	14	25	3	8.33	56.0%
Implementing an AGR	2	8	1	38	39	9	4.33	97.4%
Total	7	85	210	293	503	74	6.80	58.3%

4) Organization of Radio Emissions Akeza Karigura for Women Leaders

Two emissions were organized during the current reporting period around issues of import to women leaders, one in Mwaro Province and the other in Kayanza province.

The first emission in Mwaro was entitled, “The link between capacity reinforcement of associations and the development of revenue generating activities”. Participants in the radio program attributed their interest in diversifying their production and in producing for a market to training sessions facilitated by BAP. Further, they noted that previous AGR were poorly managed and resulted in little profit because they lacked knowledge of basic management tools and principles.

The second emission was entitled “IWCA Burundi an opening for women in the coffee sector”. Participants in this emission enumerated their motivation to produce high quality (specialty grade) coffee for the world market. They note that women will be able to take advantage of networking opportunities and technical advising offered by IWCA because the women of Kayanza have usury rights to exploit coffee plantations and certain women own their plantations. The manager of the Karahe washing station agreed to process women coffee farmer’s coffee separately in order to enable them to maintain the quality of their product and move towards a label branded IWCA.

Constraints

The principle constraints registered during this reporting period were unanticipated periods of poor rainfall both in quantity and distribution. This negatively impacted the transplantation of plants from the nurseries to the fields and increased the time and effort needed to irrigate the fields. Certain of our clients had to abandon land they had rented and find or swap for land in proximity to water sources in order to continue the income generating activities they were undertaking with BAP furnished, small grants funds.

Lessons Learned

The realization of income generating activities has given new motivation to producer associations in the project zone. Practicing in real time ideas learned during capacity reinforcement sessions has helped a number of principles to gain traction- growing for a market; timing production; diversification of crops and the need for management tools and good internal governance in organizations to ensure profitability to name a few. BAP client associations are serving as models for others in their community and there is an effort underway to reinvest profits earned in other revenue generating activities.

Principle Activities for Q3

- Monitor second phase literacy activities
- Monitor the implementation of AGR currently underway
- Continue capacity reinforcement activities to improve association governance and management capacity
- Training and construction of improved fuel efficient stoves and apprenticeship in the development of kitchen gardens

Success Story-Capacity Reinforcement leads to diversification and reinvestment for the Association Turwizumwimbu of Kayokwe in Mwaro Province

The Association Turwizumwimbu has 25 members, only 1 of whom is male. They are located on the Benja hillside of the Kayokwe commune of Mwaro province. Since partnering with BAP in 2009 they have begun cultivating fruits and vegetables for local and regional markets. With technical assistance from BAP the association planted ¼ ha to pineapples. They have already begun harvesting fruits and seed stock from their field and selling these in the market. With the initial sales of 80.000 FBU the association has purchased 2 goats in order to provide them with a secured source of manure for future seasons. The association is planning on increasing their land area under cultivation. Where, in the past revenues were quickly divided between the members, leaving nothing for future investments, now, the profits are being saved and reinvested with an eye toward the future well being of all their members.

Grants and Financial Intermediation

Introduction

This quarter BAP completed analysis, approved and funded six (6) grant applications that were pending in Q1 while 1 new grant application was reviewed, approved and funded. Ten (10) grants were under review this quarter and 4 of these were either rejected or withdrawn.

Activities undertaken during this Reporting Period

Approved grants are distributed across the following sectors.

- *Coffee*: In December 2011, BAP assisted 4 coffee cooperatives (Mboneramiryango in Gitega province, Kazoza n'lkawa in Bwayi Province, Dusangirijambo in Kayanza, and Kanovera in Bubanza Province) to complete business plans to install and operate mini-coffee washing stations in their respective provinces. In January 2012, BAP completed grant agreement negotiations and obtained COTR concurrence as required by BAP Small Grant program guidelines for grant proposals exceeding \$10,000. Total amount approved for all four proposals is \$167,156.
- *Gender and Women's Leadership*: BAP the grant request from Nature Grown Burundi represented by Christine Ngaruko, to improve production and increase export sales of Heliconia Flowers to the European market (value \$4,964) was approved and one solicited grant to *l'Association pour le progress de la Femme et de l'Enfant* (IGAA in the Kirundi language) to provide literacy extension and training to women's associations in BAP intervention areas (value \$ 82.800).
- *Dairy*: the grant application from the Nyabisabo Dairy to modify an existing milk pasteurizer to an ESL (long shelf life) production unit was approved in Q2 for a total amount of \$8,100. Funds have not yet been disbursed due to a miscommunication between BAP and the Kenya based engineering firm PINTECH to submit a Terms of Reference in line with industry expectations. Mr. Joseph Butoyi financed the modification of the activity from the dairy and now is negotiating for reimbursement. BAP feels Mr. Butoyi did himself a disservice by not insisting that PINTECH demonstrate transparency and professionalism in presenting a TDR.

Table 1. Grant Requests Approved Q2 vs. Q1

Sector	Q1	Q2	Total Achieved by Sector	Target by Sector	% of Target Achieved
Coffee - Income Generation	10	0	10	20	50%
Coffee- Mini-washing Stations	0	4	4	3	133%
Coffee/Clean Productive Environment – Effluent Control	4	0	6	8	133%
Horticulture - Income Generation	29	0	29	30	97%
Gender - Income Generation	20	1	21	20	105%
Gender - Literacy Extension & Training	0	1	1	1	100%
Dairy - Artificial Insemination/Veterinary Health Packages	0	0	0	6	0%
Dairy - MSME	0	1	1	NA	NA
Total	63	7	71	86	83%

Table 1.a Value of Grants Approved (USD)

Sector	Q1	Q2	Total Achieved by Sector	Target	% of Target Achieved
Coffee - Income Generation	\$ 16,919	\$ -	\$ 16,919	\$60,000	29%
Coffee- Mini-washing Stations	\$ -	\$ 167,156	\$ 157,693	\$120,000	131%
Coffee/Clean Productive Environment – Effluent Control	\$ 36,372	\$ -	\$ 36,372	\$30,000	126%
Horticulture - Income Generation	\$ 37,783	\$ -	\$ 37,783	\$ 60,000	49%
Gender - Income Generation	\$ 26,194	\$ 4,961	\$ 82,800	\$ 85,000	97%
Gender - Literacy Extension & Training	\$ -	\$ 82,800	\$ 36,372	\$70,000	52%
Dairy - Artificial Insemination/Veterinary Health Packages	\$ -	\$ -	\$ 8,100	\$ 16,000	51%
Dairy - MSME	\$ -	\$ 8,100	\$ 0	NA	NA
Total	\$ 114,380	\$263,017	\$ 370,039	\$441,000	84%

Grant proposals under review this quarter

- *Trade and Investment:* BAP is reviewing the applications for four enterprises to participate, for the first time, in the 24th annual Conference and Exposition of the Specialty Coffee Association of America (SCAA) in Portland, Oregon from the 18 – 23rd of April. Express Coffee Burundi, a small coffee producer who has recently expanded into small lot roasting, representatives of Société Générale d'Exploitation et d'Exportation du Café (SOGEC) and Société Industrielle pour la valorisation de Café (SIVCA) which are two dry mills; and African Promotion Company (APROCO) the owner/operator of washing station Kavugangoma in Muyinga province.
- *Horticulture:* over the past year, the BAP Grants and Financial Intermediation and Horticulture teams have advised and assisted the *Appui pour le Développement des Natifs de Kayanza (ADENAK)*, an economic development project of the Provincial Ministry of Agriculture of Kayanza, in the development of a strategic plan and budget to process passion fruit into fruit juice for domestic and international sale. The project calls for the installation of a processing plant in Kayanza Province with attendant extension services, producer mobilization, and support infrastructure. While BAP has long been of the opinion that the project represents significant potential for income generation in the region, the scope of the project is too broad and lacks sufficient data to support key assumptions such as current and potential production estimates, sales history for passion fruit and processed passion fruit products at the regional level, potential sales estimates and target market(s). During a January meeting with Mr. Déo Guide RUREMA, Deputy Chief of Cabinet for the Second Vice-President's Office in Kayanza, BAP proposed that ADENAK first determine the actual and potential production of passion fruit in the target zone, conduct a market study to determine actual and projected demand for the targeted product lines, volumes and price points and reduce the processing unit's size based on the production potential and results of the regional market study. Further when contacted by firms wishing to invest in East African Enterprises, BAP shared this opportunity with them, in case they wished to invest with ADENAK as a venture partner.

- *Dairy*: two grant applications that have also been under review for a lengthy period of time, are the *Burundi Bio Agricultural Community (BBAC)* and the *Fromagerie St. Ferdinand*. BAP suspended the application from BBAC in Q4 of PY3 to allow them time to complete the procurement and installation of a 500 L milk cooling tank for a planned milk collection center in the commune of Ryusera, Muramvya Province. The application was resubmitted in August 2011 and BAP completed the final review during this reporting period. BAP is expecting to approve and fund the BBAC in Q3.

The grant funding request from the St. Ferdinand Cheese makers in Ngozi Province was put on hold for several months as St Ferdinand focused its energies on implementing pre-grant activities recommended by BAP to strengthen their ability to produce cheese in accordance with EAC quality norms and standards and improving their business management capacity. BAP anticipates a final review and approval of the St. Ferdinand application in Q3.

- *Women's leadership, and Producer Organization capacity reinforcement*: two long standing grant funding requests from the *Programme d'Appui au Développement Social (PADS)* and the *Groupement de Production Agro-pastorale (GPAP)* from Muyinga province completed the final stage of their review process during this reporting period. The requests are to increase honey production using modern beekeeping techniques. Delay in completing these grants was due to similar reasons as those for BBAC and St. Ferdinand; the applicant required additional capacity reinforcement in modern beekeeping techniques, but also assistance in collecting and presenting the required information to complete their grant dossiers. After targeted BAP training in late 2011, both organizations submitted revised grant requests this quarter which BAP expects to approve in Q3.
- *Clean and Productive Environment*: the grant application for the Sogestal Kirundo-Muyinga has been stalled for several months due to a lack of responsiveness by the SOGESTAL to requests for information. The objective of the activity is to provide a conversion of the effluent control system at their Kagombe coffee washing station to the BAP promoted effluent control model and install a rain water collection and storage system. Unfortunately, due to the limited time left in the BAP grant program, the application will be rejected and a formal letter sent to the applicant in early Q3.

Grant proposals rejected or withdrawn this quarter

- 1) The Beekeeping association MUTSAMA WA MPINGWE based in Kayanza. This association was evaluated in Q1 and approved for a grant valued at 3.754.000 FBU or \$2,888, to purchase locally constructed modern beehives using the Langstroth design. When BAP began to schedule field visits and request more detailed information about the association and its members, the Gender component leader discovered that the association had over 300 modern beehives and that each one produced an average of 3-5 Kgs of honey per year. Modern beehives have a production

capacity of up to 45 Kgs per season thus there was a clear indication that the association did not in fact require modern beekeeping equipment but rather needed capacity reinforcement in modern apiculture. The application was withdrawn in the previous quarter and training on modern beekeeping scheduled by the component leader for this current quarter.

- 2) Two other activities were analyzed this quarter, initially as requests for grant assistance, but were later withdrawn and financed as BAP project activities. The applicants and their associated activities are:
- Cooperative Kawanziza in Muyinga Province – soil erosion control and terracing of coffee farms.
 - Three dairy associations TWIYUNGUNYANE, MBOGORABISABO and DUSUBIZEHAMWE, based in Matana, Bururui Province – multiplication and distribution of improved forage crops for livestock.

Detailed information for all grant activity for the quarter is presented in a **Table 1 in Annex 2**.

Grants Management in BAP TAMIS Management Information System

Over the course of the last three months BAP grant staff entered over 70 approved grant agreements from Q1 and Q2 in the DAI TAMIS information system. TAMIS is allowing BAP staff to immediately access and organize accurate grant information for reporting. In addition, to ensure grantee understanding of the terms and conditions of the agreement, BAP staff translated them into French, and milestones for FOG-In Kind grants were translated into Kirundi.

Technical Assistance

During the quarter, BAP assisted the 4 cooperatives owners of the mini-washing stations to complete loan applications for submission to InterBank Burundi under the DCA to finance the seasonal operation of their station (see Annex 2 for a list of credit in process under the DCA at IBB)

Tracking and semi-annual reporting of credit applications submitted under the DCA

As stipulated in the DCA partnership agreement signed between USAID and InterBank Burundi (IBB), a biannual report on credit issued under the guarantee must be prepared and forwarded to USAID. The BAP Grants and Financial Intermediation Manager tracks these dossiers in collaboration with the Head of the Credit Department to prepare the report. Credit information at 31 March has not yet been made available by IBB.

Planned Activities for the third Quarter:

1. Complete records and execute close out of grants that have ended in the BAP TAMIS system;
2. Conduct regular monitoring of activities funded with grant funds and continue to follow up with IBB on submission of credit information;
3. Collaborate with IBB to increase the volume of credit applications that can be submitted under the DCA;
4. Begin documentation of impact of economic activities support through the BAP grant program in the fifth project year

Clean and Productive Environment

Introduction

This quarter, BAP Clean Productive Environment activities focused mainly on field visits to partner washing stations to monitor on-going construction to install coffee effluent control and sanitation infrastructure begun during Q1. As of the end of this reporting period, the coffee washing stations Butemba and Teka operated by Sogestal Kirimiro have completed approximately 80% of scheduled construction, while coffee washing station Gataré, operated by Sogestal Kayanza, is 50% complete. The private washing station Wingoma owned by the Cooperative Nkamwayacu has completed 85% of its planned effluent control infrastructure.

Four mini-washing stations received BAP technical assistance to develop the required site surveys, construction blue prints and estimated budgets to install modified systems which are appropriate for their processing capacity. These site plans were completed in early February, followed by delivery of construction material, and commencement of construction in early March. By the end of March, mini-washing stations Mpemba, Kibimba, Kinzobe and Ntamba owned by the Cooperative Kazoza n'lkawa, Cooperative Mboneramiryango, Cooperative Dusangirijambo and Cooperative Kanovera respectively, were approximately 80% complete.

Finally, the private washing station Kavugangoma owned by the African Promotion Company (APROCO) has completed all effluent control and sanitation infrastructure during the quarter.

The request for grant assistance from Sogestal Kirundo-Muyinga was not completed in time for the start of the 2012-2013 coffee campaign and thus was removed from consideration.

Table 1 in Annex 3 shows the level of completion of each effluent control system and construction to be completed by station.

Also this quarter, BAP monitored work on the Kigoganya Community Drinking water supply system under construction since last year. BAP has been applying pressure to the engineering firm “Planning the Future Company” to accelerate completion. The system was approximately 85% complete last quarter but progress was stalled due to the delayed delivery of the system’s motor pump which was being shipped from Belgium, and piping being delivered from Kampala, Uganda. The pump finally arrived in Bujumbura on 28 March 2012 and will be installed in early April, according to PFC.

In March, BAP conducted two workshops, one each in Kayanza and Ngozi, on the proper operation and maintenance of solid and liquid waste treatment systems installed at partner coffee washing stations. The workshop drew twenty-nine (29) participants including CWS managers and supervisors, the presidents of the cooperatives owning mini-washing stations, and the president of Sogestal Ngozi. The training was motivated by the experience of Cooperative Ubwiza bw'lkawa at their Ruhororo coffee washing station last season where, due to a combination of poor system management, excessive rains and higher than expected volumes of both treatment water and mucilage flowing through the system, the diversion channels and walls of the purification reservoirs caved in. Underperformance of systems established at the three washing stations of the SOGESTAL Ngozi last season due to a poor

understanding by the washing station managers of the practices needed to maintain system integrity also contributed to the need for this training. Participants at the training were provided a technical guide for maintaining the infrastructure at each phase of cherry processing and waste water treatment.

Finally, this quarter, BAP completed the collection of water samples for the pre-season phase of BAP's physico-chemical and bacteriological water analysis activity at partner coffee washing stations. Samples were taken from spring sources that supply twenty-five (25) partner washing stations with water for washing and soaking coffee cherry. For a second time, BAP has contracted the Laboratoire d'Analyse des Eaux SA to conduct the analysis.

Activities undertaken during this Reporting Period

Coffee Effluent control, Sanitation and Water Management Systems

Coffee Washing Station Kavugangoma (APROCO)

APROCO has completed construction of water supply, effluent control and sanitation infrastructure at its Kavugangoma washing station in Mwakiro, Muyinga. The completed water supply system includes protected spring source catchment and departure chambers, 1.800 meters of PVC pipe, a 65 m³ storage tank for water supply to the cherry processing tanks, and an elevated 5,000 liter water storage tank with connections to two faucets to allow washing station workers, farmers delivering cherry and the surrounding community to have access to clean drinking water. The waste water treatment facilities include a covered pulp pit measuring 400 m³ to receive separated coffee pulp; a five-chamber, 200 m³ settling and purification tank; a plant-filter system and a water recycling system which redirects treated waste water back up to the processing tank.

Coffee Washing Stations Teka, Butemba (Sogestal Kirimiro) and Gatare (Sogestal Kayanza)

In addition to waste water treatment and sanitation facilities, these three stations are piloting water recycling technologies aimed at reducing the quantity of water used in coffee processing. Having secured funds through the *Service de Patrimoine* under ARFIC, Sogestal Kirimiro is pre-financing construction costs for a covered pulp pit to receive solid waste, the filtering/purifying reservoirs to remove the bacteriological pollutants from liquid effluent, six (6) cabin bloc latrines, and the installation of a motorized pump to recycle purified water back to the station for re-use. Sogestal Kirimiro has contracted "Travaux Divers" a local engineering firm to execute the construction. As of the writing of this report, the block latrines at both CWS have been completed and completion of the remaining work on the overall system is estimated at 80%. This activity is being co-financed through a DAI Simplified Grant which means that BAP will reimburse the Sogestal Kirimiro for allowable expenses upon presentation of receipts. BAP's Clean Productive Environment component leader is collaborating with the BAP Grants and financial intermediation team to ensure correct presentation of receipts and financial reporting.

Sogestal Kayanza contracted the local engineering firm "SERCOM" to execute construction at CWS Gataré. Sogestal Kayanza worked with "SERCOM" in 2010 to construct the effluent control/sanitation

infrastructure at two of their other coffee washing stations – and BAP pilot CWSs - Kinyovu and Buhorwa. To date, construction at Gataré is approximately 50% complete. All local and imported material and equipment has been procured and delivered to the construction site, and earth moving works completed, including the depth for the purification reservoirs, and the stone base of its walls installed. A 200 m³ pit is in the process of being unearthed to accommodate the cherry pulp which will be separated from the processing water and dried for later distribution to farmers for compost.

Coffee Washing Station Wingoma (Cooperative Nkamwayacu)

On 12 January 2012, BAP signed a grant agreement with the Cooperative Nkamwayacu to co-finance the construction of solid and liquid effluent control infrastructure, and sanitation facilities at its Wingoma coffee washing station. During the previous quarter, BAP worked closely with the cooperative to help them choose an engineer, properly analyze and interpret the construction plans, and monitor the work accomplished. As of the end of this quarter, the cooperative estimates a completion rate of 85% with full installation of the pulp pit and the settling/purification reservoir. The block latrines are under construction.

Coffee Washing Station Ruhororo (Cooperative Ubwiza b'lkawa)

This quarter BAP provided technical oversight and financial assistance to the Cooperative Ubwiza bw'lkawa to repair the diversion channels and walls of the purification reservoirs at their coffee washing station Ruhororo, which caved in last season. The infrastructure was completed at the end of the reporting period.

Mini Coffee Washing Stations Mpemba, Kibimba and Kinzobe.

The modified systems at the mini-washing stations include an elevated storage tank for cherry wash water, mucilage (pulp) collected in baskets immediately after depulping and delivered by hand to the pulp pit, and a cylindrical purification system with three chambers and a reduced scale plant filter. Mini Washing Station Kinzobe of Cooperative Dusangirijambo will pilot a new approach of filtering spring water before it enters the station. Many washing stations supplied by gravity fed systems receive water through open canals that lead to reservoirs from which the washing station draws water. This water often times picks up dirt and debris from animals and the surrounding environment as it flows through the canals which then collects in the influent reservoir. BAP is interested in testing the hypothesis that coffee quality can be greatly improved by filtering this water before it is used in processing.

The pre-filtering system requires construction of a four chamber reservoir made of brick and stone. The first chamber receives the water and allows the surface debris to settle out while the second and third chambers further filter the water as it passes through a bed of pea gravel (8/16 mm). The fourth chamber provides the final filtration through a bed of finer gravel (4/8 mm) before exiting to a plant filter.

Workshop on Maintenance and Operation of Effluent Control Treatment Infrastructure

On March 14 -15, BAP conducted workshops in Ngozi and Kayzana on the proper maintenance of effluent control systems. Despite the clear impact this new technology has had on reducing pollution

around coffee washing stations, BAP observed that these positive impacts can only be assured by proper operation, upkeep and maintenance of the system. Water quality analyses conducted after the 2011 coffee campaign recorded lower than expected results for BAP pilot coffee washing stations Rutanga, Gitwa and Rwintare of Sogestal Ngozi. These stations did not follow the operating procedures for replacing the layers of lime in the filtering/purification phase of the treatment process. The water analysis for these stations recorded suspended solid concentrations well above the acceptable limit. Field visits further confirmed that poor management and a lack of training of washing station staff could lead to structural failure, as was the case with washing station Ruhororo in Kayanza Province.

Twenty nine (29) washing station supervisors, managers, cooperative presidents and two BAP ADCs attended the training. The results of the workshop were:

- 1) Participants acknowledged the clear impact that the BAP promoted model of effluent control and sanitation has had on the environment including the availability of toilet facilities for coffee producers and washing station workers;
- 2) An exchange of experiences among participants on good and bad practices of system operation and management.
- 3) Raised awareness of the negative effects of untreated coffee effluent discharge on the surrounding environment
- 4) Representatives of decision makers promised to relay the message that funds should be budgeted for required materials and equipment to maintain effluent treatment works;
- 5) Acceptance by all participants to change both their personal behavior and professional practices to protect the environment on and around the washing stations they manage.

At the close of the workshop, the following recommendations were made:

- Incorporate advocacy of environmental protection around coffee washing stations into all related workshops and trainings
- Continue to raising awareness of station managers and surrounding coffee producers on the negative environmental impacts of coffee processing;
- Monitor the implementation of infrastructure operation and management procedures regularly;
- Provide incentives to all actors who make an effort to properly implement operational procedures;
- Encourage legislators to introduce measures to lift constraints to coffee washing station operators from promoting environmental protection.

Physicochemical and Bacteriological Analysis of Treated Water at Coffee Washing Stations

This quarter, BAP began the pre-season analysis of water used at partner coffee washing stations for a second coffee season. The objective of the analysis is to scientifically evaluate the impact of effluent control infrastructure on reducing environmental pollution around coffee washing stations. This season samples will be taken from twenty six (26) coffee washing stations; nine pilot stations from last year's

coffee campaign (2011), eight (8) control stations with no effluent control infrastructure and eight (8) new stations including the 4 mini coffee washing stations (see Table 2 in Annex 3).

The results of the pre-season analysis are included in Table 3, Annex 3. For a majority of collected samples, the source water pH is neutral. Extreme values were returned for two sources, Mpemba and Butegana, at 5.8 and 9.4 respectively. At other sources an elevated concentration of minerals such as iron and manganese were present. This is due primarily to soil runoff due to erosion mixing with the water flowing through the open channels. Another observation is that all spring sources show bacterial contamination except for those that have been improved and protected. Water samples from protected sources, however, did show the peculiar result of having low turbidity (values close to 0).

Technical Assistance to AROMA Coffee

AROMA Coffee has requested technical assistance from BAP for the installation of its new coffee washing station in Kirundo Province. The BAP CPE and Coffee teams met with the Director of AROMA Coffee Jean Michel RISHIRUMUNIRWA and the washing station manager and technicians to advise them on where they should locate the processing/depulping hangar and appropriate layout of the effluent control infrastructure and pulp pit. BAP also advised on the technical process for capturing the water supply and connecting it to the depulping/processing unit of the station, and the treatment for both the wash water and mucilage after depulping. It was determined that AROMA will access water from a well located below the depulping machine and pumped mechanically up to the station. The wash water charged with mucilage will be separated from the solid waste and directed to a pulp pit. The liquid effluent (grey water) will be directed to a sedimentation/filtration reservoir for treatment. From here some of the treated water will be directed to a reception tank where it will be recycled back up to the station for re-use. The remaining water will be directed to a plant filter before re-entering the ground water.

Constraints during the Quarter

1. Late delivery of the motor pump for the Kigoganya Community Drinking Water System which caused a significant delays to the construction schedule and thus testing and definitive reception of the system. The estimated completion date is now July or August 2012.
2. All three mini-washing stations used some of construction material supplied by BAP for its contribution under the grant to the construction of the effluent control system, to complete construction that was to be executed through their contribution. All three stations will be required to reimburse BAP for the misdirected construction material.
3. The coffee washing stations Gataré and Wingoma did not respect the construction calendar for their effluent controls systems and thus experienced a late start. This means that both stations will complete construction in Q3 instead of Q2 as planned.

Activities Planned for the Next Quarter

BAP's completed several activities this quarter which is helping us move closer to achieving all of our targets under this component. There is still much to do in the time remaining thus the next quarter's activities will focus on heavily on closely monitoring our partner's progress toward completing and closing out the effluent control and sanitation construction.

1. Prioritize assistance to new washing station partners on ensuring proper operation of their effluent control systems during the current campaign.
2. Continue to monitor the maintenance of effluent control/sanitation systems installed at partner washing stations in previous years and encourage these washing station managers to follow proper maintenance protocols.
3. Collaborate with the Laboratoire d'Analyse des Eaux African to collect and analyze water samples during the coffee campaign which is the second phase of the coffee washing station water analysis. Based on the results, BAP will encourage washing station operators to adopt practices to optimize environmental protection around their washing stations.
4. Monitor the installation of the motorized pump at Kigoganya and prepare for the provisional reception of the Kigoganya System.
5. BAP is in talks with AVEDEC, the local Community Water and Sanitation NGO that conducted WASH training around the effluent control systems and community drinking water activities in PY3, to conduct a specialized training for the water management committees of the Kigoganya System point of sale cost recovery.

Burundi Business Incubator

Introduction

During this reporting period the BBIN held a retreat for founding members, a general assembly meeting to adopt the annual report and results of the external audit; began offering modules from the Business Edge curriculum; recruited a specialist in marketing and held the Shika Business Plan Awards Ceremony. Regular STTA was provided to the management team of the BBIN as was mentoring.

Performance Indicators

Performance Indicator	Accomplishments during the reporting period	Accomplishments during PY5
# of clients benefitting from enterprise development services		21
# of preincubatees	3	20
Incubation clients (Hotdesk)	0	0
Resident Incubation clients	0	0
Affiliate Incubation clients	0	1
New Commercial Renters	4	6
Financial Accomplishments		
Total Sales (FBU)	73,942,644	124,220,569
Total Expenses (FBU)	16,560,000	74,338,236
# of Training participants		166
First Steps	29	39
Business Concepts(BCC)	11	24
Business Plan	42	63
Ready for Finance	10	10
Inform yourself for Better Decision Making	19	19
Improved Service to Clients	11	11

Activities accomplished during this Reporting Period

1) Training Sessions

During this reporting period the BBIN raised the prices of its courses between 10.000 and 20.000 FBU; thus the first steps course tuition rose from 40 to 50.000 FBU; the Business Concept Course tuition increased 20.000 FBU to 70.000 FBU; and the business planning courses tuition was increased to 260.000 FBU from 250.000 FBU. The principle reason cited for this tuition increase is the increased cost of training consumables.

In total 8 sessions of 6 different modules were facilitated during the quarter. One hundred twenty-two participants attended of whom 47 (38.5%) were women. One course offered was a specialized Business Planning Course for GIZ; a second tailored course in First Steps to becoming an entrepreneur was facilitated for RET.

2) Marketing the BBIN

The BBIN recruited a specialist in marketing during this quarter. With her assistance three presentations were given to different structures- AFAB, The Sectoral Chamber of Commerce art and artisanal goods; and The Rotary Club. In addition BBIn participated in the Salon d'Emploi and the Belgian Week trade fair.

3) Distinguished Visitors

During this reporting period the BBIN received visits from:

- The Burundian Minister of Youth, Sports and Culture
- The Country Representative for USAID
- The First Secretary of the Dutch Embassy
- The Director of Spark and
- The Principal Technical Advisor for Burundi's United Nations Development Projects

4) Consultancies

Four different consultants assisted the BBIN management team during this quarter:

- 1) June Lavelle (NBIA) - Assisted the BBIN in analyzing the impact it has had on the private sector environment in Burundi
- 2) Sara Japenga (BidNET)- Attended the Shika Business Plan Awards Ceremony and facilitated a training session in Ready4Finance;
- 3) Bill Grant (DAI)- Participated in the Founding Member's Strategic Retreat
- 4) Damian Guilliminault (DAI) Assisted the Finance Staff of BBIN in accounting and financial analysis

5) New Commercial Clients

Six new commercial clients began renting space in the BBIN complex during this reporting period. Three others (InterCafe, Spark and Vulcan) increased the space they rent. One commercial client, AFFIM, left the center. The new commercial clients have business interests ranging from mining to plumbing to food services.

6) The Shika Business Plan Competition Awards Ceremony

The first edition of the Business Plan competition ended on 26 January 2012 with an awards ceremony attended by over 200 people. The fifteen finalists had their projects judged by a diverse jury who awarded prizes to the top three finalists in amounts ranging from 3 million FBU for 3rd place to 10 million FBU in equipment and capacity reinforcement services to the 1st prize winner. A display of the enterprises was accompanied by a film documenting the incubator process and the event served, not only as a celebration of their efforts but as a networking opportunity for Burundi's business community. The BBIN is proud to recognize corporate sponsors for this event: Bancobu, Interbank and Leo Telecommunications.

7) Founding Members Retreat and Impact Assessment.

Reports of these two activities were furnished under separate cover. The Founding member's retreat focused on re-centering understanding of the BBIN Mission, Objectives and Impact. Following this the Founding members performed a SWOT analysis and developed strategic orientations for the medium term. The impact assessment had the following principle findings:

The original rationale for the establishment of BBIN remains sound...

The private sector in Burundi is very thin with only a small number of small and medium enterprises (SMEs). Moreover, they face significant hurdles resulting from undeveloped markets, limited access to capital, and inadequate management skills of SME owners and managers. BBIN is intended to help spur the development of the private sector by providing needed services to established SMEs with high-growth potential and building local capacity in the training market to continue to meet the needs of SMEs in the future. The findings of this monitoring and evaluation exercise generally support the original rationale for the BBIN's business incubation program and suggest that it remains valid.

... however, the extent to which BBIN can assist established SMEs in its incubation program is likely to remain limited in the short-term.

However, the survey results, which include BBIN's commercial clients, along with the evidence of the high percentage (100 percent) of start-ups and even pre-startups that have applied to BBIN for admission into the incubation program point to the reluctance of existing SMEs to pay for incubation services given uncertainties with respect to potential benefits. This is not surprising since the BBIN is itself a start-up with its service offering evolving as it adjusts to the needs of the market. Moreover, the supply of qualified trainers and professional advisors is also very limited which has constrained BBIN's ability to offer more complex services that SMEs may need. In light of these and other market imperfections, there is justification for further support to BBIN to build these capacities in order to improve its value proposition. As the value proposition evolves and is recognized by SMEs, BBIN may be able to attract and better serve existing SMEs that have high-growth potential, albeit on a subsidized basis.

How best to address capital constraints remains an open question.

The original rationale for the establishment of BBIN highlighted the importance of financing to the growth of companies. While the availability of capital under acceptable terms is clearly an issue, it is notable that survey respondents noted the critical importance of a solid business plan without which they cannot access needed capital. For this reason, most Pre-incubation clients identified those services that relate to business planning and one-on-one coaching and mentoring as "Very Important" and even "Critical" to their business' development while referral or linkages to potential sources of capital ranked 4th as a "Critical" or "Very Important" business development service. In contrast, for the Commercial clients, referral or linkages to potential sources of capital ranked 1st in importance although it is important to note that only three commercial clients (33.33%) responded to this question. In response to client needs, BBIN has placed less emphasis on helping companies to secure financing and greater emphasis on improving management capabilities of its Pre-incubation clients. The results of the survey support the decisions that BBIN has made in this regard, however, the question of how best to address capital constraints remains open, especially since the Pre-incubation clients will hopefully be evolving to the point where they will need capital.

BBIN has done a great deal in a relatively short period of time.

Since the commencement of technical assistance in February 2010 and the inception of the BBIN in June 2010, the organization has undertaken the renovation of its facilities, built the capacity of its governing board, hired and developed a professional staff, designed and developed its products and services, launched numerous initiatives, and established a good reputation among entrepreneurs and its stakeholders. As envisioned, BBIN has provided a wide range of services to assist individual entrepreneurs and SMEs; enhanced the capabilities of local trainers and training firms; recruited and mobilized the services of local business leaders and business services providers; and improved the business environment.

Most BBIN clients and customers are satisfied with the services provided by BBIN and perceive value greater than or equal to fees paid.

An important determinant of success for any program is the degree of satisfaction among clients. In this regard, of the survey respondents who received Pre-incubation Business Development Services, roughly 86 expressed satisfaction with the eleven business development services provided by BBIN. Similarly, 95 percent of BBIN's Pre-Incubation Clients and 89 percent of Commercial clients who have utilized BBIN's facilities and administrative support services expressed satisfaction with these services. Of companies that participated in training, 100 percent of Pre-Incubation Clients report being "Satisfied" or "Very Satisfied" with *Developing Your Business Concept* and *How to Find the Best Business Idea for You* closely followed by *From Business Concept to Business Plan* and *How to Present Your Business Plan to a Jury or Investor* with roughly 92 percent and 89 percent satisfaction respectively. For open enrollment Training Customers, 100 percent report satisfaction with *1st Steps to Becoming an Entrepreneur*, *How to Find the Best Business Idea for You* and *Developing Your Business Concept* while over 91 percent expressed satisfaction with the *From Business Concept to Business Plan* course. With these levels of satisfaction, it is not surprising that over 25% of BBIN's training customers have returned to participate in a second or even a third course offered by BBIN. With regard to the value of BBIN's services, 92 percent of Pre-incubation clients, 100 percent of Commercial clients and 94 percent of Training customers believe that the value that they derived from BBIN services was equal to, or greater than, the fees charged by BBIN.

Clients gained knowledge and skills, made changes in their businesses and reported improved performance ...

BBIN provides its clients access to a variety of administrative, advisory, training, and accommodation services with the intention to improve the performance of clients with respect to specific business processes and/or the enterprise as a whole. Nearly 67 percent of Pre-incubation survey respondents point to BBIN's assistance in helping them to start-up their businesses. With regard to impact on clients' knowledge and skills, 100 percent of Pre-incubation clients and 88 percent of Training customers that responded to the survey reported that they had gained new knowledge or skills as a direct result of BBIN's services. Of these, over 84 percent of Pre-Incubation clients and 59 percent of Training customers reported that the new knowledge or skills had already been put to use in their business. In turn, the new knowledge and skills that have been obtained as a result of BBIN services have enabled clients to institute a variety of new practices in their firms. For example, 69 percent of Pre-Incubation companies compared to only 21 percent of Training customers responded that they had made improvements in their business strategy and financial management and planning since working with BBIN. In general, the most frequently reported changes made by the Pre-Incubation Clients tend to be the kinds of things that one would expect given the focus of the assistance provided by BBIN.

... however, in most cases, these gains have yet to be reflected in higher sales, profit or employment.

However, changes in capabilities and practices are a means to an end. The test is whether these changes actually improve performance. Among Pre-Incubation clients, these gains have begun to be reflected in higher sales, profit, and net worth for 8 of the 13 Pre-Incubation Clients responding to the survey. With respect to employment among the Pre-Incubation Clients, the reported gain was 23 new workers among those who responded to the question. This is in addition to the 45 new jobs that the Commercial clients indicated that they had created during a survey conducted in December 2011.

BBIN has enhanced the capacity of local trainers and training firms, as well as business Mentors and Coaches however, the Mentor/Coach to Client linkage has not been formed due to BBIN's current policies of availing these services to only Incubation clients.

One objective of BBIN has been to encourage local freelance trainers and training firms to develop and deliver new training services aimed at SMEs. Trainers indicate that they have not only learned and applied new skills, both technical and pedagogical, but also changed certain aspects of their business as a result of the capacity building activities with BBIN. For example, with regard to business planning, 100 percent of the respondents who had participated in this T-O-T program indicated that they had improved their knowledge of business planning, especially financial forecasting and market research. Moreover, the T-O-T Program has contributed to a change in their approach to teaching these essential skills, highlighting that their approach is more practical and understandable for Burundian business owners since this course addresses real life business issues and concerns.

BBIN has contributed to enhancing the business environment by raising awareness among targeted groups of business incubation and entrepreneurship, but it is too early to see any impact from these efforts.

BBIN's efforts at improving the business environment have contributed to greater awareness of entrepreneurship as a career choice and the role of business incubation among targeted groups such as university staff and students, business associations, media, and government officials. But the impact on the targeted populations will not be felt until new enterprises are established, and SMEs regularly seek training and other business development services. BBIN has participated in policy discussions and taken steps to foster greater dialogue on the needs of SMEs, especially among government officials. It is too early, however, to assess the impact of these efforts.

Challenges

- The question of appropriation and sustainability post-donor financing in September 2012
- The BBIN is an innovative institution with a young inexperienced management staff. It's system of governance and the appropriation of its procedures manuals require further fine tuning. A number of learning errors were noted during the past few months that need to be corrected going forward
- The fiscal situation of the BBIN remains precarious and a mitigated determination of its tax status by the Burundian Revenue Authority could compromise the operational viability of the ASBL in the future.

Conclusion

The BBIN continues to make progress toward its operational viability. The majority of founding members retains a strong interest in seeing the incubator succeed and they are acting as ambassadors for the BBIN in the wider community. The annual report and external auditor's report were accepted by the general assembly and, where, necessary, recommendations are being implemented. It is necessary that the BBIN increase its marketing efforts and the intensity of its training activities or the fiscal viability of the institution could very well be at risk. Finally the Shika business plan competition and awards ceremony has attracted more potential clients to the incubation process. It is necessary for the BBIN management team to capitalize on this pipeline to assure a continuous flow of enterprises and entrepreneurs into the center.

Conclusion

This second quarter of PY 5 was one of intense activity for BAP across all value chains and technical sectors. We continued closing out the 2011 coffee campaign; began preparations for the 2012 coffee campaign, and followed closely the second tendering of GOB coffee infrastructure. During this period, we monitored operations at Burundi's first operational Milk Collection Center and prepared for the opening of the second. We tracked horticultural reinvestment from 2011 C through 2012 A and into 2012 B seasons, assisted in the implementation of horticultural demonstration plots, the monitoring of small grants and pursued capacity reinforcement for MINAGRIE DPAE agents in best practices for coffee and horticulture as part of our departure/transition strategy. Implementation of small grants continued while new grants were presented, reviewed and, for the most part, financed. Much effort was placed on improving business management practices with our client cooperatives- ensuring the governance structures, tools and skills sets were in place to assure transparent management of increasingly complex business operations like the Milk Collection Centers and the Coffee Mini-washing stations, while not forgetting the needs of our clients with smaller income generating operations be they beekeeping, horticulture, small livestock raising, or soap making. Great progress was made on completing effluent control systems at a number of additional coffee washing stations, taking pre-season influent environmental water samples and training washing station managers in the proper upkeep and maintenance of these systems for maximum environmental mitigation impact during this coffee processing season. At the Burundi Business Incubator, the founding members held a strategic retreat to examine their appropriation of the activity and to examine medium and long term strategies necessary to assure operational sustainability and the continuation of activities post-BAP. A number of training sessions were held for entrepreneurs- including new curriculum from the IFC Business Edge franchise, the first Shika Business Competition Awards ceremony occurred and an evaluation of initial impact of the BBIN on Burundi's Business Climate was completed.

BAP wishes to thank USAID and the Dutch government for their continued support and wishes to congratulate our clients on their successes. We are thankful for the positive relationships engendered with the Ministry of Agriculture and our private sector partners and hope that a foundation for transformational development in Burundi is being laid that will increase revenues and improve the economic well being of a majority of Burundians both in the rural and urban communes.

Annexes

Annexe 1- Horticultural Training Sessions

Training topics and attendance in preparation for demo field management and grants

Topic	Farmer group #	Prov . #	# attendees			# of sessions	Attendee/ session	% of Women
			Men	Women	Total			
Nurseries	27	9	187	553	740	49	15	74,7
Planting density	20	7	76	403	479	30	16	84,1
Irrigation	2	1	1	3	4	2	2	60
Spraying	9	6	35	120	155	13	11	77,4
Raised beds	8	24	122	221	333	27	12	66,4
Assessment of activities	28	12	89	276	365	51	7	75,2
Trellising	3	3	36	8	44	3	14	18,2
Harvest	6	3	19	32	51	7	7	62,7
wooden boxes	2	1	10	15	25	2	12	60
TOTAL			313	1631	1944	184	11	83,8

Training on Good Agricultural and Good Manufacturing practices

Subtheme	# provinces	# groups	# of attendees			# of sessions	# of attend/ session	F%
			M	W	T			
Hygiene, solar dryng and food canning	3	N/A	88	70	158	4	39	44.3
record keeping (data recording)	3	7	7	73	80	7	11	91,3
GAPs	7	17	107	261	367	29	12	71,1
TOTAL			202	404	606	40	15.15	66.7

Attendance of DPAE staff members in the trainings on GAPs

Date	Commune	Total trained	Men	Women
February 20	Nyamurenza	21	21	0
February 29	Muramvya	11	10	1
March 05	mwumba	43	39	4
March 12	Ngozi	55	49	6
March 14	Gashikanwa	29	26	3
March 15	Busiga	32	27	5
March 16	Mwumba	32	26	6
March 19	Ruhororo	34	33	1
March 20	Kiremba	49	47	2
TOTAL		306	278	28

Special events attendance

Theme	# provinces	# groups	Attendance			# sessions	Att by session	% of women
			M	W	Total			
Radio broadcast	2	3	2	52	54	2	22	96,3
Total			2	52	54	2	22	96,3

Annexe 2 : Grants and Financial Intermediation

**ANNEXE 2: APPROVED, IN PROCESS AND REJECTED GRANTS
PROJECT YEAR 5 – Q2**

COFFEE											
N	Requesting Organization	Date Received	Project Location	Project Activity	Total Cost (Fbu)	Beneficiary Contribution (Fbu)	%	Financing Requested (Fbu)	%	Financing Requested (USD)	Status
1	Cooperative Mboneramiryango	1-Mar-11	Commune Giheta, Province Gitega	Installation of a mini-coffee washing station	71,607,350	22,910,350	32%	48,697,000	68%	\$ 38,958	Approved
2	Cooperative Kazoza n'ikawa	8-Feb-11	Commune Matongo, Province Kayanza	Installation of a mini-coffee washing station	59,441,600	10,635,600	18%	48,806,000	82%	\$ 39,045	Approved
3	Cooperative Dusangirijambo	1-Mar-11	Commune et Province Kayanza	Installation of a mini-coffee washing station	77,277,950	28,062,950	36%	49,215,000	64%	\$ 39,372	Approved
4	Cooperative Kanovera	1-Nov-11	Commune Musigati, Bubanza	Installation of a mini-coffee washing station	252,386,300	190,158,900	75%	62,227,400	25%	\$ 49,782	Approved
4	Total				460,713,200	251,767,800		208,945,400		\$ 167,156	

Gender & PO Cap Reinf											
N	Requesting Organization	Date Received	Project Location	Project Activity	Total Cost (Fbu)	Beneficiary Contribution (Fbu)	%	Financing Requested (Fbu)	%	Financing Requested (USD)	STATUS
1	Nature Grown Burundi	24-Jan-12	Mutimbuzi, Bujumbura Rurale & Randa, Bubanza	Improve the quality and increase exports of Heliconia Flowers	9,765,160	2,819,600	71%	6,945,560	29%	\$ 4,961	Approved
2	Association pour le Progress de la Femme et de l'Enfant (IGAA)	30-Dec-11	10 provinces of BAP literacy traing program	Extension of Literacy Training to BAP Partner women's associations	114,304,050	2,520,000	2%	111,784,050	98%	\$82,800	Approved
2	Subtotal				124,069,210	5,339,600		118,729,610		\$ 87,761	

**ANNEXE 2: APPROVED, IN PROCESS AND REJECTED GRANTS
PROJECT YEAR 5 – Q2**

Dairy											
N	Requesting Organization	Date Received	Project Location	Project Activity	Total Cost (Fbu)	Beneficiary Contribution (Fbu)	%	Financing Requested (Fbu)	%	Financing Requested (USD)	Status
1	Laiterie Nyabisabo	27-Sep-11	Bujumbura	Modification of milk pasturizer to a Long Shelf Life (ESL) production line; procurement of associated accessories	22,753,860	12,167,101	53%	10,586,759	47%	\$ 8,100	APPROVED
1	Subtotal				22,753,860	12,167,101		10,586,759		\$ 8,100	

DAIRY											
N	Requesting Organization	Date Received	Project Location	Project Activity	Total Cost (Fbu)	Beneficiary Contribution (Fbu)	%	Financing Requested (Fbu)	%	Financing Requested (USD)	Status
1	Burundi Bio Agricultural Community (BBAC)	12-Jan-11	Colline MUHWEZ A, Commune et province MURAMV YA	Increasing of the dairy production by the installation of veterinary inputs shop	31,328,000	19,350,000	62%	11,978,000	38%	\$ 8,807	In Process
2	Fromagerie St. Ferdinand	Mar-11	Ngozi Province	Increase production of fresh cheese, upgrade to modern equipment and packaging, increase sales	63,537,684	18,153,624	29%	45,384,060	71%	\$ 32,887	In Process
2	Subtotal				94,865,684	37,503,624		57,362,060		\$ 41,694	

**ANNEXE 2: APPROVED, IN PROCESS AND REJECTED GRANTS
PROJECT YEAR 5 – Q2**

HORT											
N	Requesting Organization	Date Received	Project Location	Project Activity	Total Cost (Fbu)	Beneficiary Contribution (Fbu)	%	Financing Requested (Fbu)	%	Financing Requested (USD)	Status
1	Appui pour le Développement des Natifs de Kayanza (ADENAK)	27-May-12	Kayanza	Installation of a Fruit Processing Plant (passion fruit, pineapple and banana) to reduce post-harvest losses in the region.	420,065,000	63,815,000	15%	356,250,000	85%	\$ 254,464	In Process
1	Subtotal				420,065,000	63,815,000		356,250,000		\$ 254,464	

GENDER/MSME/PO Capacity Reinforcement											
N	Requesting Organization	Date Received	Project Location	Project Activity	Total Cost (Fbu)	Beneficiary Contribution (Fbu)	%	Financing Requested (Fbu)	%	Financing Requested (USD)	Status
1	Programme d'Appui au Développement Social (PADS)	23-Dec-10	Commune Gashoho, Province Muyinga	Promotion of Modern Beekeeping	10,043,860	2,476,600	25%	7,567,260	75%	\$ 5,444	In Process
2	Association Groupement de Production Agro Pastorale (GPAP)	31-Oct-11	Commune GASHOHO, Province MUYINGA	Promotion of Modern Beekeeping	5,878,123	1,129,123	19%	4,749,000	81%	\$ 3,392	In Process
2	Subtotal				15,921,983	3,605,723		12,316,260		\$8,836	

**ANNEXE 2: APPROVED, IN PROCESS AND REJECTED GRANTS
PROJECT YEAR 5 – Q2**

Trade and Investment Capacity											
N	Requesting Organization	Date Received	Project Location	Project Activity	Total Cost (Fbu)	Beneficiary Contribution (Fbu)	%	Financing Requested (Fbu)	%	Financing Requested (USD)	STATUS
1	Société Industrielle pour la Valorisation du café (SIVCA)	9-Mar-12	Portland, Oregon	Participation in the 24th Annual Conference and Exposition of the Special Coffee Association of American (SCAA). Portland, Oregon, 18-23 April 2012	6,561,800	2,431,800	37%	4,130,000	63%	\$ 2,950	In Process
2	African Promotion Company (APROCO)	12-Mar-12	Portland, Oregon	Participation in the 24th Annual Conference and Exposition of the Special Coffee Association of American (SCAA). Portland, Oregon, 18-23 April 2013	5,762,400	1,640,800	28%	4,121,600	72%	\$ 2,944	In Process
3	Société General d'Exploitation et d'Exportation du Café (SEGEC)	20-Mar-12	Portland, Oregon	Participation in the 24th Annual Conference and Exposition of the Special Coffee Association of American (SCAA). Portland, Oregon, 18-23 April 2014	5,707,800	1,482,600	26%	4,225,200	74%	\$ 3,018	In Process
4	Express Coffee Burundi	12-Mar-12	Portland, Oregon	Participation in the 24th Annual Conference and Exposition of the Special Coffee Association of American (SCAA). Portland, Oregon, 18-23 April 2015	6,364,400	1,640,800	26%	4,723,600	74%	3,374	In Process
4	Subtotal				24,396,400	7,196,000		17,200,400		\$ 12,286	

**ANNEXE 2: APPROVED, IN PROCESS AND REJECTED GRANTS
PROJECT YEAR 5 – Q2**

Clean Productive Environment											
N	Requesting Organization	Date Received	Project Location	Project Activity	Total Cost (Fbu)	Beneficiary Contribution (Fbu)	%	Financing Requested (Fbu)	%	Financing Requested (USD)	Status
1	Sogestal Kirundo - Muyinga	26-Aug-11	Commune Mwakiro/ Province Muyinga	Upgrade waste water effluent control infrastructure/ adding rain water collection system	8,958,700	3,998,700	45%	4,960,000	55%	\$ 3,741	In Process
1	Subtotal				8,958,700	3,998,700		4,960,000		\$ 3,741	

Sector	Amount Requested by Sector (USD)	Total Number Requests by Sector
Coffee	\$ -	0
Dairy	\$ 41,694	2
Horticulture	\$ 254,464	1
Gender	\$ 8,836	2
Trade & Investment	\$ 12,286	4
Clean Productive Env.	\$ 3,741	1
Total	\$321,021	10

Beneficiary Name	City/Region	Purpose Of Loan	Local Currency Amount	Total Principal Disbursement	Interest Rate	Principal Repayment (As of 09/30/2011)	Number of Days in Arrears (As of 09/30/2011)
Years 2&3							
1. Industrie Alimentaire de Buterere, "I.A.B."	Bujumbura	Equipment for tranforming milk, fruit juice and mineral water	369 BIF millions	369 BIF millions	15.50%	144.6 BIF millions	NIL
2.MANWANGARI Jean Baptiste	Bujumbura Rural	Agriculture of rice	20 BIF millions	20 BIF millions	17.00%	Already repaid	NIL
3.SOGESTAL NGOZI	Ngozi	Coffee Factory	289,3 BIF millions	289,3 BIF millions	16.00%	133.16 BIF Millions	NIL
4.Laiterie NYABISABO	Bujumbura	Milk processing industry	170 BIF millions	170 BIF millions	14%	17.568 BIF millions	NIL
5.TURAME COMMUNITY FINANCE*	Bujumbura	Small loan	200 BIF millions	100 BIF millions	14%	Already repaid	NIL
6.ADECAP	CIBITOKÉ province	Livestock farming & milk collection	50 BIF millions	50 BIF millions	14%	5.932 BIF millions	60 days
7.HATUNGIMANA Japhet	Bujumbura Rural	Livestock farming	82BIF millions	82 BIF millions	16%	13.4 BIF millions	NIL
Total 1			1180.3	1080.3			
Year 4							
1.MURAMBI COFFEE	MURAMVYA province	Coffee washing station	55 BIF millions	55 BIF millions	14%	-	30 days
2. Coopérative MUSEMA	Kayanza province	Cherry purchase	90.7239 BIF millions	61.725 millions	16%	-	NIL
3. Coopérative NYARURAMA	Kayanza province	Cherry purchase	90.7239 BIF millions	19.490 millions	16%	-	NIL
4. Coopérative NKAMWAYACU	Muyinga prvince	Cherry purchase	200 BIF millions	200 BIF millions	16%	-	NIL
5. Fédération des caféiculteurs de MUMIRWA-MUCO W'IKAWA	Bujumbura province	Cherry purchase	100 BIF millions	100 BIF millions	16%	100 BIF millions, Already repaid	NIL
6. Imbo Coffee Company-ICC	Bubanza Province	equipment purchasing for CWS	50 BIF millions	50 BIF millions	117.25%	25 BIF millions	60 days
7.CINTIJE Mossi	Bujumbura province	Agriculture-rice	20 BIF millions	15 BIF millions	17.25%	3, 329 BIF millions	30 days
Total 2			606.4 BIF millions	501.2 BIF millions			
Total 1+2			1.786,7 BIF millions	1.581,5 BIF millions			

Annexe 3- Clean and Productive Environment

Table 1: Progress on Installation of Effluent control, sanitation and water recycling systems at new partner coffee washing stations.

Participating Stations		Location	Partner/Owner	Solid & Liquid Effluent Control Infrastructure	Block Latrines & Hand Washing Facilities	Water Supply and Recycling* System
1	SDL Gatare	Rango, Kayanza	Sogestal Kayanza	50%	50%	50%
2	SDL Butemba	Musongati, Gitega	Sogestal Kirimiro	85%	100%	75%
3	SDL Teka	Mbuye, Muramvya	Sogestal Kirimiro	50%	85%	50%
4	SDL Kavugangoma	Mwakiro, Muyinga	African Promotion Company (APROCO)	100%	100%	100%
5	SDL Wingoma	Butihinda, Muyinga	Cooperative Nkamwayacu	25%	25%	25%
6	Mini-SDL Ntamba	Musigati, Bubanza	Cooperative Kanovera	25%	50%	100%
7	Mini-SDL Mpemba	Matongo, Kayanza	Cooperative Kazoza n'lkawa	50%	75%	100%
8	Mini-SDL Kibimba	Giheta, Gitega	Cooperative Mboneramiryango	50%	50%	100%
9	Mini-SDL Kinzobe	Commune et Province Kayanza	Cooperative Dusangirijambo	50%	50%	100%

Table 2. Site des Stations des Eaux Usées a Analysée

Site des Stations des eaux a analysé			
Nº	Station de Lavages Pilotes	Stations de Lavages Témoins	Nouvelles Stations de lavages ou mini stations
1	Kinyovu (Sogestal Kayanza)	Nemba (WEBCOR)	Kavugangoma (APROCO)
2	Buhorwa (Sogestal Kayanza)	Gatukuza (Prive)	Teka (ARFIC)
3	Gahahe (WEBCOR)	Ngogomo (Sogestal Kirundo- Muyinga)	Butemba (ARFIC)
4	Nkaka (WEBCOR)	Nyamasaka (Sogestal Kirundo - Muyinga)	Gatare (Sogestal. Kayanza)
5	Butegana (WEBCOR)	Bwayi (Sogestal Kayanza)	Wingoma (Coopérative Nkamwayacu)
6	Rutanga (Sogestal Ngozi)	Kagombe (Sogestal Kirundo -Muyinga)	Karinsi (coopérative Dusangirijambo)
7	Gitwa (Sogestal Ngozi)	Buziraguhinda (CPC)	Mpemba (coopérative Kazoza n'ikawa)
8	Rwintare (Sogestal Ngozi)	Karehe (COPROTRA)	Korane (Coopérative Mboneramiryango)
9	Ruhororo (Coopérative Ubwiza bw'lkawa)		
Total	9	8	8

Paramètres à analyser

N°	paramètres Physico chimiques	paramètres bactériologiques
1	Turbidité	Flore totale
2	Alcalinité totale	Coliformes totaux
3	Dioxyde de carbone	coliformes fécaux
4	Dureté totale	Escherichia coli
5	Dureté calcique	Vibrion de cholera
6	Dureté magnésique	Salmonella
7	Calcium	
8	Magnésium	
9	Fer total	
10	Manganèse	
11	Chrome hexa valent	
12	Ammonium	
13	Azote ammoniacal	
14	Nitrates	
15	Nitrites	
16	Sulfates	
17	Chlorures	
18	Ortho phosphates	
19	Phosphore	
20	Sulfure	
21	Fluorure	
22	Matière totale dissoute	

Table 3. Résultats des analyses des eaux de sources campagne 2012 (avant la campagne)

Nº	Paramètres	Unités	Teka	Buorwa	Kaguhu	Gatare	Mpemba	Bwayi	Karinzi	Butegana	Gahahe	Gatukuza	Nkaka	Ruhororo	Karehe	Rutanga	Kagombe	Nyamasaka	Wingona	Ngogomo	Kavugangoma	Butemba	Nemba	Kinyovu	Gitwa	Rwintare	Buziraguhinda
1	pH		7	7.1	7.4	7.3	5.8	7.4	8.2	9.4	7	6.3	5.6	8.3	8.3	5.2	7.6	7.6	7.5	7.1	6.1	7.7	8.1	7.8	7.7	6.7	7.6
2	Conductivité		0.04	0.05	0.02	0.07	0.03	0.06	0.08	0.08	0.07	0.01	0.02	0.05	0.05	0.02	0.05	0.09	0.11	0.05	0.05	0.03	0.08	0.09	0.13	0.05	0.0
3	Turbidité	NTU	9.9	9.9	9.9	9.9	0.7	9.99	32.4	24.5	25.3	2.11	2.25	25.7	41.6	0.46	47.4	12.7	8.97	4.31	3.94	0.6	34.5	54.3	40.8	14.5	186
4	Alcalinité totale	mgCaCO ₃ /l	14	22	18	20	16	28	39.6	34.3	25.6	6.9	5.5	19.4	11.2	0	26	30	22	18	27	6.5	17	20	32	12	9
5	Dioxyde de carbone	mgCO ₂ /l	17.6	30.2	16.8	19.2	24	21.2	22.8	18	34.2	16.4	28	16.4	17.4	59	27.4	22.2	21.5	18	24.2	7.6	11.7	10.4	13.4	8.8	9.7
6	Dureté totale	mgCaCO ₃ /l	32	38	24	40	23	48	214	180	194	182	170	174	192	186	16	41	24	20	21	3	26	26	48	18	11
7	Dureté calcique	mgCa-CaCO ₃ /l	0.58	0.5	2.2	2.14	0.95	0.89	0	0	0	0	0.72	0.15	1.19	0.25	0	0	0	0	0	0.2	0	0	0	0	0
8	Dureté magnésienne	mgMg-CaCO ₃ /l	5.5	2.36	6.19	2.08	1.17	2.95	3.53	2.7	2.79	2.61	2.86	2.73	2.57	2.86	3.31	3.34	2.95	3.36	3.29	0.3	3.37	2.95	2.32	3.03	2.43
9	Calcium	mgCa ²⁺ /l	0.35	1.6	1.1	0	0	0.6	0	0	0	0	0.29	0.06	0.48	0.1	0	0	0	0	0	0.1	0	0	0	0	0
10	Magnésium	mgMg ²⁺ /l	3.95	3.5	4.45	3.6	1.85	1.75	0.86	0.66	0.68	0.63	0.69	0.66	0.62	0.69	0.81	0.81	0.72	0.82	0.83	0.1	0.82	0.72	0.56	0.74	0.59
11	Fer total	mgFe/l	2.91	1.68	1.66	2.84	0.04	0.76	0.64	1.09	1.12	0.19	0.09	0.87	1.42	0.04	1.16	0.62	0.42	0.17	0.09	0.1	1.46	1.77	1.34	0.19	2.52
12	Manganèse	mgMn/l	1.5	0.5	1	0.6	1.2	0.4	0.1	0.2	0	0.3	0.1	1.7	0	0.1	0.14	0.07	0.05	0.03	0.04	0	0.11	0.22	0.75	0.06	0.61
13	Chrome hexavalent	mgCr ⁶⁺ /l	0	0.03	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0.01	0	0	0.02	0.02	0.08	0	0.01	0	0.01	0.01	0
14	Azote ammoniacale	mgNH ₃ -N/l	0.17	0.08	0.18	0.56	0.02	0.03	0.11	0.11	0.13	0.11	0.1	0.12	0.08	0.07	0.09	0.01	0.09	0	0	0	0.04	0.06	0.13	0	0.19

15	Ammonium	mgNH ₄ ⁺ /L	0.13	0.07	0.14	0.43	0.01	0.03	0.15	0.14	0.17	0.14	0.12	0.15	0.1	0.09	0.12	0.02	0.12	0	0	0	0.06	0.08	0.17	0	0.24	
16	Nitrates	mgNO ₃ /l	0	0.3	0.8	0	1	2.9	1.6	0	1.1	1.2	8.1	0.3	7.2	4.6	2.8	3	5.7	3.8	2.9	0	0.3	1.1	1	4.9	0	
17	Nitrites	mgNO ₂ /l	0.113	0.08	0.09	0	0.174	0.09	0.01	0	0.01	0.01	0.01	0	0	0.01	0.01	0.06	0.05	0.02	0	0	0.01	0.01	0.01	0	0	
18	Sulfates	mgSO ₄ ²⁻ /l	2	2	2	4	3	3	5	56	36	38	32	53	0	24	0	0	0	0	0	1	1	0	1	6	2	0
19	Chlorures	mgCl/l	3.9	3.3	5.1	3.2	4.2	6	3.5	3.9	2.5	2.6	5	3.6	3	2.9	13.1	11.8	21.4	8	4.9	6.1	6.1	5.3	6.1	6.2	5.3	
20	Orthophosphate	mgPO ₄ ³⁻ /l	0.29	0.64	0.74	1.14	1.11	0.93	0.69	0.71	0.83	0.52	0.26	0.74	0.62	0.51	2.83	3.03	3.59	2.99	5.67	0	0.58	0.83	0.44	0.39	0.34	
21	Phosphore	mgP/l	0.45	0.06	0.03	0.06	0.33	0.19	0.22	0.23	0.27	0.17	0.08	0.24	0.2	0.17	0.65	0.49	0.77	0.11	0.13	0	0.19	0.27	0.14	0.13	0.11	
22	Fluorure	mgF/l	0	0	0	0	0	0	0.28	0.1	0.48	0	0	0.18	0.37	0	0	0	0	0	0	0.7	1.05	0	0	0	0	
23	Matière dissoute totale	ppm	38	45	22	100	31	51	70	64	53	18	19	40	44	20	55	60	80	40	37	15	46	57	65	38	31	
24	Flore totale	UFC/ml	227	108	189	276	5	210	27	164	128	204	158	87	57	1	87	182	158	139	3	47	83	84	106	42	78	
25	Coliformes totaux	UFC/100 ml	47	21	29	44	0	59	7	29	35	69	53	17	8	0	63	104	123	97	0	29	57	62	39	11	48	
26	Coliformes fécaux	UFC/100 ml	12	5	7	17	0	32	5	14	17	54	39	12	5	0	44	59	55	73	0	14	43	38	16	5	29	
27	Escherichia coli	UFC/100 ml	8	5	7	12	0	14	2	7	8	22	18	5	3	0	16	8	22	37	0	5	7	4	4	1	3	
28	Salmonella	UFC/100 ml	4	5	4	5	0	9	0	2	3	8	11	0	1	0	11	11	26	15	0	0	12	3	0	0	4	
29	Vibrio cholerae	UFC/100 ml	17	2	6	15	0	14	0	5	4	8	5	2	1	0	0	8	9	3	0	0	14	9	0	0	7	