

AFRICAN DEVELOPMENT BANK



BENIN

PROJECT TO SUPPORT FOOD PRODUCTION AND BUILD RESILIENCE IN ALIBORI, BORGOU AND COLLINES DEPARTMENTS (PAPVIRE-ABC)

REVISED VERSION

OSAN DEPARTMENT

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Translated Document

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Currency Equivalents
(March 2015)

Currency Unit	=	CFAF
UA 1	=	CFAF 821.343
UA 1	=	USD 1.40739
UA 1	=	EUR 1.25213

Fiscal Year
1 January – 31 December

Weights and Measures

1 metric tonne	=	2 204 pounds
1 kilogramme (kg)	=	2.200 pounds
1 metre (m)	=	3.28 feet
1 millimetre (mm)	=	0.03937 inch
1 kilometre (km)	=	0.62 mile
1 hectare (ha)	=	2.471 acres

Acronyms and Abbreviations

ABE	: Benin Environment Agency
ABSSA	: Benin Food Safety Agency
ADMA	: Mechanization Development Agency
AGETUR	: Urban Works Execution Agency
APAH	: Irrigation Schemes Promotion Agency
BOAD	: West African Development Bank
CAIA	: Agricultural Inputs Purchasing Centre
CARDER	: Regional Agricultural Centre for Rural Development
CES – DRS	: Water and Soil Conservation – Soil Conservation
COP	: Guidance and Steering Committee
DANA	: Department of Food and Applied Nutrition
DGAER	: General Directorate of Rural Planning and Equipment
DICAF	: Department of Agricultural Extension and Operational Training
DLROPEA	: Department of Rural Legislation, and Professional Organizations and Agricultural Entrepreneurship Support
DPP	: Department of Planning and Forecasts
DPV	: Department of Plant Production
DRSSA	: Regional Directorate of Food Safety
ESMP	: Environmental and Social Management Plan
EU	: European Union
FAO	: Food and Agriculture Organization of the United Nations
GAFSP	: Global Agriculture and Food Security Programme
GIZ	: Gesellschaft für International Zusammenarbeit
GPRS	: Growth and Poverty Reduction Strategy
INRAB	: National Agricultural Research Institute of Benin
IsDB	: Islamic Development Bank
KfW	: German Bank for Reconstruction (Kreditanstalt für Wiederaufbau)
LCSSA	: Central Food Safety Laboratory
MAEP	: Ministry of Agriculture, Livestock and Fisheries
MDAEP	: Ministry of Development, Economic Analysis and Forecasts
MEHU	: Ministry of Environment, Housing and Town Planning
MERPEDRE	: Ministry of Energy, Petroleum Research and Water Resources
ONASA	: National Food Security Support Agency
PAFICOT	: Cotton and Textile Sub-sector Support Project
PAFILAV	: Milk and Meat Sub-sector Support Project
PAGEFCOM	: Community Forest Management Support Project
PAIA-VO	: Ouémé Valley Agricultural Infrastructure Support Project
PANA	: National Climate Change Adaptation Action Programme
PANGIRE	: National Integrated Water Resources Management Action Programme
PASCIB	: Platform for Civil Society Actors in Benin
PDRNERICA	: NERICA Rice Dissemination Project
PNIA	: National Agricultural Investment Plan
PNOPPA	: National Platform for Farmers' and Agricultural Producers' Organizations of Benin
PPEA	: Agricultural Entrepreneurship Promotion Project
PPF	: Project Preparation Financing Mechanism
PSRSA	: Strategic Plan for Agricultural Sector Revitalization
SONAPRA	: National Agricultural Promotion Corporation
SONIAH	: National Irrigation Schemes Corporation
UNDP	: United Nations Development Programme
VA	: Value Added
WB	: World Bank

Project Information Sheet

Client Information Sheet

DONEE : Republic of Benin

EXECUTING AGENCY : Ministry of Agriculture, Livestock and Fisheries (MAEP)

Financing Plan

Source of Financing	Amount	Instrument
GAFSP	USD 24.00 million	Grant
Government	USD 2.71 million	-
Beneficiaries	USD 0.42 million	-
TOTAL COST	USD 27.13 million	

GAFSP Key Financial Information

GAFSP Grant Currency	USD
Commitment Fee	% per annum of undisbursed amount
Service Charge	0% per annum of outstanding balance
ERR (baseline scenario)	28.8%
IRR (baseline scenario)	22.86 %
NPV	CFAF 44.90 billion

Timeframe – Main Milestones (Expected)

Preparation	March 2015
Concept Note Approval	May 2015
Project Appraisal	May-June 2015
Project Approval	October 2015
Effectiveness	November 2015
Completion	October 2021
Last Disbursement Date	December 2021

Project Executive Summary

Project Overview: The Project to Support Food Production and Build Resilience (PAPVIRE-ABC) covers Alibori, Borgou and Collines Departments with a surface area of 66 029 square kilometres (58% of the national territory) and a population of about 2 786 699 inhabitants, or 28% of the country's total population estimated at 10 008 749 in 2013. The project targets municipalities that are fragile and economically, socially and environmentally disadvantaged, but have enormous agricultural and fish farming potential, which if developed in a sustainable manner, will help improve food and nutrition security, increase the incomes of vulnerable small-scale farmers, mitigate the incidence of poverty among rural households, and build the resilience of the population, particularly women and youths. The project, which will be implemented over a five-year period for a total cost of USD 27.131 million, of which USD 24 million will be financed with Global Agriculture and Food Security Programme (GAFSP) resources, will comprise three components, namely: (i) Support for Rural Infrastructure; (ii) Development of Agricultural Value Chains and Resilience; and (iii) Project Management. PAPVIRE-ABC will directly benefit more than 50 000 people, 50.2% of them women, and indirectly benefit 400 000 people in its impact area. The participatory and inclusive approach adopted during project preparation and appraisal will continue during project implementation so as to involve all stakeholders and ensure sustainability of investments. Similarly, the “agricultural cluster¹” approach will be adopted to remove the major constraints on sustainable financing of agricultural entrepreneurship in public-private partnerships (PPP), improve access to markets, and guarantee higher producer prices.

Needs Assessment: To achieve the objectives of the Strategic Plan for Agricultural Sector Revitalization (PSRSA) in terms of sustained growth, poverty reduction and food and nutrition security, the financing needs of the agricultural sector in Benin were estimated at CFAF 172 billion in 2015. The resources that can be mobilized in 2015 are estimated at CFAF 60 billion, which leaves a big financing gap of more than CFAF 112 billion. GAFSP resources, totalling about CFAF 14.070 billion, will help to significantly narrow the financing gap, particularly in the three departments. In addition, harnessing water for irrigation in the project area, disseminating new technologies, creating value added in key agricultural sub-sectors, promoting young agricultural entrepreneurs in a sustainable manner, and building the resilience of socio-ecological systems require substantial resources.

Value Added for the Global Agriculture and Food Security Programme and the African Development Bank: PAPVIRE-ABC will reinforce the Bank's Ten-Year Strategy 2013-2022 and GAFSP priority areas by supporting food and nutrition security, value chains and resilience building. Specifically, the project will contribute to filling the agriculture financing gap and serve as catalyst for agricultural development in the area by improving water control, strengthening the economic infrastructure, and promoting the use of appropriate production, processing and marketing technologies. In addition, PAPVIRE-ABC will strengthen the Bank's role in financing the agricultural sector in Benin and the reflection of previous Bank experience in the implementation of similar projects. Lastly, it will implement the 2011-2015 Climate Change Action Plan and the Bank's Strategy for “Addressing Fragility and Building Resilience in Africa 2014-2019” by strengthening the role of communities, the private sector and local NGOs in enhancing resilience, local governance and citizen control. The project is

¹ An agricultural cluster (AC) comprises a group of (aggregated) producers linked to an aggregator (generally an agro-food enterprise) and maintaining market relations with other suppliers. Thus, the enterprises of a cluster focus on the same market, use the same inputs, share the same territory and its infrastructure, and form part of the same social community with the same values, traditions and production culture.

also consistent with the Bank's Gender Strategy 2014-2018 as it will strengthen women's ownership rights over developed land and their economic empowerment through income-generating activities, as well as build their capacity in management and entrepreneurship.

Knowledge Management: PAPVIRE-ABC will establish a baseline situation based on field surveys (including value chains) which will help create a reliable gender-disaggregated database for measuring project outcome and impact indicators. A geo-referenced map will be drawn to provide information on the facilities and infrastructure sites constructed. Specific (rapid and in-depth) impact assessments will be conducted by competent firms and the findings fed into the GAFSP database. This information will be posted on the GAFSP website and shared with all stakeholders. The project will also support training and knowledge building for the various local stakeholders, particularly the farmers in irrigated areas and women responsible for processing and marketing agro-food products. The project will disseminate good practices in the conservation and storage of agricultural products. Concerning irrigation, the project will develop expertise in delegated project supervision and resilience to climate change, as well as disseminate innovative actions that enhance local skills, including those of women. Mechanisms for communicating and building on project outcomes, the generation of value for women and youths through the development of value chains, as well as participatory assessments and citizen control integrated into project implementation arrangements will also contribute to knowledge management.

I. RESULTS-BASED LOGICAL FRAMEWORK

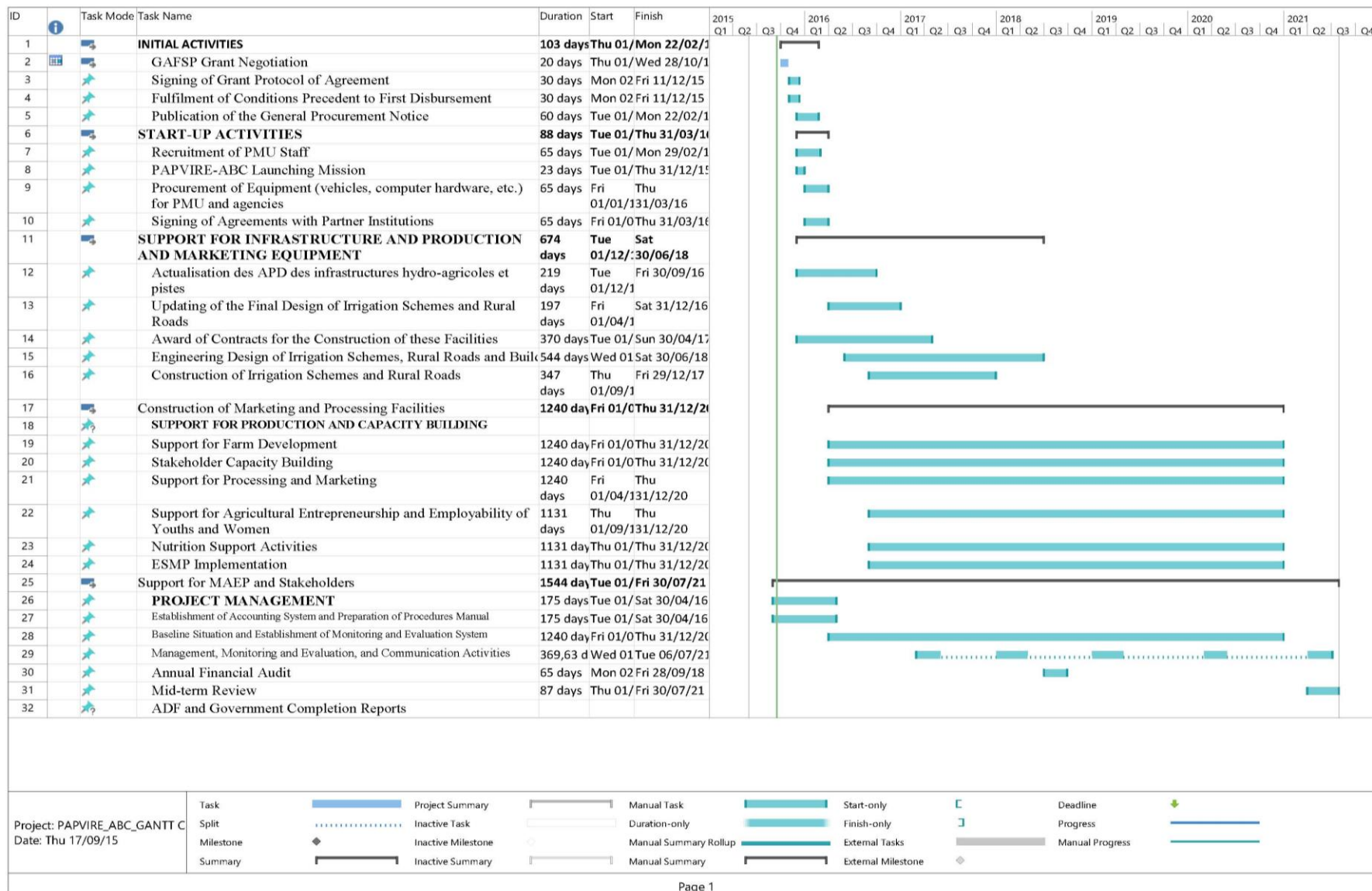
(*): Data on baseline situation indicators will be updated at the end of the baseline study

COUNTRY AND PROJECT NAME:		Benin: Project to Support Food Production and Build Resilience in Alibori, Borgou and Collines Departments (PAPVIRE-ABC)				
PROJECT GOAL:		The overall goal of PAPVIRE-ABC is to help improve food and nutrition security and reduce poverty among the population.				
RESULTS CHAIN		PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
		Indicators (including ISC)	Baseline Situation	Target		
IMPACT	Long-term		2013	2021 and Beyond	INSAE, EMICOV/EDS statistics	
	Food and nutrition security is improved and the incidence of poverty reduced	Average prevalence of food insecurity in the PIA	12%	5%/8% (2018)		
		Prevalence of chronic malnutrition (children aged 5-59 months) in the PIA	50.8%	25%/35% (2018)	GPRS III studies / surveys	
		Percentage of poor people in the PIA, gender-disaggregated: M/W	39%	25%/30% (2018)	AGVSA reports	
OUTCOMES	Medium-term		2015	2020		Risks
	1. Food, market garden and fish production is increased	Average cereal crop productivity (kg/ha)	≤ 1 500	≥ 4 500	<ul style="list-style-type: none"> - Agricultural Statistics - Periodic project monitoring reports • iMid-term review and project completion reports 	<ul style="list-style-type: none"> • Unclarified land and land tenure issues may cause difficulties in developing sites and jeopardize the achievement of project objectives in terms of food security and poverty reduction, particularly for women and youths
		Volume of food production (rice, maize and cassava) sold annually (tonnes)	43 000	85 000		
		Volume of market garden production sold annually (tonnes)	1 000	15 600		
		Volume of fish production marketed annually (tonnes)	700	2 200		
	2. The incomes of farmers in rural areas, including women and young farmers, are improved	Income/year per food crop farm managed by men/women (CFAF)	180 000/150000	330 000/285 000		
		Income/year per market garden managed by men/women (CFAF)	30 000/ 57 000	635 000/725 000		
		Income/year per fish farm managed by men/women (CFAF)	NA	430 000/355 000		
	3. The framework for promotion of agricultural enterprises for youths and women is established	Number of functional enterprises promoted by men and women	NA	≥ 25/22		Mitigation Measures <ul style="list-style-type: none"> • Improvement of local land governance by preparing rural land plans and issuing rural land certificates (RLCs), including for women and youths.
		Number of business incubation centres with partnership agreements	2	4		
		Number of eligible agro-business projects developed for M/W*	NA	100/88		
	Short-term		2015	Before 2020		Risks
	I. RURAL INFRASTRUCTURE SUPPORT	Number of agro-pastoral dams rehabilitated/Volume of water supplied	0	7 /> 600 000 m3	<ul style="list-style-type: none"> • Reports of municipalities • Progress reports of technical services responsible for implementation monitoring • Contracts concluded with enterprises • Reports of control firms • PASCIB progress report • Project progress reports 	<ul style="list-style-type: none"> • Climate hazards may aggravate ecosystem degradation (drought, flooding, etc.), making the population more vulnerable and causing conflicts. • Limited ownership and management of rural infrastructure
		New areas developed for irrigation (ha)	0	1 927		
		New developed and secured areas allocated to women (ha)	0	675		
	1.1 Development of Irrigation Schemes	Area protected using GIFS, GDT, IWRM, etc. methods (Ha)	0	350		
		Number of rural land plans (RLPs) certified	0	20		
		Transhumance corridors marked (km)	0	100		
	1.2 Protection of Vulnerable Areas and Land	Rural roads rehabilitated/Rural roads developed. Critical point (km)	0	58km/60km		Mitigation Measures <ul style="list-style-type: none"> • Irrigation, protection of vulnerable areas, opening up of production areas, inclusion of climate information in the design of structures, and the protection of incomes; • Development of transhumance corridors; • Capacity building for municipalities.
		Number of shops built for operators: M/W	0	20/20		
		Number of rural markets constructed for operators: M/W	0	10/10		
		Number of multipurpose centres with processing units: M/W	0	00/16		
		Number of modern boreholes for drinking water supply	0	20		
	1.3 Construction of Other Infrastructure	Number of 180 m ³ floating cages installed for EIGs	0	84		
		Number of 180 m ³ floating cages installed for EIGs	0	84		
	1.4 Establishment of Fish Farms	Number of 180 m ³ floating cages installed for EIGs	0	84		
	II. DEVELOPMENT OF AGRICULTURAL VALUE	Areas developed using new technologies for M/W (hectares)	NA	18 000/12 000	<ul style="list-style-type: none"> • CARDER reports • Agreements and protocols signed 	Risks <ul style="list-style-type: none"> • Lack of monitoring of technological innovations by communities
		Contact group members trained in technological innovations in Farmers' Field Schools (PIU) and Demonstration Units (DUs): M/W	0	1 755/1 755		

KEY ACTIVITIES	CHAINS AND RESILIENCE	2.1 Improvement of Productivity and Technological Innovations	Number of agricultural input shops managed by M/W	0	13/14	• Project progress reports	• Poor monitoring by municipalities (MOD); delays in procurement; weak capacity of technical services; weak capacity of enterprises Mitigation Measures • Adoption of participatory approach and involvement, organization and training of local stakeholders • Financing of a stakeholder capacity building programme.	
			Person-days of training in technology review workshops: M/W	0/0	9 450/9 450			
			Number of farmers trained <i>in fine</i> in resilient technologies: M/W	NA	12 750/12 750			
			Number of improved seed producers assisted: M/W	0	90/90			Report
			Decentralized and operational early warning systems (EWS)		3			Benin's EWS
	2.2 Stakeholder Capacity Building	Capacity	Members of Irrigated Areas and Infrastructure Management Committees trained: M/W	0/0	675/675	• DPP/MAEP performance report • Civil society/citizen control report • MFI report		
			Number of Farmer Organizations (FOs) assisted and operational: M/W	0/0	350/350			
			Members of FOs supervised and supported: M/W	0/0	14 000/14 000			
			Number of collective transhumance agreements concluded	0/0	10			
			Number of young entrepreneurs trained in incubation centres: M/W	0/0	235/235			
			Person-days of training in processing, marketing and post-harvest losses: M/W (150/2 days/3 years: 1 500 people)	0/0	750/750			
			Person-days of training of specialized technicians and extension workers: M/W	0/0	384/256			
			Person-days of training per system of visit in PIUs and DUs: M/W	0/0	31 590/31 590			
	2.3 Promotion of Agricultural Value Chains		Number of pieces of post-harvest equipment for women FOs and EIGs: 1 rice kit (2 thresher-winnower units, 1 hulling machine, 1 husked rice grader, and 2 sealing machines), 1 maize kit (2 threshers, 2 graders and 1 mill): W	0	70 tarpaulins, 45 rice kits, 15 maize kits			
			Number of women processing FOs and EIGs strengthened: M/W	0	0/30			
			Number of service enterprises and farmer organizations (ESOP) established and strengthened, including number of members: M/W	0	3 (3 120 M/2 880 W)			
			Competitive Fund for Support of Youth Innovative Initiatives (USD '000): M/W	0	179/179			
			MFI resources mobilized for rural financing (USD '000): M/W	0	1 141/1 142			
			2.4 Nutrition Support		Number of persons directly sensitized on nutrition: M/W	0/0	4 000/6 000	• DRSSA Report
	Number of women trained in breastfeeding and nutrition (W)	0			≥150	• ABSSA report		
	III. PROJECT MANAGEMENT		Number of technicians trained in monitoring and evaluation, and various workshops: M/W	0	75/75	• PCU report		
			Person-days of training of various State and NGO workers in value chain approach, gender, climate change and resilience, market access mechanisms, product standards and quality, etc.): M/W	0/0	180/180	• PCU report		
			Number of work programmes and budgets (PTBA) prepared and implemented	0	5	• Procurement Plan • SAP System • Audit reports • Progress reports • Mission aide-memoires	Risks • MAEP institutional weakness in management and monitoring/evaluation Mitigation Measures The capacity building programme for MAEP and PMU in project management, procurement and financial management.	
			Number of quarterly reports/annual audit reports approved	0/0	20/5			
			Number of procurement plans prepared and updated/disbursement rate	0	5 / ≥ 95%			
			Number of Steering Committee meetings held	0	10			
			Number of supervision missions undertaken by the Supervisory Authority/Bank	0	20/10			
			Number of mid-term review /completion reports prepared	0/0	1/1			
			Number of rapid/in-depth impact assessments conducted	0/0	1/1	• GAFSP Report		
			COMPONENTS					
	Component 1: Support for Rural Infrastructure:			USD 11.88 million (43.80%)			Total Project Cost:	USD 27.13 million
	Component 2: Promotion of Value Chains and Resilience:			USD 11.66 million (42.98%)			GAFSP Grant:	USD 24.00 million (88.46%).
	Component 3: Project Management:			USD 3.59 million (13.22%)			Beneficiaries	USD 0.42 million (1.52%)
	TOTAL			USD 27.13 million			Government of Benin:	USD 2.71 million (10.00%).

(**)M/W: Men/Women

Project Implementation Schedule



PROJECT TO SUPPORT FOOD PRODUCTION AND BUILD RESILIENCE IN ALIBORI, BORGOU AND COLLINES DEPARTMENTS (PAPVIRE-ABC)

Management submits the following report and recommendation concerning a proposal to award a USD 24 million GAFSP Grant to the Republic of Benin to finance the Project to Support Food Production and Build Resilience in Alibori, Borgou and Collines Departments (PAPVIRE-ABC).

I. Strategic Thrust and Rationale

1.1 Project Linkages with Country Strategy and Objectives

PAPVIRE-ABC is based on “Benin 2025” prospective vision and its operational plans, namely the Growth and Poverty Reduction Strategy 2011-2015 (GPRS III) and the National Agricultural Investment Plan (PNIA) stemming from the Strategic Plan for Agricultural Sector Revitalization (PSRSA). These strategies seek to achieve strong and inclusive growth that can improve the living conditions of the most vulnerable segments of the population by removing constraints on food security, increasing incomes and enhancing the attractiveness of agriculture. In addition to core investments in water control and opening up of production areas, the project will help to develop agricultural value chains in sub-sectors targeted in the PSRSA (rice, maize, market garden products, and fish) and build the resilience of households to climate change and food and nutrition insecurity. The project will also contribute directly to achieving the objectives of the Comprehensive Africa Agriculture Development Programme (CAADP) and the Millennium Development Goals (MDGs), particularly food security, promotion of gender equality, and women’s empowerment.

1.2 Rationale for Bank and GAFSP Intervention

1.2.1 The agricultural sector in Benin has a financing gap of more than CFAF 112 billion which, if reduced, will help to achieve the objectives of the Strategic Plan for Agricultural Sector Revitalization (PSRSA) in terms of inclusive growth, poverty reduction and strengthening of food and nutrition security. The situation in Alibori, Borgou and Collines Departments is alarming. According to the Comprehensive Food Security and Vulnerability Assessment (CFSVA, 2014) report, the prevalence of food insecurity in these three departments ranges from 10% to 27%. These areas are also subject to climatic hazards which cause drought and floods with serious consequences. In fact, 70% of villages in Alibori Department, 50% in Borgou Department and 40% in Collines Department have experienced recurrent floods, causing damage to crops and dwellings. At the economic level, climatic factors, as well as limited market access, limited local product processing and low producer prices affect household incomes in the three departments. At the social level, youth unemployment and precarious living conditions increase rural-urban migration and exacerbate social conflicts over the use of land and transhumance corridors.

1.2.2 The Government of the Republic of Benin has designated the Bank as the Supervision Entity (SE) in the drafting of its request for GAFSP assistance to remove financing constraints on the agricultural sector. Through this Bank assistance, Benin was notified on 19 November 2014 of the award of USD 24 million to finance the PAPVIRE-ABC project. GAFSP support will contribute to reducing the deficit in agricultural investment in the region, particularly through the implementation of PNIA which stems from PSRSA. Thus, high and sustained agricultural growth rates driven by high productivity are needed to increase incomes and accelerate poverty reduction. By targeting disadvantaged areas with a huge agricultural potential and supporting infrastructure development and agricultural entrepreneurship, GAFSP interventions will help to reduce poverty and regional and social disparities, promote youth employment and build resilience to climate change.

1.2.3 The project is consistent with the Bank's Ten-Year Strategy for the 2013-2022 period, which lays emphasis on *"inclusive growth and transition to green growth"* and the new Agricultural Sector Strategy of the Bank (AgSS 2015-2019) under preparation. It mainstreams the Bank's Strategy to *"Address Fragility and Strengthen Resilience in Africa 2014-2019"* by enhancing the role of communities in building resilience and strengthening stakeholder awareness of fragility issues. It also mainstreams the priority areas of the 2011-2015 Climate Change Action Plan and the Bank's Gender Strategy 2014-2018 by strengthening women's ownership rights over developed lands and economic empowerment through income-generating activities, and building their capacity in management and entrepreneurship. At the national level, the project is in line with the Country Strategy Paper (CSP 2012-2016), particularly Pillar I *"Support Infrastructure for Production and Competitiveness"*. In this respect, the project will contribute to achieving Output 1: *Development of agricultural production infrastructure by enhancing agricultural growth* through the development and use of irrigated areas and lowlands as well as the rehabilitation of rural roads. It will also contribute to achieving Output 2 of Pillar I: *Reinforcement of infrastructure for greater competitiveness and better integration into the national and regional markets* by developing local commodity markets. Through local governance support and capacity building for communities, civil society and the Ministry of Agriculture, Livestock and Fisheries (MAEP), the project will also be consistent with CSP Pillar II: *"Promotion of Good Governance"*

1.3 Aid Coordination

1.3.1 The framework for aid coordination is based on the institutional arrangements for monitoring and evaluating PRGS III and focuses on thematic groups which serve as frameworks for synergy and cooperation. Bank participation is evidenced by the presence of the Country Economist in Benin and the Togo Field Office. Specifically, the Bank participates in meetings of heads of diplomatic and cooperation missions, as well as in thematic group meetings. The main financial partners of the rural sector are: AfDB, WB, IFAD, BOAD, IsDB, GIZ, CTB, SNV, FAO, UNDP, and GEF. The Belgian Cooperation Agency is the Lead of the "Agriculture" Technical Group. As regards the Government, the General Directorate of Investment and Development Financing (DGIFD) of the Ministry in charge of Development, Economic Analysis and Forecasts (MDAEP) coordinates the activities of partners. At the decentralized level, the activities of PAPVIRE-ABC will be coordinated with those of other partners involved in irrigation schemes, water supply, agricultural entrepreneurship and the early warning system by the Regional Agricultural Centres for Rural Development (CARDER). The table below presents the principal amounts by source of financing currently committed in the agricultural sector in Benin.

Table 1.1
Principal Amounts Committed in the Agricultural Sector Since 2007

Sector or Sub-sector	Scope		
	GDP	Exports	Labour
Agricultural Sector	33% (2013)	80%	70%
Stakeholders – Public Expenditure (ongoing programmes or projects)			
Government	Donors	Amounts (CFAF billion)	Period
CFAF 87.9 billion per annum (2008-2012 average) or 9.7% of the State budget	World Bank.	42.7	2007-2013
	BANK	27.9	2013-2015
	CTB	21.8	2003-2012
	GIZ	20.2	2010-2016
	IFAD	18.1	2010-2016
	BOAD	11.9	2011-2016
	IsDB	8.7	2007-2012
	FAO	7.6	2010-2015
	JICA	4.7	2009-2013
	ABEDA	3.9	2011-2016
	GEF/UNDP	11.2	2013-2017
Aid Coordination Level			
Existence of thematic working groups			Yes
Existence of a comprehensive sector programme			No

1.3.2 Benin and its partners have made progress in terms of aid effectiveness, particularly aid predictability and budgeting. However, efforts still need to be made to mainstream gender equality in development plans and in the use of national public finance management and procurement systems where indicators are still very far below the 2015 target. The Bank will continue to support actions to strengthen national systems in order to raise the rate of use of the systems in development project implementation. In this respect, the signing of the Letter of Agreement between AfDB and the Government of Benin on the use of national procedures in local competitive bidding before end-2015 will help to increase the rate of use of national systems for Bank-financed operations.

II. Project Description

2.1 Project Components

The overall goal of PAPVIRE-ABC is to help improve food and nutrition security, as well as reduce poverty. The specific project objective is to boost food production in Alibori, Borgou and Collines Departments in a sustainable manner by improving productivity, building resilience to climate change, ensuring sustainable management of agricultural and natural resources, reducing gender inequalities, and increasing household incomes, particularly the incomes of the most vulnerable segments of the population in the project impact area. The project, which will be implemented over a five-year period, comprises the following three components: (i) Support for Rural Infrastructure; (ii) Development of Agricultural Value Chains and Resilience; and (iii) Project Management. The project activities are summarized in the Table 2.1 below.

Table 2.1
Project Components

No.	COMPONENTS	ESTIMATED COST	DESCRIPTION OF COMPONENTS
A.	Support for Rural Infrastructure	USD 11.88 million (43.80%)	Component A seeks to promote sustainable food and market garden production by harnessing water and building the resilience of ecological systems. The main activities are: A1: Irrigation schemes: (i) rehabilitation of seven agro-pastoral dams (600 000 m ³) and development of 1 927 hectares of irrigated areas, with 67 hectares downstream of the dams, 430 hectares of flood plains and alluvial aquifers, and 1 430 hectares of lowlands; A2: Protection of vulnerable areas, land security and management of transhumance: (i) execution of water and soil conservation works on 350 hectares of land to protect dam watersheds and erosion-prone areas; (ii) preparation of 20 gender-sensitive rural land plans (RLPs); and (iii) marking and vegetation of 100 kilometres of transhumance corridors; and A3: Opening up of production areas: (i) complete rehabilitation of 58 kilometres of rural roads; and (ii) development of hazard areas over a distance of 60 kilometres of agricultural feeder roads.
B.	Development of Agricultural Value Chains and Resilience	USD 11.66 million (42.98%)	Component B seeks to improve agricultural productivity, generate more value added, promote youth and women entrepreneurship, improve food and nutrition security, and build the resilience of households. The main activities are: B1: Improvement of farm productivity and technological innovations: (i) dissemination/counselling on the use of resilient technologies through 180 DUs, 54 PIUs and technology review workshops on 30 000 hectares; (ii) improvement of access to certified seeds for 25,000 farmers; (iii) support for access to quality agricultural inputs (fertilizers and pesticides); and (iv) agricultural mechanization and technological innovations. B2: Stakeholder capacity building: (i) support for socio-professional organizations – FOs (700 organizations, 350 of them women, 45 umbrella unions of the three sub-sectors, and 135 community infrastructure management committees); (ii) organization of outreach workshops (63 180 person-days); (iii) support for registration and compliance of FOs/umbrella unions with the OHADA Uniform Act; (iii) capacity building for MAEP and non-state stakeholders (including women's organizations) involved in results-based project management, value chain approach, gender issues, climate change and resilience, market access

No.	COMPONENTS	ESTIMATED COST	DESCRIPTION OF COMPONENTS
			mechanisms and product standards and quality, etc. B3: Development of agricultural value chains: (i) construction of storage and marketing facilities: 40 storehouses, 20 rural market sheds, 16 multipurpose centres (MCs) and 20 boreholes for drinking water; (ii) provision of post-harvest equipment to FOs and women's cooperatives (tarpaulins, thresher-winnowers units, corn threshers, and 45 rice parching kits); and (iii) improvement of market access: (a) establishment of three service enterprises; (b) promotion of competitiveness of gender-sensitive agricultural products; and (c) study on market access strategy, including for women FOs. B4: Promotion of agricultural entrepreneurship and employability of youths and women: (i) training and installation of 400 young agricultural entrepreneurs (200 of them young women) modelled on the "agricultural cluster"; (ii) development of seven fish farms with 84 cages in dam reservoirs; (iii) technical supervision of 70 young fish farmers and promotion of a "pisciculture" value chain; (iv) establishment of a Competitive Fund to Support Innovative Initiatives and intermediation with MFIs so as to facilitate access to credit. B5: Nutrition support: (i) organization of campaigns to sensitize 10 000 women on food sanitation; (ii) capacity building for DRSSA's workers on compliance with international food sanitary inspection standards and implementation of a sanitary inspection surveillance plan; (ii) promotion of food preservation and quality; (iii) training of social and community workers in breastfeeding and nutrition; (iv) sensitization on pesticide-related food poisoning.
C.	Project Management	USD 3.59 million (13.22%)	C1: Coordination of project activities: (i) administrative, accounting and financial management, and procurement of goods, works and services; (ii) establishment of a baseline situation: conduct of surveys and creation of a database; (iii) implementation of a communication plan, project monitoring and evaluation, mid-term review; (iv) impact assessment (rapid and in-depth).
	TOTAL	USD 27.13 million	

2.2 Technical Solutions Adopted and Alternatives Explored

2.2.1 The technical solutions adopted are based on the lessons learned from similar projects tailored to the specific context of the three department. Thus, the option to develop small-scale village-based irrigation schemes at low investment and maintenance cost has been chosen to ensure the sustainability of investments. It is also based on the desire to benefit from the agro-pastoral dams whose rehabilitation will allow for the irrigation of small market gardens for women. The option to prioritize the critical areas of rural roads will reduce cost. Agricultural mechanization is preferred to animal draught cultivation so as to support the current choice of farmers to hire tractors from Nigeria. The selection of measures to build resilience is based on the analysis of vulnerability and strategies to reduce fragility factors. Lastly, the "agricultural cluster" approach was chosen based on the results obtained in pilot public-private partnership (PPP) operations so as to ensure access to financing and guarantee higher producer prices.

Table 2.2
Alternative Solutions Explored and Reasons for Rejection

Alternative Solution	Brief Description	Reason for Rejection
Development of large-scale public irrigated areas using water collected through the construction of large multipurpose dams	Build the large dams identified in PANGIRE and develop large-scale public irrigated areas downstream comprising major civil engineering structures for water intake, conveyance and supply to various blocks and neighbourhoods	This alternative solution falls outside the scope of project objectives of involving individuals and local communities in the construction and management of village-based irrigation schemes. There are many small agro-pastoral dams in the project area which can be better exploited by rehabilitating them and developing irrigated areas using their retaining reservoirs.
Conventional rehabilitation of all rural roads without any distinction	Resume reshaping, drainage, resurfacing, watering and compaction works on all rural roads, including those with only a	The unit cost of rehabilitation of all the rural roads is increasing steadily, thus requiring the conduct of a study on the appropriateness of rehabilitating only the sections of rural roads that impede their use at all times. The reduction

	short length of critical points and sections that are not motorable throughout the year.	of unit cost helps to rapidly clear the huge backlog of rural road rehabilitation with the same budget.
Development of animal draught cultivation instead of mechanization of tillage activities	Broaden access to draft animals to improve the crop areas	The farmers in the region usually hire tractors from Nigeria to plough their fields. The construction of the Ouinhi tractor plant and machinery workshops in the project area by ADMA will contribute to achieving this goal.

2.3 Project Type

PAPVIRE-ABC is an investment operation financed with a GAFSP grant. Benin is not yet using the sector approach in project and programme implementation due to institutional constraints, neither does GAFSP finance budget support operations. Thus, at this stage, the project approach is most suitable for guaranteeing achievement of project outputs and ensuring effective and efficient use of project resources.

2.4 Project Cost and Financing Arrangements

2.4.1 Project Cost: The total project cost is estimated at USD 27.13 million (CFAF 15.91 billion), net of taxes and customs duties. This cost comprises USD 13.72 million (CFAF 8.05 billion) in foreign exchange and USD 13.41 million (CFAF 7.86 billion) in local currency. It also includes, on average, a 6% provision for physical contingencies and a 4% provision for price escalation. The provision for price escalation is estimated based on current and projected inflation rates in local currency and foreign exchange of 3.2% and 2% per annum on average respectively. The provision for physical contingencies is estimated at between 0% and 10%. A summary of the project cost estimates by component and by expenditure category is presented in Tables 2.3, 2.4 and 2.5 below, while the details are presented in the Technical Annex of the project appraisal report.

Table 2.3
Summary of Project Cost Estimates by Component

COMPONENTS	(CFAF Million)			(USD Thousand)			% F.E.	% B.C.
	L.C.	F.E.	Total	L.C.	F.E.	Total		
A. SUPPORT FOR RURAL INFRASTRUCTURE	2 421.00	3 804.34	6 225.34	4 129.62	6 489.26	10 618.88	61	43
Agro-pastoral Irrigation Schemes	1 923.18	3 316.71	5 239.90	3 280.47	5 657.49	8 937.96	63	36
Protection of Vulnerable Areas	398.81	286.63	685.44	680.28	488.92	1 169.19	42	5
Improvement of Rural Roads	99.00	201.00	300.00	168.87	342.86	511.73	67	2
B. DEVELOPMENT OF AGRICULTURAL VALUE CHAINS AND RESILIENCE	3 583.66	2 775.27	6 358.93	6 112.84	4 733.92	10 846.76	44	44
Improvement of Farm Productivity	764.45	732.94	1 497.39	1 303.97	1 250.21	2 554.18	49	10
Development of Agricultural Value Chains	628.45	819.21	1 447.66	1 071.97	1 397.37	2 469.34	57	10
Capacity Building	788.04	487.34	1 275.38	1 344.19	831.28	2 175.48	38	9
Agricultural Entrepreneurship and Employment	1 241.49	642.04	1 883.53	2 117.68	1 095.16	3 212.83	34	13
Nutrition Support	161.23	93.74	254.97	275.02	159.90	434.92	37	2
C. PROJECT MANAGEMENT	1 231.32	759.62	1 990.94	2 100.32	1 295.73	3 396.05	38	14
TOTAL BASE COST	7 235.97	7 339.23	14 575.21	12 342.78	12 518.91	24 861.68	50	100
Physical Contingencies	296.51	489.70	786.21	505.78	835.30	1 341.08	62	5
Price Escalation	327.94	216.41	544.35	559.38	369.14	928.52	40	4
TOTAL PROJECT COST	7 860.42	8 045.34	15 905.76	13 407.93	13 723.35	27 131.28	51	109

Table 2.4
Summary of Project Cost by Expenditure Category

EXPENDITURE CATEGORIES	(CFAF Million)			(USD Thousand)			% F.E.	% B.C.
	L.C.	F.E.	Total	L.C.	F.E.	Total		
I. Investment Costs	6 240.61	7 056.58	13 297.19	10 644.93	12 036.78	22 681.71	53	91
A. WORKS	1 688.23	3 939.19	5 627.42	2 879.68	6 719.29	9 598.98	70	39
B. GOODS	134.30	554.78	689.08	229.08	946.31	1 175.39	81	5
C. SERVICES	3 442.71	2 037.41	5 480.13	5 872.42	3 475.32	9 347.74	37	38
D. MISCELLANEOUS	975.37	525.20	1 500.57	1 663.74	895.86	2 559.60	35	10
II. Recurrent Costs	995.37	282.65	1 278.02	1 697.85	482.13	2 179.98	22	9
TOTAL BASE COST	7 235.97	7 339.23	14 575.21	12 342.78	12 518.91	24 861.68	50	100
Physical Contingencies	296.51	489.70	786.21	505.78	835.30	1 341.08	62	5
Price Escalation	327.94	216.41	544.35	559.38	369.14	928.52	40	4
TOTAL PROJECT COST	7 860.42	8 045.34	15 905.76	13 407.93	13 723.35	27 131.28	51	109

Table 2.5
Expenditure Schedule by Component (in USD Thousand)

COMPONENTS	PROJECT YEARS					Total
	2016	2017	2018	2019	2020	
A. RURAL INFRASTRUCTURE SUPPORT	3 270.51	5 286.86	2 706.84	467.05	153.37	11 884.63
Agro-pastoral Irrigation Schemes	2 244.94	4 731.91	2 576.63	409.58	94.38	10 057.44
Protection of Vulnerable Areas and Management of Transhumance	464.26	554.95	130.22	57.47	58.99	1 265.88
Improvement of Rural Roads	561.31	-	-	-	-	561.31
B. PROMOTION OF VALUE CHAINS AND RESILIENCE	3 999.61	4 603.83	1 949.60	606.81	500.68	11 660.52
Improvement of Farm Productivity	966.38	975.67	420.09	256.30	154.35	2 772.81
Development of Agricultural Value Chains	861.69	1 150.56	490.10	114.49	74.19	2 691.03
Capacity Building	806.85	725.84	437.35	168.45	202.83	2 341.32
Agricultural Entrepreneurship and Employment	1 194.95	1 650.38	536.18	-	-	3 381.51
Nutrition Support	169.73	101.37	65.87	67.57	69.30	473.85
C. PROJECT MANAGEMENT	1 473.20	558.20	567.97	485.56	501.20	3 586.14
TOTAL PROJECT COST	8 743.32	10 448.89	5 224.41	1 559.42	1 155.25	27 131.28

2.4.2 Financing Arrangements: The project will be financed by GAFSP to the tune of USD 24.00 million (88.46% of project cost), the Government of Benin for USD 2.71 million (10.00%) and the beneficiaries for USD 0.42 million (1.54%). Financing by the beneficiaries will mainly consist of contribution in kind for the labour-intensive development of lowlands. The breakdown of expenditure financing by source of financing and the list of goods and services are presented in Tables 2.6 and 2.7 below.

Table 2.6
Project Financing Plan

SOURCES OF FINANCING	(CFAF Million)			(USD Thousand)			%
	L.C.	F.E.	Total	L.C.	F.E.	Total	
GAFSP	6 746.34	7 323.70	14 070.04	11 507.58	12 492.42	24 000.00	88.5
Beneficiaries	74.62	170.54	245.16	127.28	290.91	418.18	1.5
Government of Benin	1 039.52	551.04	1 590.56	1 773.17	939.93	2 713.10	10.0
Total	7 860.48	8 045.28	15 905.76	13 408.03	13 723.26	27 131.28	100.0

Table 2.7
Project Resource Allocation by Source of Financing (in USD Thousand)

LIST OF GOODS AND SERVICES	GAFSP			BENEFICIARIES			GOVERNMENT OF BENIN			TOTAL		
	L.C.	F.E.	Total	L.C.	F.E.	Total	L.C.	F.E.	Total	L.C.	F.E.	Total
A. WORKS	2 769.12	6 461.95	9 231.08	110.57	257.33	367.90	-	-	-	2 879.69	6 719.28	9 598.98
B. GOODS	229.08	946.31	1 175.39				-	-	-	229.08	946.31	1 175.39
Vehicles	54.33	307.88	362.21				-	-	-	54.33	307.88	362.21
Equipment	174.75	638.43	813.18				-	-	-	174.75	638.43	813.18
C. SERVICES	5 451.95	3 475.32	8 927.27				420.47	0.00	420.47	5 872.42	3 475.32	9 347.74
Training	695.58	623.22	1 318.80				66.13	-	66.13	761.71	623.22	1 384.93
Technical Assistance	17.82	338.67	356.50				-	-	-	17.82	338.67	356.50
Studies	373.53	445.16	818.69				-	-	-	373.53	445.16	818.69
Contractual Services	4 307.45	1 997.91	6 305.35				354.33	-	354.33	4 661.78	1 997.91	6 659.69
Auditing	57.57	70.36	127.93				-	-	-	57.57	70.36	127.93
D. MISCELLANEOUS	266.07	143.27	409.34				1 397.67	752.59	2 150.26	1 663.74	895.86	2 559.60
Competitive Fund	266.07	143.27	409.34				-	-	-	266.07	143.27	409.34
Installation of Youths	-	-	-				1 397.67	752.59	2 150.26	1 397.67	752.59	2 150.26
E. STAFF	1 263.96	-	1 263.96				-	-	-	1 263.96	-	1 263.96
F. OPERATING COSTS	433.89	482.13	916.02				-	-	-	433.89	482.13	916.02
Unallocated	935.84	1 141.10	2 076.94	16.71	33.57	50.28	112.61	29.77	142.38	1 065.16	1 204.44	2 269.60
TOTAL	11 349.91	12 650.09	24 000.00	127.28	290.90	418.18	1 930.74	782.36	2 713.10	13 407.94	13 723.34	27 131.28

2.5 Project Target Area and Beneficiaries

2.5.1 The project impact area (PIA) covers Alibori, Borgou and Collines Departments with a surface area of 66 029 square kilometres (58% of the national territory) and a population of 2,786,699 inhabitants (28% of the country's total population). The three departments comprise 20 municipalities out of a national total of 77, but the project will cover 9 municipalities considered to be of priority, namely: Banikoara, Gogounou and Karimama in Alibori Department; Kalalé, Ndali and Tchaourou in Borgou Department; and Bantè, Ouessé and Glazoué in Collines Department. Although the region has enormous potential for agriculture (58 000 hectares), fodder crop cultivation

and fish farming, the situation there is alarming as the prevalence of food insecurity ranges from 10% to 27% (AGVSA, 2013). The departments also suffer the effects of climate change and 70% of villages in Alibori Department, 50% in Borgou Department and 40% in Collines Department have experienced recurrent floods, causing damage to crops and dwellings. At the economic level, limited market access, limited local product processing and low producer prices affect household incomes. In addition, consumer prices of the main cereals were in 2013 above their five-year (2008 to 2012) averages, that is + 39% for ordinary gari, + 9% for white maize, and + 8% for local rice. At the social level, youth unemployment and precarious living conditions increase rural-urban migration and exacerbate social conflicts over the use of farmland and transhumance corridors.

2.5.3 The project will directly benefit 50 000 people (40% of them women), including 25 445 farmers, who will receive support to cultivate, on average, 1.5 hectares of land for maize, 0.5 hectare for rice, and 0.25 hectare for market garden crops. The other project beneficiaries will be women engaged in food processing, craftsmen, traders and service providers, which gives a total of about 400 000 direct and indirect beneficiaries. Special attention will be paid to women (particularly women heads of households) and youths, who constitute the bulk of the vulnerable segments of the population. They will receive 35% of the developed lands and be involved in 60% of product processing and marketing-related activities. The beneficiaries will be selected in close consultation with the Network of Chambers of Agriculture of Benin and the National Platform for Farmer and Agricultural Producer Organizations of Benin (PNOPPA). The project will contribute to preventing conflicts between the various cross-border transhumance groups. In this respect, PAPVIRE-ABC will work in partnership with MAEP, GIZ and the non-governmental organizations “*Environment and Development Studies and Research Group*” (GERED) and “*Our Union*” (POTAL MEN) to raise awareness of the joint management of cattle corridors, the prevention of transhumance-related conflicts, and rural land tenure as a whole.

2.6 Participatory Approach for Project Identification, Design and Implementation

2.6.1 The Bank adopted the participatory approach in assisting Benin to prepare the request for GAFSP funding and during the project preparation. This entailed the organization of workshops and discussion meetings with public institutions, non-State stakeholders, farmer organizations, civil society, including organizations involved in gender issues, the private sector, TFPs and beneficiaries. The approach facilitated better understanding of key issues, identified appropriate solutions, and allowed for broad consensus on project design and implementation arrangements. Thus, the farmers reaffirmed the need to take into account current rightful claimants in the allocation of developed lands. Rural women insisted on their access to developed areas and new processing and marketing technologies. The municipalities expressed their specific needs regarding the modernization of markets, the preservation of products, and resolution of transhumance-related conflicts. Youths, for their part, underscored the need to provide vocational training and to successfully set them up as modern market-targeting agricultural entrepreneurs. The project will continue with this participatory approach so as to enable local stakeholders to assume ownership of the project activities and implementation. Sound communication will be established to ensure visibility of project outcomes and impacts, as well as widely dissemination of project outputs.

2.7 Bank Group Experience and Lessons Reflected in Project Design

2.7.1 The Bank’s portfolio in Benin in April 2015 comprised 11 operations, of which 8 national operations, for a total amount of UA 136.735 million (USD 195.25 million). The agricultural sector has 3 operations (UA 71.236 million) or 27% of the national portfolio. On the whole, the portfolio performance was deemed satisfactory in 2014 with a score of 2.5, but weaknesses were noted, particularly in the recruitment of key project staff, the procurement process, the monitoring of project outcomes and impacts, financial management, infrastructure engineering studies, the capacity of

project implementation units and partner institutions, the mobilization of counterpart contributions, and coordination with other Bank and TFP interventions. Concerning Bank GAFSP projects, weaknesses were noted in quality at entry and key logical framework indicators.

2.7.2 Lessons learned from the implementation of Bank-financed projects in Benin and Bank GAFSP portfolio projects were reflected in PAPVIRE-ABC design, as shown below.

Table 2.8
Bank Group Experience and Lessons Reflected in Project Design

Key Lessons and Experiences	Lessons Reflected in PAPVIRE-ABC Design
Late recruitment and limited capacity of key project staff.	MAEP will launch the recruitment of staff, with the assistance of an independent consulting firm, upon project approval, and performance contracts, together with key indicators, will be signed.
Slow and cumbersome procurement process.	The project will comply with national procedures for national competitive bidding using the standard bidding documents of the Donee. A procurement specialist will be recruited to strengthen the PMU, whose key performance indicator will be the close monitoring of the procurement process.
Project impact and outcomes are not monitored, visible and evaluated.	The project will adopt participatory monitoring and citizen control in line with the principle of accountability. A rapid evaluation will be financed with GAFSP UA resources (USD 54 300) as from the second year to assess the initial project impacts. A communication plan will also be established within the project to share project experiences and outcomes with all stakeholders.
Financial and accounting management problems	The Bank will assist MAEP, using the project preparation resources provided by GAFSP, in preparing the administrative, financial and accounting procedures manual prior to first disbursement. In addition, the MAEP General Inspectorate will conduct internal project auditing. Lastly, the Administrative and Financial Officer and Accountant will be recruited on a competitive basis.
Inadequate engineering studies	The priority sites to be developed are those for which engineering studies exist (three studies are already available) or are being conducted. The studies will be fine-tuned by the project to mainstream the information updated through baseline surveys.
Weak capacity of project implementation units and partner institutions	A budget has been allocated to build the capacity of the staff of the PMU and partner institutions in project management, procurement, financial management, and monitoring and evaluation.
Difficulties in mobilizing counterpart contributions	The national counterpart contribution budget will be monitored and executed using the Integrated Public Finance Management System (SIGFIP) to facilitate the disbursement of contributions.
Weak coordination with other Bank and TFP interventions	The project will develop synergy with Bank (PAFILAV, PAIA-VO, and PAGEFCOM 2) and TFP (particularly WB, GEF/UNDP and FAO) operations for land development and security, the early warning system, and seed production.
Poor quality at entry and low mainstreaming of GAFSP indicators into logical frameworks	The project preparation process was participatory and the logical framework included key GAFSP indicators.

2.8 Key Performance Indicators

The key performance indicators that will be monitored using the baseline situation are: (i) number of dams rehabilitated; (ii) areas developed with partial and full water control; (iii) volume of additional crop production (tonnes) and yields (tonnes/hectare); (iv) number of value-added facilities constructed (market sheds, kilometres of rural roads, storehouses for products and inputs, etc.); (v) number of farmers supported by type of developed area disaggregated by sex; (vi) number of technological reviews conducted and multi-actor platforms established, and percentage allocated to women; (vii) level of increase in incomes, including those of women and youths, (viii) number of jobs created for youths and women through entrepreneurial initiatives; (ix) number of producers, processors and traders trained and organized into cooperatives in line with the OHADA Uniform Act; (x) level of women's participation in decision-making bodies and their rate of access to developed land; (xi) number of processing units installed; (xii) rate of malnutrition among beneficiaries; and (xiii) amount of rural financing mobilized. All project indicators selected are aligned with key GAFSP indicators and those retained under PNIA.

III. Project Feasibility

3.1 Economic and Financial Performance

3.1.1 The project financial and economic analysis was based on the cost/benefit analysis of expected project outcomes, comparing the ‘with project’ and ‘without project’ scenarios throughout the economic life of investments (facilities and dams) or project life which is estimated at 20 years. The expected project outcomes stem from the agricultural products, particularly rice, maize, market garden products and cassava, as well as fishery products derived from floating aquaculture fish farming cages, and those from agricultural produce processing enterprises managed by trained youths and women’s groups. The other analytical assumptions are that: (i) the prices, yields and average production base costs during the 2014/2015 crop year were retained for the baseline scenario, and realistic projections covered the project peak period taking into account the potential and absorptive capacity of beneficiaries; (ii) the capital opportunity cost retained is 12%; and (iii) the family farm production unit and project life activity model was used as basis for calculating the financial and economic rate of return by comparing the ‘with project’ and ‘without project’ scenarios. The detailed assumptions of the economic and financial analysis, the production and farm model tables (‘with project’ and ‘without project’ scenarios) and the financial and economic flows are presented in the technical annexes (Annex B8).

Table 3.1
Key Economic and Financial Data

<i>NPV (baseline scenario)</i>	CFAF 44 902 million
<i>IRR (baseline scenario)</i>	22.86%
<i>Economic NPV (baseline scenario)</i>	CFAF 48 713 million
<i>ERR (baseline scenario)</i>	28.80%

1.1.2 **Financial Performance:** The additional incomes derived from the various land development and farming models are as follows: (i) irrigated areas for market gardening: CFAF 2 787 000/hectare, or CFAF 635 000 per male producer and CFAF 725 000 per female beneficiary; (ii) lowlands developed using the labour-intensive approach or under contract (single cropping of rice): CFAF 330 000/hectare per male producer, that is CFAF 178 000 per farmer and CFAF 125 000 per female beneficiary; (iii) the development of flood and alluvial plains (double cropping of rice): CFAF 503 000/hectare, that is CFAF 252 000 per farmer and CFAF 176 000 per female beneficiary; and maize cultivated mainly through dry farming: CFAF 96 000/hectare, or CFAF 145 000 per male beneficiary and CFAF 96 000 per supported woman (cf. Annex B7 for the typology of farm size and overall additional incomes generated, thus contributing to increasing value added through the project and, hence, its contribution to agricultural GDP). The financial internal rate of return (IRR) is estimated at 22.86% for an NPV of CFAF 44 902 million. The results of the sensitivity tests carried out on the basis of simulations of successive decreases in prices or crop yields of 2.5% to 35% show that the IRR decreases more slowly than prices and yields, with a switching value obtained after a significant drop in price of more than 27.5%. Consequently, the IRR is stable, leading to reduction of the incidence of poverty in the PIA.

3.1.3 **Economic Performance:** The base economic rate of return (ERR) is 28.8% for a net present value (NPV) of CFAF 48 713 million. Other project economic impacts can be summarized as follows: (i) the upstream effects of the generation of additional incomes on service providers (NGOs, contractors, suppliers, and consulting firms); (ii) the downstream effects of the generation of additional incomes on traders and processors, the majority of them women, thus contributing to enhancing women’s empowerment and economic power; (iii) the reduction of foreign exchange costs through a significant decrease in the rice import bill in the country’s trade and currency balances; (iv) the impact on wealth creation in the country as a result of an increase in GDP induced by the

generation of additional value added. The project benefits for households will include improved nutrition for vulnerable groups (children, women of child-bearing age, and the elderly), reduction in the medical bill and difficulty of tasks performed by farm labourforce, particularly women, reduction of the incidence of monetary and non-monetary poverty, strengthening of household livelihoods and resilience to food insecurity and the effects of climate change, and, in the long term, increased life expectancy and improved human development index.

3.1.4 The results of the financial and economic analysis show that PAPVIRE-ABC is financially and economically viable.

3.1.5 **Sensitivity Analysis:** The sensitivity analysis was conducted with scenarios for simulating financial performance indicators (NPV, IRR and cost-benefit ratio) using the most sensitive endogenous variables of the analysis model used, namely crop price and yields. The simulations carried out show that as the price of products drops, financial performance indicators also drop, although much more slowly. Based on this result, PAPVIRE-ABC's financial performance can be considered stable, although project financial outcomes are sensitive to decreasing prices. In addition, the switching value related to the decline in price is more than -27.5%. Thus, an internal rate of return (IRR) that is equal to the opportunity cost of capital estimated at 12% requires a sharp decline in prices of more than 27.5%. The successive drop in yields also results in a drop in the value of financial performance indicators (IRR, NPV, cost-benefit ratio) like in the previous scenario with a decline in prices. Similarly, the yield-related switching value corresponds to -27.88% of the decline in yields. The summary of scenarios is presented in Annex B8, as mentioned above.

3.2 Environmental and Social Impact

3.2.1 **Environment:** The project will develop large irrigation schemes likely to generate social and environmental impacts, including the displacement of people, that are difficult to mitigate. Part of the 1927 ha surface area to be covered by irrigation schemes has no shrub material and does not require grubbing. Furthermore, the negative impact of land clearing is offset by the improvement of water resources, and therefore the crop yield and resulting reduction of deforestation for crop extension, burn-and-slash shifting cultivation, and carbonization. Project activities involving rational use of fertilizers and pesticides will also improve water and soil quality. The same will hold for promoted sustainable and resilient agricultural technologies for integrated soil fertility management (ISFM), sustainable land management (SLM) and CES/DRS works, which will help to improve soil structure, thereby reconstituting a sustainable soil fertility level of developed lands. Local agreements for endogenous management of shared resources will reduce the impact of transhumance. Support for the preparation of rural land plans will also contribute to sustainable land management.

3.2.2 In light of the foregoing, the project has been classified in Environmental Category 2. Indeed, the planned operations mainly concern the rehabilitation of existing agro-pastoral dams and the development of small irrigated areas. They will therefore not generate any major negative impacts, but will instead have positive impacts on the biophysical and human environment, thereby contributing to conserving biodiversity, controlling desertification and regenerating the natural environment. The major positive impacts will be water control for agriculture, livestock production, fisheries and wildlife, and the opening up of several villages. Increased farm productivity will increase the incomes of the population. Support measures will broaden access to healthcare and education, and ensure women's economic empowerment and youth socio-economic integration. The participatory mechanisms to be established by the project will enhance the involvement of beneficiaries in their own development.

3.2.3 The project will generate the following major negative impacts during the works phase: dust, noise, soil contamination by waste oils, deforestation, soil erosion, silting, loss of cultivated

areas, risk of proliferation of diseases linked to the influx of workers, and the modification of hydraulicity. These impacts are generally temporary and of average magnitude, and can be mitigated by appropriate site monitoring measures. During the operation phase, the negative impacts will be: pollution of surface and ground water especially by pesticides, soil degradation through erosion, increase in water-borne diseases, land conflicts, and wastage of water resources. These impacts can also be mitigated by appropriate farming and water management techniques, compensatory reforestation and CES/DSR works, sensitization on hygiene and sanitation, transhumance agreements, the conduct of social assessments and preparation of rural land plans, protection of river banks, and close environmental monitoring.

3.2.4 In accordance with Bank guidelines and policies, an environmental and social management plan (ESMP) has been prepared with a UA 667.072 (USD 938.163) budgetary allocation, and will be implemented concurrently with project implementation to mitigate any negative impacts. The plan outlines: (i) potential project impacts and mitigation and enhancement measures; (ii) the environmental and social monitoring programme; (iii) public consultations; (iv) complementary initiatives; (v) accountability and availability; and (vi) the implementation schedule. The ESMP summary was posted on the Bank's website on 6 July 2015.

3.2.5 **Climate Change:** The project has been classified in Environmental Category 2 following the assessment of the Climate Safeguards System (CSS), in accordance with the Adaptation Review and Evaluation Procedures (AREP). In Benin, about 72% of villages/neighbourhoods have experienced frequent shocks such as floods (37% of villages), straying animals (17%), drought (15%) and price increase (11%). The project area is mainly facing two climate change shocks, namely more prolonged and frequent floods and droughts, while the people depend heavily on high climate-sensitive resources, such as water resources and agricultural production systems. Over the past few years, 70% of villages in Alibori, 50% in Borgou and 40% in Collines have experienced recurrent climate change-induced floods leading to the destruction of crops and dwellings and a 5% to 20% drop in agricultural yields, depending on the crop type. On the whole, project activities will have positive impacts on ecosystems, adaptation and reduction of the vulnerability of households, and contribute to global efforts to mitigate the effects of climate change. Indeed, the reconstitution of the vegetation cover and the introduction of clean technologies will help to reduce greenhouse gases. Furthermore, PAPVIRE-ABC activities are consistent with the priority options and activities contained in the National Action Programme for Adaptation to Climate Change (PANA). The project will work in synergy with the USD 18.5 million "SAP-Benin" project to incorporate climate information into local development plans, develop a decentralized early warning system (EWS), support farmers to incorporate climate information into the agricultural calendar, build resilient infrastructure, and protect structures and facilities with small dykes, stone barriers, etc.

3.2.6 **Gender Issues:** In Benin, women make up 51.2% of the population and are more vulnerable to poverty than men. They have few salaried jobs and occupy very few positions in decision-making bodies. In contrast, women and youths are strongly involved in agricultural activities in the project area, especially the cultivation of cereals (particularly rice and maize) and legumes (soya bean and cowpea). They are also involved in the production and processing of food crops (rice, maize, cassava, etc.) and market gardening (tomato, pepper, greens, etc.). Fifteen percent of household heads in the three departments are women. The social climate between those who own and those who farm land has been improved by the emergence of long-term land contracts for women and groups of women. The project will prioritize rural activities habitually valued by women and for which they have recognized know-how (market gardening, rice cultivation, processing and marketing activities, etc.) and from which they can generate income. A "market gardening areas" component will be implemented specifically for women, including land security in sites developed for them. Generally, the project will strive to promote gender mainstreaming in all project components, especially through equitable access to resources and capacity building activities. The project will ensure that women

have access to production factors (35% of developed land and 60% of processing and marketing equipment and materials), technical, vocational and organizational training (50%) and equitable access to financial services provided by the project (50% of beneficiaries). It will help to organize women into cooperatives and set up young entrepreneurs in the agricultural sector (50%). The project will ensure that women occupy at least 30% of positions in the decision-making bodies of the committees set up.

3.2.7 MAEP's Gender Unit will monitor equitable gender mainstreaming into project management as well as benefits. A monitoring and evaluation system will also be established using gender-disaggregated data as well as gender-related indicators, and based on a gender analysis in the departments. The gender management capacity of Regional Agricultural Centres for Rural Development (CARDER) and stakeholders will be built through training and the provision of working equipment. The gender component will be implemented with the decentralized entities of the Ministry in charge of gender. The budget allocated for gender activities is USD 10.33 million, or 43% of the project amount.

3.2.8 **Social Issues:** The project will help the beneficiaries to better fight against food insecurity and the various shocks they experience through increased production of food (35,000 tonnes of rice and maize), market garden products (14 600 tonnes) and fish (1 500 tonnes), and the diversification of means of fighting against fragility factors. Increased purchasing power of beneficiary households will enable them, especially women, to have easier access to basic economic services and strengthen their resilience. In the region, 90% of poor households do not have access to hygienic toilets, while 34% hardly have access to sources of drinking water. Furthermore, damage caused to farms by animals has affected the villages in the region, especially those in Collines (80%). Generally, project facilities will contribute to improving these indicators and reducing rural-urban migration, especially by youths. The rehabilitation of rural roads, the construction of storehouses, the rehabilitation of markets and support to processing units will contribute to reducing post-harvest losses, facilitate the sale of agricultural products and, consequently, increase agricultural production and household income. The project will also help to consolidate local development, good governance and citizen control by encouraging participation and access to decision-making processes by beneficiaries, and closely involving municipalities (selection of sites, land security and allocation, community infrastructure management, farmer-transhumant herder conflict management, road maintenance, etc.).

3.2.9 Improved agricultural product conservation and storage methods will also be disseminated to farmers, processors and traders so as to reduce post-harvest losses and avoid cases of pesticide-related food poisoning recorded in Benin each year. As regards nutrition, a partnership will be established with the Department of Mother and Child Health (DSME) of the Ministry of Health to develop appropriate strategies for improving nutrition status in the project area. Specific actions will be taken to promote exclusive breastfeeding and train community workers in breastfeeding and the nutrition of adolescents, pregnant women and lactating women. A food composition table (containing details on the nutritional values of the various foods) will be prepared, and awareness-raising campaigns on hygiene and dietary rules (including food diversification) as well as appropriate culinary techniques demonstration sessions will be organized. Sensitization campaigns will also be organized with ABSSA on food sanitation, with reference to increased use of phytosanitary products in market gardening by some farmers. Information and sensitization campaigns will also be conducted among households on nutrition and sanitation, particularly in relation to increased use of market garden products to improve the nutritional quality of the food consumed. This nutritional education will be conducted through community radios, chats or field demonstrations.

3.2.10 **Youth Employment and Promotion of Agricultural Entrepreneurship:** This project component will develop the corporate culture among young project promoters so as to increase

incomes and create decent jobs for youths and women. The project will help to develop small clusters of young promoters, and this will directly concern 470 girls and boys trained in agricultural entrepreneurship professions and set up in all value chain links: production activities in the developed areas, fish farms in dam reservoirs, processing, trade and services. Through its multiplier effect, this initiative seeks, in the long term, to involve about 1 880 young men and women. To that end, the project will work in partnership with the National Agricultural Development Fund (FNDA) which will accommodate the Competitive Fund to Support Innovative Initiatives, and the microfinance institutions (MFIs) operating in the project area to provide the financing required for business development. In return, the project will finance the supervision of young promoters in incubation centres such as the Songhai Centres (*Centres Songhai*) or *Agricultural Entrepreneurship Schools*, and mobilize aggregators like SONAPRA and private operators. It will assist youths to compile more reliable loan files in order to have greater access to available financial resources. The project will also facilitate access by youths to developed areas and to equipment in the form of basic kits, depending on their business plans and areas of specialization. Lastly, the project will encourage partnerships between all stakeholders to ensure improved value chains integration (production, processing, inputs, markets, etc.). The operating arrangements for agricultural entrepreneurship and financial incentives will be defined after a specific study at project start-up and in partnership with FNDA.

3.2.11 Involuntary Resettlement: PAPVIRE-ABC activities will not entail the displacement or resettlement of people. They will contribute to maintaining the people in their areas and making them more resilient.

IV. Project Implementation

4.1 Implementation Arrangements

4.1.1 Implementation Arrangements: The Ministry of Agriculture, Livestock and Fisheries (MAEP) will ensure project management and coordination. Its capacity will be strengthened by the Project Management Unit (PMU) based in Cotonou within the Department of Planning and Forecasts (DPP). Besides the Coordinator, the PMU will comprise a Procurement Specialist, a Monitoring and Evaluation Specialist, an Administrative and Financial Officer, an Accountant and support staff (1 cashier, 3 drivers, 1 secretary and 1 messenger), all recruited on a competitive basis, and performance contracts will be signed. PAPVIRE-ABC will be implemented in the field by the two Regional Agricultural Centres for Rural Development (CARDER) in Zou-Collines and Borgou-Alibori Departments, in accordance with the Ministry's current guidelines. They are MAEP's decentralized entities with administrative, technical, financial and management autonomy. They are represented at local level by local rural development sectors (SCDR). The project will further build their planning, contract management, financial implementation and monitoring and evaluation capacity to enable them to fully play their role.

4.1.2 Project facilities will be constructed with the technical assistance and delegated project supervision of the Irrigation Schemes Promotion Agency (APAH), through an agreement with the CARDERs. An agreement will also be signed between the PMU and the General Directorate of Rural Planning and Equipment (DGAER) for the control of the quality of facilities. Furthermore, specialized entities and services such as INRAB (research and development), DPV and DICAF (agricultural counselling support and training), ONASA (contracts monitoring), ABSSA (food safety), DANA (feeding and applied nutrition), the Department of Mother and Child Health (nutrition) and the National Agricultural Development Fund (FNDA) will be involved through agreements with CARDERs. MAEP's Environmental Unit and ABE will ensure project environmental monitoring through agreements with the PMU. The same will apply to MAEP's Gender Unit with respect to the monitoring of gender issues, and to the Platform for Civil Society

Actors in Benin (PASCIB) for citizen control. The communities will participate in labour-intensive development activities, as well as in the management of socio-economic infrastructure.

4.1.3 The monitoring and orientation of project activities will be conducted by the Orientation and Steering Committee (OSC) made up of representatives from the Ministry in charge of Development, Economic Analysis and Forecasts (MDAEP), the Ministry of Agriculture, Livestock and Fisheries (MAEP), the Ministry of the Economy and Finance (MEF), the Ministry in charge of the Environment, and the Ministry in charge of Decentralization and Local Governance. It will also comprise representatives from the Ministries in charge of Water, Public Works, Women's Advancement and Youth Employment, as well as farmers (PNOPPA), Benin's Chamber of Agriculture, women farmer organizations, the Platform for Civil Society Actors in Benin (PASCIB), and the National Agricultural Development Fund (FNDA). The Orientation and Steering Committee (OSC) will be chaired by the Minister of Agriculture, Livestock and Fisheries or his/her appointed representative, and its secretarial services will be provided by the Project Coordinator.

4.1.4 **Procurements:** All procurements of goods, works through international competitive bidding (ICB), and consultancy services financed with GAFSP resources will be made in accordance with *Bank Rules of Procedure for Procurement of Goods and Works* or, as appropriate, *Bank Rules of Procedure for the Use of Consultants* (May 2008 Edition, revised in July 2012) using standard Bank bidding documents. Procurements through local competitive bidding (LCB) will be made in accordance with national legislation on public procurement (Law No. 2009-02 of 7 August 2009 instituting the Public Procurement and Public Service Delegation Code in the Republic of Benin), using the Donee's standard bidding documents, as well as with the terms and conditions specified in the Grant Protocol of Agreement. This provision stems from the assessment of Benin's national procurement procedures (NPP) conducted by the Bank in August 2011, and will facilitate the construction of many facilities, as the Bank will conduct *a posteriori* reviews. A procurement plan (PP) has been prepared and will be regularly updated and submitted to the Bank, which will ensure its compliance with its relevant rules. Project coordination will be reinforced by a Procurement Expert, who will assist the project in procuring the goods, works and services described in the technical annexes.

4.1.5 **Financial Management:** The PMU will be responsible for overall project coordination and financial management. Its financial management staff will comprise the Coordinator, the Administrative and Financial Officer, and the Accountant, all recruited on a competitive basis. The CARDERS will be exclusively responsible for coordinating technical activities using the financial resources managed by the PMU. The agreements to be signed between the PMU and the CARDERS will define conditions for such collaboration.

4.1.6 The PMU will adopt the procedure for executing MAEP expenditure and mobilizing national counterpart contributions. The national counterpart contribution budget will be executed and monitored using the Integrated Public Finance Management System (SIGFIP). Data generated from the SIGFIP will be entered into PMU's integrated management system and consolidated with those generated from the execution of GAFSP's budget using the same system to produce quarterly financial monitoring reports (FMRs). MAEP's internal control mechanism will be reinforced by an administrative, financial and accounting procedures manual applicable in PMU's various management cycles, as well as by MAEP's commitment to entrust project internal auditing to the Ministry's General Inspectorate (IGM/MAEP).

4.1.7 The PMU will have an integrated accounting system for: (i) preparing annual financial statements, and (ii) producing quarterly financial monitoring reports (FMRs) which should be submitted to the Bank within 45 days following the end of each quarter. It has been recommended that the PMU should acquire a multi-project management system to be parameterized in compliance with the management rules and provisions of the procedures manual (accounting plan, applicable

accounting principles and methods, accounting entry charts, etc.). The contract for procurement of the management system will include the supply of the system, its parametering and staff training, as well as assistance for the production of the first financial statements.

4.1.8 Disbursements: The disbursement methods to be used for mobilizing GAFSP financing will be: (i) the direct payment method; (ii) the special account/revolving fund method; and (iii) the reimbursement method. Direct payments will be made for works, goods and services contracts signed between the Donee and suppliers, in accordance with Bank procurement rules and procedures, and the national legislation on public procurement. The special account method will be used to pay operating expenses, training costs, field mission allowances, etc. It will require the opening of a special account in BCEAO which will, in turn, transfer all the funds received from GAFSP into the PMU bank account opened in a bank acceptable to AfDB. The reimbursement method will be used when eligible expenditures under GAFSP resources are pre-financed with the Bank's prior approval. These disbursements will be in accordance with the list of goods and services, and Bank rules and procedures as specified in the disbursement manual. Details of disbursement arrangements are presented in the technical annexes.

4.1.9 Auditing: MAEP will be responsible, through its services, for preparing PAPVIRE-ABC's annual financial statements, in accordance with Bank rules. The annual financial statements and MAEP's internal control system will be audited annually by a reliable, competent and independent private auditing firm using criteria deemed satisfactory by the Bank. The audited financial statements of each accounting year will be submitted to the Bank within the six months following the close of that financial year.

4.2 Monitoring

4.2.1 Monitoring Mechanisms: The project monitoring and evaluation mechanism will be designed taking into consideration the specific objectives of the project and expected GAFSP, PSRSA/PNIA and PDDAA outcomes. The performance indicators will comprise at least one GAFSP key indicator (agricultural productivity, market access, value added, food and nutrition security, etc.) to be monitored by GAFSP's Coordination Unit (CU). At project start-up, a baseline situation will be established to monitor indicator progress. The system will include the agriculture gender profile to deepen knowledge of beneficiary groups, especially socio-economic aspects (income, capital, agricultural activities, etc.). If possible, all the indicators will be disaggregated by gender and vulnerable person. At the end of the first year of implementation, the project will produce a geo-referenced map of the activities carried out. The map will be networked and posted on GAFSP website. As from the second year of implementation, the project will finance a rapid evaluation with resources from GAFSP (USD 54 300) to assess the initial project impacts. The project will produce progress reports showing, in particular, the implementation rates and outcomes of the various components in relation to the logical framework performance indicators. Quarterly reports based on the Bank format will be submitted to GAFSP's CU. A participatory monitoring and citizen control mechanism is also envisaged in line with the principle of accountability. This mechanism will be implemented by the Platform for Civil Society Actors in Benin (PASCIB). Consultation and monitoring mechanisms will be established at departmental level, including ongoing projects, so as to create greater synergy.

4.2.2 Internal monitoring and evaluation will be conducted by the PMU, and will focus on project physical (overall and component implementation rates) and financial (commitment and disbursement rates) implementation, gender mainstreaming in activities and inputs, and their adequacy in relation to projections. **External monitoring and evaluation** will seek to measure the effectiveness and efficiency of project outputs and their contribution to achieving the development outcomes, which are the project outputs and impacts. It will be conducted by the Department of

Planning and Forecasting (DPP), with the involvement of other stakeholders, particularly MDAEP and MEFDP, in addition to the two Bank-organized annual supervision missions. The mid-term review will be conducted in the third year of project implementation. At project completion, the Bank and the Government will produce a completion report within the prescribed deadline. The main implementation phases are summarized below.

Table 9
Project Implementation Schedule

No.	ACTIVITY	RESPONSIBLE ENTITY	TIMEFRAME
1	Appraisal	BANK	Mid-June 2015
2	Negotiations	GVT /BANK	August 2015
3	Project Presentation to Bank Board of Directors	BANK	October 2015
4	Signing of GAFSP Grant Protocol of Agreement	GVT/BANK	November 2015
5	Fulfilment of Conditions	GVT	December 2015
6	Authorization of 1 st Disbursement	BANK	January 2016
7	Signing of Agreements with CARDERS	GVT	January 2016
8	Project Launching	GVT / BANK	February 2016
9	Service Delivery	GVT/Service Providers	February 2016-December 2021
10	Mid-term Review	GVT/BANK	June 2018
11	Completion of Activities	Government/BANK	October 2021
12	Completion Report	Government /BANK	December 2021
13	Auditing	GVT	Annually

4.3 Governance

4.3.1 Benin has recorded encouraging performance in the area of economic and financial governance since 2012 by initiating a number of structural reforms in public finance management and fiduciary risk mitigation. However, there is need to improve domestic resource mobilization, programming and public resource allocation. Although progress has been made regarding compliance of the public procurement system with WAEMU directives, the slow contract award process remains one of the major project implementation shortcomings. Project fiduciary risks will be mitigated, particularly through the use of the Integrated Public Finance Management System (SIGFIP) and capacity building for the PMU in procurement and financial management.

4.3.2 Concerning land tenure, the use of both the modern and customary law systems is a major impediment to the promotion of agricultural investments in Benin and to local peace. Consequently, the notion of "Rural Land Plan-RLP" was introduced by the rural land tenure system instituted by Law No. 2007-03 of 16 October 2007. Its evaluation revealed that land conflicts have reduced with the issuing of Rural Land Certificates (RLC) at the end of the RLP process in villages. The social climate between those who own and those who farm land has improved with the removal of restrictions, the emergence of long-term land contracts for women, the rapid settlement of land disputes by local bodies, and investment in land development (reforestation, dams and retaining reservoirs, farms, etc.). The new land code adopted in 2013 has introduced the compulsory development of rural lands as a means of fighting against land speculation. In collaboration with the municipalities to further consolidate the achievements of the "*Millennium Challenge Account*" (MCA), PAPVIRE-ABC will improve land governance by financing 20 RLPs and building the capacity of municipalities to manage them. Tripartite agreements will be concluded between the rightful claimants of land, municipalities and professional organizations, and collective agreements will mitigate transhumance-related conflicts.

4.4 Sustainability

4.4.1 The project is based on a participatory approach for better ownership of activities. The rural communities, local authorities and decentralized technical services were effectively involved in the project design and, hence, will participate in the construction of all the facilities of which they are

beneficiaries, and their capacity will be built to prevent and manage resource use-related conflicts. They will contribute their own knowledge and perceptions on the phenomenon of climate change.

4.4.2 Project sustainability will also depend on the participation of beneficiaries in financing and managing community infrastructure (rural markets, water points, etc.) and in irrigated area development works. The PMU will work in collaboration with these bodies to ensure land security, build the capacity of Farmer Organizations for the technical and financial management of infrastructure, and initiate sustainable mechanisms for recovering infrastructure maintenance and replacement costs. Water catchment protection and lowland and irrigated area development will be carried out through labour-intensive activities. Support for para-agricultural professions (mechanization, maintenance, support and counselling, etc.) will contribute, in the long term, to the delivery of services required for viability of the activities carried out. The simple nature of the envisaged infrastructure and the building of beneficiaries' capacity will foster the sustainability of investments which will, in particular, take into account the reliable climate information collected.

4.4.3 The use of the “*value chain*” approach, which takes into account the product processing, storage and marketing aspects, will help to further link production to the markets. As such, the establishment of economically, financially and technically viable small product processing units will ensure the sustainability of project outcomes. The project will construct infrastructure and use technologies that are gender-sensitive so as to foster sustainable economic empowerment of vulnerable persons (women and youths) and diversification of their sources of income. The sustainability of project operations will also be ensured through effective involvement of the local private sector, MFIs and aggregator enterprises in the “*agricultural cluster*” approach in order to achieve sustainable setting up of young entrepreneurs and access to markets.

4.5 Risk Management

Table 10
Risks and Mitigation Measures

Risks	Level	Mitigation Measures
Unclear land issues could create difficulties in site development and jeopardize project objectives in terms of food security and poverty reduction	Moderate	Improvement of local land governance through the preparation of RLPs, the issuing of rural land certificates (RLCs) at the end of an inclusive process of social assessment, and conclusion of tripartite agreements between rightful claimants of the land, municipalities and FOs will mitigate this risk. Development of transhumance corridors will also mitigate the risk of conflict between farmers and livestock breeders.
Climate hazards could worsen the degradation of ecosystems and property through natural disasters (drought, flood, etc.) and render the population more vulnerable.	Moderate	Control of irrigation water, protection of vulnerable areas, opening up of production areas, incorporation of climate information into the infrastructure design, securing of incomes and building of communities' capacity to fight will mitigate this risk.
MAEP's weak institutional management and monitoring and evaluation capacity, and the weak capacity of technical services and contractors	Moderate	Building of project administration, procurement and financial management capacity of MAEP and PMU will mitigate this risk. Establishment of a baseline situation and conduct of periodic surveys will ensure monitoring and evaluation of project outcomes and impacts.
Limited adoption of technological innovations by the communities	Moderate	Adoption of a participatory approach, use of a high-yield rice variety appreciated for its organoleptic qualities, and local stakeholder capacity building will mitigate this risk.

4.6 Knowledge Building

The project will create a gender-disaggregated database, which will be used to establish the baseline situation. Subsequently, it will produce a geo-referenced map of the activities carried out. This information will be networked and posted on GASFP website to be shared with all stakeholders. The same will apply to the results of the (rapid and in-depth) independent impact assessments. The project activities that will also induce knowledge development will be the dissemination of innovative technologies, technological review workshops, innovation/multi-actor platforms and exchange visits, support for innovative product processing experiments as part of a private/FO partnership, and promotion of innovative actions for youth and women's employability, as well as activities to build the resilience of vulnerable segments of the population. Lastly, the project will establish an integrated system for managing knowledge of project activities through regular dissemination of acquired knowledge on the GASFP website.

V. Legal Framework

5.1 Legal Instrument

The legal framework of the project will be a GAFSP Grant Protocol of Agreement signed between the Republic of Benin and the Bank.

5.2 Conditions for Bank and GAFSP Intervention

5.2.1 Conditions precedent to Grant Protocol of Agreement Effectiveness:

Effectiveness of the GASFP Grant Protocol of Agreement shall be subject to signature by the parties.

5.2.2 Conditions precedent to First Disbursement of the Grant Resources: The obligation for the Bank and GASFP to make the first disbursement of grant resources shall be subject to effectiveness of the GASFP Grant Protocol of Agreement, in accordance with the provisions of Paragraph 5.2.1 above, and to the Donee providing evidence of fulfilment, to the Bank's satisfaction with respect to form and substance, of the following conditions:

- (i) Provide the Bank with evidence of the opening of a special account in BCEAO in the name of the project to receive the project US dollar funds, and of PMU opening a CFAF account in a bank acceptable to the Bank in the name of the Project to receive the Grant resources (cf. 4.1.8);
- (ii) Provide the Bank with evidence of the recruitment of the project Coordinator and Administrative Manager, whose qualifications and experience should also be submitted to the Bank for prior approval (cf. 4.1.1)

5.2.3 Other Conditions: In addition, the Donee shall submit to the Bank, within the six (6) months following the first disbursement of Grant resources:

- (i) evidence of the recruitment of a Procurement Specialist, a Monitoring and Evaluation Specialist, and an accountant, whose qualifications and experience should also be submitted to the Bank for prior approval (cf. 4.1.1);
- (ii) the agreements signed with the CARDERS, DGEAR and PASCIB (cf.4.1.3);

5.3 Compliance with Bank Policies

This project is consistent with all applicable Bank policies. The grant has already been approved by the GAFSP Fund. The Boards of Directors are hereby requested to approve the GAFSP grant. The project will be implemented within the framework of the Bank's intervention strategy in Benin as defined in CSP 2012-2016.

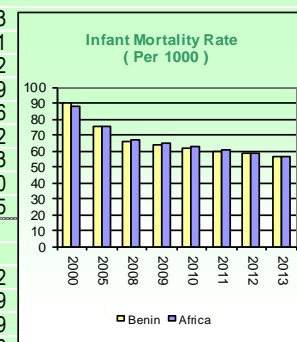
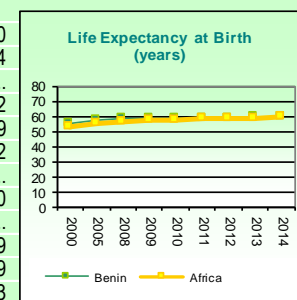
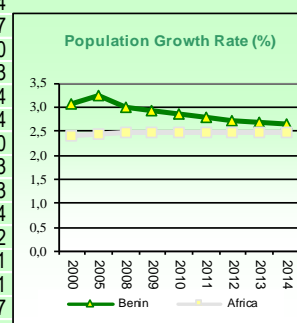
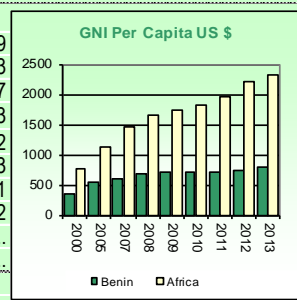
VI. Recommendation

Management recommends that the Board of Directors should approve the award of a GAFSP Fund grant, of an amount not exceeding USD 24 million, to the Republic of Benin for the purpose and under the conditions set forth in this report.

Annex I
Benin's Comparative Socio-economic Indicators (August 2015)

Benin
COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Benin	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km²)	2014	115	30 067	80 386	53 939
Total Population (millions)	2014	10,6	1 136,9	6,0	1,3
Urban Population (% of Total)	2014	46,9	39,9	47,6	78,7
Population Density (per Km²)	2014	92,4	37,8	73,3	24,3
GNI per Capita (US \$)	2013	790	2 310	4 168	39 812
Labor Force Participation - Total (%)	2014	72,9	66,1	67,7	72,3
Labor Force Participation - Female (%)	2014	47,0	42,8	52,9	65,1
Gender -Related Development Index Value	2007-2013	0,822	0,801	0,506	0,792
Human Develop. Index (Rank among 187 countries)	2013	165
Popul. Living Below \$ 1.25 a Day (% of Population)	2008-2013	51,6	39,6	17,0	...
Demographic Indicators					
Population Growth Rate - Total (%)	2014	2,6	2,5	1,3	0,4
Population Growth Rate - Urban (%)	2014	4,0	3,4	2,5	0,7
Population < 15 years (%)	2014	42,5	40,8	28,2	17,0
Population >= 65 years (%)	2014	2,9	3,5	6,3	16,3
Dependency Ratio (%)	2014	85,3	62,4	54,3	50,4
Sex Ratio (per 100 female)	2014	99,4	100,4	107,7	105,4
Female Population 15-49 years (% of total population)	2014	23,9	24,0	26,0	23,0
Life Expectancy at Birth - Total (years)	2014	59,5	59,6	69,2	79,3
Life Expectancy at Birth - Female (years)	2014	60,9	60,7	71,2	82,3
Crude Birth Rate (per 1,000)	2014	36,0	34,4	20,9	11,4
Crude Death Rate (per 1,000)	2014	9,4	10,2	7,7	9,2
Infant Mortality Rate (per 1,000)	2013	56,2	56,7	36,8	5,1
Child Mortality Rate (per 1,000)	2013	85,3	84,0	50,2	6,1
Total Fertility Rate (per woman)	2014	4,8	4,6	2,6	1,7
Maternal Mortality Rate (per 100,000)	2013	340,0	411,5	230,0	17,0
Women Using Contraception (%)	2014	16,4	34,9	62,0	...
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2004-2012	5,9	46,9	118,1	308,0
Nurses (per 100,000 people)*	2004-2012	77,1	133,4	202,9	857,4
Births attended by Trained Health Personnel (%)	2009-2012	84,1	50,6	67,7	...
Access to Safe Water (% of Population)	2012	76,1	67,2	87,2	99,2
Healthy life expectancy at birth (years)	2012	50,0	51,3	57	69
Access to Sanitation (% of Population)	2012	14,3	38,8	56,9	96,2
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2013	1,1	3,7	1,2	...
Incidence of Tuberculosis (per 100,000)	2013	70,0	246,0	149,0	22,0
Child Immunization Against Tuberculosis (%)	2013	88,0	84,3	90,0	...
Child Immunization Against Measles (%)	2013	63,0	76,0	82,7	93,9
Underweight Children (% of children under 5 years)	2005-2013	20,2	20,9	17,0	0,9
Daily Calorie Supply per Capita	2011	2 594	2 618	2 335	3 503
Public Expenditure on Health (as % of GDP)	2013	2,5	2,7	3,1	7,3
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2011-2014	124,3	106,3	109,4	101,3
Primary School - Female	2011-2014	118,1	102,6	107,6	101,1
Secondary School - Total	2011-2014	54,2	54,3	69,0	100,2
Secondary School - Female	2011-2014	42,9	51,4	67,7	99,9
Primary School Female Teaching Staff (% of Total)	2012-2014	21,9	45,1	58,1	81,6
Adult literacy Rate - Total (%)	2006-2012	28,7	61,9	80,4	99,2
Adult literacy Rate - Male (%)	2006-2012	40,6	70,2	85,9	99,3
Adult literacy Rate - Female (%)	2006-2012	18,4	53,5	75,2	99,0
Percentage of GDP Spent on Education	2009-2012	5,3	5,3	4,3	5,5
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2012	23,9	8,8	11,8	9,2
Agricultural Land (as % of land area)	2012	0,3	43,4	43,4	28,9
Forest (As % of Land Area)	2012	39,6	22,1	28,3	34,9
Per Capita CO2 Emissions (metric tons)	2012	0,5	1,1	3,0	11,6



Sources : AfDB Statistics Department Databases; World Bank: World Development Indicators; UNAIDS; UNSD; WHO, UNICEF, UNDP; Country Reports.

last update : septembre 2015

Annex II
Table of AfDB Portfolio in Benin: April 2015

Sector	Project Name	Status	Window	Approval Date	Disbursement Deadline	Amount Disbursed	Amount Approved	Disb. Rate (%)	Status
Water and Sanitation	Project to Support the Decentralization of Drinking Water, Hygiene and Sanitation Services	OnGo	AWF	29/10/2012	31/12/2016	310 959	812 324	38	NPP/NPPP
	Improvement of Grand-Nokoué Sludge Management	OnGo	AWF	04/01/2013	31/03/2017	125 668	865 569	15	NPP/NPPP
	<i>Sub-total Water and Sanitation</i>					<i>436 628</i>	<i>1 677 893</i>		
Transport	Ndali-Nikki-Chcandou Road Tarring Project	OnGo	ADF	07/04/2010	30/06/2016	4984441	11500000	43	NPP/NPPP
	Ndali-Nikki-Chcandou Road Tarring Project	OnGo	ADF	07/04/2010	30/06/2016	16486386	22180000	74	NPP/NPPP
	Parakou Urban Transport Project	OnGo	ADF	19/09/2014	31/12/2020	0	23800000	0	NPP/NPPP
	Parakou Urban Transport Project	OnGo	GEF	19/09/2014	31/12/2020	0	1341018	0	NPP/NPPP
	<i>Sub-total Transport</i>					<i>21 470 827</i>	<i>58 821 018</i>		
Agriculture	Ouémé Valley Rural Infrastructure Support Project	OnGo	ADF	30/09/2013	30/06/2015	7 880	444 000	2	NPP/NPPP
	Ouémé Valley Rural Infrastructure Support Project	OnGo	ADF	23/10/2013	31/12/2020	248 045	39 500 000	1	NPP/NPPP
	Ouémé Valley Rural Infrastructure Support Project	OnGo	ADF	23/10/2013	31/12/2020	0	530 000	0	NPP/NPPP
	Ouémé Valley Rural Infrastructure Support Project	OnGo	GEF	23/10/2013	31/12/2020	0	5 186 647	0	NPP/NPPP
	Emergency Aid Programme for the Flood-affected Malanville and Karimama Municipalities	OnGo	SRF	19/03/2014	31/12/2014	576 294	576 294	100	NPP/NPPP
	Milk and Meat Sub-sectors Support Project (PAFILAV)	OnGo	ADF	27/11/2008	31/12/2015	8 784 416	25 000 000	35	PPP
	<i>Sub-total Agriculture</i>					<i>9 616 635</i>	<i>71 236 941</i>		
Governance	Public Finance Management and Business Climate Improvement Support Project (PAGFPACAF)	OnGo	ADF	24/11/2010	31/12/2015	3 020 531	5 000 000	60	NPP/NPPP
	<i>Sub-total Governance</i>					<i>3 020 531</i>	<i>5 000 000</i>	<i>60</i>	
	Total National					34 544 621	136 735 852		
Multinational	Benin/Togo: Lome-Cotonou Road Rehab. and Abidjan-Lagos Corridor Transport Facilitation Project Phase I	OnGo	ADF	05/10/2011	31/12/2016	16 849 681	38 870 000	43	NPP/NPPP
	Benin/Togo: Lome-Cotonou Road Rehab. and Abidjan-Lagos Corridor Transport Facilitation Project Phase I	OnGo	ADF	05/10/2011	31/12/2016	13 215 581	34 270 000	39	NPP/NPPP
	BENIN - TOGO - GHANA Electricity Interconnection	OnGo	ADF	04/04/2007	31/12/2015	4 474 028	17 390 000	26	NPP/NPPP
	BENIN - Cotton-Textile Sub-sector Support Project	OnGo	ADF	29/11/2006	30/09/2015	6 958 080	8 000 000	87	NPP/NPPP
	Total Multinational					41 497 370	98 530 000	42	
	TOTAL					76 041 991	235 265 852	32	

Annex III
Presentation of Procurement Arrangements in USD

Project Expenditure Categories	In USD Thousand, including Physical Contingencies			
	Use of NPP	Use of Bank Rules and Procedures	Amount Not Financed by the Bank	Total
A. Works				
• Dam Rehabilitation Works	2 044.52			2 044.52 (2044.52)
• Irrigated Area Development Works	3 746.45		256.9	3 746.45 (3489.52)
• Labour-intensive Lowland Development Works		2 750.25	161.24	2 750.25 (2589.01)
• Post-harvest Infrastructure Construction Works	1 411.74			1 411.74 (1411.74)
• Rural Roads Rehabilitation Works	455.18			455.18 (455.18)
• Office Rehabilitation/Refurbishment Works	502.60			502.60 (502.60)
B. Goods				
• Supply of Post-harvest Development Equipment		578.16		578.16 (578.16)
• Supply of Computer Hardware and Office Equipment	213.24			213.24 (213.24)
• Vehicles (2 lots)	2 59.48			259.48 (259.48)
C. Services				
• Project Supervision and Delegated Management Agreements		5049.33		5049.33 (5049.33)
• CARDER Zou-Collines Agreement		863.11		863.11 (863.11)
• CARDER Borgou-Alibori Agreement		2088.16		2 088.16 (2088.16)
• Studies, and Works Supervision and Control (Dams and Irrigation Schemes)		293.98		293.98 (293.98)
• Studies and Other Infrastructure Supervision and Control Works		361.48		361.48 (361.48)
• Engineering Studies		178.95		178.95 (178.95)
• Technical Assistance: M&E, Web, Evaluation, Comm.		234.93		234.93 (234.93)
• Various Training Programmes for Craftsmen		819.85		819.85 (819.85)
• Partnership with (NGO): Training and Sensitization		73.26		73.26 (73.26)
• Preparation of the Administrative and Financial Procedures Manual		26.47		26.47 (26.47)
• External Auditing		139.03		139.03 (139.03)
• Various Short-term Consultations		53.93		53.93(53.93)
D. Miscellaneous				
• Competitive Fund to Support Innovative Initiatives		429.04		429.04 (429.04)
• Young Entrepreneurs' Financing Fund-MFIs	2 258.48		2 258.48	2 258.48 (0.00)
Staff	0	1 263.96	0	1 263.96 (1 263.96)
Operating and Maintenance Costs	1 035.7	0	454.63	1 035.7 (581.07)
Total	11 927.39	15 203.89	3 131.28	27 131.28 (24 000)

NB: () Figures in brackets concern amounts financed by the Bank.

Annex IV
PAPVIRE-ABC: Incorporation of Fragility Factor-related Risks

The **Republic of Benin** is a West African country with a surface area of 112 622 square kilometres. The country's population was 9 983 884 inhabitants in 2013. It is member of many African organizations, including ECOWAS, CEN-SAD and the African Union (AU). Its neighbours are Burkina Faso and Niger to the north, Nigeria to the east, and Togo to the west. The Atlantic Ocean forms a natural boundary to the south. Porto-Novo is its official capital and Cotonou its economic capital. The country is politically, economically, socially and environmentally fragile.

Political Fragility: Benin gained independence under the name **Republic of Dahomey** on 1 August 1960, with Hubert MAGA as its first president. The country has had a history of political turmoil since independence, the first twelve years of which were marked by chronic instability. Mr. Thomas YAYI BONI took over from Mathieu KEREKOU and his second term of office, during which he said he will not run for office again, will end in 2016. Despite seeming political stability, governance remains a crucial problem in Benin as attested to by the Netherlands Government's recent announcement to suspend its aid due to irregularities and malpractices noted in the management of the second phase of the Water and Sanitation Sector Multi-year Support Programme.

Social Fragility: Benin has made a lot of progress towards achieving the Millennium Development Goals (MDGs) relating to rural drinking water and reduction of HIV/AIDS prevalence. Nevertheless, much remains to be done in the area of maternal and infant mortality. Moreover, unemployment and under-employment, resulting from the mismatch between the education system and the labour market, are a major challenge for the country and could weaken the social fabric and jeopardize the vision of making Benin an emerging country by 2025.

Economic Fragility: Benin does not have a lot of mineral resources and depends largely on its port and agriculture. The Cotonou Autonomous Port (PAC), a strategic gateway, positions Benin to provide a seaport for three landlocked countries, namely Niger, Burkina Faso and Mali. The PAC also provides access to the Nigerian market of more than 200 million consumers. Ninety-five percent of Benin's economy is informal, and Government tax revenue is therefore insignificant despite heavy taxes on local formal enterprises. However, agricultural production and trade-driven economic growth was estimated at 5.5% in 2014, as against 5.6% in 2013. Constant improvements to the Cotonou Port have helped to increase goods traffic and obtain considerable efficiency gains, while favourable weather conditions have enhanced agricultural production. Cotton production, in particular, increased from 240 000 tonnes in 2012-2013 to 307 000 tonnes in 2013-2014, and is expected to reach 350 000 tonnes in the 2014-2015 crop year, according to estimates.

Environmental Fragility: About 72% of villages/neighbourhoods in Benin have experienced shocks over the past 12 months. The most frequent shocks are floods (37% of villages), straying animals (17%), drought (15%), and price increase (11%). The project area is mainly facing two climate change shocks, namely more prolonged and frequent floods and droughts, while the people depend heavily on climate-sensitive resources, such as water resources and the agricultural production systems. Over the past few years, 70% of villages in Alibori, 50% in Borgou and 40% in Collines have experienced recurrent climate change-induced floods leading to the destruction of crops and dwellings and a 5% to 20% drop in agricultural yields, depending on the crop type.

At the sector level in the area concerned, PAPVIRE-ABC will address the major fragility factors identified. The key measures to be taken by the Government and the project to mitigate these factors are detailed below.

At the economic and governance level: To avoid weakening its economy and strengthen its resilience, the project will help to increase agricultural productivity, diversify agriculture, establish agricultural product processing units, and improve the business climate. Additional incomes from the various irrigation infrastructure and farming models adopted will be as follows: (i) irrigated areas for market gardening: CFAF 2 787 000/ha, or CFAF 635 000 per male farmer and CFAF 725 000 per female beneficiary; (ii) lowlands developed through labour-intensive activities or under contract (single cropping of rice): CFAF 330 000/ha per male farmer, representing CFAF 178 000 per male farmer and CFAF 125 000 per female beneficiary.

On the whole, the project will help to reduce rural-urban migration, especially among youths. The rehabilitation of rural roads, the construction of storehouses, the rehabilitation of markets and support to processing units will help to reduce post-harvest losses, facilitate the sale of agricultural products and, consequently, increase agricultural production and household income. The project will also help to consolidate the local development process, good governance and citizen control by encouraging participation and access to decision-making processes for beneficiaries, and closely involving municipalities (selection of sites, land security and allocation, community infrastructure management, farmer-transhumant herder conflict management, road maintenance, etc.). The project will help to develop small clusters of young promoters, and will directly affect 470 girls and boys trained in agricultural entrepreneurship professions and set up in all value chain links: production activities in irrigation areas, fish farms in dam reservoirs, processing, trade and services. The development of agricultural entrepreneurship will help to make rural areas more attractive, and create several production centres in agro-ecological zones covered by the project through the training and settlement of young farmers.

At the environmental level: On the whole, PAPVIRE-ABC activities will have major positive impacts on ecosystems, biodiversity, adaptation and reduction of vulnerability to climate change, and contribute to global efforts to mitigate the effects of climate change. The people's capacity to adapt will be built through the development of climate risk management tools, the collection of agro-hydro-meteorological information and support to producers for the incorporation of climate information into the management of agricultural activities, especially through the early warning system. Lastly, local development plans will incorporate the climate information generated.

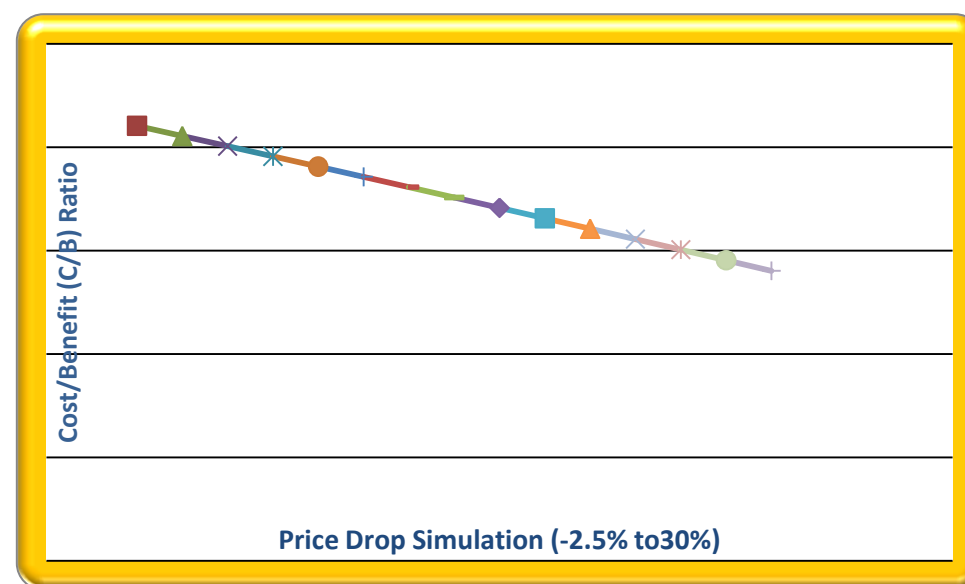
At the gender mainstreaming level: The project will prioritize rural activities habitually valued by women and for which they have recognized skills (market gardening, rice cultivation, processing and marketing activities, etc.) and from which they generate income. A "market gardening areas" component will be implemented specifically for women, including land security in sites developed for them. The project will ensure that women have access to factors of production (35% of developed land and 60% of production and processing equipment and materials) as well as to appropriate technical vocational and social training. The project will help to organize women into cooperatives and set up young entrepreneurs in the agricultural sector. It will also train their leaders in cooperative management, citizen participation and administrative and financial management.

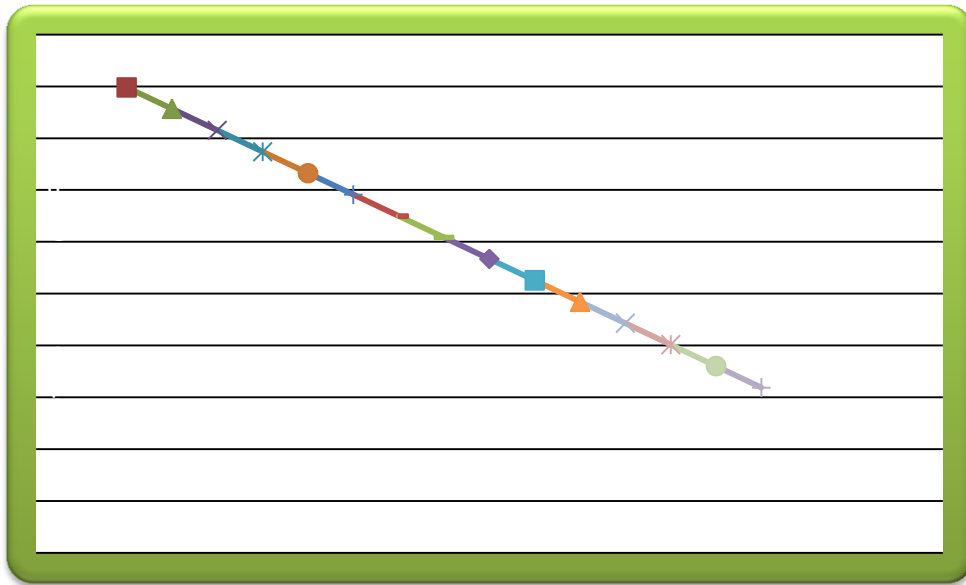
Annex V: Financial and Economic Analysis: Summary Financial Analysis Table

Summary of Scenarios

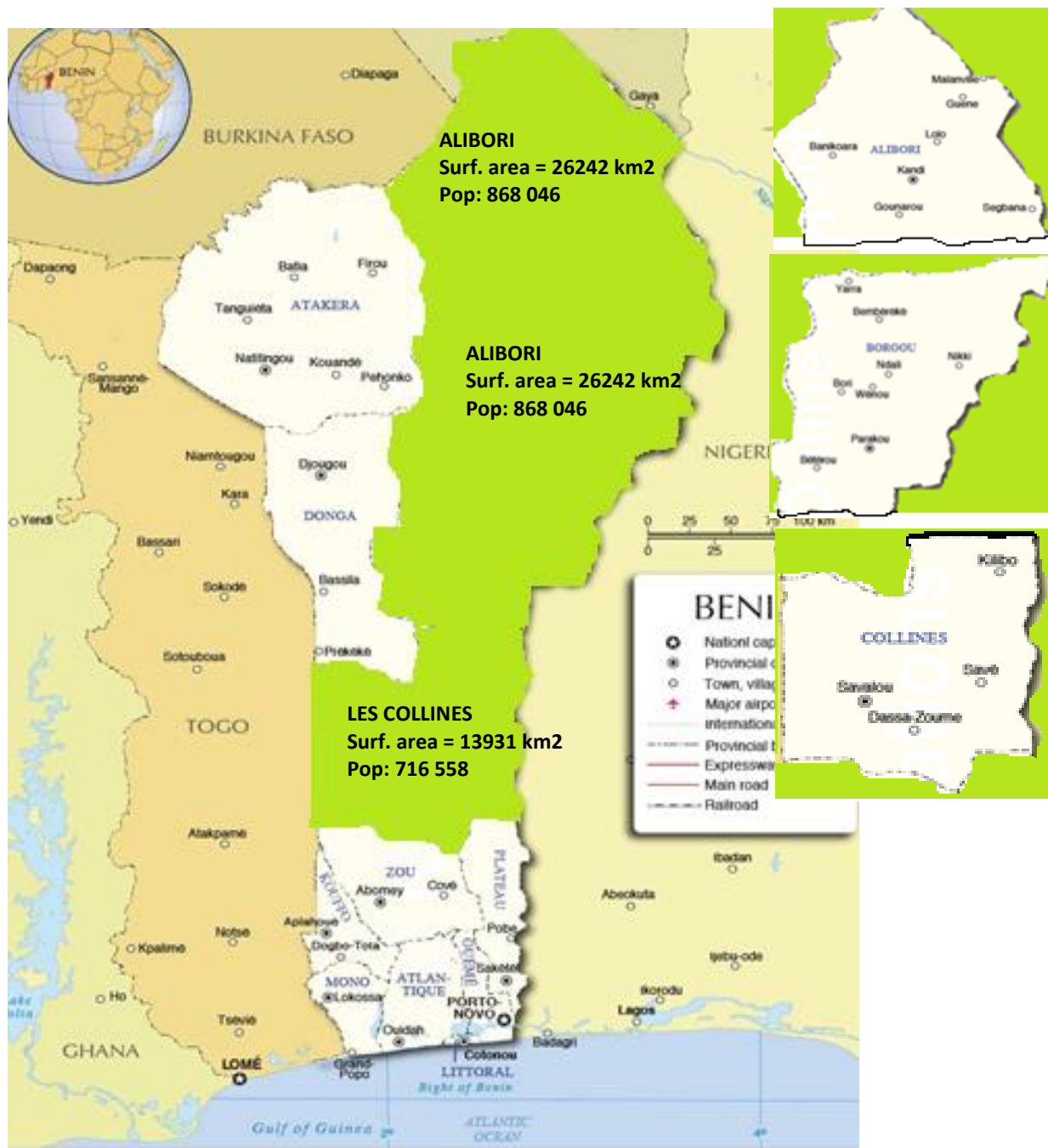
Scenario	Present Value	Price Drop -2.5%	Price Drop -5%	Price Drop -7.5%	Price Drop -10%	Price Drop -12.5%	Price Drop -15%	Price Drop -17.5%	Price Drop -20%	Price Drop -22.5%	Price Drop -25%	Price Drop -27.5%	Price Drop -30%	Price Drop -32.5%	Price Drop -35%
Variable Cells:															
Price Drop	0.00%	2.50%	5.00%	7.50%	10.00%	12.50%	15.00%	17.50%	20.00%	22.50%	25.00%	27.50%	30.00%	32.50%	35.00%
Resulting Cells:															
NPV	44 901 657.01	42 833 155.96	40 764 654.91	38 696 153.86	36 627 652.82	34 559 151.77	32 490 650.72	30 422 149.67	28 353 648.63	26 285 147.58	24 216 646.53	22 148 145.49	20 079 644.44	18 011 143.39	15 942 642.34
IRR	22.86%	21.95%	21.04%	20.12%	19.19%	18.24%	17.28%	16.31%	15.33%	14.33%	13.32%	12.30%	11.26%	10.20%	9.12%
C/B Ratio	2.10	2.05	2.00	1.96	1.91	1.86	1.81	1.76	1.71	1.66	1.61	1.55	1.50	1.45	1.40

*The Present Value column shows the value of variable cells at the time of production of the summary report. The variable cells of each scenario are found in the grey columns and the rate of simulation-based change of values is represented in the graphs below.





Annex VI Map of Project Area



Surf. Area = 66029 Km² (58%)

Tot. Surf. Area = 114 763 km²

Pop. 1 786 699 (18%)