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IDA/R2017-0082/1

March 28, 2017

**Closing Date: Friday, April 14, 2017
at 6:00 p.m.**

FROM: Vice President and Corporate Secretary

Benin - Agricultural Productivity and Diversification Project

Additional Financing

Project Paper

Attached is the Project Paper regarding a proposed additional credit to Benin for the Agricultural Productivity and Diversification Project (IDA/R2017-0082), which is being processed on an absence-of-objection basis.

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Report No: PAD2187

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT PAPER

ON A

PROPOSED ADDITIONAL CREDIT

IN AN AMOUNT OF EURO 41.9 MILLION
(US\$45 MILLION EQUIVALENT)

TO THE

REPUBLIC OF BENIN

FOR THE

AGRICULTURAL PRODUCTIVITY AND DIVERSIFICATION PROJECT

MARCH 24, 2017

Agriculture Global Practice
Africa Region

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CURRENCY EQUIVALENTS

Exchange Rate Effective: January 31, 2017

Currency Unit = United States dollars (US\$)
US\$1 = Euro 0.93005952

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
DA	Designated Account
CAADP	Comprehensive Africa Agricultural Development Program
CARGS	Competitive Agricultural Research Grant Schemes
CAS	Country Assistance Strategies
CO ₂ -eq	Carbon Dioxin equivalent
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CSOs	Civil Society Organizations
CQS	Consultant's Qualification
DL	Disbursement Letter
EAs	Environmental Assessments
EFA	Economic and Financial Analysis
EIRR	Economic Internal Rate of Return
EMPs	Environmental Management Plans
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMPs	Environmental and Social Management Plans
ECOWAP	Economic Community of West African Agricultural Policy
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization
FM	Financial Management
GDP	Gross Domestic Product
GFRP	Global Food Crisis Response Program
GHG	Greenhouse Gas
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
IDA	International Development Association
IFC	International Finance Corporation
IP	Implementation Program
ISR	Implementation Status and Results Report
LCS	Least Cost Selection
M&E	Monitoring and Evaluation
MAEP	<i>Ministère de l' Agriculture, de l' Elevage et de la Pêche</i> (Ministry of Agriculture, Livestock and Fisheries)

MOU	Memorandum of Understanding
NCB	National Competitive Bidding
NGOs	Non-Governmental Organizations
NPV	Net Present Value
PAD	Project Appraisal Document
PADA	<i>Projet d' Appui à la Diversification Agricole</i> (Agricultural Productivity and Diversification Project)
PCU	Implementing Unit
PDO	Project Development Objective
PHRD	Policy and Human Resources Development
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PMP	Pest Management Plan
PP	Project Paper
QCBS	Quality and Cost Based Selection
R&D	Research and Development
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SME	Small and Medium Enterprise
SOE	Statements of Expenditures
TA	Technical Assistance
TTL	Task Team Leader
SORT	Systematic Operating Risk Tool
WAAPP	West African Agricultural Productivity Program
WAEMU	West African Economic and Monetary Union

Regional Vice President:	Makhtar Diop
Country Director:	Pierre Laporte
Senior Global Practice Director:	Juergen Voegelé
Country Manager:	Katrina M. Sharkey
Practice Manager:	Simeon K. Ehui
Task Team Leader:	Erick Herman Abiassi

BENIN
Additional Financing for
Agricultural Productivity and Diversification Project (P160029)

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ADDITIONAL FINANCING DATA SHEET

Benin

Agricultural Productivity and Diversification Additional Financing (P160029)
AFRICA

Agriculture Global Practice

Basic Information – Parent							
Parent Project ID: P115886				Original EA Category: B - Partial Assessment			
Current Closing Date: 30-Jun-2017							
Basic Information – Additional Financing (AF)							
Project ID: P160029				Additional Financing Type: Scale Up (from AUS):			
Regional Vice President: Makhtar Diop				Proposed EA Category: B			
Country Director: Pierre Frank Laporte				Expected Effectiveness Date: 14-Sep-2017			
Senior Global Practice Director: Juergen Voegelé				Expected Closing Date: 28-Feb-2021			
Practice Manager/Manager: Simeon Kacou Ehui				Report No: PAD2187			
Team Leader(s): Erick Herman Abiassi							
Borrower							
Organization Name		Contact	Title		Telephone	Email	
Ministry of Finance		Romuald WADAGNI	Minister of Finance		(229) 21314781	sadjovi@yahoo.fr	
Project Financing Data - Parent (Agricultural Productivity and Diversification-P115886) (in US\$ Million)							
Key Dates							
Project	Ln/Cr/TF	Status	Approval Date	Signing Date	Effectiveness Date	Original Closing Date	Revised Closing Date
P115886	IDA-48840	Effective	22-Mar-2011	07-Jun-2011	13-Mar-2012	15-Dec-2016	30-Jun-2017
P115886	IDA-H6550	Effective	22-Mar-2011	07-Jun-2011	13-Mar-2012	15-Dec-2016	30-Jun-2017
P115886	TF-99692	Closed	07-Jun-2011	07-Jun-2011	13-Mar-2012	15-Dec-2014	31-May-2015

Disbursements									
Project	Ln/Cr/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P115886	IDA-48840	Effective	US\$	6.00	6.00	0.00	4.45	1.10	74.16
P115886	IDA-H6550	Effective	US\$	25.00	25.00	0.00	23.32	0.18	93.29
P115886	TF-99692	Closed	US\$	15.00	14.85	0.15	14.85	0.00	100.00
Project Financing Data - Additional Financing Agricultural Productivity and Diversification Additional Financing (P160029) (in US Million)									
<input type="checkbox"/> Loan <input type="checkbox"/> Grant <input type="checkbox"/> IDA Grant <input checked="" type="checkbox"/> Credit <input type="checkbox"/> Guarantee <input type="checkbox"/> Other									
Total Project Cost:		58.45		Total Bank Financing:		45.00			
Financing Gap:		0.00							
Financing Source – Additional Financing (AF)								Amount	
BORROWER/RECIPIENT								13.45	
International Development Association (IDA)								45.00	
Total								58.45	
Policy Waivers									
Does the project depart from the CAS in content or in other significant respects?							No		
Explanation									
Does the project require any policy waiver(s)?							Yes		
Explanation The Recipient requested to continue using the World Bank's Procurement and Consultant Guidelines of 2010 editions (as referred to in the Financing Agreement) as it was used in the parent project for the proposed additional financing.									
Has the waiver(s) been endorsed or approved by Bank Management?							Yes		
Explanation The request has been approved by the Chief Procurement Officer of OPCS (email dated December 15, 2016) pursuant to Section III, Paragraph 4 Table I (C) of the "Bank Procedure- Procurement in Investment Project Financing and Other Operational Procurement Matters" effective July 1 st , 2016.									
Team Composition									
Bank Staff									
Name	Role	Title	Specialization	Unit					
Erick Herman Abiassi	Team Leader (ADM Responsible)	Senior Agriculture Economist	Senior Agriculture Economist	GFA01					
Mathias Gogohounga	Procurement Specialist	Senior Procurement Specialist	Senior Procurement	GGO07					

	(ADM Responsible)		Specialist	
Angelo Donou	Financial Management Specialist	Consultant	Consultant	GGO13
Abdoul Wahabi Seini	Safeguards Specialist	Senior Social Development Specialist	Senior Social Development Specialist	GSU01
Abdoulaye Gadiere	Environmental Specialist	Senior Environmental Specialist	Senior Environmental Specialist	GEN07
Issa Thiam	Team Member	Finance Officer	Finance Officer	WFALA
Juvenal Nzambimana	Team Member	Senior Operations Officer	Senior Operations Officer	GFA01
Leissan Augustine Akpo	Team Member	Team Assistant	Team Assistant	AFMBJ
Nicolas Ahouissoussi	Team Member	Senior Agriculture Economist	Senior Agriculture Economist	GFA01
Saba Nabeel M Gheshan	Counsel	Legal Analyst	Legal Analyst	LEGAM
Sossena Tassew	Team Member	Operations Analyst	Operations Analyst	GFA01

Locations					
Country	First Administrative Division	Location	Planned	Actual	Comments
Benin		Départements de l' Oueme et des Plateaux		X	
Benin		Départements du Mono et du Couffo		X	
Benin		Départements du Zou et des Collines		X	
Benin		Départements de l'Atlantique et du Littoral		X	
Benin		Départements de l' Atacora et de		X	

		la Donga			
Benin		Départements du Borgou et de l' Alibori		X	
Institutional Data					
Parent (Agricultural Productivity and Diversification-P115886)					
Practice Area (Lead)					
Agriculture					
Contributing Practice Areas					
Additional Financing. Additional Financing for Agricultural Productivity and Diversification Project (P160029)					
Practice Area (Lead)					
Agriculture					
Contributing Practice Areas					

I. Introduction

1. This Project Paper (PP) seeks the approval of the Executive Directors to provide an Additional Financing (AF) in the total amount of US\$45 million equivalent to the Government of Benin for the Agricultural Productivity and Diversification Project (PADA-P115886), in response to the letter from the Ministry of Economy and Finance dated March 31, 2016. The PP also seeks a second level-two restructuring of the original project for an extension of the project's closing date for 44 months from June 30, 2017 to February 28, 2021 to allow the full implementation of the AF activities, and revision of the results framework. The PP was restructured once on August 12, 2016. It was the first level-two restructuring and consisted mainly of reallocation of resources between disbursement categories and six (06) months extension of the project closing date.

2. **The proposed AF will be used to support Benin in consolidating and scaling-up the achievements of the initial project and strengthen the project focus on income generating activities and improving nutritional status of poor households.** As in the original project, the AF will continue supporting the: (i) promotion of large-scale adoption of improved technologies (production, post-harvest, processing and storage), including climate-smart production systems, to reduce vulnerability of farming activities to climate change and weather vagaries of farming activities; (ii) development of production and market infrastructure to enhance productivity through efficient water management, reduction of post-harvest losses and better access to market through warehouses and other facilities; (iii) support to value chain coordination and access to finance through sustainable use of the financial management instruments set up under the original project; (iv) institutional support to the Ministry of Agriculture and other stakeholders in the sector (civil society and producers' organizations) with a particular focus on capacity building. At the same time, the AF will introduce new activities, particularly with respect to: (i) support to poultry, sheep and goats with an emphasis on improved breed stock, animal health, improved shelter and animal production systems; and (ii) transformation of existing successful micro-projects into small and medium enterprises (SMEs) to create more jobs, especially for youth and women.

3. **The Project Development Objective (PDO) and the triggered safeguard policies of the original project remain unchanged for the AF.** However, the activities pertaining to the Global Food Crisis Response Program(GFRP)-funded emergency sub-component of the initial project (meant to restore productive means of flood-affected farm households) will be discontinued as it is no longer relevant, while new activities for the promotion of small-scale animal husbandry (poultry, goat and sheep) will be introduced to increase the project's focus on both income generating activities and improving nutritional status for poor households.

4. Apart from this, the results framework will be revised to not only adjust the targets of the indicators, but also to add new indicators for the new focus areas of the AF on animal husbandry, nutritional status of households, job creation/employment and private sector participation.

5. Risk ratings have been updated to reflect the experience gained during implementation of the original project.

II. Background and Rationale for Additional Financing

A. Country Context

6. Benin is a low-income country of about 10 million people (2013 population census) with a per capita income of US\$820 in 2014. The economy is driven by agriculture and services, particularly import/export activities through the Port of Cotonou. Agriculture accounts for 25 percent of gross domestic product (GDP) and 47 percent of the country's employment. Cotton is the primary export commodity. The informal sector, including subsistence agriculture, contributes up to 56 percent of GDP and engages over 90 percent of the labor force. Re-export to Nigeria contributes a quarter of the government's revenue. The country was able to maintain macro-economic stability, which laid the foundation for accelerated growth; during the period 2012-2015, it was able to achieve an average GDP growth of 5 percent¹. But this was partially offset by the rapid population growth, averaging 3.5 percent per year, which led to a modest and unequal increase in household consumption. As a result, poverty levels grew from 36.2 percent in 2011 to 40.1 percent in 2015². Growth was particularly modest in agriculture, which employs almost half of the labor force. The economy remains poorly diversified and vulnerable to external shocks. This vulnerability underscores the need to promote economic diversification (including exports) as recommended in the Country Partnership Strategy (CPS) 2013-2018 for Benin.

7. Poverty reduction plan has been enshrined in successive poverty reduction strategies, but results have proven erratic and difficult to sustain. There are significant regional disparities in poverty rates, and female-headed households have typically experienced lower poverty levels (Table 1); however, women continue to face lack of economic opportunity, are under-represented in politics and in other decision making positions, and are more susceptible to falling into poverty.

Table 1: National Poverty and Inequality Rates 2006 - 2015

	2006	2007	2009	2011	2015
Poverty Rates					
Urban	35.4	28.0	29.8	31.3	35.8
Rural	38.8	36.0	38.4	39.7	43.6
Male-headed households			36.2	38.0	40.2
Female-headed households			30.4	27.6	39.7
Benin	37.5	33.0	35.2	36.2	40.1

Source : INSAE, EMICoV 2006-2015.

8. There is a dichotomy between economic growth and poverty reduction. During the last five years, higher growth was mainly driven by more capital-intensive sectors like banking, telecommunications and maritime activities at the port of Cotonou. In contrast, agriculture which is a main driver of poverty reduction, had a modest growth, derived more from expansion of cultivated land and the associated labor rather than increase in productivity. In addition, the rapid population growth further limited the growth in per capita income and its impact on poverty

¹ Real GDP grew by 4.6 percent in 2012; 6.9 percent in 2013; 6.5 percent in 2014; is estimated at 5.0 percent in 2015; and is projected at 4.5 percent in 2016, which is higher than the previous 5-year average of 3.7 percent (INSAE 2016).

² Source: INSAE (National Institute of Statistics and Economic Analysis), EMICoV 2006-15 Household Survey.

reduction. Furthermore, regional trade had a negative spillover from the Nigeria's economic slowdown and policy changes. There were diminished opportunities in both goods and services between Benin and Nigeria affecting the broader sector of informal trade, where gas flows informally from Nigeria to Benin, and in the broader consumer goods sector, where rice, chicken, edible oil, used cars, used clothing etc., flow from Benin to Nigeria. For instance, the suppression of subsidies in Nigeria's oil sector affected negatively the informal Beninese gas trade in areas adjacent to Benin's border with Nigeria, where poverty increased from 34.8 percent in 2011 to 50.4 percent in 2015.

B. Sectoral and Institutional Context

9. The agricultural sector in Benin is still highly dependent on rainfall patterns and one major commodity – cotton- whose productivity has remained modest over time. Overall, gains in production are often offset by the relatively high population growth. Yet, agriculture will remain one of the main sources of growth and employment for the near future in the country. This will require a much higher and faster growth of the agricultural sector than we currently have. The past performance has been insufficient to drive meaningful poverty reduction. The agricultural production systems rely on increase in cropped area and family labor, with limited use of improved inputs, production methods, and farm equipment. Access to financing is limited outside the cotton system. The country's agricultural trade performance is generally weak, with a persistently negative agricultural trade balance. Agricultural exports are concentrated on three groups of products: cotton, fruits (pineapple), and nuts (cashews) and oilseeds (soy and cottonseed). To meet the needs of a growing urban population, Benin continues to import a large share of horticultural products from neighboring countries (such as Burkina Faso and Nigeria), rice from Asia, wheat, frozen meat and milk from Europe, and frozen poultry products from Brazil. The agricultural sector faces the triple challenges of diversifying exports (consolidating cotton exports and increasing export volume for pineapple and cashew nut), increasing food production, and sustainably increasing farm and post-harvest productivity. These challenges must be addressed by taking into account the structural vulnerability of the country's agricultural production system to floods and occasional droughts.

10. Improving productivity and strengthening diversification are top priorities of the agricultural and overall development strategy in Benin. The agricultural sector strategy in Benin is defined within the broader framework of the Comprehensive Africa Agricultural Development Program (CAADP) by which the country commits to achieve a 6 percent growth in agriculture and to allocate at least 10 percent of the national budget to agriculture as recommended in the Maputo Declaration³. The country's long-term development strategy (Benin 2025 - *Alafia*⁴) establishes the long-term vision, and gives clear directions for the promotion of agricultural value chains. The vision is to move the country towards a greater diversification of agricultural production in order to become a major exporter of agricultural products by 2025. The achievement of this vision would require sound public and private sector financing of agriculture, and financial sector reforms that would support the promotion and implementation of

³ Currently, Benin is allocating about 6 percent of the national budget to the agricultural sector. However, the new government has committed massive investment in this sector.

⁴ *Alafia* is not an acronym. It means peace and happiness in many local languages of Benin. It is used to convey the message that the long term development strategy, when implemented would lead to happiness for all the citizen of Benin,

specialized financing instruments for accelerated productivity growth and sustainable diversification in the agriculture sector.

C. Relationship to Government Strategies and World Bank Group CPS

11. The proposed AF is also aligned with Benin's Growth Strategy for Poverty Reduction (*Stratégie de Croissance pour la Réduction de la Pauvreté - SCRP*); the new Government Action Plan (*Plan d'Action du Gouvernement 2016-2020 - PAG*), which considers agriculture as a key sector for growth and poverty reduction, and fits within the government's National Agriculture Development Strategy (*Plan Stratégique de Développement du Secteur Agricole-PSDSA 2017-2021*). With respect to the agricultural sector, the PAG clearly focuses on promoting key value chains, by defining seven agro-ecological zones based on their potential value chains. It is also aligned with the World Bank Group's Country Partnership Strategy (CPS) (Report No 75774-BJ), and approved by the Board of Executive Directors in March 2013) for Benin for FY13-FY17 and extended to FY18 by the Performance and Learning Review (PLR) in August, 2016, which aimed at harnessing Benin's comparative advantages to spur sustainable, shared growth, especially with Pillar 1 focusing on increasing sustainable growth, competitiveness and employment.

12. The project will contribute to achieving the CPS goal of strengthening competitiveness and accelerating sustainable growth in the agricultural sector to create more jobs and reduce poverty, especially in rural areas, a focus area of the forthcoming Systematic Country Diagnostic (SCD) and its subsequent Country Partnership Framework (CPF) under preparation.

D. Original Project Status and Performance

13. The original project was approved on March 22, 2011, for a total amount of US\$46 million (including IDA Grant of US\$25 million, IDA Credit of US\$6 million, and GFRP Grant of US\$15 million). It is currently under implementation with an expected closing date of June 30, 2017. The PDO is to restore and improve productivity and value addition for selected value chains in the Recipients' territory.

14. The original project is currently rated **satisfactory** in terms of progress made towards achieving its PDO and **moderately satisfactory** for the overall implementation progress (IP). The key impact⁵ has been the rise in rural incomes, induced by the adoption of new technologies that led to an increase in crop yields, as well as the processing of products in the targeted value chains. So far, more than 155,000 direct beneficiaries (or 93.7 percent of the End of Project (EOP⁶) Target) have benefitted from project activities. Project's support to the producers of cashew, pineapple, rice, and fish, with improved planting materials, better agricultural inputs as well as improved knowledge on technological packages and production techniques, has helped significantly in improving the yields.

15. With respect to the performance of sub projects financed, , the project has also achieved significant results. A total of 129 micro projects (covering various segments of the targeted value chains) were selected through a transparent selection process. The implementation of these micro-projects led to an increase in beneficiaries' income and job creation (a total of 10,129 jobs, including 2,930 permanent and 71,199 temporary).

⁵ Other programs have supported the value chains concurrently with PADA, thus some of their support might be contributing to the aggregate results, but PADA's contribution remains dominant.

⁶ The end of project targets mentioned throughout this section are those of the original project

16. Production of processed products (cashew, rice, pineapple) has increased because of greater access to processing technologies and extension services, resulting in the production of high value-added products for the domestic, regional and international markets; of more than 200,000 tons (of milled rice, processed cashew and pineapple juice) was processed with support of the project in the project area, while the quantity exported for cashew and pineapple are 135,000 and 75,000 tons, respectively. This is up from initial quantities of 25,000 and 20,000 tons at the start of the project. With this increase in agricultural export, Benin has favorably positioned itself in the international market for cashew and pineapple, thereby contributing to the process of diversifying from cotton. Table 2 below summarizes the achievements of the project's PDO-level indicators.

Table 2: Achievement of PDO indicators (as of December 2016)

Indicator	Unit of measure	Baseline	Targets		% achieved (vs end-of-project target)
			Actual (as of Dec 2016)	End-of-project target (June 2017)	
Indicator one: Direct project beneficiaries, of which female (40 percent)	Number	0	155,620	166,100	93.7%
Indicator two: Quantity processed (milled rice, processed cashew and pineapple juice) in the project area	Tons	R:0	62,000	60,000	103%
		C: 0	68,000	2,200	
		P: 0	85,000	10,000	
Indicator three: Quantity exported of cashew and pineapple (project area)	Tons	C: 25,000	135,000	44,000	
		P: 20,000	75,000	30,000	
Indicator four: Yield of rice, maize, pineapple and cashew (tons/ha) and fish (tons/ha/year) in project area)	Yield (tons/ha for M, R, C & P; ton/ha/year for F)	F:2.8	4.5	6.0	75%
		M: 1.2	2.2	1.5	146%
		R: 4.0	4.53	5.0	90.6%
		C: 0.45	0.6	0.7	86%
		P:50	57.4	60	96%

F: fish; M: maize; R:rice ; C: cashew ; P: pineapple.

17. The disbursement performance of the original project is also satisfactory. As of March 23, 2017, average disbursement rate is 85 percent (99.15 percent for IDA Grant and 77.12 percent for IDA Credit). The undisbursed balance is all committed and expected to be disbursed by June 30, 2017. There are no outstanding financial audits and all audit reports have been unqualified. The recently conducted safeguards and fiduciary assessments (procurement and financial management) in December, 2016 gave satisfactory ratings in implementing World Bank guidelines and policies on fiduciary, environmental and social safeguards.

E. Rationale for the Additional Financing

18. A key objective of the AF is the consolidation and scaling up of activities of a well-performing project. The AF is expected to contribute to reducing extreme poverty and promoting shared prosperity by focusing on key value chains with proven potential, as well as supporting small-scale livestock production. The value added of the WBG is to: (a) provide funding to improve the business environment and coordination of these nascent value chains; and (b) promote rural entrepreneurship and micro-enterprise success with different financing instruments such as matching grants and guarantee fund mechanism.

19. The proposed AF will contribute to raising agricultural competitiveness in sectors other than cotton, which is critical to achieving the new government's aim of diversifying from cotton. There is also a need to start investing in new irrigation systems that were successful in the neighboring countries for boosting the production of pineapple and cashew, which are now considered flagship value chains. The AF will contribute to this effort by piloting the Californian and Semi-Californian irrigation systems⁷, which are regarded as best practices in Burkina Faso. The initial project has developed some small-scale irrigation systems, but there is room to scale up and expand these to reduce weather-related vulnerabilities, and increase quantity and quality commodities produced.

20. As some of the project's investments are public goods, the private sector alone cannot be expected to fully pay for them, hence the understandable unwillingness of the private sector. In addition, market imperfections in the financial sector require public sector interventions to unlock the potential for agricultural financing in Benin. The AF will continue to support the financing instruments, thus contributing to leveraging private finance to support agricultural development.

21. With this increase in agricultural export, Benin has favorably positioned itself in the international market for cashew and pineapple, thereby contributing to the process of diversifying from cotton. This is in direct line with the strategic development options of the new government to diversify away from cotton, which has remained the sole major export for several decades. The AF will therefore further support this trend, by consolidating and expanding project activities that will diversify the source of growth in the agriculture sector.

22. Finally, while supporting government's focus-value chains, the AF will serve as a bridge financing and smoothen the ground for new operations in the sector within the framework of the CPF being prepared.

F. Consideration of Alternative Funding

23. Alternative funding of the proposed activities from various sources, including the government budget, other development partners and the private sector, has been considered and rejected. The government has not been able to fully mobilize expected financial contributions as anticipated under the original project, and even when these contributions were made, they were often neither substantial nor always provided on time. Despite these shortcomings, which are usually due to the country's fiscal constraints, the government has agreed to provide some counterpart funding to the AF to the tune of US\$6 million. In addition, around US\$7.45 million

⁷ Californian system refers to an irrigation system whereby the water is brought from a source to the crop through plastic pipes. This has the advantage of minimizing water loss. In the semi-Californian irrigation systems, the water is brought from a source to a collection point/reservoir from which it is brought to the crop through open canals,

equivalent is expected from contributions of beneficiaries, especially under the project matching grants scheme. One of the key challenges of the AF will be to actively develop synergy and complementarities with other development partners, involve the private sector, and mobilize some of their resources for the development of the targeted value chains and effectively mobilize the expected counterpart funding. The activities on nutrition will be carried out in collaboration with the forthcoming small grant (US\$2.7million) from the Japan Policy and Human Resources Development (PHRD) Trust Fund on Nutrition Sensitive Agriculture and Capacity Building of Small and Marginal Farmers (P155822), which will be effective by June 30, 2017 and implemented by the same Project Implementation Unit (PIU).

G. Lessons Learned

24. **Lessons learned and reflected in the AF design.** Lessons learned from the implementation of the original project have been documented and used in the design of the proposed activities under the AF. They can be summarized as follows:

- **Facilitating adoption of improved technologies by beneficiaries with limited means.** The project made use of a blend of targeted capacity building activities and adequate financial instruments, i.e. matching grants and competitive funds to facilitate short-term access to finance by project beneficiaries. This has facilitated the adoption of the productivity-enhancing technologies and an increase in income. The proposed AF will continue using this approach for large-scale adoption of the improved technologies.
- **A framework program approach (Programme cadre) is an effective method for ensuring synergies among operations funded by the same donor.** This approach, piloted by the World Bank in the agricultural sector in Benin, consisting of grouping all World Bank-funded projects under the same management umbrella, proved to be successful in terms of efficiency gains.
- **Use of the financing instruments (matching grants, competitive grants, guarantee funds) can be successful under some conditions.** Under the original project, the success of matching and competitive grants could be attributed to three main factors: (i) rigorous and transparent selection of beneficiaries⁸ –; (ii) beneficiaries' contributions are paid in installments following the disbursement schedule of the Project's fund⁹; (iii) service providers responsible for technical and fiduciary assistance to beneficiaries need to continue supporting them throughout the implementation with direct link with the PIU for reporting. On the other hand, the modest success of the guarantee fund mechanism was linked with: (i) lack of collaboration between the local banks and the proposals selection committee; (ii) the guarantee fund mechanism covers only 50 percent of total amount, and the bank requires additional guaranty to cover 100 percent; and (iii) to secure a loan from a bank, even under a guarantee fund scheme, the bank requires that beneficiaries be formally identified.
- **Evolution of producers' organizations into inter-professions needs time and requires resources.** The experience of PADA has shown that Cadre de Concertation for cashew nuts

⁸ selected beneficiaries are only those already effectively active in the targeted value chains

⁹ this has tremendously eased the mobilization of beneficiaries' contributions, in contrast with most other projects where the contribution is fully paid upfront;

value chains' stakeholders and the *Table Filière Ananas* for stakeholders of the pineapple value chain have evolved faster into structured inter-professions, although these inter-professions still need to be strengthened. This evolution is mainly due to: (i) long-time existence of these organizations; (ii) possibility for them to leverage financial resources to fund common ancillary activities (critical functions), since they are export-oriented value chains. In contrast, the fish and rice stakeholders are still struggling to structure themselves into inter-professions because they are still nascent and domestic market-oriented and leveraging financial resources is more difficult.

25. Geographic scope and beneficiaries. The AF will continue to be implemented at the national level. However, it will scale up project activities to cover additional beneficiaries with a focus on small-scale farmers, small livestock producers, young entrepreneurs, women and agro-processors. The project will also develop a mechanism through the promotion of SMEs to encourage the private sector to invest in project activities mainly in the domain of fish feed, production of fingerlings, agro-processing, fabrication of mechanical tools and processing equipment. The key instruments that will be used in this regard are the support for feasibility studies to identify business opportunities along the targeted value chains, the provision of matching grants and the facilitation of access to credit through the existing guarantee fund.

26. Links with ongoing initiatives. The AF will continue to foster close linkages with ongoing World Bank-funded projects such as West African Agricultural Productivity Program (WAAPP), as well as with the organizations that are supporting the same-targeted value chains. In addition, given that the targeted value chains are also the focus of the Government, it is expected that there will be additional new funding to support them.

III. Proposed Changes

Summary of Proposed Changes	
The AF does not entail any change in the Project Development Objective, implementation arrangements, and triggered safeguard policies or category. It will rather consolidate and scale up the achievements obtained so far under the original project and also focus on new priority areas including promotion of small-scale animal husbandry (poultry, goat and sheep), introduction of new irrigation methods for rice, pineapple and cashew nuts and transformation of successful micro-projects into SME by building up on the financial mechanism put in place under the original project. The GFRP-funded emergency sub-component meant to restore productive means of flood-affected farm households will be discontinued. Consequently, the changes resulting from the AF consist of : (i) an increase in the costs of the components, (ii) an update of the results framework (to not only increase the targets of the indicators but also to add new indicators and drop the indicator for emergency subcomponent which is being discontinued); and (iii) an extension of the closing date of the original project.	
Change in Implementing Agency	Yes [] No [X]
Change in Project's Development Objectives	Yes [] No [X]
Change in Results Framework	Yes [X] No []
Change in Safeguard Policies Triggered	Yes [] No [X]

Change of EA category	Yes [] No [X]
Other Changes to Safeguards	Yes [] No [X]
Change in Legal Covenants	Yes [] No [X]
Change in Loan Closing Date(s)	Yes [X] No []
Cancellations Proposed	Yes [] No [X]
Change in Disbursement Arrangements	Yes [] No [X]
Reallocation between Disbursement Categories	Yes [] No [X]
Change in Disbursement Estimates	Yes [X] No []
Change to Components and Cost	Yes [X] No []
Change in Institutional Arrangements	Yes [] No [X]
Change in Financial Management	Yes [] No [X]
Change in Procurement	Yes [] No [X]
Change in Implementation Schedule	Yes [X] No []
Other Change(s)	Yes [] No [X]

Development Objective/Results

Project's Development Objectives

Original PDO

The Project Development Objective of the Agricultural Productivity and Diversification Project (PADA) is to restore and improve productivity and value addition for selected value chains in the Recipients' territory.

Change in Results Framework

Explanation:

The Results Framework has been revised to: (i) increase the end targets of the indicators and drop indicator for subcomponent which is being discontinued; and (ii) add six (06) new intermediate level indicators on citizen engagement, livestock production, small infrastructure, and micro projects to cover the additional/new priorities under the AF (see Annex 1 for the updated results framework).

Compliance

Covenants - Additional Financing (Agricultural Productivity and Diversification Additional Financing - P160029)

Source of Funds	Finance Agreement Reference	Description of Covenants	Date Due	Recurrent	Frequency	Action
IDA	Schedule 2 Section I. E (1)	The Recipient shall update no later than one (1) month after the Effective Date, in accordance with terms of reference acceptable to the Association, the	October 14, 2017			

		Project Implementation Manual prepared under the Original Project.				
IDA	Project Management Unit staffing. Schedule 2 Section I. A (3) (c)	Without limitation to the provisions of paragraph (a) above, the PMU shall be headed by a Project coordinator, who shall be assisted by the team comprised under the Original Financing Agreement, in addition to recruiting no later than 3 (three) months: (i) an operations officer; (ii) an animal production specialist; (iii) an improvement of production systems specialist (iv) a finance controller; (v) a computer and information management specialist; (vi) a logistics and utility management specialist; (vii) One accountant; and (viii) 2 (two) Administrative Assistants; all of whom with experience and terms of reference satisfactory to the Association.	December 14, 2017			
IDA	Financial controller. Schedule 2 Section II. B (5)	The Recipient shall no later than (3) three months of Effective Date recruit and thereafter maintain, a financial controller, with experience and terms of reference acceptable to the Association.	December 14, 2017			
IDA	External auditor. Schedule 2 Section II. B (6)	The Recipient shall no later than (3) three months of Effective Date recruit and thereafter maintain, an external auditor, with experience and terms of reference acceptable to the Association.	December 14, 2017			

IDA	Accounting software. Schedule 2 Section II. B (7)	The Recipient shall no later than (3) three months of Effective Date update and thereafter maintain the accounting software in a manner acceptable to the Association, for the Project.	December 14, 2017			
Risk						
Risk Category				Rating (H, S, M, L)		
1. Political and Governance				Moderate		
2. Macro-economic				Moderate		
3. Sector Strategies and Policies				Moderate		
4. Technical Design of Project or Program				Moderate		
5. Institutional Capacity for Implementation and Sustainability				Moderate		
6. Fiduciary				Moderate		
7. Environment and Social				Moderate		
8. Stakeholders				Moderate		
OVERALL				Moderate		

Finance					
Loan Closing Date - Additional Financing (Agricultural Productivity and Diversification Additional Financing - P160029)					
Source of Funds			Proposed Additional Financing Loan Closing Date		
Borrower			28-Feb-2021		
IDA Credit			28-Feb-2021		
Loan Closing Date(s) - Parent Agricultural Productivity and Diversification – P 115886					
Explanation:					
The closing date of the original project is June 30, 2017. It is proposed to extend this closing date to February 28, 2021 to allow implementation of the AF activities.					
Ln/Cr/TF	Status	Original Closing Date	Current Closing Date	Proposed Closing Date	Previous Closing Date(s)
IDA-48840	Effective	15-Dec-2016	30-Jun-2017	28-Feb-2021	15-Dec-2016, 30-Jun-2017
IDA-H6550	Effective	15-Dec-2016	30-Jun-2017	28-Feb-2021	15-Dec-2016, 30-Jun-2017
TF-99692	Closed	15-Dec-2014	31-May-2015		31-May-2015, 30-Nov-2015
Change in Disbursement Estimates					
Explanation:					
The change in the disbursement estimates results from the additional resources from the AF. The estimates					

are for the duration of the AF.					
Expected Disbursements (in US\$ Million)					
Fiscal Year	2018	2019	2020	2021	
Annual	9.00	14.00	14.00	8.00	
Cumulative	9.00	23.00	37.00	45.00	
Allocations - Additional Financing (Agricultural Productivity and Diversification Additional Financing - P160029)					
Source of Fund	Currency	Category of Expenditure	Allocation	Disbursement (%)	
			Proposed	Proposed	
IDA	US\$	(1) Goods, works, Operating Costs, non-consulting services and consultants' services for the Project Except Part A.1 and C.1.(iii)	35,000,000	100	
IDA	US\$	(2) Sub-Grants under Parts A.2(B), B.1(A) and Part C.4(i) of the Project.	10,000,000	100	
		Total:	45,000,000		
Components					
Change to Components and Cost					
Explanation:					
<p>The components of the original project are still relevant for the proposed additional IDA funding in the amount of US\$45 million equivalent. These resources will be added to each component to finance the new activities under the AF. In addition, the Government of Benin will provide US\$6 million equivalent and the beneficiaries will add US\$7.45 million equivalent as counterpart contributions. Detailed description of the AF activities and the related cost is attached in Annex 2 and Table 2.1, respectively. The main activities and related cost under the AF to be funded by IDA are summarized below:</p> <p>Component 1. Adoption of Improved Technologies and Restoration of Productivity (US\$13.0 million equivalent from IDA). Similar to the original project, the established partnership with the World Bank-financed WAAPP-1C Project (P122065) will be used to continue to support adoption of improved technologies, with increased focus on technologies for the development of food security (aquaculture, rice, poultry, sheep and goat), export-oriented value chains (cashew and pineapple) and climate change adaptation production systems' technologies. The activities under the AF will therefore include: (i) support to the multiplication systems for rice seed, catfish and tilapia fingerlings, as well as plantlets for cashew and pineapple; (ii) support to restocking (with improved breeding stock) of the small ruminants and poultry, as well as small- scale rural animal husbandry techniques, especially through provision of improved shelter, vaccination and deworming; (iii) support to strengthening the distribution systems for quality input delivery (including fertilizers, feed and fingerlings); and (iv) support to reinforcing the capacity of service providers, producers and agro-processors.</p>					

Component 2 Development/Rehabilitation of Production and Market Infrastructures (US\$16.0 million equivalent from IDA). The original project supported the rehabilitation and development of small-scale irrigation systems in the rice sector. This will continue under the AF but extended to additional commodities (pineapple and cashew nuts) to boost their productivity. In addition, the AF will be used to introduce new irrigation methods such as Californian irrigation system. The AF will also finance complementary studies, small equipment and capacity building to ensure proper use of irrigation infrastructures. The other main activity under this component is support to the construction and rehabilitation of critical market and storage infrastructures (drying areas, cold room, warehouses, pineapple bulking centers). The AF will support the construction and rehabilitation of warehouses, drying areas and a cold room.

Component 3. Value Chain Coordination and Access to Finance for Private Initiatives (US\$8.0 million equivalent from IDA). One of the main activities under this component is the support to the Ministry of Agriculture, Livestock and Fisheries (MAEP) in implementing the new value chains promotion strategy. The original project has supported the creation of inter-professional bodies for cashew nuts and pineapple value chains. The AF will provide technical assistance for the preparation of a law on Inter-professions, and will continue providing technical support for the implementation of the Strategic Development Plan of the newly created inter-professions (cashew and pineapple) and support for the creation of inter-professional entities for rice and aquaculture value chains. Furthermore, to facilitate the marketing of products from the targeted value chains, the AF will support the provision of market information system, quality control systems and standards, including those pertaining to food safety. The AF will also continue to support the promotion of Benin's products through participation in trade fairs and related events, as well as market prospection at regional and international levels. The other main activity of this component is facilitating the access to financial services by project beneficiaries, including farmers and service providers along the value chains, through matching grants and guarantee funds. The AF will therefore support the evolution of existing micro-projects into viable, profitable SMEs, the capitalization/dissemination of successful experiences of the initial project, and the implementation of a range of quality services to meet the specific needs of SMEs.

Component 4. Sector Program Coordination and Project Management (US\$8.0 million equivalent from IDA). The AF will continue to support the capacity building of value chain coordination institutions, including strengthening the capacities of civil society and producers' organizations as well as of MAEP in coordinating the implementation of the new agriculture sector program, and project management, and monitoring and evaluation (M&E).

The component cost presented in the table below shows the IDA allocation under the parent project for US\$31 million. This AF adds another IDA contribution of US\$45 million to bring the total IDA funding to US\$76 million under this project.

Current Component Name	Proposed Component Name	Current Cost (US\$ M)	Proposed Cost (US\$ M)	Action
Adoption of Improved Technologies and Restoration of Productivity	No change	10.00	23.00	Revised

Development/Rehabilitation of Irrigation and Market Infrastructures	Development/Rehabilitation of Production and Market Infrastructures	9.00	26.00	Revised
Value Chain Coordination and Agricultural Financing	Value Chain Coordination and Access to Finance for Private Initiatives	5.60	13.60	Revised
Sector Program Coordination and Project Management	No change	6.40	14.40	Revised
	Total:	31.00	76.00	
Other Change(s)				
Change in Implementation Schedule				
<p>Explanation:</p> <p>There will be change in the implementation schedule as the closing date of the original project is being extended for the purpose of the AF.</p>				
IV. Appraisal Summary				
Economic and Financial Analysis				
<p>Explanation:</p> <p>The Economic and Financial Analysis shows that the AF is economically and financially viable. The Net Present Value (NPV), consolidated at the national level is approximately US\$22.1 million. The Economic Internal Rate of Return (EIRR) for the entire project is estimated at 15.3 percent. A sensitivity analysis was performed using some of the main variables affecting the model. The results are also encouraging even when one considers raising cost by 30 percent, decrease benefits by 30 percent and a two-year delay in the generation of benefits. The corresponding EIRR with these three scenarios are respectively 11.4 percent, 10.0 percent and 10.4 percent, and the corresponding NPV are US\$14.7 million, US\$8.1 million and US\$10.8 million (See Annex 4 for detailed Economic and Financial Analysis).</p>				
Technical Analysis				
<p>Explanation:</p> <p>The AF, like the parent project focuses on supply chains with high potential for domestic and export markets. All are relevant in the context of the country's strategy to build a strong and sustainable agriculture sector. Agricultural technologies, supported by the project, are readily available and have already been tested, confirming proven benefits. The same applies to the scaling up of business models which have already been implemented on a pilot basis. Most project activities are to be developed through available and experienced government entities and service providers. Matching grants and guarantee fund mechanism will be used to promote</p>				

SMEs. The successful management of the guarantee fund will help leverage additional medium- to long-term financing from financial institutions and ease up project beneficiaries' access to finance.
Social Analysis
<p>Explanation</p> <p>The potential social impact of the proposed AF will be small-scale and site-specific. Project activities will not lead to land acquisition or major restriction of access to sources of livelihood. Also, project activities will be screened for applicability of OP 4.12 (Involuntary Resettlement), based on the Resettlement Policy Framework (RPF). In the event that people are physically or economically displaced as a result of project activities, a Resettlement Action Plan (RAP) will be prepared in accordance with the requirements of OP 4.12, before the commencement of any relocation activities. When repercussions are minor (i.e. affected people are not physically displaced and less than 10 percent of their productive assets are lost, or the number of affected people is less than 200), an Abbreviated RAP will be prepared.</p> <p>The overall activities of the AF are expected to provide positive socio-economic benefits to thousands of producers whose main livelihood is agriculture. The support to targeted value chains under the AF will greatly benefit the producers as well as agricultural cooperatives and/or the private sector. A variety of income generation activities and new technologies, promoted under the original project are already being used by women, youth and vulnerable persons as well as by groups/associations for their socio-economic development. Consequently, a gradual increase in interest in agricultural activities has been observed among women and youth during the past few years. Participatory consultation and engagement with the citizens has informed the design of the AF sub-activities to encourage both the ownership and social accountability among beneficiaries. The objective of all this is to ensure that the project promotes sustainable development among the beneficiary communities.</p>
Environmental Analysis
<p>Explanation:</p> <p>The proposed AF, like the parent project, is Category B. The overall environmental impact of the project is expected to be positive. Some limited negative impact may be observed during project implementation, on soil, air, water in surrounding communities in addition to some noise pollution essentially during construction and/or production operations. However, this impact will be temporary and localized, and proper mitigation measures during construction and/or production could minimize or even eliminate this impact. The environmental safeguards instrument (an Environmental and Social Management Framework (ESMF)) prepared under the parent project has been updated. The ESMF explains in detail what to do during project implementation, including the preparation of site-specific Environmental Management Plans (EMPs) which have to be prepared and disseminated prior to the commencement of civil works. Since the project also triggered the Pest Management and the Involuntary Resettlement Policies, the Pest Management Plan (PMP) and RPF of the original project have also been updated. The updated ESMF, RPF and PMP were disclosed both in Benin and at the World Bank official website on February 3, 2017.</p>

Greenhouse Gas Accounting
The ex-ante quantification of greenhouse gas (GHG) emissions is an important step in managing and ultimately reducing GHG emission, and is becoming a common practice for many international financial institutions. The net carbon balance quantifies GHGs emitted or sequestered as a result of the project compared to the without project scenario. Over the project duration of 20 years, the project constitutes a carbon sink of <u>1,710,014</u> t Carbon Dioxin equivalent (CO ₂ -eq). The project provides a sink of <u>21</u> tCO ₂ -eq per ha, equivalent to <u>1.0</u> tCO ₂ -eq per ha per year. The main carbon sink is from afforestation. The main carbon source is from flooded rice system.
Risk
<p>Explanation:</p> <p>The risk ratings of the original project have been updated to reflect the experience gained during implementation. The overall risk rating for the AF is Moderate.</p> <ul style="list-style-type: none"> (i) Political and Governance risks are considered to be Moderate in the country in light of the political stability, the clear commitment demonstrated by the country to the project and the well- performing implementing agencies of the project. (ii) In terms of macro-economic and sector strategies and policies, the risks are also rated as Moderate. (iii) Technical Design of Project and Institutional Capacity for Implementation risks are both considered Moderate. (iv) Environmental and Social risks are considered to be Moderate. The project has already shown that its impact on the environment is moderate while on the social side, it will most likely be positive. (v) Stakeholder risks are considered to be Moderate. The activities supported by the project are in high demand by the stakeholders, and they are committed to the implementation of the proposed AF and to the sustainable development of the targeted value chains.

V. World Bank Grievance Redress

27. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project-affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

Annex 1: Revised Results Framework and Monitoring Indicators
Annex 1A: Summary of the Revisions of the Monitoring Indicators

PDO		
<i>Current</i>	<i>Proposed</i>	<i>Comments/ Rationale for Change</i>
The PDO is to restore and improve productivity and value addition for selected value chains in the Recipient's territory.	No change.	N/A
Revisions to the PDO indicators		
<i>Current</i>	<i>Proposed change</i>	<i>Comments/ Rationale for Change</i>
Direct project beneficiaries, 40 percent of whom are female.	Increase in the end-target from 166,100 to 250,000 direct beneficiaries.	Taking into account the achievements to date and adding the expected additional results under the AF.
Quantity processed (milled rice, processed cashew and pineapple juice) in the project area	Increase in the end-targets for: milled rice from 60,000 to 100,000 tons; cashew from 2,200 to 15,000 tons; and pineapple juice from 10,000 to 125,000 tons.	Taking into account the achievements to date and adding the expected additional results under the AF
Quantity exported of cashew and pineapple (project area).	Increase in the end-targets for cashew from 44,000 to 200,000 tons; and pineapple from 30,000 to 150,000 tons.	Taking into account the achievements to date and adding the expected additional results under the AF.
Yield of rice, maize, pineapple, cashew (tons/ha) and fish tons/ha/year in project area).	Increase in the end-targets for maize: from 1.50 to 3.0 tons/ha; rice: from 5.0 to 6.0 tons/ha; pineapple: from 60 to 70 tons/ha; cashew: from 0.70 to 0.80 tons/ha; and fish from 6 to 7 tons/ha/year.	Taking into account the achievements to date and adding the expected additional results under the AF.
Revisions to the Intermediate Results Indicators		
<i>Current</i>	<i>Proposed change</i>	<i>Comments/ Rationale for Change</i>
Project beneficiaries of relief activities, of which female (40 percent).	Discontinued.	Indicator no-longer relevant for the AF.

Area with improved technology disseminated under the project.	Increase in the end-target from 59,000 to 88,000 ha.	Taking into account the achievements to date and adding the expected additional results under the AF.
Share of project beneficiaries using improved technologies disseminated through the project.	No change.	Target of original project not yet achieved.
Area provided with small scale irrigation and drainage services.	Increase in the end-targets for rehabilitated area (from 4,500 to 6,950 ha); and new area (from 4,500 to 5,728 ha) .	Taking into account the achievements to date and adding the expected additional results under the AF.
Number of market infrastructure built or rehabilitated.	Increase in the end-target from 100 to 200.	Taking into account the achievements to date and adding the expected additional results under the AF.
Quantity of products (rice, cashew, and maize) collected and stored in the project area.	Increase in the end-targets for cashew from 10,000 to 25,000 tons; maize from 10,000 to 50,000 tons; and rice from 20,000 to 40,000 tons.	Taking into account the achievements to date and adding the expected additional results under the AF.
Number of inter-professions created.	Increase in the end-target from 2 to 4.	Taking into account the achievements to date and adding the expected additional results under the additional financing.
Percentage of cotton producer groups trained.	Discontinued.	Target of original project achieved and indicator no-longer relevant for the AF.
Percentage of project beneficiaries receiving agricultural credit.	Increase in the end-target from 10 to 15 percent.	Taking into account the achievements to date and adding the expected additional results under the additional financing
Number of innovative subprojects financed by the competitive fund.	Discontinued.	Target of original project achieved and indicator no-longer relevant for the AF.
Rate of loans repayment among project beneficiaries.	Increase in the end-target from 90 to 95 percent.	Taking into account the achievements to date and adding the expected additional results under the AF.
Percentage of projects monitored through MAEP M&E system.	Increase in the end-target from 75 to 100 percent.	Taking into account the achievements to date and adding the expected additional results under the AF.
Agriculture sector program	Increase in the end-target from	Taking into account the

budget execution ratio.	70 to 90 percent.	achievements to date and adding the expected additional results under the AF.
Execution ratio of the approved project's work plan and budget.	No change.	Indicator will continue to be used for monitoring project activities under the AF
	Animals participating in the vaccination campaign (poultry and small ruminants).	NEW INDICATOR. For the new activities under the AF.
	Livestock producers using improved breeding stock.	NEW INDICATOR. For the new activities under the AF.
	Drying areas built in support of rice value chain.	NEW INDICATOR. For the new activities under the AF.
	Micro-projects transformed into SMEs.	NEW INDICATOR. For the new activities under the AF.
	Micro-projects funded through matching grants scheme.	NEW INDICATOR. For the new activities under the AF.
	Number of reports published by project-supported organizations on findings of beneficiaries' feedback	NEW INDICATOR. For monitoring citizen engagement under the project.

Annex 1B: PADA Additional Financing- Revised Results Framework

	D=Discontinued C=Continue N=New R=Revised	Unit of Measure	Baseline (Achievements as of Dec. 2016)	Cumulative Target Values**				Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR 1	YR 2	YR3	YR4 (end of project target)			
PDO level indicators										
Indicator one: Direct project beneficiaries, of which female (40%)	R	Number	155,620	166,100	194,100	222,100	250,000	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
	C	Percent of female	36.72	37.00	38.00	39.00	40.00			
Indicator two: Quantity processed (milled rice, processed cashew and pineapple juice) in the project area	R	Tons (1,000)	R : 62.00 C: 6.85 P: 85.00	R : 70.00 C: 7.00 P: 85.00	R : 85.00 C: 9.00 P: 95.00	R : 100.00 C: 12.00 P: 110.00	R : 100.00 C: 15.00 P: 125.00	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
Indicator three: Quantity exported of cashew and pineapple (project area)	R	Tons (1,000)	C: 135.00 P: 75.00	C: 135.00 P: 75.00	C: 140.00 P: 100.00	C: 170.00 P: 125.00	C: 200.00 P: 150.00	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
Indicator four: Yield of rice, maize, pineapple and cashew (tons/ha) and fish (tons/ha/year) in project area)	R	Tons/ha for M, R, C and P; tons/ha/year for F	M: 2.20 R : 4.53 C : 0.62 P : 60.0 F: 6.0	M: 2.20 R : 4.53 C : 0.65 P : 60.0 F: 6.0	M: 2.50 R : 5.00 C : 0.70 P : 65.0 F: 6.0	M: 2.50 R : 5.50 C : 0.75 P : 70.0 F: 6.0	M: 3.00 R : 6.00 C : 0.80 P : 70.0 F: 6.0	Annual	Supervision missions and annual assessments	MAEP/DPP-Monitoring and Evaluation Unit of PCU
Intermediate Results Indicators										
Component 1. Adoption of Improved Technologies and Restoration of Productivity										
1.1 Project beneficiaries of relief activities, of which female (40 percent)	D	Number	215,510	215,510	215,510	215,510	215,510	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
1.2 Area with improved technology	R	Hectares (1,000)	R : 24.00 P: 5.00	R : 24.00 P: 5.00	R : 27.00 P: 6.00	R : 30.00 P: 7.00	R : 35.00 P: 8.00	Annual	Supervision missions and	Program Coordination Unit-

	D=Discontinued C=Continue N=New R=Revised	Unit of Measure	Baseline (Achievements as of Dec. 2016)	Cumulative Target Values**				Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR 1	YR 2	YR3	YR4 (end of project target)			
disseminated under the project			C: 30.00	C: 30.00	C: 35.00	C: 40.00	C: 45.00		annual assessments	Monitoring and Evaluation Unit
1.3 Share of producers using improved technologies disseminated through the project	C	Percent	Producers: 78.00 Agro-processors: 68.75	Producers: 78.00 Agro-processors: 68.75	Producers: 80.00 Agro-processors: 70.00	Producers: 80.00 Agro-processors: 75.00	Producers: 80.00 Agro-processors: 80.00	Annual	Supervision mission, annual assessments and surveys	Program Coordination Unit-Monitoring and Evaluation Unit
1.4 Animals participating in the vaccination campaign (poultry and small ruminants)	N	Number (1,000)	0.00	1,500	1,500	1,500	1,5000	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
1.5 Livestock producers using improved breeding stock	N	Number	0.00	0.00	1,000	2,000	3,000	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
Component 2 Development/Rehabilitation of Production and Market Infrastructure										
2.1 Area provided with small scale irrigation and drainage services	R	Hectares	New area: 5,278 Rehab. area : 6,450	New area: 5,478 Rehab. area : 6,450	New area: 5,728 Rehab. area : 6,950	New area: 5,728 Rehab. area : 6,950	New area: 5,728 Rehab. area : 6,950	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
2.2 Number of market infrastructure built or rehabilitated	R	Number	113.0	113.0	150.0	200.0	200.0	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
2.3 Quantity of products (rice, cashew, and maize) collected and stored in the Project area	R	Tons (1,000)	66.0	66.0	87.00	112.0	115.0	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
2.4 Drying areas built	N	Number	0.0	0.0	75	100	100.0	Annual	Supervision	Program

	D=Discontinued C=Continue N=New R=Revised	Unit of Measure	Baseline (Achievements as of Dec. 2016)	Cumulative Target Values**				Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR 1	YR 2	YR3	YR4 (end of project target)			
in support of rice value chain									missions and annual assessments	Coordination Unit-Monitoring and Evaluation Unit
Component 3: Value Chain Coordination and Access to Finance for Private Initiatives										
3.1 Number of inter-professions created	R	Number	2.0	2.0	3.0	4.0	4.0	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
3.2 Percentage of cotton producer groups trained	D	Percent	100.0	100.0	100.0	100.0	100.0	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
3.3 Percentage of Project beneficiaries receiving agricultural credit	C	Percent	10.0	10.0	13.0	15.0	15.0	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
3.4 Number of innovative subprojects financed by the competitive fund	D	Number	52.0	52.0	52.0	52.0	52.0	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
3.5 Rate of loan repayment among Project beneficiaries	C	Percent	92.0	92.0	93.0	94.0	95.0	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
3.5 Micro-projects transformed into SMEs	N	Number	0.0	10.0	20.0	20.0	20.0	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
3.6 Micro-projects funded through matching grants	N	Number	0.0	100.0	180.0	180.0	180.0	Annual	Supervision missions and annual	Program Coordination Unit-Monitoring and

	D=Discontinued C=Continue N=New R=Revised	Unit of Measure	Baseline (Achievements as of Dec. 2016)	Cumulative Target Values**				Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR 1	YR 2	YR3	YR4 (end of project target)			
scheme									assessments	Evaluation Unit
Component 4. Sector Program Coordination and Project Management										
4.1 Percentage of projects monitored through MAEP M&E system	R	Percent	100.0	100.0	100.00	100.0	100.0	Annual	Supervision missions and annual assessments	MAEP/DPP Program Coordination Unit-Monitoring and Evaluation Unit
4.2 Agriculture sector program budget execution ratio	R	Percent	79.0	80.0	85.0	90.0	90.0	Annual	Supervision missions and annual assessments	MAEP/DPP Program Coordination Unit-Monitoring and Evaluation Unit
4.3 Execution ratio of the approved Project's work plan and budget	C	Percent	70.0	75.0	85.0	95.0	100.0	Annual	Supervision missions and annual assessments	Program Coordination Unit-Monitoring and Evaluation Unit
4.4 Number of reports published by project-supported organizations on findings of beneficiaries' feedback	N	Number	0.0	1	3	5	6	Bi-annual	Surveys and supervision missions	Civil Society and project supported organizations

Note: M= Maize; C= Cashew; P = Pineapple; R = Rice; F = Fish

Annex 2: Detailed Project Description

1. The AF will consolidate and scale up project interventions by expanding activities at four levels. First, scale-up will occur by expanding the activities carried out under all four components, except for the activities pertaining to the restoration of the means of production of households affected by the flood, given that the GRFP-funded sub-component will be discontinued. Second, scale-up will materialize with the introduction of new irrigation methods for rice (500 ha of Californian and semi Californian irrigation system), pineapple (200 ha) and cashew nuts (150 ha) to boost productivity. Third, consolidation will be achieved by supporting the transformation of successful micro-projects into SMEs by building up on the financial mechanism that was put in place during the initial phase. Fourth, the introduction of small-scale animal husbandry (poultry, sheep, and goats) will sharpen the project's focus on income generating activities for poor households as well as on improving their nutritional status. Livestock promotion activities will be supported in collaboration with the forthcoming PHRD small grant on Nutrition Sensitive Agriculture and Capacity Building of Small and Marginal Farmers, which will be implemented by the same PIU.
2. The closing date of the original project will be extended from June 30, 2017 to February 28, 2021 to correspond to the duration of the AF. Risk ratings have been updated to reflect the experience gained during implementation of the original project.
3. **Project development objective.** There is no change in the PDO, which is to restore and improve productivity and value addition for selected value chains in the Recipients' territory.
4. The key performance indicators will remain unchanged, although targets will need to be adjusted where necessary and new indicators will be introduced to account for the new activities and changes in corporate indicators. The indicators associated with restoration of production means to flood-affected households have been discontinued. These six new indicators include: (i) Animals participating in the vaccination campaign (poultry and small ruminants); (ii) Livestock producers using improved breeding stock; (iii) Drying areas built in support of rice value chain; (iv) Micro projects transformed into SMEs; (v) Micro projects funded through matching grants scheme; and (vi) Number of reports published by project-supported organizations on findings of beneficiaries' feedback. The end date for all targets will also be extended to February 28, 2021, in line with the proposed revised closing date of the original project. Annex 1 provides details on the results framework and monitoring.
5. **Geographic scope and beneficiaries.** The AF will continue to be implemented at the national level. However, it will scale up project activities to cover additional beneficiaries with a focus on small-scale farmers, small livestock producers, young entrepreneurs, women and agro-processors. The project will also develop a mechanism through the promotion of SMEs to encourage the private sector to invest in project activities mainly in the domain of fish feed, production of fingerlings, agro-processing, fabrication of mechanical tools and processing equipment. The key instruments that will be used in this regard are the support for feasibility studies to identify business opportunities along the targeted value chains, the provision of matching grants and the facilitation of access to credit through the existing guarantee fund.
6. **Links with ongoing initiatives.** The AF will continue to foster close linkages with ongoing World Bank-funded projects such as WAAPP, as well as with the organizations that are supporting the same-targeted value chains. Given that the targeted value chains are also

prioritized by the Government, it is expected that other funds will become available to support these value chains (VCs). This will necessitate effective collaboration to strengthen synergies between PADA and other relevant projects. Collaboration amongst partners at the strategic level would also be important to define common approaches for supporting these VCs.

7. **Project description.** The AF will be implemented through the same four components as the parent project: (i) adoption of improved technologies and restoration of productivity; (ii) development/rehabilitation of production and market infrastructures; (iii) value chain coordination and access to finance for private initiatives; and (iv) sector program coordination and project management. The total cost of the AF activities is US\$58.45 million out of which IDA will contribute US\$45 million, Government US\$6 million and beneficiaries US\$7.45 million. Cost breakdown is provided in Table 2.1 below.

8. **Component 1. Adoption of Improved Technologies and Restoration of Productivity (US\$14.78m out of which US\$13.0 million equivalent from IDA).** The overall output of the component is improved productivity and quality standards along the promoted value chains. The sub-component of the original project on the emergency activities (for the restoration of the means of production for the household affected by the flood) will be discontinued as it is no longer relevant. Other than this the AF will continue supporting adoption of improved technologies for the development of food security (aquaculture, rice, poultry, sheep and goat,) and export-oriented value chains (cashew and pineapple) to boost productivity and improve producers' incomes. Under this component the project will support the large-scale adoption of readily available improved technologies and management practices, piloted under the initial project, with the goal to boost productivity and improve producers' incomes. To speed up adoption, priority will be given to on-farm and post-harvest technologies that have already been identified for the targeted value chains, and promoted under the original project. The sub-component will specifically: (i) support the multiplication systems for rice seed, catfish and tilapia fingerlings, as well as plantlets for cashew and pineapple; (ii) support restocking (with improved breeding stock) of the small ruminants and poultry, improve small-scale rural animal husbandry techniques, especially through provision of shelter, vaccination against Newcastle disease, and small ruminants rinderpest (PPR) and de-worming; (iii) strengthen the distribution systems for quality input delivery (including fertilizers, feed and fingerlings); (iv) reinforce the capacity of service providers, producers and agro-processors; and (v) provide sub-grants to promote access to improved technologies and management practices for the development of food security as well as export-oriented value chains.

9. The project will also support the adoption of improved technologies for the mitigation of climate change effects on production systems with the goal of building resilience to climate change. These activities include: (i) promoting agricultural production systems (plant and animal) that reduce greenhouse gas emissions; (ii) provision of capacity building activities to producers on good practices of climate-smart agriculture; (iii) supporting the using of drought- and flood-tolerant varieties such as rice seeds and pineapple plantlets; and (iv) promoting agro-forestry activities; all through the provision of training, technical assistance and goods required for the purpose.

10. **Component 2. Development/Rehabilitation of Production and Market Infrastructures (US\$22.06 million out of which US\$16.0 million equivalent from IDA).** Based on the results achieved during the initial phase, the AF will focus on (i) promoting small-scale irrigation systems to improve productivity for pineapple and cashew plantations; (ii) further supporting

small-scale irrigation for rice production to maintain and expand productivity gains; and (iii) supporting the construction of market infrastructure (warehouses, drying areas, cold chamber, etc.) to reduce post-harvest losses and facilitate access to markets. The component has two sub-components:

11. Sub-component 2.1. Development/Rehabilitation of Production Infrastructure (US\$11.4 million out of which US\$8.0 million equivalent from IDA). The initial project has developed some small-scale irrigation systems. The re-habilitation and development of small-scale irrigation systems will continue under the AF. In addition, other irrigation technologies (Californian and semi Californian), successfully tested in Burkina Faso, will be experimented--rice (500 ha)—cashew (150 ha)—pineapple (200 ha). To this end, the project will provide sub-grants for the financing of (i) rehabilitation/construction of small scale irrigation perimeters; and (ii) irrigation equipment according to clear guidelines defined in the PIM (as in Component 1). The sub-component will also finance complementary studies and provide training as well as technical assistance to ensure proper use of irrigation facilities. Increased use of irrigation systems will help in reducing weather-related vulnerabilities, and significantly increasing yields¹⁰ and thereby securing the quantity and quality of pineapple cashew, and rice to meet exporters and local market's demands.

12. Sub-component 2.2. Development of Market Infrastructure (US\$10.66 million out of which US\$8.0 million equivalent from IDA). Under this sub-component, the AF will support: (i) feasibility study for construction and operation of a cold chamber for pineapple packaging and storage before export; (ii) construction of the cold chamber at Cotonou Airport subject to the positive conclusion of the feasibility study; (iii) construction of centers for bulk storage in pineapple production areas and distribution centers to expand domestic marketing of pineapple; (iv) construction of 25 warehouses to support the bulk marketing of cashew nuts; (v) construction and equipment of 10 cashew apple juice processing units to support income generating activities for women, based on good results of the initial project; (vi) construction of 100 threshing and drying areas for rice to improve quality and marketability of the final product; and (vii) construction and equipment of fresh fish distribution centers. Specific infrastructure construction and rehabilitation activities will be planned, taking into account ongoing and forthcoming initiatives. Since all these constitute collective infrastructure, their management procedures will be detailed in the Implementation Manual. Particular attention will be paid to the management and operations (O&M) of these infrastructures.

13. Component 3. Value Chain Coordination and Access to Finance for Private Initiatives (US\$11.76 million out of which US\$8.0 million equivalent from IDA). This component has two sub-components: (i) building value chain coordination institutions; and (ii) facilitation of access to finance in support of private initiatives.

14. Sub-component 3.1. Value Chain Coordination (US\$3.1million out of which US\$3 million equivalent from IDA). This sub-component will support MAEP in implementing the new value chains promotion strategy, centered around seven poles of agricultural development.

¹⁰ Use of California and semi-California irrigation systems could help increase the yield of pineapple up to 100 tons/ha, as already evidenced by some private producers using this system. The current yield of pineapple without irrigation system is about 60 tons/ha. With respect to rice, the use of the proposed irrigation system could help increase the yield up to 6 tons/ha against the current yield of 4 tons/ha with the irrigation system used under the original project. In addition, the use of the proposed system allow an efficient use of the water.

Under the original project, support has been provided for the creation of inter-professional bodies for cashew nuts and pineapple value chains. Under the AF, the project will provide technical assistance to support the improvement of the legal and regulatory environment for targeted value chain coordination as well as supporting the implementation of the Strategic Development Plan of the existing inter-professions (cashew and pineapple) as well as that of the planned inter-professional entities for rice and aquaculture value chains. The sub-component will also support a program of activities aimed at creating and/or strengthening partnerships among public and private stakeholders so as to improve coordination among the key links of the targeted value chains. Furthermore, the project will support a program of activities aimed at improving market facilitation (market information system, quality control and standards) and strengthening public services for improved market efficiency in connection with the targeted value chains; such program of activities includes the promotion of products derived from the targeted value chains (through participation in trade fairs and related events, etc.) and market prospection at regional and international level. The support to the cotton sub-sector will be discontinued under the additional financing.

15. Sub-component 3.2. Access to Finance in Support of Private Initiatives (US\$8.66 million out of which US\$5.0 million equivalent from IDA). This sub-component will help in improving access to financial services by project beneficiaries including farmers agro processors and service providers along the value chain, through provision of sub-grants to carry out sub-projects (about 150 micro-projects with a maximum of US\$10,000 per sub-grant, 30 micro-projects with a maximum of US\$50,000 per sub-grant, and 20 business plans with a maximum of US\$100,000 per sub-grant). To this end, the project will develop partnerships with selected financial institutions and promote increased private sector investment within the targeted value chains, while upgrading the ongoing top performer micro projects, funded under the initial project, into SMEs, with the aim of creating more jobs, especially for youth and women. Details of the sub-grants mechanism will be provided in the Implementation Manual. The small and medium enterprises will be leveraged through contracting with a specialized entity such as the *Centre de Promotion et d'Encadrement des Petites et Moyennes Entreprises (CePEPE)* to assist with the preparation, implementation and monitoring of business plans. The sub-component will also; (i) support the scaling up of the pilot *warrantage* scheme, through the provision of training and technical assistance; and (ii) provide technical assistance for the management and operation of the National Agricultural Development Fund to ensure a long term financing strategy in the agricultural sector.

16. Component 4. Sector Program Coordination and Project Management (US\$9.85 million out of which US\$8.0 million equivalent from IDA). This component has two sub-components: (i) building value chain coordination institutions, including strengthening the capacities of civil society and producers' organizations as well as of MAEP in coordinating the implementation of the new agriculture sector program; and (ii) supporting project management and M&E.

17. Sub-Component 4.1. Sector Program Coordination (US\$2.6 million out of which US\$2.0 million equivalent from IDA). Under this sub-component, the project will further strengthen the capacity of MAEP in coordinating the agricultural sector, including the implementation of the 2017-2021 sector strategy and the related National Agricultural Investment Plan through technical assistance. The sub-component will also support: (i) the implementation of sector coordination tools (planning, monitoring, evaluation, dialogue with

other sectors); (ii) the strengthening of fiduciary capacities (procurement, financial management); and (iii) the improvement of the quality and targeting of public expenditures in the agriculture sector.

18. Sub-Component 4.2. Project Management, Monitoring and Evaluation (US\$7.25 million out of which US\$6.0 million equivalent from IDA). This sub-component will support the Project Coordinating Unit's capacity in the areas of project management, coordination, administration, monitoring and evaluation, through: (i) construction and purchase of equipment for project premises; (ii) incremental costs associated with the staff of the implementing unit (PCU), including training costs; (iii) equipment and operating costs, and the costs associated with the preparation of the external audits, financial and technical reports as well as the implementation of environmental and social safeguards measures; (iv) provision of technical advisory services (including training); and (v) the acquisition of equipment and materials.

19. Project cost estimates and financing. A summary of project costs for each component and financing is given below.

Table 2.1: Total Project Cost and Source of Funding

Project Components	(US\$ '000)							
	Government of Benin		IDA		Beneficiaries		Total	
	Amount	%	Amount	%	Amount	%	Amount	%
Component 1: Adoption of Improved Technologies and Restoration of Productivity	500.0	3.4	13,000.0	87.9	1,284.0	8.7	14,784.0	25.3
Component 2. Development/ Rehabilitation of Production and Market Infrastructure	2,550.0	0.4	16,000.0	95.7	3,510.0	3.9	22,060.0	37.7
2.1. Development/Rehabilitation of Production Infrastructure	550.0	4.8	8,000.0	70.1	2850.0	25.1	11,400.0	19.5
2.2. Development of Market Infrastructure	2,000.0	18.7	8,000.0	75.0	660.0	6.3	10,660.0	18.2
Component 3. Value Chain Coordination and Access to Finance for Private Initiatives	1,100.0	9.3	8,000.0	68.0	2,660.0	22.7	11,760.0	20.1
3.1. Value Chain Coordination	100.0	2.4	3,000.0	97.6	0.0	0.0	3,100.0	5.3
3.2. Access to Finance in Support of Private Initiatives	1,000.0	11.5	5,000.0	57.8	2,660.0	30.7	8,660.0	14.8
Component 4. Sector Program Coordination and Project Management	1,850.0	18.8	8,000.0	81.2	0.0	0.0	9,850.0	16.9
4.1. Sector Program Coordination	600.0	23.0	2,000.0	77.0	0.0	0.0	2,600.0	4.4
4.2. Project Management, M&E	1,250.0	17.2	6,000.0	82.8	0.0	0.0	7,250.0	12.4
Total costs	6,000.0	10.26	45,000.0	77.0	7,454.0	12.74	58,454.0	100

20. **Gender.** During implementation, roles of women and men will be identified in the targeted value chains, both food and cash crops, livestock (poultry and small ruminants) as well as fisheries, and special attention will be given to ensure women's full participation in the segments where they play an important role.

21. **Nutrition.** Under the AF, project activities to increase the supply of nutrient-dense food, including bio-fortification will be complemented by nutrition education (through extension programs), awareness messages that can help in increasing consumer demand for nutritious foods in order to enhance dietary consumption effect. Also, sensitization will be undertaken on best practices for aflatoxin control with a particular emphasis on post-harvest storage and adequate food processing. All project activities geared at increasing women's income and reducing time and labor constraints will also likely have a positive impact on the nutrition status.

22. **Citizen engagement.** Three main approaches will be used: (i) Collaboration: Representatives of civil society organizations (CSOs) are already members of the Project Steering Committee (CIPS) where they echo voices of the beneficiaries and participate in the decision making concerning the implementation of project activities; (ii) Collecting, recording and reporting on inputs from citizens: Beneficiaries feedback on project implementation (effectiveness, inclusiveness, quality, delivery, and targeting) will be collected periodically during supervision missions and during evaluation of project achievements through focus group discussions and satisfaction surveys. The information gathered would then be used to improve project implementation and to address issues raised by the beneficiaries for better results; and (iii) Citizen- led monitoring: CSOs and communities will be involved in World Bank supervision mission as well as in joint evaluation of project results upon completion of the project.

Annex 3: Implementation Arrangements

Project administration mechanisms

1. There will be no major change in the implementation arrangements. At the national level, the Ministry of Agriculture, Livestock and Fisheries will be responsible for the oversight of the Project. PADA-AF will be coordinated and managed by a small Project Management Unit (PMU), which is an extension of the PCU responsible for the implementation of the two ongoing World Bank-financed Projects (P122065) (WAAPP-1C and PADA). In February, 2011, the Minister of Agriculture, Livestock and Fisheries created a Framework Program for all World Bank interventions in the agriculture sector in Benin. This Framework Program (*Programme Cadre-ProCAD*), will be responsible for managing all future projects to be financed by the World Bank. The PMU is headed by a Program Coordinator, assisted by two Project Managers—one in charge of PADA and the other in charge of WAAPP. While the PCU has demonstrated strong FM and procurement performance in the coordination of the ongoing projects, it will be reinforced (under the PMU) with additional staffing in order to accommodate the additional workloads of PADA-AF. This additional staffing will include inter alia: (i) an operations officer; (ii) an animal production specialist; (iii) a finance controller; (iv) a computer and information management specialist; (v) a logistics and utility management specialist; (vi) one accountant; and (vii) and 2 administrative assistants. The PMU's responsibilities will include: (i) planning, programming, and budgeting the financed activities; (ii) preparation and management of the contractual partnership with the public and private delivery agencies, and with producers' organizations; (iii) supervision, control of the field activities; (iv) administration of the technical functions (procurement, financial management, M&E), feedback of beneficiaries; and (v) preparation of quarterly reports and project closure report. It will also be responsible for contracts with the suppliers and other entities involved in the implementation of the component activities.
2. The project has a National Steering Committee (*Comité National de Pilotage - CNP*) chaired by the Secretary General of MAEP, and comprised of representatives of producers' organizations, the private sector, and ministries of agriculture, finance, commerce, industry, and development planning. The committee will meet regularly and will oversee the project's activities through review of the work plan and the budget, and regular review of the project's reports. The sub-projects approval committee set up under the Ministry of Agriculture during the original project will continue to apply. Implementation of the AF activities will also be supported by strategic institutional and technical partners, as well as service providers (other agencies, non-governmental organizations (NGOs), etc.) who will be contracted through: i) result-based Memorandum of Understanding (MOU) for public service providers and other projects and ii) results-based contracts for private service providers and NGOs. At the regional level, there is a regional steering committee responsible for, inter alia, the supervision of project activities in the region. The Regional Steering Committee is chaired by the President of the Recipient's Interdepartmental Chambers of Agriculture covering the region and include representatives from the local authorities, private sector and professional organizations. The sub-projects selection and approval committees set up under the original project by the MAEP will continue to apply under the AF. Eligibility criteria, sub-grant amounts and contributions (as applicable in the case of Matching Grants), and procedures will be further described in the Project Implementation Manual.

Financial management

3. An FM assessment of the PCU of PADA designated to manage the AF, was carried out in December 2016. The objective of the assessment was to determine whether the PCU has acceptable FM arrangements in place to ensure that the project funds will be used only for intended purposes, with due attention to consideration of economy and efficiency. The assessment complied with the Financial Management Manual for World Bank-financed investment operations effective March 1, 2010.

4. Arrangements are acceptable if they are capable of accurately recording all transactions and balances, supporting the preparation of regular and reliable financial statements, safeguarding the project's assets, and are subject to auditing arrangements acceptable to the World Bank. These arrangements should be in place when project implementation starts and be maintained as such during project implementation. The assessment concluded that the financial management of the PCU satisfies the World Bank's minimum requirements under OP/BP 10.00, and therefore is adequate to provide, with reasonable assurance, accurate and timely financial management information on the status of the project, required by the World Bank.

5. The overall fiduciary risk rating is assessed as Moderate, and the mitigation measures proposed (see FM Action Plan) will maintain the continuous timeliness and reliability of information produced by the PCU, and an adequate internal control environment.

Issue	Remedial action recommended	Responsible entity	Completion date
Staffing	Recruitment of an experienced and qualified Financial Controller	PCU	3 months following effectiveness
Accounting software	Configuration of the existing version to reflect the AF	PCU	3 months following effectiveness
Internal audit	Revise the Internal Auditor's work program to take into account the project specificities.	PCU	3 months following effectiveness
External auditing	Revision of the Terms of Reference of the current external auditors to reflect the AF	PCU	3 months following effectiveness

- (i) **Staffing:** The FM aspects of the AF will be handled by the current FM team of the PCU. The team is headed by an experienced and qualified FM Manager. To reinforce the internal control framework, the current FM staffing needs to be strengthened with a Financial Controller, who will be recruited within the three months following effectiveness.
- (ii) **Budgeting and planning:** The annual work program and budget preparation and approval procedures will follow the same arrangements, which are currently in place; they are in

compliance with the FM procedures manual (approved by the National Steering Committee and submitted to IDA annually before the end of the year).

- (iii) **Accounting software:** The current accounting software has been acquired and installed, and will be customized to accommodate activities of this AF.
- (iv) **Internal controls/ FM procedures manual:** The internal control system comprises the CNP (*Comité National de Pilotage*/National Steering Committee) which oversees project activities, an FM procedures manual which defines control activities, and an internal audit function which carries out ex-post reviews and evaluates the performance of the overall internal control system. The current FM manual is acceptable to IDA and would be used for the AF. No additional updates would be required.
- (i) **Internal audit:** The internal audit function of the ongoing Agricultural Productivity and Diversification Project (P115886) is under the responsibility of an individual Internal Auditor. The arrangement is satisfactory and would be applicable to this AF. The work program of the Internal Auditor will be revised to take into account the project specificities.
- (ii) **Interim Financial reporting:** The current content and format of the Interim Financial Reports (IFRs) are acceptable to IDA and will remain unchanged. The AF's activities will be consolidated in the current IFR and will be prepared every quarter and submitted to the World Bank (45 days after the end of each quarter) in form and substance that comply with IDA Financial Management reporting requirements.
- (iii) **Annual financial reporting.** The PCU will produce project annual financial statements, which will comply with SYSCOHADA and World Bank requirements. Financial statements may comprise:
- project presentation, project developments and progress during the year, to provide context to (or other explanations of) financial information reported;
 - statement of sources and uses of funds which recognizes all cash receipts, cash payments, and cash balances;
 - a statement of commitments;
 - accounting policies adopted and explanatory notes;
 - a management assertion that project funds have been expended for the intended purposes as specified in the relevant financing agreements.
- (iv) **External Audit:** The AF audit arrangements will be similar to those of the ongoing PCU-managed projects; i.e. project accounts will be audited annually and reports submitted to IDA not later than 6 months after the end of each year. The AF is expected to become effective on September 14, 2017; consequently, the first audit report would be due on June 30, 2019. . The Terms of Reference of the project external auditor covering all the project expenditures will be updated, taking into account the specificities of the AF. At the time of the finalization of the Board Package PP, there are no overdue audit reports under the ongoing PCU-managed projects. The AF will comply with the World Bank

disclosure policy of audit reports (make publicly available, promptly, after receipt of all final financial audit reports whatever the opinion; and post the information provided on the official website within one month of the report accepted as final by the team.

Disbursement arrangements and flows of funds

6. ***Flows of Funds - Designated Account.*** A new Designated Account (DA) denominated in FCFA will be opened in a commercial bank acceptable to IDA. The PCU will manage that account which will receive IDA advances to pay for project expenditures eligible under the credit financing. Interest income earned on the DA will be deposited into the project account. Additional advances to the DA will be made on a monthly basis against withdrawal applications supported by Statements of Expenditures (SOE) or records as specified in the Disbursement Letter (DL).

7. ***Disbursement arrangements.*** Upon AF effectiveness, transaction-based disbursements will be used. Advances to the Designated Account will be made against withdrawal applications supported by SOE and other documents as specified in the DL. All supporting documents should be retained by the project team and be readily accessible for reviews by IDA implementation support missions and external auditors. The option of disbursing the funds through direct payments to suppliers/contractors for eligible expenditures will also be available for payments equivalent to or more than twenty percent (20 percent) of the DA ceiling. Another acceptable method of withdrawing proceeds from the IDA grant is the special commitment method whereby IDA pay amounts to a third party for eligible expenditures paid by the Recipient under irrevocable Letter of Credit (LC).

8. The option to disburse against submission of quarterly unaudited IFRs (also known as the Report-based disbursements) could be considered at any time subject to both the quality and timeliness of the IFRs submitted to the World Bank as well as the overall FM arrangements as assessed in due course. In the case of the use of the report-based disbursement, the DA ceiling will be equal to the cash forecast for two quarters as provided in the quarterly unaudited Interim Financial Reports. In case the project were to use the IFRs as the basis for disbursements, their contents and format will be revised to include disbursement-related information.

9. ***Disbursement of Funds to Service Providers and Suppliers.*** The PCU will make disbursements to service providers and suppliers of goods and services for activities specified under the AF in accordance with the payment modalities, as specified in the respective contracts/conventions as well as the procedures described in the project's Administrative, Accounting and Financial Manual. In addition to these supporting documents, the project will consider the findings of the internal audit unit while approving the payments. The PCU, with the support of its internal audit unit, will reserve the right to verify the expenditures ex-post, and refunds might be requested for non-respect of contractual clauses. Misappropriation of resources toward the funding of activities could result in the suspension of financing for a given entity.

10. ***Implementation Support Plan:*** Based on the outcome of the FM risk assessment, the following implementation support plan is proposed. The objective of the implementation support plan is to ensure that the project maintains a satisfactory financial management system throughout the project's life.

FM Activity	Frequency
Desk reviews	
Interim financial reports review	Quarterly
Audit report review of the project	Annually
Review of other relevant information such as interim internal control systems reports.	Continuous as they become available
On-site visits	
Review of overall operation of the FM system	Once per year (Implementation Support Mission)
Monitoring of actions taken on issues highlighted in audit reports, auditors' management letters, internal audit and other reports	As needed
Transaction reviews (if needed)	As needed
Capacity building support	
FM training sessions	During implementation and as when needed.

Procurement

Procurement regime

11. The New Procurement Framework (including Procurement Regulations for Borrowers) that apply to projects with PCN held after July 1st, 2016 would normally apply. However, the project obtained a waiver on December 15, 2016 from the Chief Procurement Officer of the World Bank to apply the old Procurement Guidelines that were applicable under the original project. The procurement arrangements of the parent project will therefore remain largely the same under the proposed AF subject to the following changes:

- (i) **Guidelines:** Procurement for the proposed AF will be carried out in accordance with: (a) the World Bank's "*Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits and Grants*" dated January, 2011; revised July, 2014; (b) "*Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers*" dated January, 2011, revised July, 2014 and (c) the provisions of the Anti-Corruption Guidelines "*Guidelines on Preventing and Combatting Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants*" dated October 15, 2006 and revised in January 2011.
- (ii) **Procurement of works.** Activities of the works to be financed by IDA include rehabilitation, storage and other facilities. Contracts of works estimated to cost US\$10,000,000 equivalent or more per contract will be procured through International Competitive Bidding (ICB). Contracts estimated to cost less than US\$10,000,000 equivalent may be procured through National Competitive Bidding (NCB). Contracts estimated to cost less than US\$200,000 equivalent per contract may be procured through shopping procedures. For shopping, contracts will be awarded following evaluation of bids received in writing on the basis of written solicitation issued to several qualified

suppliers (at least three). The award would be made to the supplier with the lowest price, only after comparing a minimum of three quotations opened at the same time, provided the supplier has necessary experience and resources to execute the contract successfully. For shopping, the project procurement officer will keep a register of suppliers, to be updated at least once every six months.

- (iii) **Procurement of goods.** The goods to be financed by IDA would include seeds, fertilizer, and improved technologies. Similar goods that could be provided by a single vendor would be grouped in bid packages estimated to cost at least US\$1,000,000 per contract and would be procured through ICB. Contracts estimated to cost less than US\$1,000,000 equivalent may be procured through NCB. Goods estimated to cost less than US\$100,000 equivalent per contract may be procured through shopping procedures. For shopping, the project procurement officer will keep a register of suppliers, to be updated at least once every six months.
- (iv) **Selection of consultants.** The project will finance Consultant Services such as technical studies, surveys, financial audits, engineering designs and supervision of works, training and workshop facilitation. Consultant firms will be selected through the following methods: (a) selection based on the quality and the cost (QCBS); (b) selection based on the Consultant's Qualification (CQS) for contracts whose amounts are less than US\$300,000 equivalent and are relative to exceptional studies and researches requiring a rare and solid expertise; (c) Least Cost Selection (LCS) for standard tasks such as insurances and, financial and technical audits costing less than US\$300,000; (d) Single Source Selection, with prior agreement of IDA, for services in accordance with the paragraphs 3.8 to 3.11 of Consultant Guidelines. Individual Consultant (IC) will be hired in accordance with paragraphs 5.1 to 5.6 of World Bank Guidelines; Sole source may be used only with prior approval of the World Bank. Whatever the cost, any terms of reference needed for consultant selection must get prior approval of the World Bank.
- (v) **Short** lists of consultants for services estimated to cost less than US\$100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines, if a sufficient number of qualified individuals or firms are available. However, if foreign firms express interest, they would not be excluded from consideration.

Thresholds for procurement methods and prior review

<i>Expenditure category</i>	<i>Contract value (threshold) (US\$)</i>	<i>Procurement method</i>	<i>Contract subject to prior review (US\$)</i>
1. Works	$\geq 10,000,000$	ICB	All contracts
	$< 10,000,000$	NCB	None
	$< 200,000$	Shopping	none
2. Goods	$\geq 1,000,000$	ICB	All contracts at or above US\$2 million.
	$< 1,000,000$	NCB	none

<i>Expenditure category</i>	<i>Contract value (threshold) (US\$)</i>	<i>Procurement method</i>	<i>Contract subject to prior review (US\$)</i>
	<100,000 for goods and commodities	Shopping	none
	<500,000 for fuel and vehicles	Shopping	none
	No threshold	Direct contracting	All contracts
3.Consultancy	≥500,000	QCBS	All contracts of 1,000,000 and more
	<300,000	QCBS; LCS; CQS; Other	All contracts of 200,000 and more
	≥200,000	IC	All contracts of 300,000 and more
	<200,000	IC	none
	No threshold	Single Source (Selection Firms & Individuals)	All contracts
4. Training	<i>Annual Plan</i>		<i>All Training</i>
All Terms of Reference regardless of the value of the contract are subject to prior review			

Procurement capacity and risk. The PCU has conducted procurement activities for the parent project in a satisfactory manner. World Bank procurement specialist will conduct regular supervisions and a post-procurement review at least once a year. Given the experience gained under the parent project and the proposed mitigation measures, procurement risk is rated Moderate.

12. *Procurement plan.* The client has finalized the procurement plan and agreed with the World Bank during negotiations on the content.

Safeguards

13. The AF is expected to have a positive environmental impact through its support for agricultural technologies that promote better use of land and water resources, and mitigate climate change risks. The activities covered by the AF and the intervention area remain the same as in the parent project. The safeguard rating of category B and the type of policies activated under the original project will be maintained for the AF. The PADA safeguards instruments - ESMF, the PMP and a RPF – have been updated and disclosed in the country and on the official website of the World Bank.

14. Implementation of the safeguard measures for the original project has been rated moderately satisfactory by the social and environmental safeguards specialists of the World Bank during the last Implementation Support Mission (ISM) in December, 2016. The ministry has dedicated social and environmental safeguards Focal Points who oversee the implementation of the social and environmental safeguards and identify mitigation measures. The recent assessment indicates that the safeguard Focal Points have the required knowledge, and are regularly screening project activities to ensure that mitigation measures are identified and implemented. Moreover, the ESMF includes further provisions for capacity strengthening at all levels for successful implementation of the project safeguard measures, in compliance with national and

World Bank safeguard policies. The PMP sets forth the basic principles to be followed to adequately handle the possible usage of pesticides.

Policy exceptions and readiness

15. Waiver to apply the World Bank's Procurement and Consultant Guidelines of 2010 editions, as referred to in the Financing Agreement so that the AF can be processed in time and implemented in necessary synergies and continuity with the original project, was sought and granted.

16. The project is fully operational. All conditions are in place to ensure that the implementation of proposed activities can be scaled-up as soon as the credit is declared effective.

Annex 4: Economic and Financial Analysis

I. Introduction

1. This annex presents economic and financial analysis (EFA) of the World Bank-funded PADA-AF. The analysis mainly focuses on returns from the investments under Components 1, 2 and 3. For Component 4 (Support for sector coordination and capacity building), no cost-benefit analysis has been undertaken as benefits arising from institutional strengthening are hard to quantify. More specifically, the analysis estimates return at farm enterprises and national levels from improved profitability and efficiency in value chains supported by the project. Benefits are expected to be from:

- Improved crop production and productivity through support to: (a) the adoption of improved planting materials; (b) better agricultural inputs as well as improved knowledge on technological packages and production techniques; and (c) increased access to small-scale irrigation;
- Improved aquaculture production (catfish/tilapia) where yield increases are due to: (a) the use of improved and more adapted fish feeding (better formulation of fish-feed); (b) the adoption of improved genitors and fingerlings resulting from better hatchery practices; and (c) the adoption of improved fish farm management practices;
- increased production of processed products, which is due to support to: (a) the scaling up of piloted *Entreprises de Services et Organisations Paysannes* (ESOP) model for processing rice (paddy and parboiled rice); (b) innovative initiatives supported under the matching grants scheme (pineapple juice, cashew fruit juice, cashew nuts, smoked fish); and
- improved export crop production, which is due to yield increases deriving from support to regeneration of the existing cashew plantations through: (a) provision of adapted technical advisory services; and (b) provision of good quality planting material.

2. The EFA describes in some detail the methodology for assessing benefits deriving from project activities. The EFA demonstrates that the proposed investments of the AF are financially and economically justified at farm enterprises and country level. The financial analysis aims at demonstrating that proposed on-farm income generating activities, are profitable and sustainable for producers. On the other side, the economic analysis aims at demonstrating that, from a socio-economic perspective, the project as a whole is viable, taking into account, as much as possible,

all quantitative and non-quantitative benefits in situations with and without project. Results, expressed in terms of the project's EIRR and NPV, are presented for the baseline scenario and for the sensitivity analysis. The analysis uses farm models, and mainly focuses on the returns from the investments on farm enterprises within the targeted priority value chains under the first two components.

II. Methodology, limitations and assumptions

3. **Methodology.** The approach follows that of Gittinger (1982)¹¹, Belli, et al. (2001)¹² and is in line with recent guidelines published on economic and financial analysis¹³.

4. **The financial analysis** was performed from the perspective of project beneficiaries. The private cost-benefit analysis, based on farm budgets, computed the costs and benefits experienced by the beneficiaries and using market prices. For the first benefit stream, profitability measures (gross margins) were calculated for food crops, livestock and aquaculture enterprises. To derive overall returns, the benefits streams from individual enterprises were aggregated using the number of sub-projects expected to be generated during project implementation. The total benefit streams were compared to project costs to derive the Net Present Value (NPV) and compute the project financial and economic internal rates of return.

5. **The economic analysis**, in turn, was performed at national level from the society/country viewpoint. The analysis aggregated incremental benefits to the total number of beneficiaries, while deducting total project economic costs, to determine whether investments were viable from the perspective of the society. The economic analysis also differed from the financial analysis due to a shadow price that was assumed for main project inputs and outputs.

6. **Limitations of the EFA.** Some activities of PADA-AF are based on demand-driven approaches. The *ex-ante* EFA of investments that are locally identified during implementation is always difficult to perform because it is not possible to fully predict in advance: (i) which combinations of technologies will be pursued by the beneficiaries; and (ii) what will be the exact cost and benefits of these activities. For this reason, EFAs for such demand-driven projects are not always performed. The present analysis, however, attempted to build the EFA on activities, within targeted values chains, that are broadly known from stakeholders, supported by the project under different components.

7. **Market prices.** The calculations used average price data collected during pre-appraisal missions. Price data were not disaggregated around the production cycle (therefore ignoring the sometimes significant price fluctuations during the cropping cycle). All prices were given in average 2016 prices.

8. **Economic prices.** Import and export parity prices were calculated for some of the main tradable inputs and outputs, using Free on Board (FOB) and Cost Insurance Freight (CIF) price to adjust market values to economic values applying a conversion factor (CF). Project financial costs were converted into economic costs through COSTAB's algorithm that removes the effects of inflation and transfer payments (i.e. taxes and subsidies).

¹¹ Gittinger, P., 1982, Economic analysis of agricultural projects

¹² Belli, P., J.R. Anderson, H.N. Barnum, J.A. Dixon, and J-P. Tan (2001), Economic Analysis of Investment Operations: Analytical Tools and Practical Applications. WBI Development Studies, World Bank Institute, World Bank, Washington, D.C.

¹³ IFAD, 2015, Economic and Financial analysis of rural investment projects, basic concepts and rationale.

9. **Discount rate.** To calculate the economic NPV, future net incremental benefits were discounted using a social discount rate. The choice of the social discount rate is based on the recent recommendations of the World Bank found in the “Technical Note on Discounting Costs and Benefits in Economic Analysis of World Bank Projects”. This Note recommends the use of a 6 percent discount rate in World Bank’s project evaluations. This discount rate was applied in the context of PADA-AF.

III. RESULTS

10. **EIRR and NPV.** Based on these assumptions, the analysis shows that the AF is economically viable at national level. The NPV, consolidated at the national level is approximately US\$22.1 million for a 15-year project cycle. The EIRR for the entire project is estimated at 15.3 percent.

11. **Sensitivity analysis.** A sensitivity analysis was performed using some of the main variables affecting the model. The results are robust and encouraging even when one considers rising cost of 30 percent, decrease benefits of 30 percent and a two-year delay in the generation of benefits. The corresponding EIRR with these three scenarios are respectively 11.4 percent, 10.0 percent and 10.4 percent, and the corresponding NPV are US\$14.7 million, US\$8.1 million and US\$10.8 million. The sensitivity analysis is summarized below:

Table 4.1: Sensitivity Analysis

	EIRR	NPV	
		Millions FCFA	Million US\$
Base (VAN = 0)	15.3%	13, 042.1	22.1
Costs increase by 10%	13.9%	11, 592.5	19.6
Costs increase by 20%	12.6%	11, 592.5	19.6
Costs increase by 30%	11.4%	8, 693.2	14.7
Gross margin decrease by 10%	13.7%	10, 288.3	17.4
Gross margin decrease by 20%	12.0%	7, 534.4	12.8
Gross margin decrease by 30%	10.0%	4, 780.5	8.1
Project benefits delayed by 1 year	12.7%	9, 618.4	16.3
Project benefits delayed by 2 years	10.4%	6, 388.4	10.8

Annex 5: Greenhouse Gas Accounting (GHG)

1. **Corporate mandate.** In its 2012 Environment Strategy, the World Bank has adopted a corporate mandate to conduct GHG emissions accounting for investment lending in relevant sectors. The ex-ante quantification of GHG emissions is an important step in managing and ultimately reducing GHG emission, and is becoming a common practice for many international financial institutions.
2. **Methodology.** Please list tool(s) used for GHG accounting. To estimate the impact of agricultural investment lending on GHG emission and carbon sequestration, the World Bank has adopted the Ex-Ante Carbon-balance Tool (EX-ACT), which was developed by the Food and Agriculture Organization of the United Nations (FAO) in 2010. EX-ACT allows the assessment of a project's net carbon-balance, defined as the net balance of CO₂ equivalent GHG that were emitted or sequestered as a result of project implementation compared to a without project scenario. EX-ACT estimates the carbon stock changes (emissions or sinks), expressed in equivalent tons of CO₂ per hectare and year.
3. **Project boundary.** Project activities for which GHG accounting has been done are summarized as below:
 - a. Afforestation: deciduous forest plantation from cashew plantation, without project area 26,000 ha, with project 36,000 ha
 - b. Land use change from grassland to crops: pineapples 2,000 ha, rice 8,000 ha, cashew 5000 ha
 - c. Improved practices on annuals: improved agronomic practices, nutrient management, no tillage, water management, no burning, and manure for rice on 25,000 ha; improved agronomic practices, nutrient management, no tillage, no burning, and manure for pineapple on 6,000 ha.
 - d. Improved practices on perennial: no burning for cashew on 5,000 ha
 - e. Flooded rice system change: from 120 days single cropping to 240 days double cropping, from rain-fed and deep water to irrigated-intermittently flooded, from straw burnt to straw incorporated shortly (<30d) before cultivation on 11,000 ha.
 - f. Livestock: increase heads of sheep from 0 to 40,000, heads of goats from 0 to 20,000
 - g. Fertilizers and pesticides use: as table below:
 - h. Aquaculture: increase in annual production and quantity of feed for tilapia and catfish ponds

Table 5.1: Fertilizers and pesticides use

Description and unit to report		Amount applied per year		
Lime application		Start	Without	With
Fertilizers				
	Urea (tons of N per year - Urea has 46.7% of N)	67	82	337
	Chemical N-fertilizers (tons of N per year)	182	224	868
	Phosphorus (tons of P ₂ O ₅ per year)	130	160	713
	Potassium (tons of K ₂ O per year)	32	36	120
Pesticides				
	Herbicides (tons of active ingredient per year)	4	5	31
	Insecticides (tons of active ingredient per year)	26	30	12
	Fungicides (tons of active ingredient per year)	4	5	6

4. **Key assumptions.** Please describe key assumptions required to undertake GHG accounting. Benin has tropical climate with moist moisture regime. The dominant soil type is LAC. The project implementation phase is 4 years and the capitalization phase is assumed to be 16 years. The 20 years implementation period is standard in the use of EX-ACT.

5. **Results.** The net carbon balance quantifies GHGs emitted or sequestered as a result of the project compared to the without project scenario. Over the project duration of 20 years, the project constitutes a carbon sink of 1,710,014 tCO₂-eq. The project provides a sink of 21 tCO₂-eq per ha, equivalent to 1.0 tCO₂-eq per ha per year. The main carbon sink is from afforestation. The main carbon source is from flooded rice system.

Table 5.2.: Results of the ex-ante GHG analysis

Project activities	Over the economic project lifetime (tCO ₂ eq)			Annual average (tCO ₂ eq/ year)		
	GHG emissions of without project scenario (1)	Gross emissions of project scenario (2)	Net GHG emissions (2-1)	GHG emissions of without project scenario (3)	Gross emissions of project scenario (4)	Net GHG emissions (4-3)
Afforestation	-8,024,207	-11,110,440	-3,086,233	-401,210	-555,522	-154,312
Land use change from grassland to crops	0	995,520	995,520	0	49,776	49,776
Improved practices on annuals	78,457	-1,526,894	-1,605,351	3,923	-76,345	-80,268
Improved practices on perennial	65,681	-878,401	-944,082	3,284	-43,920	-47,204
Flooded rice system change	243,061	2,633,863	2,390,801	12,153	131,693	119,540
Livestock	0	305,910	305,910	0	15,296	15,296
Fertilizers and pesticides use	76,398	249,988	173,590	3,820	12,499	8,680
Aquaculture	10,605	70,435	59,830	530	3,522	2,992
Total	-7,550,004	-9,260,019	-1,710,014	-377,500	-463,001	-85,501
Per hectare	-91	-112	-21	-4.5	-5.6	-1.0

Annex 6. Risk Analysis and Assessment (SORT)

A. Risks Ratings Summary Table

1. Table 6.1 below summarizes the perceived risk for the proposed AF. The overall project risk is rated Moderate. The rating takes into account the experience gained as part of implementation of the parent project, and the strong commitment demonstrated by the government. All proposed risks and related ratings for AF are consistent with those of the parent project even if the original project used ORAF, with risk definition and rating scale different from SORT. In general, the rating for each element follows the rating in the most recent Implementation Status and Results Report (ISR), which was issued on March 23, 2017.

Table 6. 1: Systematic Operations Risk- Rating Tool (SORT)	
Risk Category	Rating
1. Political and Governance	Moderate
2. Macro-economic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Moderate
7. Environment and Social	Moderate
8. Stakeholders	Moderate
OVERALL	Moderate

B. Overall Risk Rating Explanation

2. Political and Governance risks are considered to be Moderate in the country in light of the political stability, the clear commitment demonstrated by the Recipient to the project and the well performing project implementing agency.
3. In terms of macro-economic and sector strategies and policies, the risks are also rated as Moderate.
4. Technical Design of Project and Institutional Capacity for Implementation risks are considered Moderate.
5. Environmental and Social risks are considered to be Moderate. The project has already shown that its negative impact on the environment is low while on the social side, it will most likely be positive.
6. Stakeholder risks are considered to be Moderate. The activities supported by the project are in high demand by the stakeholders and they are committed to the implementation of the proposed AF and to the sustainable development of the targeted value chains.