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Report No: PAD2025

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT PAPER

ON

PROPOSED ADDITIONAL CREDITS

TO THE

REPUBLIC OF BENIN
IN AN AMOUNT EQUIVALENT TO EURO 18.3 MILLION (US$20 MILLION EQUIVALENT)

REPUBLIC OF GUINEA
IN AN AMOUNT EQUIVALENT TO SDR 16.8 MILLION (US$23 MILLION EQUIVALENT)

REPUBLIC OF NIGER
IN AN AMOUNT EQUIVALENT TO EURO 13.7 MILLION (US$15 MILLION EQUIVALENT)

REPUBLIC OF TOGO
IN AN AMOUNT EQUIVALENT TO EURO 9.2 MILLION (US$10 MILLION EQUIVALENT)

FOR THE

WEST AFRICA AGRICULTURAL PRODUCTIVITY PROGRAM (WAAPP-1C)

January 11, 2017

Agriculture Global Practice
Africa Region

CURRENCY EQUIVALENTS

Exchange Rate Effective: October 31, 2016

Currency Unit	=	United States dollars (US$)
US$1	=	SDR 0.73
US$1	=	€ 0.91287

FISCAL YEAR

Benin	:	January 1-December 31
Guinea	:	January 1-December 31
Niger	:	January 1-December 31
Togo	:	January 1-December 31

ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AFOLU	Agriculture, Forestry and Land Use Change
ASDP	Agricultural Sector Development Project
ASECNA	*Agence pour la sécurité de la navigation aérienne en Afrique et à Madagascar* (Agency for the Safety of Aerial Navigation in Africa)
CAADP	Comprehensive Africa Agricultural Development Program
CARGS	Competitive Agricultural Research Grant Schemes
CAS	Country Assistance Strategy
CGIAR	Consultative Group on International Agricultural Research
CNGP	*Centre National de Gestion Planifiée* (National Center for Planned Management)
CNSP	*Centre National de Surveillance et de Protection des Pêches* (National Center for the Supervision and Protection of Fisheries)
CNOP-G	*Confédération Nationale des Organisations Paysannes de Guinée* (National Farmers' Organisation of Guinea-Conakry)
CNRA	*Centre National de Recherche Agricole* (National Center for Agriculture Research)
CNS-EL	*Centre National de Spécialisation en Elevage (*National Center of Specialization in Livestock)
CORAF / WECARD	*Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricole/*West and Central African Council for Agricultural Research and Development
EAs	Environmental Assessments
ECOWAP	Economic Community of West African Agricultural Policy
ECOWAS	Economic Community of West African States
EFA	Economic and Financial Analysis
EIRR	Economic International 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
ESOP	*Service et Organisation de Producteurs* (Service and Producer Organisation

	Enterprise)
FAO	Food and Agriculture Organization
FASS	*Fond Agricole pour le Secteur Semencier* (Seed Sector Funding)
FIRCA	*Fonds Interprofessionnel pour la Recherche et le Conseil Agricole* (Inter-professional Fund for Research and Agricultural Council)
FISAN	*Fonds d'Investissement pour la Sécurité Alimentaire et Nutritionnelle* (Investment Fund for Food and Nutrition Security)
FM	Financial Management
FNAIA	*Fond National pour l'Investissement Agricole* (National Fund for Agricultural Investment)
FNDA	*Fond National Pour le Développement Agricole* (National Fund for Agricultural Development)
FORSEGUI	*Echos de la Fondation pour le progrès de la Recherche Scientifique en Guinée* (Center for Scientific Research in Guinea)
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIZ	German Society for International Cooperation
GNF	Guinea Franc
IAR4D	Integrated Agricultural Research for Development
IBRD	International Bank for Reconstruction and Development
ICT	Information and Communication Technology
ICAT	*Institut de Conseil d'Appui Technique* (Togo Institute for Agricultural Extension)
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFDC	International Fertilizer Development Center
IITA	International Institute of Tropical Agriculture
IP	Implementation Program
IPCC	Intergovernmental Panel on Climate Change
IRAG	*Institut de Recherche Agronomique de Guinée* (Agriculture Research Institute of Guinea)
ISFM	Integrated Soil Fertility Management
ISM	Implementation Support Mission
ISR	Implementation Status and Results Report
ITRA	*Institut Togolais de Recherche Agronomique* (Togolese Agricultural Research Institute)
M&E	Monitoring and Evaluation
MOU	Memorandum of Understanding
NARS	National Agriculture Research System
NCoS	National Centers of Specialization
NGO	Nongovernmental Organization
NPV	Net Present Value
PAD	Project Appraisal Document
PADA	Agricultural Productivity and Diversification Project (Benin)
PASEC	*Projet d'Appui à l'Agriculture Sensible aux Risques Climatiques* (Climate-Sensitive Agriculture Support Project)

PDO	Project Development Objectives
PHRD	Policy and Human Resources Development
PIM	Project Implementation Manual
PMP	Pest Management Plan
PNAG/BL	*Programme National d'Amélioration Génétique, Bovins Locaux* (National Genetic Improvement Program/Local Cattle)
PRODEC	*Projet de Développement des Compétences pour la Croissance pour le Niger* (Growth Skills Development Project for Niger)
PRODEX	*Projet de Développement des Exportations des Marchés Agro-Sylvo-Pastoraux pour le Niger* (Agro-sylvo-pastoral Exports and Markets Development Project for Niger)
R&D	Research and Development
RAP	Resettlement Action Plan
RCoE	Regional Centers of Excellence
RPF	Resettlement Policy Framework
RSC	Regional Steering Committee
SDG	Sustainable Development Goal
SIPAG	*Système d'Information sur les Produits Agricoles en Guinée* (Guinea Market Information System)
SORT	Systematic Operating Risk Tool
TA	Technical Assistance
TTL	Task Team Leader
UN	United Nations
USAID	U.S. Agency for International Development
WAAPP	West African Agricultural Productivity Program
WAEMU	West African Economic and Monetary Union
WASIX	West Africa Seed Information Exchange
WASP	West Africa Seed Program

Regional Vice President:	Makhtar Diop
Country Directors:	Rachid Benmessaoud – Regional Integration Paul Noumba Um (Guinea, Niger) Pierre Laporte (Benin, Togo)
Senior Global Practice Director:	Juergen Voegele
Practice Manager:	Simeon Kacou Ehui
Task Team Leader:	Abdoulaye Toure

WEST AFRICA
Additional Financing for West Africa Agricultural Productivity Program (WAAPP-1C)

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ADDITIONAL FINANCING DATA SHEET

Western Africa

Additional Financing for West Africa Agricultural Productivity Program (WAAPP- 1C) (P158983)

Basic Information – Parent			
Parent Project ID:	P122065	Original EA Category:	B - Partial Assessment
Current Closing Date:	31-March-2017		

Basic Information – Additional Financing (AF)			
Project ID:	P158983	Additional Financing Type (from AUS):	Scale Up
Regional Vice President:	Makhtar Diop	Proposed EA Category:	B
Country Director:	Rachid Benmessaoud	Expected Effectiveness Date:	2-Jun-2017
Senior Global Practice Director:	Juergen Voegele	Expected Closing Date:	31-Dec-2019
Practice Manager/Manager:	Simeon Kacou Ehui	Report No:	PAD2025
Team Leader(s):	Abdoulaye Toure,Amadou Alassane,Erick Herman Abiassi, Amadou Ba		

Borrower				
Organization Name	Contact	Title	Telephone	Email
Ministry of Economy and Finance of Togo	Sani YAYA	Minister	(228)22213554	secretariat.ministre@economie.gouv.tg
Government of Liberia	Boima Kamara	Minister of Finance	221226863	info@mfdp.gov.lr
Planning Ministry of Niger	KANE Aichatou Boulama	Minister	(227)20723617	aichatou.boulama.kane@gmail.com
Government of Sierra Leone	Edmund Koroma	Financial Secretary	222211	ekoroma@mofed.gov.sl
Ministry of Economy and Finance of Benin	Romuald WADAGNI	Minister	(229)21314781	sadjovi@yahoo.fr
Ministry of Finance of Gambia	Abdou Kolley	Minister	2204227529	info@mof.gov.gm
Ministry of Economy and Finance of Guinea	Malado KABA	Minister	(224)621065937	malado.kaba@mef.gov.gn

Project Financing Data - Parent (West Africa Agricultural Productivity Program APL (WAAPP-1C)-P122065) (in US$ Million)

Key Dates

Project	Ln/Cr/TF	Status	Approval Date	Signing Date	Effectiveness Date	Original Closing Date	Revised Closing Date
P122065	IDA-48770	Effective	24-Mar-2011	06-Jun-2011	11-Oct-2011	30-Jun-2016	31-Mar-2017
P122065	IDA-48830	Effective	24-Mar-2011	30-Jun-2011	15-Nov-2011	30-Jun-2016	31-Dec-2016
P122065	IDA-H6490	Effective	24-Mar-2011	18-Apr-2011	01-Aug-2011	30-Jun-2016	31-Dec-2016
P122065	IDA-H6510	Effective	24-Mar-2011	07-Jun-2011	11-Oct-2011	30-Jun-2016	31-Mar-2017
P122065	IDA-H6520	Effective	24-Mar-2011	26-May-2011	15-Dec-2011	30-Jun-2016	31-Mar-2017
P122065	IDA-H6540	Closed	24-Mar-2011	01-Jun-2011	21-Dec-2011	30-Jun-2016	30-Jun-2016
P122065	TF-10826	Effective	13-Jan-2012	13-Jan-2012	06-Apr-2012	30-Jun-2016	31-Dec-2016
P122065	TF-99510	Effective	01-Jun-2011	01-Jun-2011	21-Dec-2011	30-Jun-2016	31-Dec-2016
P122065	TF-99511	Effective	30-Jun-2011	30-Jun-2011	15-Nov-2011	30-Jun-2016	31-Dec-2016
P122065	TF-99557	Closed	18-Apr-2011	18-Apr-2011	01-Aug-2011	31-May-2015	31-Aug-2015
P122065	TF-99674	Effective	23-Nov-2011	23-Nov-2011	05-Jan-2012	30-Jun-2016	31-Mar-2017

Disbursements

Project	Ln/Cr/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P122065	IDA-48770	Effective	USD	30.00	30.00	0.00	26.60	1.74	88.66
P122065	IDA-48830	Effective	USD	6.00	6.00	0.00	5.90	0.00	98.28
P122065	IDA-H6490	Effective	USD	7.00	7.00	0.00	6.78	0.00	96.81
P122065	IDA-H6510	Effective	USD	16.80	16.80	0.00	16.09	0.06	95.76
P122065	IDA-H6520	Effective	USD	12.00	12.00	0.00	11.71	0.00	97.59
P122065	IDA-H6540	Closed	USD	12.00	12.00	0.00	11.70	0.00	97.49
P122065	TF-10826	Effective	USD	8.00	8.00	0.00	7.66	0.34	95.81
P122065	TF-99510	Effective	USD	10.00	10.00	0.00	10.00	0.00	100.00
P122065	TF-99511	Effective	USD	8.00	8.00	0.00	8.00	0.00	100.00
P122065	TF-99557	Closed	USD	5.00	4.91	0.09	4.91	0.00	100.00
P122065	TF-99674	Effective	USD	9.00	9.00	0.00	9.00	0.00	100.00

Project Financing Data - Additional Financing Additional Financing for West Africa Agricultural Productivity Program (WAAPP- 1C) (P 158983)(in USD Million)

[ ]	Loan	[ ]	Grant	[ ]	IDA Grant
[X]	Credit	[ ]	Guarantee	[ ]	Other

Total Project Cost:	68.00	Total Bank Financing:	68.00
Financing Gap:	0.00		

Financing Source – Additional Financing (AF)	Amount
International Development Association (IDA)	53.00
IDA Credit from CRW	15.00
Total	68.00

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 team requested to continue to use the Bank's Procurement and Consultant Guidelines of 2010 editions (as referred to in the Financing Agreement) for the proposed additional financing (just like for the parent project).	
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 7, 2016) pursuant to Section III, Paragraph 4 Table I(C) of the "Bank Procedure- Procurement in IPF and Other Operational Procurement Matters".	

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Abdoulaye Toure	Team Leader (ADM Responsible)	Lead Agriculture Economist		GFA01
Amadou Alassane	Team Leader	Sr. Agricultural Spec.	Co-TTL (Guinea)	GFA01
Erick Herman Abiassi	Team Leader	Senior Agriculture Economist	Co-TTL (Togo, Benin)	GFA01
Maurice Adoni	Procurement Specialist (ADM Responsible)	Senior Procurement Specialist		GGO07
Alpha Mamoudou Bah	Procurement Specialist	Senior Procurement Specialist		GGO07
Ngor Sene	Financial Management Specialist	Financial Management Specialist		GGO26
Abdoulaye Gadiere	Safeguards Specialist	Senior Environmental Specialist		GEN07

Alexandra C. Sperling	Team Member	Legal Analyst		LEGAM
Amadou Ba	Team Member	Senior Agriculture Economist	Co-TTL (Niger)	GFA01
Cheikh A. T. Sagna	Safeguards Specialist	Senior Social Development Specialist		GSU01
Emeran Serge M. Menang Evouna	Safeguards Specialist	Senior Environmental Specialist		GEN07
Jose Ramon R. Pascual IV	Team Member	Senior Counsel		LEGCF
Juvenal Nzambimana	Team Member	Senior Operations Officer		GFA01
Mariame Bamba	Team Member	Program Assistant		AFCF2
Salam Hailou	Team Member	Program Assistant		GFA01
Sossena Tassew	Team Member	Operations Analyst		GFA01

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Benin	-	-		X	At national level
Guinea	-	-		X	At national level
Niger	-	-		X	At national level
Togo	-	-		X	At national level

Institutional Data

Parent (West Africa Agricultural Productivity Program APL (WAAPP-1C)-P122065)

Practice Area (Lead)

Agriculture

Contributing Practice Areas

Additional Financing Additional Financing for West Africa Agricultural Productivity Program (WAAPP- 1C) (P158983)

Practice Area (Lead)

Agriculture

Contributing Practice Areas

Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required ?No consultants are required

I. Introduction

1. This Project Paper seeks the approval of the Executive Directors to provide additional financings (AF) in the total amount of US$68 million to the Governments of Benin, Guinea, Niger and Togo, and to restructure the regional West Africa Agricultural Productivity Program (WAAPP 1C- P122065). This is in response to the letters received from the Ministries of Finance of Benin (dated 31 March 2016), Guinea (dated 24 October 2014), Niger (dated 31 March 2016), and Togo (dated 18 January 2016). The distribution of the additional financings, all coming from the national IDA allocations, is as follows: Euro 18,300,000 (US$20 million equivalent) for Benin, SDR 16,800,000 (US$23 million equivalent, including US$15 million from the IDA Crisis Response Window, CRW) for Guinea , Euro 13,700,000 (US$15 million equivalent) for Niger, and Euro 9,200,000 (US$10 million equivalent) for Togo. No regional allocation is expected.

2. **The proposed AF will be used to support the Economic Community of West African States (ECOWAS) and each of the recipient countries, not only to consolidate and scale-up the achievements obtained so far under the original project, but also to focus on new priority areas including youth and women employment, private sector participation, climate change, nutrition, and citizens' engagement.** The project will thus finance activities that would continue to strengthen and expand the use of the tools developed by the parent project, which are mainly aimed at strengthening the regional integration dimension of the project and speeding up the adoption of improved technologies and innovations. These activities will include: (i) strengthening the National Centers of Specialization into Regional Centers of Excellence; (ii) consolidation and expansion of the regional exchange of agricultural technologies and innovations through the regional technology market for scaled-up dissemination and adoption; (iii) modernization of the agricultural extension services and technology transfer systems, including expanded use of innovative approaches, being piloted under the project in some countries—Innovation Platforms (IPs), and Information and Communication Technologies (ICT)-based instruments such as E-extension and E-voucher; and (iv) strengthening of both the national seed production and distribution systems and the regional seed market to ensure the availability and use of certified quality seeds.

3. Moreover, building upon the WAAPP's successful achievements so far (among others, the technologies and innovations released by the program), the project will try to address emerging issues such as nutrition, climate change, youth and women employment, and private sector involvement. The project will thus finance activities that would focus on the scaled-up adoption of those technologies and innovations, which are nutrition-sensitive, respond to climate change (e.g., drought resistant), have high potential for accelerating job creation for youth and women, and which could be commercialized to facilitate private sector investment in the participating countries and the ECOWAS zone.

4. Drawing on the experiences of WAAPP Burkina Faso and Benin, the AF will also finance activities related to citizens' engagement in each of the four borrowing countries.

5. **The development objective, the components' structure, the institutional arrangements, and the safeguards category of the original project will remain the same for the AF**. However, the proposed AF will necessitate restructuring of the original project for (a) a proposed extension of the project's closing date from March 31, 2017 to December 31, 2019; (b) revision of the Results Framework to reflect the increase in the targets of the indicators; and (c) addition of new indicators

to take into account the new focus of the AF on nutrition, job creation/employment, private sector participation and citizens' engagement.

6. So far, the original project has been restructured six times; all level-2 restructurings that consisted mainly of reallocation of resources between the different categories, alignment of the Results Framework to other series of WAAPP for better monitoring of all projects at the program level, and two extensions of the closing date (for a total period of 9 months).

II. Background and Rationale for Additional Financing

A. Regional and Country Context

7. **Africa's agricultural development acquired new momentum** when, in January 2014, the African Union adopted the 'Malabo Declaration on Accelerated Agricultural Growth and Transformation' in which African heads of states and governments recommitted to the principles and value of the Comprehensive Africa Agricultural Development Program (CAADP) and agreed to uphold the 10 percent target for public spending on agriculture, to double agricultural productivity, and to sustain agricultural gross domestic product annual growth of at least 6 percent.

8. **During the same period, there was a renewed commitment by the development partners to engage and invest in the agricultural sector.** Several initiatives have been launched. The United Nations (UN) adopted 17 Sustainable Development Goals (SDGs), including the second SDG, "to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture". The African Development Bank launched "Feed Africa: Strategy for Agricultural Transformation in Africa, 2016-2025," which aims at ending hunger and rural poverty in Africa within the next decade. The World Bank has committed itself to the twin goals of eliminating extreme poverty by 2030, and boosting shared prosperity (measured as the income of the bottom 40 percent in any given country).

B. Sector Context

9. **One of the main challenges in West Africa is satisfying the demands of a rapidly growing population** that is expected to increase from 300 million in 2011 to about 500 million by 2030. The 2008 food, fuel, and financial crisis has demonstrated that the best strategy to ensure food security in West Africa is to rely on the utilization of the region's huge agricultural potential, as this option would simultaneously contribute to economic growth and poverty reduction. Moreover, meta-analyses conducted by the International Food Policy Research Institute (IFPRI) have shown that the benefits from productivity growth, attributed to agricultural research, exceed their costs by a factor of 10 or more while high rates of return (on the order of 40-60 percent) on investments in science for agriculture have also been proven consistently.

10. **Gains from smart investments in agricultural research and development (R&D) were amply demonstrated by the WAAPP impact evaluation of the first phase.** The findings of the impact evaluation studies conducted in Senegal, Mali, Ghana, Guinea and Cote d'Ivoire[1] show that the WAAPP has increased average beneficiaries' revenues by 34 percent and average yields

[1] In addition to the already completed impact evaluation studies for the WAAPP-A Series (first phase of WAAPP Senegal, Ghana and Mali), the impact evaluation studies for the WAAPP-B and C series are currently being conducted. So far, the first results have been obtained for Guinea and Cote d'Ivoire. The impact evaluations are undertaken by independent consultants, hired by the national WAAPP projects, while the overall methodology and process are being supported by CORAF/WECARD and the Bank.

by 30 percent, reduced the hunger period by half, and increased staple food availability and nutrition standards in the sub-region. In addition, findings in Cote d'Ivoire indicate that poverty has declined in the project intervention area by around 10 points. In Guinea, the impact evaluation study found that the US$9 million PHRD TF financing of the WAAPP for the rice sector has generated total returns estimated at US$14 million.

C. Relationship to the Country Partnership Framework (CPF)

11. The proposed AF is aligned with the Country Assistance Strategies (CAS)[2] of Benin, Guinea and Niger as well as with the CPF for Togo. All of them prioritized agriculture as one of the key sectors to achieve the World Bank's twin goals of eliminating extreme poverty and boosting shared prosperity. The AF will enhance opportunities for jobs/employment and improve food self-sufficiency, thereby contributing directly to the food security improvement and poverty alleviation in these countries in view of the fact that the majority of the poor are living in the rural areas, and their main activities are in the food crops sector. The AF is also aligned with the UN SDGs, especially with respect to climate change, malnutrition and hunger.

D. Original Project Description and Performance

12. The original project, WAAPP-1C, is part of the series of projects under the first phase of the WAAPP program. It was approved by the Board on March 24, 2011, for a total amount of SDR 54.6 million (US$83.8 equivalent), and is currently under implementation with an expected closing date of March 31, 2017. Guinea joined the program through the Japan PHRD Trust Fund[3] financing for a total amount of US$9 million.

13. **The Project Development Objective (PDO)** is to generate and accelerate adoption of improved technologies in the participating countries' top agricultural commodity priority areas that are aligned with the sub-region's top agricultural commodity priorities as outlined in the ECOWAP.

14. ***Achievements of the overall WAAPP Program and those specific to the original project (WAAPP-1C).*** The overall progress of the WAAPP towards achievement of the PDO is rated Satisfactory[4]. As of October 2016, the project had reached around 8.0 million direct beneficiaries, 43 percent of whom are women, and more than 70 million indirect beneficiaries in the 13 countries. Around 188 improved technologies have been released as regional goods, and adopted by about 4.0 million producers/processors while about 4.6 million hectares are covered by these new technologies. More than 1,000 young scientists have received WAAPP scholarships for higher academic/scientific training. Several of them have returned to their home countries and have re-integrated the national or regional research system, thereby contributing to the replacement of the retiring scientists in agricultural research and extension services.

15. Steady progress has also been made in upgrading the national seed systems and in increasing producers' access to certified seed. As of October 2016, more than 140,000 tons of certified

[2] Except for Togo, the preparation of the next Country Partnership Framework (CPF) of the countries is not due until Fiscal Year 2018, but even then it is likely that agriculture will remain one of the key priority areas.

[3] The Japan PHRD TF is co-financing activities under WAAPP-1C to support the development of the rice sector in the four Mano River Union countries (i.e., Cote d'Ivoire, Guinea, Liberia and Sierra Leone).

[4] The rating of the Implementation Completion Report and Results Report (ICR) for the first phase—Mali, Senegal and Ghana—was upgraded by the Independent Evaluation Group (IEG) to Highly Satisfactory (from the team's own assessment of Satisfactory)

improved seeds of cereals had been produced with WAAPP support, and the farmers using these seeds have experienced a yield increase ranging from 30 to 150 percent. Moreover, as many of the participating countries do not have enough in-country capacity for certified seed production, the WAAPP, in collaboration with the U.S. Agency for International Development (USAID)-funded West Africa Seed Project (WASP), has initiated a regional seed market. This market has become popular and is widely used by ECOWAS countries to meet their needs for improved seeds. It was also through this regional market that during the Ebola Outbreak, WAAPP was able to quickly mobilize around 8,500 tons of certified seeds that were distributed among the Ebola-hit countries in a record time as part of the emergency recovery program.

16. The WAAPP has also been providing comprehensive support (infrastructure, training, financing of research activities and regional networking) to establish and upgrade nine commodity-based national centers of specialization (NCoS)[5], engaged in unlocking the potential of priority value chains. The program is also successfully supporting the implementation of a road map to transform these NCoS into Regional Centers of Excellence (RCoE). In addition, WAAPP has supported the modernization of the technology transfer systems through the introduction of innovative approaches such as the E-extension, the E-voucher, the innovation platforms, the adopted schools and villages, the regional technology market which resulted in the adoption of released technologies by about 4.0 million producers/processors, and the use of these technologies on more than 4.5 million hectares.

17. When evaluating the achievements specific to WAAPP-1C, in addition to the achievements described in earlier paragraphs for the overall program, WAAPP-1C is also rated satisfactory both for the Development Objective and Implementation Progress. With regard to the achievements specific to WAAPP-1C, as of November 2016, the project has reached more than two million direct beneficiaries, about 40 technologies have been generated by the NCOS, close to 1.4 million hectares have been covered by the new technologies and more than one million producers/processors have adopted at least one new technology. Table 1 below summarizes the achievements of the PDO-level indicators specific to the AF beneficiary countries.

18. The disbursement performance of the original project is also satisfactory, with more than 96 percent of the funds disbursed, and currently an action plan is being implemented which will ensure full disbursement of the current resources by the closing date of March 31, 2017. The recently conducted safeguards and fiduciary assessments (procurement and financial management) in May/June 2016 gave moderately satisfactory/satisfactory ratings in implementing World Bank guidelines and policies on fiduciary, environmental and social safeguards.

[5] The nine NCoS supported by WAAPP are: Roots and tubers (Ghana), Dry land cereals (Senegal), Rice (Mali), Fruits and vegetables (Burkina Faso), Bananas and plantains (Cote d'Ivoire), Aquaculture (Nigeria), Livestock (Niger), Maize (Benin) and Mangrove rice (Sierra Leone).

Table 1: Achievement of PDO Indicators for the AF Beneficiary Countries						
		Direct project beneficiaries	% Women	Number of Technologies Generated	Area under Improved Technologies (ha)	Number of Producers and Processors who have Adopted Improved Technologies
Benin	Target	250,000	40	8	300,000	210,000
	Actual	**432,849**	**39.5**	**14**	**290,040**	**219,023**
	% achieved	*173%*	*98%*	*175%*	*97%*	*104%*
Guinea	Target	100,000	40	6	65,000	25,000
	Actual	**123,929**	**41.6**	**6**	**69,150**	**26,487**
	% achieved	*124%*	*104*	*100*	*106*	*106*
Niger	Target	370,000	40	6	560,000	250,000
	Actual	**383,670**	**43**	**6**	**578,655**	**257,052**
	% achieved	*104%*	*108%*	*100%*	*103%*	*103%*
Togo	Target	250,000	40	NA	120,000	150,000
	Actual	**238,461**	**37**	**NA**	**114,483**	**148,638**
	% achieved	*95%*	*93%*	*NA*	*95%*	*99%*
All 4 countries	Target	970,000	40	20	1,045,000	635,000
	Actual	**1,178,909**	**40.15**	**26**	**1,052,328**	**651,200**
	% achieved	*121%*	*100.8%*	*130%*	*100.7%*	*102.5%*

E. Rationale for Additional Financing

19. The main reasons for the World Bank to support the proposed AF are as follows :

(i) *To respond to the growing demand from ECOWAS and the recipient countries to consolidate and expand project activities.* The WAAPP has achieved tremendous positive results in the beneficiary countries and in the sub region and was designated as the flagship regional program of ECOWAS in the agriculture sector during the Economic Community of West African Agricultural Policy (ECOWAP) +10[6] event, held in Dakar in December 2015. During that gathering, delegates of all 15 ECOWAS countries made an appeal to the World Bank to continue funding the Program as it could be the launch pad for a green revolution in West Africa;

(ii) *The governments of four countries (Benin, Guinea, Niger and Togo) have agreed that part of their national IDA resources be allocated to the AF with or without the corresponding regional allocation* to consolidate and scale-up the program's promising achievements. They are also committed to fulfil the unfinished agenda by supporting the continuation of the project's activities for the next three years, given achievements of the program and the need to maintain the momentum.

[6] ECOWAP+10 was the review process initiated by ECOWAS (in November 2015) to take stock of the achievement of its Common Agricultural Policy (ECOWAP) ten years after the official launch of the policy in order to reshape and strengthen it to meet the new challenges facing West Africa and its population

(iii) *To consolidate and strengthen the regional dimension of the project in a sustainable manner*. The AF will be used to consolidate and expand the use of the tools developed under the original project to strengthen the regional integration dimension of the project, and speed up the adoption of improved technologies and innovations. These tools include: (a) the regional commodity-based centers of excellence that bring scientists together to produce common goods; (b) the regional technology market that facilitates the exchange of technologies between countries; (c) the regional seed market, which has proven to be an excellent tool to speed up the adoption of certified seeds; and (d) the regional regulations and common strategies, which create an enabling environment for cooperation and benchmarking among the countries.

(iv) *To maintain the momentum, and build upon WAAPP's overall successful achievements to address emerging issues.* Impact, results and successes so far achieved by WAAPP demonstrate that strengthening of the agricultural sector is indeed possible in West Africa. If the numerous lessons and successes in the recipient countries are replicated and scaled up, they can create more jobs for hundreds of thousands of young entrepreneurs, improve the nutrition standards and mitigate the impact of climate change. They can also accelerate agricultural growth, poverty reduction and food self-sufficiency in the recipient countries.

F. Consideration of Alternative Funding

20. Alternative funding options for the proposed activities have been considered and rejected. They included financing from the government budget, other development partners, and the private sector. The governments in the four countries have not been able to fully mobilize their expected financial contributions as anticipated under the original project, and even when these contributions were made, they were often not substantial and/or not provided on time. In addition to the limited government resources in these countries, the investments of other financial and technical partners in the food crops sector are also limited, except that for the International Fund for Agricultural Development (IFAD), which is active in this sector in all four countries.

21. Despite these fiscal shortcomings, the countries have agreed to make some contribution towards financing of the AF although it will cover only 5 to 10 percent of the project cost. In addition, the project is developing a technology mass adoption strategy in each country in close collaboration with other donor-funded projects and non-governmental organizations (NGOs). One of the key challenges of the AF will, therefore, be to put necessary mechanisms in place to actively involve the private sector and mobilize some of their resources for the development of the targeted value chains.

G. Consistency with the IDA Crisis Response Window Objectives

22. The IDA Crisis Response Window (CRW), approved by the Board of Directors on December 10, 2009, assists countries to develop, implement and monitor programs to manage the poverty, social, and economic impact of the global economic crisis, and to provide financial assistance to protect core spending on health, education, social safety nets, infrastructure, and agriculture. As indicated above, Guinea's share will be funded by a US$15 million credit from the CRW. The 2015 Ebola virus outbreak has negatively impacted the vulnerable poor rural households in Guinea, and as the country is still recovering from this crisis, these resources from CRW, to be combined with an IDA credit of US$8 million, will be used to continue the restoration of lost

productive capacity of small-scale producers in a gender-sensitive manner through various measures including strengthening of the seed systems.

III. Proposed changes

Summary of Proposed Changes	
The AF does not entail any change in the project development objective, component structure, implementation arrangements or safeguards categories. It will rather consolidate and scale-up the achievements obtained so far under the original project and also focus on new priority areas including employment, private sector participation, nutrition, and citizens' engagements. 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 (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 Objective
Original PDO
To generate and accelerate adoption of improved technologies in the participating countries' top agricultural commodity priority areas that are aligned with the sub-region's top agricultural commodity priorities, as outlined in the ECOWAP.

Change in Results Framework

Explanation:

The Results Framework has been revised to: (i) increase the end targets of the indicators; (ii) add two new PDO level indicators to better capture the regional integration and technology dissemination activities; and (iii) add four new intermediate level indicators on employment, private sector participation, nutrition, and citizens' engagement, to cover the additional/new priorities under the AF (see Annex 1 for the updated results framework).

Compliance

Covenants - Additional Financing (Additional Financing for West Africa Agricultural Productivity Program (WAAPP- 1C) - P158983)

Source of Funds	Finance Agreement Reference	Description of Covenants	Date Due	Recurrent	Frequency	Action
				☐		

Conditions

Source Of Fund	Name	Type
IDA	Execution of the Subsidiary Grant Agreement with each participating country	Effectiveness

Description of Condition

The Subsidiary Grant Agreement has been: (i) executed on behalf of each Recipient and CORAF; and (ii) duly authorized by each Recipient and CORAF and is legally binding upon the Recipient and CORAF in accordance with its terms.

Source Of Fund	Name	Type
IDA CRW	Execution of the Subsidiary Grant Agreement with each participating country	Effectiveness

Description of Condition

The Subsidiary Grant Agreement has been: (i) executed on behalf of each Recipient and CORAF; and (ii) duly authorized by each Recipient and CORAF and is legally binding upon the Recipient and CORAF in accordance with its terms.

Risk

Risk Category	Rating (H, S, M, L)
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Low
5. Institutional Capacity for Implementation and Sustainability	Moderate

6. Fiduciary	Moderate
7. Environment and Social	Low
8. Stakeholders	Moderate
9. Other	
OVERALL	Moderate

Finance

Loan Closing Date - Additional Financing (Additional Financing for West Africa Agricultural Productivity Program (WAAPP- 1C) - P158983)

Source of Funds	Proposed Additional Financing Loan Closing Date
IDA recommitted as a Credit	31-Dec-2019
IDA Credit from CRW	31-Dec-2019

Loan Closing Date(s) - Parent (West Africa Agricultural Productivity Program APL (WAAPP-1C) - P122065)

Explanation:

The closing date of the original project will be extended from March 31, 2017 to December 31, 2019 in order 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-48770	Effective	30-Jun-2016	31-Mar-2017	31-Dec-2019	31-Dec-2016, 31-Mar-2017
IDA-48830	Effective	30-Jun-2016	31-Dec-2016		30-Jun-2016, 31-Dec-2016
IDA-H6490	Effective	30-Jun-2016	31-Dec-2016		30-Jun-2016, 31-Dec-2016
IDA-H6510	Effective	30-Jun-2016	31-Mar-2017	31-Dec-2019	30-Jun-2016, 31-Dec-2016, 31-Mar-2017
IDA-H6520	Effective	30-Jun-2016	31-Mar-2017	31-Dec-2019	30-Jun-2016, 31-Dec-2016, 31-Mar-2017
IDA-H6540	Closed	30-Jun-2016	30-Jun-2016		30-Jun-2016
TF-10826	Effective	30-Jun-2016	31-Dec-2016		30-Jun-2016, 31-Dec-2016
TF-99510	Effective	30-Jun-2016	31-Dec-2016		30-Jun-2016, 31-Dec-2016
TF-99511	Effective	30-Jun-2016	31-Dec-2016		30-Jun-2016, 31-Dec-2016
TF-99557	Closed	31-May-2015	31-Aug-2015		31-May-2015, 31-Aug-2015, 05-Feb-2016
TF-99674	Effective	30-Jun-2016	31-Mar-2017		30-Jun-2016, 31-Dec-2016, 31-Mar-2017

Change in Disbursement Estimates **(including all sources of Financing)**

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 USD Millions)(including all Sources of Financing)

Fiscal Year	2017	2018	2019	2020	
Annual	8.00	25.00	25.00	10.00	
Cumulative	8.00	33.00	58.00	68.00	
Benin					
Annual	2.20	7.40	7.40	3.00	
Cumulative	2.20	9.60	17.00	20.00	
Guinea					
Annual	2.53	8.51	8.51	3.45	
Cumulative	2.53	11.04	19.55	23.00	
Niger					
Annual	1.65	5.55	5.55	2.25	
Cumulative	1.65	7.20	12.75	15.00	
Togo					
Annual	1.10	3.70	3.70	1.50	
Cumulative	1.10	4.80	8.50	10.00	

Allocations - Additional Financing (Additional Financing for West Africa Agricultural Productivity Program (WAAPP- 1C) - P158983)

Source of Fund	Currency	Category of Expenditure	Allocation	Disbursement (%)
			Proposed	Proposed
IDA	USD	BJ Works under Parts 2.3 and 3.3(ii) of the Project	1,200,000.00	100.00
IDA	USD	BJ Gds, cons. serv., training, study tours, workshops and Op. Costs under (a) Parts 1.2, 1.5 & 4 (i)	600,000.00	27.00
IDA	USD	BJ Gds, cons. serv., training, study tours, workshops and Op. Costs under	16,000,000.00	100.00

		(b) Parts 1.1, 1.3, 1.4, 2, 3.2, 3.3 & 4 (ii)		
IDA	USD	BJ Small Grants under Part 2.1 of the Project and Grants under Part 3.1(b) of the Project	1,500,000.00	100.00
IDA	USD	BJ Grants under Part 3.1(a) of the Project	700,000.00	29.00
IDA	USD	NE Works under Parts 2.3 and 3.3(ii) of the Project	1,000,000.00	100.00
IDA	USD	NE Gds, cons. serv., training, study tours, workshops and Op. Costs under (a) Parts 1.2, 1.5 & 4 (i)	500,000.00	23.00
IDA	USD	NE Gds, cons. serv., training, study tours, workshops and Op. Costs under (b) Parts 1.1, 1.3, 1.4, 2, 3.2, 3.3 & 4 (ii)	11,400,000.00	100.00
IDA	USD	NE Small Grants under Part 2.1 of the Project and Grants under Part 3.1(b) of the Project	1,600,000.00	100.00
IDA	USD	NE Grants under Part 3.1(a) of the Project	500,000.00	21.00
IDA	USD	TG Works under Parts 2.3 and 3.3(ii) of the Project	1,300,000.00	100.00
IDA	USD	TG Gds, cons. serv., training,	300,000.00	18.00

		study tours, workshops and Op. Costs under (a) Parts 1.2, 1.5 & 4 (i)		
IDA	USD	TG Gds, cons. serv., training, study tours, workshops and Op. Costs under (b) Parts 1.1, 1.3, 1.4, 2, 3.2, 3.3 & 4 (ii)	6,800,000.00	100.00
IDA	USD	TG Small Grants under Part 2.1 of the Project and Grants under Part 3.1(b) of the Project	1,200,000.00	100.00
IDA	USD	TG Grants under Part 3.1(a) of the Project	400,000.00	17.00
IDA	USD	GN Works under Parts 2.3 and 3.3(ii) of the Project	1,078,260.87	100.00
IDA	USD	GN Gds, cons. serv., training, study tours, workshops and Op. Costs under (a) Parts 1.2, 1.5 & 4 (i)	243,478.26	32.00
IDA	USD	GN Gds, cons. serv., training, study tours, workshops and Op. Costs under (b) Parts 1.1, 1.3, 1.4, 2, 3.2, 3.3 & 4 (ii)	5,913,043.48	100.00
IDA	USD	GN Small Grants under Part 2.1 of the Project and Grants under Part 3.1(b) of the Project	486,956.52	100.00

IDA	USD	GN Grants under Part 3.1(a) of the Project	278,260.87	33.00
		Total:	53,000,000.00	
IDAW	USD	GN Works under Parts 2.3 and 3.3(ii) of the Project	2,021,739.00	100.00
IDAW	USD	GN Gds, cons. serv., training, study tours, workshops and Op. Costs under (a) Parts 1.2, 1.5 & 4 (i)	456,522.00	32.00
IDAW	USD	GN Gds, cons. serv., training, study tours, workshops and Op. Costs under (b) Parts 1.1, 1.3, 1.4, 2, 3.2, 3.3 & 4 (ii)	11,086,957.00	100.00
IDAW	USD	GN Small Grants under Part 2.1 of the Project and Grants under Part 3.1(b) of the Project	913,043.00	100.00
IDAW	USD	GN Grants under Part 3.1(a) of the Project	521,739.00	33.00
		Total:	15,000,000.00	

Components

Change to Components and Cost

Explanation:

The components of the original project are still relevant for the proposed AF. Additional resources will be added to each component to finance the new activities under the AF (detailed description of the AF activities is attached as Annex 2). Main activities under the AF will be as follows:

Component 1: Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies (US$4.3 million equivalent). The AF will: (i) scale-up the

dissemination of sub-regional regulations on genetic materials, fertilizers and agrochemicals, started under the parent project; (ii) continue to strengthen CORAF's knowledge management, information and communication systems; (iii) continue to support CORAF/WECARD's effort to update the strategy to mainstream climate change considerations in research and development programs carried out by the participating countries; and (iv) assist the countries in finalizing the setting up of their sustainable funding mechanism for technology generation and dissemination.

Component 2: Strengthening National Centers of Specialization/Strengthening of the Research System (US$13.8 million equivalent) The component will finance: (i) implementation of the action plans of Benin and Niger to transform their National Centers of Specialization (NCoS) into Regional Centers of Excellence (RCoE) for agricultural research on maize and livestock respectively; and (ii) upgrading of the adaptive research systems of Togo and Guinea as they do not have NCoS, to enable them to participate more actively in the network of the RCoE with the aim of bringing and adapting maximum number of technologies and innovations from the sub-region.

Component 3: Funding of Demand-Driven Technology Generation and Adoption (US$42.1 million equivalent). The component will finance: (i) both the regional and national competitive grant schemes (including completion of the ongoing research project under the competitive agriculture grant schemes, and a limited number of new on-demand projects that may be commissioned); (ii) scaling up the adoption of released technologies in order to bridge the yield gap between producers and research centers, and reinforcing the dissemination of technologies, generated under the project; (iii) expanding the availability to, and access of producers to genetically improved seeds, planting materials, fingerlings, breed stock and other such materials.

Component 4: Project Coordination, Management, Monitoring and Evaluation (US$7.8 million equivalent). The project will continue to finance the existing PCUs in Togo, Niger, Benin and Guinea, each of which will be reinforced with additional staff including a Technologies Marketing Specialist and an Environmental/Social Safeguard Specialist. Moreover, the AF will also finance independent supervision missions and reporting by civil society institutions.

Current Component Name	Proposed Component Name	Current Cost (US$M)	Proposed Cost (US$M)	Action
Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	No change	9.26	13.56	Revised
Strengthening National Centers of Specializations (NCoS)/Strengthening of the Research System	No change	38.40	52.20	Revised
Funding of Demand-Driven Technology Generation and Adoption	No change	50.33	92.43	Revised
Project Coordination, Management, Monitoring and Evaluation	No change	15.00	22.80	Revised

	Total:	112.99	180.99	

Other Change(s)

Implementing Agency Name	**Type**	**Action**

Change in Implementation Schedule

Explanation:

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.

Appraisal Summary

Economic and Financial Analysis

Explanation:

The Economic and Financial Analysis shows that the Additional Financing is economically viable at the regional level. The Net Present Value (NPV), consolidated at the regional level, is approximately US$104.8 million against a projected cost allocation of US$68 million. The Economic Internal Rate of Return (EIRR) for the entire project is estimated at 29 percent. A sensitivity analysis was performed using some of the main variables affecting the model. The results are encouraging even when one considers raising the cost by 50 percent, decrease benefits by 50 percent and a two-year delay in the generation of benefits. The corresponding EIRR with these three scenarios are 15.9 percent, 12.4 percent and 16.6 percent respectively, while the corresponding NPVs are US$57.1 million, US$21.8 million and US$52.0 million (see Annex 5 for detailed Economic and Financial Analysis).

Technical Analysis

Explanation:

No major changes

Social Analysis

Explanation:

During the five years of implementation of WAAPP-1C, the participating countries have received extensive support from both the World Bank and CORAF/WECARD's Social and Environmental Safeguards specialists. Series of successful regional training workshops, both on Safeguards and Gender and Social Assessment, were held in addition to hands-on training activities in the field. Each country and CORAF now have dedicated social and environmental safeguards Focal Points who oversee the implementation of the social and environmental safeguards and also identify mitigation measures. A recent assessment study has shown that these country-level Focal Points have the required knowledge as well as a good grasp and control of safeguards handling, and that they are regularly monitoring project activities to ensure the identification of problems and implementation of mitigation measures. The implementation of the safeguard measures aspect has been rated as satisfactory by the World Bank's social and environmental safeguards specialists during the last Implementation Support Mission (ISM) of September/November 2016. Overall, The project has retained its rating B for the safeguards category due to its limited, low to negligible impact and manageability, and as such has continued following the same safeguard policies, which were followed by the parent project, namely OP/BP 4.01 (Environmental

Assessment), OP 4.09 (Pest Management) for all the four countries, and OP/BP 4.12 (Involuntary Resettlement), only in case of Guinea. To that extent, this AF has respectively updated the parent project's safeguard instruments in light of the lessons learned and the opportunities missed. These safeguard documents were cleared by the Bank and publicly disclosed on November 18, 2016 both in-country and at the InfoShop prior to appraisal. However, if any of the three countries (Benin, Togo and Niger) encounters, during project implementation, issues of land acquisition resulting in the loss of land or asset and/or restriction of access to sources of livelihood due to physical resettlement of people, then the project must undertake a Level 1 restructuring and prepare a resettlement action plan (RAP), commensurate to the level of impact, satisfactory to the Bank in terms of compliance.

Regarding safeguards' implementation and performance monitoring and reporting, WAAPP has been implemented by a regional agency (CORAF-WECARD) with the assistance of a Social and Environmental Safeguards Team that oversees safeguards compliance. In addition, each country team comprises a dedicated group of safeguards specialists/social and environment specialists to ensure due diligence. Both CORAF and project safeguard teams were trained by the World Bank safeguard specialists, and are working in tandem to ensure proper management of safeguards' performance. This tri-partite relationship will be continued throughout the implementation of this AF. For this particular purpose, a provision has been included in the AF for each participating country to facilitate the recruitment of environmental and/or social safeguard specialists as additional project staff, as needed. Additional safeguards training workshops are being planned to enhance the technical knowledge of different country safeguards specialists.

Today, WAAPP is a well-known program and highly appreciated by many farmers and stakeholders in all ECOWAS countries, but particularly in the four target countries (Niger, Benin, Togo and Guinea). The adoption of hundreds of new agricultural technologies, developed by WAAPP over the past decade (2007-present), has led to an increasing and far-lasting positive cultural impact on the livelihoods of beneficiary communities. The AF will, therefore, be built on these achievements. The overall activities of the AF are expected to provide huge positive socio-economic benefits to hundreds of thousands of Guineans, Togolese, Beninese and Nigeriens whose main livelihoods depend largely on agricultural research and development. The scaling up of dissemination of the new released technologies 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, developed by the WAAPP, are already being used by individual women, youth and vulnerable persons as well as by groups/associations for their socio-economic development. This is further strengthened by the strong capacity building program supported under WAAPP whereby hundreds of young men and women are being offered scholarships to pursue Master's and/or Doctoral studies in various disciplines of agricultural development. Consequently, a gradual renewal of interest towards the agriculture sector has been observed among women and youth during the past few years.

The outcome of the rounds of participatory consultation and engagement with the citizens has been taken into account in the design of the AF sub-activities with the aim of encouraging both the ownership and social accountability (full determination to ensuring that project is successfully implemented) by the beneficiaries. The objective of all this is to ensure that the project promotes sustainable development among the beneficiary communities in the project areas in particular, and in each of the participating countries as a whole.

Environmental Analysis

Explanation:

As stated earlier, the implementation of the safeguard measures under the parent project has been rated satisfactory by the social and environmental safeguards specialists of the Bank during the last safeguards teams' mission of June 2016. Each country and CORAF have dedicated social and environmental safeguards Focal Points who oversee the implementation of the social and environmental safeguards, identify problems, and take

mitigation measures. A capacity building plan was also implemented. Two regional training workshops, included in a capacity building plan, were organized in Dakar (April 2011) and Freetown (April 2013) for all safeguard Focal Points. Additional training sessions were conducted in each country by the Bank's local offices. A recent assessment study reveals that the safeguard Focal Points have the required knowledge and are regularly monitoring project activities to ensure that problems are identified and mitigation measures implemented. Therefore, the safeguards rating of category B and the type of policies, initiated under the original project, will be maintained under the AF. The WAAPP-1C safeguard instruments, namely Environmental and Social Management Framework-(ESMF) and the Pest Management Plan (PMP), have been updated separately for each country and presented on the regional website, managed by CORAF in each country. In Guinea, where the parent project was supporting the rice sector only, the AF will expand project activities to cover additional agricultural sub-sectors including roots and tuber, cereals, livestock and aquaculture. For this purpose, a new set of safeguard documents has been prepared, i.e. ESMF, PMP, and a Resettlement Policy Framework (RPF).

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. As stated in earlier paragraphs, a provision has been made in the AF to recruit environmental/social safeguard specialists as additional project staff in each country to address the problem of high turn-over of the Focal Points. Moreover, the ESMF includes further provisions for capacity building at all levels for successful implementation of the project safeguards measures, in compliance with national and Bank safeguard policies. The PMP sets forth the basic principles that each member-country would follow for proper handling of possible use of pesticides keeping in view that the AF focuses mostly on the dissemination of agricultural technologies.

Risk

Explanation:

The risk ratings for the original project have been maintained for the AF, including the overall risk rating of **Moderate**.

(i) Political and Governance risks are considered to be **Moderate** in the four countries in light of the political stability, the clear commitment demonstrated by the recipient governments 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 **Low**.

(iv) Environmental and Social Risks are considered to be **Moderate.** The project has already demonstrated that its impact on the environment is low while on the social side, it will most likely be positive.

(v) Stakeholder risks are considered to be **Low**. The project is in high demand by the stakeholders, who are committed to the implementation of the proposed AF as well as to sustainable development of the targeted value chains. The expansion of the innovation platforms will scale up the involvement of all value chain actors in the project activities as they will be empowered to plan and implement activities for the development of the value chains.

23. **Lessons learned and reflected in the AF design**. Lessons learned from the implementation of the first phase reinforce the need for the AF, and can be summarized as follows:

(i) A regional approach is essential to quickly achieve the positive results of a "green revolution" in Africa. The WAAPP developed several tools to facilitate regional integration including the regional seed market, the regional technology and innovation market, the centers of specialization and the common rating process. These tools have proven to be efficient in helping the participating countries to access easily and benefit from the exchange of technologies, innovations, expertise and knowledge generated in the sub-region. The AF

will, therefore, continue to strengthen and expand the use of these tools. The latter should also be sustained in the longer term and included in the ECOWAS regional agricultural strategy and the national agricultural policies of the participating countries.

(ii) A large stock of technologies has been developed by the WAAPP and made available to the participating countries. The challenge is now how to accelerate their adoption by the stakeholders, and how to attract the private sector investments, and how to develop more small scale enterprises. In view of the fact that meeting these challenges goes beyond the agriculture sector, and obviously requires new skills, a provision has been kept in the AF to reinforce the PCU staff through the recruitment of a private sector specialist.

(iii) The adoption and dissemination of ECOWAS regulations on seeds, fertilizers and pesticides have facilitated the exchange of technologies and innovation but road blocks, harassment at the borders, and certain rules applied by the customs are increasing the cost of technologies. The AF will finance training, in-depth dialogue and other activities with the customs offices at national and regional level to reduce the transaction cost for exchange of technologies.

24. **Geographic scope and beneficiaries**. The AF will continue to be implemented at the national level in each of the recipient countries. But it will scale-up project activities to cover additional beneficiaries with a focus on small scale farmers, young entrepreneurs, women and agro-processors. The project will also develop a mechanism to encourage the private sector to invest in project activities and in the innovation platforms, mainly in the domain of commercial seeds and tissue culture for vegetative crops, agro-processing, fabrication of mechanical tools and processing equipment.

25. **Links with other initiatives**. The AF will establish close linkages with ongoing projects and organizations, which are supporting WAAPP targeted value chains. More specifically, it will develop Memorandums of Understanding (MOUs) to strengthen the synergies between the WAAPP and the relevant Bank projects in the agricultural sector in the sub-region and agricultural sector in each of the recipient countries including: (i) the Agricultural Development Support Projects in Togo, Benin and Guinea; (ii) the Climate Smart Agriculture Project, and the National Agro-pastoral Market Development Project in Niger; (iii) the Sahel Pastoralism Project and (iv) the Sahel Irrigation Project. It will also support CORAF/WECARD, collaborate at the regional level with the USAID funded WASP Project, and extend this collaboration to the Islamic Development Bank's regional project and the African Development Bank's new initiative known as "Africa Feeding Africa", or the Technologies for African Agricultural Transformation (TAAT) program. The AF will also strengthen the linkage with the relevant CGIAR centers to ensure that the technologies released by these centers are transferred to producers in the participating countries to improve their livelihood and to promote entrepreneurship mainly among the youth. The project will scale up the implementation of the concept of collaboration for mass adoption, developed under the parent project, through the organization of technology fairs and the signing of MOUs with relevant projects and programs of dissemination of improved technologies to expedite the transformation of agricultural sector in West Africa.

IV. World Bank Grievance Redress

26. 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 complaints 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 the 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		
Current	*Proposed*	*Comments/ Rationale for Change*
The PDO is to generate and accelerate adoption of improved technologies in the participating countries' top agricultural commodity priority areas that are aligned with the sub-region's top agricultural commodity priorities, as outlined in the ECOWAP	No change	N/A
Revisions to the PDO indicators		
Current	*Proposed change*	*Comments/ Rationale for Change*
Direct project beneficiaries 40 percent of whom are female	Increase in the end-target from 1.42 million to 3.9 million direct beneficiaries	Taking into account the achievements to date and adding the expected additional results under the additional financing (AF)
Technologies generated by the project with at least 15 percent productivity increase over the control technology	Increase in the end-target from 28 to 59 technologies.	Taking into account the achievements to date and adding the expected additional results under the AF Guinea is a non-NCoS country, but it hosts Mali NCoS' sub-station for upland Rice.
Area under improved technologies disseminated under the project	Increase in the end-target from 1.23 million ha to 2.92 million ha	Taking into account the achievements to date and adding the expected additional results under the AF
Processors/producers who have adopted at least one new improved technology, made available by the project	Increase in the end-target from 820,000 to 2.39 million processors/producers	Taking into account the achievements to date and adding the expected additional results under the AF
	Beneficiaries who are using technology generated/released by other countries' NCOS (at least 3) (by country, cumulative)	NEW INDICATOR (applicable only to the four countries under the AF). To better capture the regional integration

		and technology dissemination activities
	Producers with knowledge of technologies generated/released by the project (by country) (percent)	NEW INDICATOR (applicable only to the four countries under the AF). To better capture the technology dissemination activities
Revisions to the Intermediate Results Indicators		
Current (PAD)	*Proposed change*	*Comments/ Rationale for Change*
National regulations on genetic materials, fertilizer, and pesticides aligned with regional (ECOWAS) regulations and adopted	No change	
Regulations for fertilizer at ECOWAS level developed and adopted	No change	
A system for data collection, analysis and reporting on agricultural technologies, research skills, and agricultural productivity established/operational at national and regional (CORAF/WECARD) levels	No change	Indicator will continue to be used for monitoring the project activities under the AF
Hits for the national/regional web-based information system of agricultural technologies and research skills	Increase in the end-target from 118,200 to 552,270 hits	Taking into account the achievements to date and adding the expected additional results under the AF
National/regional action plan on gender, communication, and climate change developed	No change	Indicator will continue to be used for project activities monitoring under the AF
Technologies generated/adapted by NCoS, and demonstrated by the project in the project area (for NCoS countries)	Increase in the end-target from 33 to 60	Taking into account the achievements to date and adding the expected additional results under the AF
Technologies generated outside the country and tested by a non-NCoS country (for non-NCoS countries)	Increase in the end-target from 16 to 57 technologies	Taking into account the achievements to date and adding the expected additional results under the additional financing
Technologies generated/adapted by NCoS and demonstrated in at least 3 ECOWAS countries outside the	Increase in the end-target from 11 to 29 technologies	Taking into account the achievements to date and adding the expected

country of origin (for non-NCoS countries)		additional results under the AF Guinea is a non-NCoS country but it has generated some technologies of upland rice acting as a sub-station for the Mali NCoS
Training provided to clients (includes scientists, extension agents, agro-dealers, farmers, community members, etc.)	Increase in the end-target from 39,434 to 126,941 days of trainings to clients	Taking into account the achievements to date and adding the expected additional results under the AF
Scientific exchange visits	Increase in the end-target from 72 to 126 exchange visits/study tours	Taking into account the achievements to date and adding the expected additional results under the AF
Scholarships (disaggregated by M.Sc. and Ph.D.)	Increase in the end-target from 322 to 447 scholarships	Taking into account the achievements to date and adding the expected additional results under the AF.
Multi-country research proposals financed by the regional Competitive Agricultural Research Grant Scheme (CARGS) maintained by CORAF/WECARD)	Increase in the end-target from 10 to 15 proposals	Taking into account the achievements to date and adding the expected additional results under the AF
National Demand-Driven Research Proposals Projects Financed by the National CARGS	Increase in the end-target from 104 to 110 research proposals	Taking into account the achievements to date and adding the expected additional results under the AF
Technologies generated under the CARGS and demonstrated by the project in the project areas	Increase in the end-target from 33 to 129 technologies	Taking into account the achievements to date and adding the expected additional results under the AF. Guinea is a non-NCoS country, but it hosts Mali NCoS' sub-station for upland Rice.
Demonstration plots established	Increase in the end-target from 1,270 to 5,561 demonstration plots	Taking into account the achievements to date and adding the expected additional results under the AF

Genetic material (foundation seed and breeder stock) produced with the project support	Increase in the end-targets: -Rice: from 350 to 8,568 tons - Cassava: from 25 to 412 ha - Maize: from 500 to 1,040 tons - Improved breed - Straw: from 8,000 to 20,000	Taking into account the achievements to date and adding the expected additional results under the AF
Publications released in regional / national magazines	Increase in the end-target from 37 to 137 publications	Taking into account the achievements to date and adding the expected additional results under the AF
	Nutritive sensitive (fortified) technologies adopted by processors (number)	NEW INDICATOR (applicable only to the four countries under the AF). For the new activities under the AF targeting nutrition
	Investment proposals prepared and presented to private investors (who should have at least 10 full-time and seasonal employees)	NEW INDICATOR (applicable only to the four countries under the AF). For the new activities under the AF, targeting private sector participation
	Beneficiaries in jobs created as a result of project interventions (full-time all year, full-time in season)	NEW INDICATOR (applicable only to the four countries under the AF). For the new activities under the AF targeting job creation
Procurement and FM activities are executed in conformity with the timing of the procurement plan, the implementation manual, IDA procedures	No Change	Indicator will continue to be used for monitoring project activities under the AF
Project reports are presented within 45 days of the end of the relevant period	No Change	Indicator will continue to be used for monitoring project activities under the AF
A harmonized M & E system is established and operational for data collection, analysis and reporting	No Change	Indicator will continue to be used for monitoring project activities under the AF
Sub-project granted with environmental management plan implemented effectively	No Change	Indicator will continue to be used for monitoring project activities under the AF
Disbursement rate of funds	New disbursement estimates for the AF	Indicator will continue to be used for monitoring

		project activities under the AF.
	Supervision missions by civil society	NEW INDICATOR (applicable only to the four countries under the AF). For the new activities under the AF concerning citizens' engagement

Annex 1B: WAAPP-1C Additional Financing – Revised Results Framework

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
PDO level indicators										
1.Direct project beneficiaries 40% of whom are female (cumulative, disaggregated by country)	R	Number	**BJ**	**432,849**	**500,000**	**600,000**	**900,000**	Annual	Supervision missions and Annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**123,929**	**200,000**	**300,000**	**800,000**			
			LI	241,040	241,040	241,040	241,040			
			NE	**383,670**	**450,000**	**550,000**	**700,000**			
			SL	288,083	288,083	288,083	288,083			
			TG	**238,461**	**350,000**	**450,000**	**500,000**			
			CI	301,200	301,200	301,200	301,200			
			GA	136,494	136,494	136,494	136,494			
TOTAL				**2,145,726**	**2,466,817**	**2,866,817**	**3,866,817**			
2. Technologies generated by the project with at least 15% productivity increase over the control technology (for NCoS countries) (cumulative, disaggregated by country)	R	Number	**BJ**	**14**	**14**	**16**	**20**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**6**	**10**	**15**	**15**			
			LI	N/A	N/A	N/A	N/A			
			NE	**6**	**8**	**10**	**10**			
			SL	14	14	14	14			
			TG	N/A	N/A	N/A	N/A			
			CI	N/A	N/A	N/A	N/A			
			GA	N/A	N/A	N/A	N/A			
TOTAL				**40**	**46**	**55**	**59**			
3. Area under improved technologies	R	Hectare	**BJ**	**290,040**	**400,000**	**500,000**	**600,000**	Annual	Supervision missions and annual	PCU and CORAF/ WECARD
			GN	**69,150**	**300,000**	**450,000**	**600,000**			
			LI	102,749	102,749	102,749	102,749			

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
disseminated under the project (cumulative, disaggregated by country)			**NE**	**578,655**	**650,000**	**800,000**	**1,000,000**		assessments/ survey	
			SL	113,881	113,881	113,881	113,881			
			TG	**114,483**	**200,000**	**300,000**	**350,000**			
			CI	98,120	98,120	98,120	98,120			
			GA	56,000	56,000	56,000	56,000			
TOTAL				**1,423,078**	**1,920,750**	**2,420,750**	**2,920,750**			
4. Processors/producers who have adopted at least one new improved technology, made available by the project (cumulative, disaggregated by country)	R	Number	**BJ**	**219,023**	**300,000**	**400,000**	**500,000**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**26,487**	**200,000**	**300,000**	**500,000**			
			LI	103,604	103,604	103,604	103,604			
			NE	**257,052**	**350,000**	**450,000**	**500,000**			
			SL	249,164	249,164	249,164	249,164			
			TG	**148 638**	**200 000**	**300,000**	**350,000**			
			CI	123,680	123,680	123,680	123,680			
			GA	69,139	69,139	69,139	69,139			
TOTAL				**1,196,787**	**1,595,587**	**1,995,587**	**2,395,587**			
5. Beneficiaries who are using technology generated/released by other countries' NCoS (at least 3) (cumulative, disaggregated by country)	New	Number	**BJ**	**1,500**	**50,000**	**100,000**	**150,000**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**5,000**	**50,000**	**100,000**	**200,000**			
			LI	N/A	N/A	N/A	N/A			
			NE	**11,500**	**50,000**	**100,000**	**150,000**			
			SL	N/A	N/A	N/A	N/A			
			TG	**6,000**	**10,000**	**50,000**	**100,000**			
			CI	N/A	N/A	N/A	N/A			
			GA	N/A	N/A	N/A	N/A			
TOTAL				**24,000**	**160,000**	**350,000**	**600,000**			
	New	Percent	**BJ**	**0**	**60**	**70**	**75**	Annual		

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
6. Producers with knowledge of technologies generated/released by the project			**GN**	**0**	**60**	**70**	**75**		Annual assessment/ survey	PCU and CORAF/ WECARD
			LI	N/A	N/A	N/A	N/A			
			NE	**0**	**60**	**70**	**75**			
			SL	N/A	N/A	N/A	N/A			
			TG	**0**	**60**	**70**	**75**			
			CI	N/A	N/A	N/A	N/A			
			GA	N/A	N/A	N/A	N/A			
Intermediate Results Indicators										
Component 1: Enabling Conditions for Sub-Regional Cooperation in Generation, Dissemination and Adoption of Agricultural Technologies										
1.1 National regulations on genetic materials, fertilizer and pesticides aligned with regional (ECOWAS) regulations and adopted (cumulative, disaggregated by country)	C	Number	**BJ**	**3**	**3**	**3**	**3**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**3**	**3**	**3**	**3**			
			LI	3	3	3	3			
			NE	**3**	**3**	**3**	**3**			
			SL	3	3	3	3			
			TG	**2**	**3**	**3**	**3**			
			CI	N/A	N/A	N/A	N/A			
			GA	2	2	2	2			
1.2 Regulations for fertilizer at ECOWAS level developed and adopted	C	Yes/No	CORAF	Y	Y	Y	Y	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
1.3 A system for data collection, analysis and reporting on agricultural	C	Yes/No	**BJ**	Y	Y	Y	Y	Annual	Supervision missions and annual	PCU and CORAF/ WECARD
			GN	Y	Y	Y	Y			
			LI	Y	Y	Y	Y			
			NE	Y	Y	Y	Y			

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
technologies, research skills, and agricultural productivity is established at national and regional (CORAF/WECARD) levels			SL	Y	Y	Y	Y		assessments/ survey	
			TG	Y	Y	Y	Y			
			GA	Y	Y	Y	Y			
			CORAF	**Y**	**Y**	**Y**	**Y**			
1.4 Hits for the national/regional web-based information system of agricultural technologies and research skills (cumulative, disaggregated by country)	R	Number	**BJ**	**15,248**	**17,000**	**18,500**	**20,000**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**2,000**	**5,000**	**7,000**	**10,000**			
			LI	1,000	1,000	1,000	1,000			
			NE	**4,200**	**6,000**	**8,000**	**10,000**			
			SL	2,270	2,270	2,270	2,270			
			TG	**1,100**	**5,000**	**10,000**	**10,000**			
			CI	N/A	N/A	N/A	N/A			
			GA	0	0	0	0			
			CORAF	234,000	300,000	400,000	500,000			
TOTAL				**258,818**	**335,270**	**445,770**	**552,270**			
1.5 National/regional action plan on gender, communication, and climate change developed (cumulative, disaggregated by country)	C	Number	**BJ**	**3**	**3**	**3**	**3**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**3**	**3**	**3**	**3**			
			LI	2	2	2	2			
			NE	**3**	**3**	**3**	**3**			
			SL	3	3	3	3			
			TG	**3**	**3**	**3**	**3**			
			CI	N/A	N/A	N/A	N/A			
			GA	2	2	2	2			
			CORAF	**3**	**3**	**3**	**3**			
Component 2: National Centers of Specialization/Strengthening of the Research System										
2.1 Technologies generated/adapted by	R	Number	**BJ**	**8**	**14**	**15**	**16**	Annual	Supervision missions and	
			GN	**6**	**8**	**10**	**10**			

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
NCoS and demonstrated by the project in the project area (for NCoS countries) (cumulative, disaggregated by country)			LI	NA	NA	NA	NA		annual assessments/ survey	PCU and CORAF/ WECARD
			NE	**6**	**8**	**10**	**10**			
			SL	14	14	14	14			
			TG	**N/A**	**N/A**	**N/A**	**N/A**			
			CI	N/A	N/A	N/A	N/A			
			GA	N/A	N/A	N/A	N/A			
TOTAL				**34**	**46**	**54**	**60**			
2.2 Technologies generated outside the country and tested by a non-NCoS country (for non-NCoS countries) (cumulative, disaggregated by country)	R	Number	**BJ**	**N/A**	**N/A**	**N/A**	**N/A**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**5**	**7**	**10**	**15**			
			LI	2	2	2	2			
			NE	**N/A**	**N/A**	**N/A**	**N/A**			
			SL	N/A	N/A	N/A	N/A			
			TG	**8**	**12**	**14**	**16**			
			CI	N/A	N/A	N/A	N/A			
			GA	12	12	12	12			
TOTAL				**36**	**38**	**48**	**57**			
2.3 Technologies generated/adopted by NCoS and demonstrated in at least three ECOWAS countries outside the country of origin (for non-NCoS countries) (cumulative,	R	Number	**BJ**	**7**	**8**	**9**	**9**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**5**	**8**	**10**	**10**			
			LI	N/A	N/A	N/A	N/A			
			NE	**3**	**5**	**7**	**7**			
			SL	3	3	3	3			
			TG	**N/A**	**N/A**	**N/A**	**N/A**			
			CI	N/A	N/A	N/A	N/A			
			GA	N/A	N/A	N/A	N/A			

disaggregated by country)	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
TOTAL				**18**	**24**	**29**	**29**			
2.4 Training provided to clients (including scientists, extension, agro-dealers, farmers, community members, etc.) (cumulative, disaggregated by country)		Number	**BJ**	**2,071**	**10,000**	**20,000**	**30,000**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**14,127**	**20,000**	**25,000**	**30,000**			
			LI	12,225	12,225	12,225	12,225			
			NE	**7,086**	**15,000**	**30,000**	**30,000**			
			SL	11,695	11,695	11,695	11,695			
			TG	**7,076**	**8,000**	**9,000**	**10,000**			
			CI	1,637	1,637	1,637	1,637			
			GA	1,384	1,384	1,384	1,384			
TOTAL				**57,301**	**79,941**	**110,941**	**126,941**			
2.5 Scientific exchange visits (cumulative, disaggregated by country)	R	Number	**BJ**	**35**	**39**	**43**	**45**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**15**	**15**	**20**	**25**			
			LI	2	2	2	2			
			NE	**15**	**18**	**20**	**21**			
			SL	3	3	3	3			
			TG	**10**	**14**	**18**	**20**			
			CI	4	4	4	4			
			GA	6	6	6	6			
TOTAL				**90**	**101**	**116**	**126**			
	R		**BJ**	**64**	**104**	**104**	**104**		Supervision missions and	
			M.Sc.	38	78	78	78			

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
			Ph.D.	26	26	26	26		annual assessments/ survey	
			GN	**0**	**35**	**35**	**35**			
			M.Sc.	0	35	35	35			
			Ph.D.	0	0	0	0			
			LI	37	37	37	37			
			M.Sc.	32	32	32	32			
			Ph.D.	5	5	5	5			
			NE	**96**	**140**	**140**	**140**			
			M.Sc.	58	102	102	102			
2.6 Scholarships (disaggregated by M.Sc. and Ph.D.) (cumulative, disaggregated by country)		Number of MSc & PhD	Ph.D.	38	38	38	38			PCU and CORAF/ WECARD
			SL	41	41	41	41			
			M.Sc.	32	32	32	32			
			Ph.D.	9	9	9	9			
			TG	**70**	**72**	**72**	**72**			
			M.Sc.	36	38	38	38			
			Ph.D.	34	34	34	34			
			CI	N/A	N/A	N/A	N/A			
			GA	18	18	18	18			
			M.Sc.	16	16	16	16			
			Ph.D.	2	2	2	2			
		Total	**M.Sc.**	**212**	**333**	**333**	**333**			
		Total	**Ph.D.**	**114**	**114**	**114**	**114**			
TOTAL				**326**	**447**	**447**	**447**			
Component 3: Funding of Demand-driven Technology Generation and Adoption										

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
3.1 National demand-driven research proposals projects financed by the national Competitive Agricultural Research Grant System (CARGS) (cumulative, disaggregated by country)	R	Number	**BJ**	**26**	**33**	**33**	**33**	Annual	Supervision missions and annual assessments /survey	PCU and CORAF/ WECARD
			GN	**8**	**12**	**15**	**15**			
			LI	0	0	0	0			
			NE	**16**	**24**	**24**	**24**			
			SL	3	3	3	3			
			TG	**15**	**22**	**24**	**24**			
			CI	10	10	10	10			
			GA	1	1	1	1			
TOTAL				**79**	**105**	**110**	**110**			
3.2 Multi-country research proposals financed by the regional Competitive Agricultural Research Grant Scheme (CARGS) maintained by CORAF/WECARD (and country involvement)	R	Number	**CORAF**	**10**	**15**	**15**	**15**	Annual	Supervision missions and annual assessments /survey	CORAF/ WECARD
3.3 Technologies generated under the CARGS and demonstrated by the project in the project areas (cumulative,	R	Number	**BJ**	**54**	**55**	**60**	**60**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**8**	**10**	**15**	**15**			
			LI	0	0	0	0			
			NE	**3**	**14**	**14**	**14**			
			SL	0	0	0	0			
			TG	**6**	**11**	**11**	**11**			

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
disaggregated by country)			CI	16	16	16	16			
			GA	1	1	1	1			
			CORAF	**7**	**10**	**12**	**12**			
TOTAL				**85**	**117**	**129**	**129**			
3.4 Demonstration plots established (cumulative, disaggregated by country)	R	Number	**BJ**	422	995	1,095	1,500	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	35	500	1,000	1,500			
			LI	12	12	12	12			
			NE	285	385	600	750			
			SL	192	192	192	192			
			TG	650	900	1,200	1,200			
			CI	N/A	N/A	N/A	N/A			
			GA	407	407	407	407			
TOTAL				**2,003**	**3,391**	**4,506**	**5,561**			
3.5 Genetic Material (foundation seed and breeder stock) produced with the project support (cumulative, disaggregated by country)	R	Tons for Maize and Rice & Ha for Cassava	**BJ (rice)**	**189**	**240**	**250**	**300**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			BJ (Maize)	**615**	**640**	**750**	**800**			
			GN (rice)	**156**	**300**	**400**	**500**			
			GN (Maize)	**0**	**50**	**75**	**100**			
			LI (rice)	1,015	1,015	1,015	1,015			
			LI (cassava)	112	112	112	112			
			NE (straw)	**6,800**	**10,000**	**15,000**	**20,000**			

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
			NE (cowpea)	**780**	**850**	**1,000**	**1,200**			
			SL (rice)	93	93	93	93			
			SL (bundles cassava)	300	300	300	300			
			TG (maize)	**70**	**84**	**112**	**140**			
			TG(rice)	**30**	**36**	**48**	**60**			
			CI (rice)	6,600	6,600	6,600	6,600			
			GA (millet & sorghum)	263	263	263	263			
TOTAL			**Rice**	**8,083**	**8,284**	**8,406**	**8,568**			
			Cassava	**412**	**412**	**412**	**412**			
			Maize	**685**	**774**	**937**	**1,040**			
			Cowpea	**780**	**850**	**1,000**	**1,200**			
			Straw	**6,800**	**10,000**	**15,000**	**20,000**			
3.6 Publications released in regional/national magazines (cumulative, disaggregated by country)	C	Number	**BJ**	**35**	**40**	**45**	**50**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**8**	**10**	**15**	**15**			
			LI	0	0	0	0			
			NE	**14**	**15**	**25**	**25**			
			SL	11	11	11	11			
			TG	**10**	**15**	**25**	**30**			
			CI	1	1	1	1			
			GA	5	5	5	5			
TOTAL				**84**	**97**	**127**	**137**			

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
3.7 Nutritive sensitive (fortified) technologies adopted by processors (cumulative, disaggregated by country)	N	Number	**BJ**	**5**	**5**	**10**	**10**	Annual	Supervision missions and annual assessments/ survey	
			GN	**1**	**3**	**6**	**6**			
			LI	N/A	N/A	N/A	N/A			
			NE	**3**	**5**	**8**	**8**			
			SL	N/A	N/A	N/A	N/A			
			TG	**3**	**5**	**8**	**8**			
			CI	N/A	N/A	N/A	N/A			
			GA	N/A	N/A	N/A	N/A			
TOTAL				**12**	**15**	**30**	**30**			
3.8 Investment proposals prepared and presented to private investors (who should have at least 10 full time and seasonal employers)	N	Number	**BJ**	**0**	**5**	**10**	**10**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**0**	**5**	**10**	**10**			
			LI	N/A	N/A	N/A	N/A			
			NE	0	5	10	10			
			SL	N/A	N/A	N/A	N/A			
			TG	0	4	8	8			
			CI	N/A	N/A	N/A	N/A			
			GA	N/A	N/A	N/A	N/A			
TOTAL				**0**	**19**	**38**	**38**			
3.9. Beneficiaries in jobs created as a result of project interventions (full-time all year, full-time in season)	N	Number	**BJ**	**0**	**1,000**	**2,500**	**5,000**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**200**	**1,000**	**2,500**	**5,000**			
			LI	N/A	N/A	N/A	N/A			
			NE	**1,265**	**2,500**	**3,500**	**5,000**			
			SL	N/A	N/A	N/A	N/A			
			TG	**1,000**	**1,500**	**2,000**	**3,000**			
			CI	N/A	N/A	N/A	N/A			
			GA	N/A	N/A	N/A	N/A			
TOTAL				**2,465**	**6,000**	**10,500**	**18,000**			
Component 4: Project Coordination, Management, Monitoring and Evaluation										
	C	Yes/No	**BJ**	**Y**	**Y**	**Y**	**Y**	Annual		

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
4.1 Procurement and FM activities are executed in conformity with the procurement plan, the implementation manual, and IDA procedures.			**GN**	**Y**	**Y**	**Y**	**Y**		Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			LI	Y	Y	Y	Y			
			NE	**Y**	**Y**	**Y**	**Y**			
			SL	Y	Y	Y	Y			
			TG	**Y**	**Y**	**Y**	**Y**			
			CI	Y	Y	Y	Y			
			GA	Y	Y	Y	Y			
4.2 Project reports presented within 45 days of the end of the relevant period	C	Yes/No	**BJ**	**Y**	**Y**	**Y**	**Y**	Annual	Supervision missions and annual assessments/ survey	PU and CORAF/ WECARD
			GN	**Y**	**Y**	**Y**	**Y**			
			LI	Y	Y	Y	Y			
			NE	**Y**	**Y**	**Y**	**Y**			
			SL	Y	Y	Y	Y			
			TG	**Y**	**Y**	**Y**	**Y**			
			CI	Y	Y	Y	Y			
			GA	Y	Y	Y	Y			
4.3 A harmonized monitoring and evaluation (M&E) system is established and operational for data collection, analysis and reporting	C	Yes/No	**BJ**	**Y**	**Y**	**Y**	**Y**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**Y**	**Y**	**Y**	**Y**			
			LI	Y	Y	Y	Y			
			NE	**Y**	**Y**	**Y**	**Y**			
			SL	Y	Y	Y	Y			
			TG	**Y**	**Y**	**Y**	**Y**			
			CI	Y	Y	Y	Y			
			GA	Y	Y	Y	Y			
4.4 Sub-project granted with environmental management plan implemented effectively	C	Percent	**BJ**	**100**	**100**	**100**	**100**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**100**	**100**	**100**	**100**			
			LI	N/A	N/A	N/A	N/A			
			NE	**100**	**100**	**100**	**100**			
			SL	100	100	100	100			
			TG	**100**	**100**	**100**	**100**			

	D=Dropped C=Continue N=New R=Revised	Unit of Measure	Country	Baseline (Achievements as of Nov. 2016)	Cumulative Target Values**			Frequency	Data Source/ Methodology	Responsibility for Data Collection
					YR 1	YR 2	YR3			
			CI	100	100	100	100			
			GA	100	100	100	100			
4.5 Disbursement rate of funds * (PHRD/IDA)	R	Percent	**BJ**	**42**	**60**	**80**	**100**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF/ WECARD
			GN	**28**	**60**	**80**	**100**			
			LI	100	100	100	100			
			NE	**66**	**80**	**90**	**100**			
			SL	100	100	100	100			
			TG	**55**	**70**	**90**	**100**			
			CI	100	100	100	100			
			GA	100	100	100	100			
4.6 Supervision missions by Civil Society (cumulative, disaggregated by country)	N	Number	**BJ**	**9**	**11**	**13**	**15**	Annual	Supervision missions and annual assessments/ survey	PCU and CORAF /WECARD
			GN	**0**	**2**	**4**	**6**			
			LI	N/A	N/A	N/A	N/A			
			NE	**0**	**2**	**4**	**6**			
			SL	N/A	N/A	N/A	N/A			
			TG	**0**	**2**	**4**	**6**			
			CI	N/A	N/A	N/A	N/A			
			GA	N/A	N/A	N/A	N/A			
TOTAL				**9**	**17**	**25**	**33**			

Note: BJ= Benin; GN= Guinea; LI =Liberia; NE = Niger; SL = Sierra Leone; TG = Togo; GA = The Gambia

* Disbursement estimates for the countries benefiting from the AF computed on the basis of the total amount of the project (i.e. amount of original project plus the amount of additional financing)

Annex 2: Detailed Project Description

Introduction

1. The original project, WAAPP-1C, is a part of the series of projects under the first phase of the WAAPP program. It was approved by the Board on March 24, 2011, for a total amount of SDR 54.6 million (or US$83.8 equivalent), and is currently under implementation with an expected closing date of March 31, 2017. Guinea joined the WAAPP program through a Japanese PHRD Trust Fund[7] financing for a total amount of US$9 million. The PDO is to generate and accelerate adoption of improved technologies in the participating countries' top agricultural commodity priority areas that are aligned with the sub-region's top agricultural commodity priorities as outlined in the ECOWAP.

The Additional Financing (AF)

2. The AF does not entail any change in the PDO, component structure, implementation arrangements or safeguards categories. It will rather consolidate and scale-up the achievements obtained so far under the original project and will also focus on new priority areas including employment, private sector participation, nutrition and citizens' engagements. Consequently, the changes resulting from the AF consist of: (i) an update of the results framework; (ii) an increase in the costs of the components; and (iii) an extension of the closing date of the original project.

A. Results framework

3. The results framework of the original project will be revised to increase the targets of the indicators and to add new indicators.

4. The PDO-level indicators of the original project, namely (i) Number of direct project beneficiaries 40% of whom are female; (ii) Technologies generated by the project with at least 15% productivity increase over the control technology (for NCoS countries) [8]; (iii) Area under improved technologies disseminated under the project (in hectares); and (iv) Number of processors/producers who have adopted at least one new improved technology, made available by the project, are maintained by the AF with an upward revision of the end targets to reflect expected outcome of the increased resources. Also, two new PDO-level indicators have been added to better capture the regional integration and technology dissemination activities; these are number of beneficiaries who are using the technology generated/released by other countries NCoS (at least 3), and number of producers with knowledge of technologies generated/released by the project. Moreover, four new intermediate level indicators on employment, private sector participation, nutrition, and citizens' engagement, have been added to cover the additional/new priorities under the AF (see Annex 1: Results Framework for the details).

[7] The Japan PHRD TF is co-financing under the WAAPP-1C, that is aimed at the support for the development of the rice sector in the four Mano River Union countries (i.e. Cote d'Ivoire, Guinea, Liberia and Sierra Leone)
[8] Guinea is non-NCoS country but hosts Mali NCoS' substation for upland rice.

B. Components' activities (see annex 2A for the activities at country level)

5. The components of the original project are still relevant for the proposed additional financing. However, additional resources will be added to each component to finance the new activities under the AF. The details of the components' activities under the AF are described below.

6. **Component 1: Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination and Adoption of Agricultural Technologies (US$4.3 million equivalent).** This component aims at strengthening the institutional mechanisms and procedures and creating an enabling environment for generating, disseminating, and adopting improved agricultural technologies and tools at the national level to allow ECOWAS member countries to benefit from those technologies within a regional framework for technical and scientific cooperation.

7. The AF will finance studies, workshops, study tours and consultant services to: (i) scale up dissemination and implementation of ECOWAS common regulations (seeds, fertilizer, pesticides) including organizing workshops for border customs officers; (ii) facilitate the operationalization of the regional seed council, the regional seed catalogue, and in each country the national seed council and the national seed fund; (iii) Support CORAF/WECARD update and upscale the implementation of the regional strategies and each country implement the national action plans to mainstream gender, climate-smart agriculture, youth employment and communication for development; (iv) support CORAF/WECARD develop a regional strategy on nutrition and food safety under the leadership of ECOWAS and each country to implement national action plans to disseminate nutrition sensitive and food safety innovations and technologies; and (v) assist each country in the processing of the setup of its sustainable funding mechanism for technology generation and dissemination.

8. **Component 2: National Centers of Specialization /Strengthening of the Research System (US$13.8 million equivalent).** In the case of Benin and Niger, the AF will support their action plans to transform the National Centers of Specialization (NCoS) into Regional Centers of Excellence (RCoE) for agricultural research on maize, livestock and upland rice respectively. For Togo and Guinea, which do not have an NCoS, the AF will continue to support the strengthening of the adaptive research system for rice, cereals, roots and tubers, small ruminants and aquaculture, as well as research activities.

9. This component will, therefore, finance: (i) construction and/or rehabilitation of core facilities, such as laboratories, buildings, and experimental fields, and also the provision of equipment; (ii) capacity-building for researchers, along with the facilitation of regional and international partnerships including backstopping from CGIAR centers, support for research exchange programs, on-the-job-training of young researchers, and implementation of annual capacity-building plans; (iii) supply chain analyses, benchmarking, and monitoring and impact analysis for commissioned or strategic research; and (iv) small grants to implement research activities for assessing available technologies from within or outside the territory of each participating country.

10. **Component 3: Funding of Demand-driven Technology Generation and Adoption (US$42.1 million equivalent).** This component aims at scaling up the adoption of technologies, innovations and best practices, generated under the overall WAAPP in the sub-region in the targeted value chains, and helping each country tap into the regional stock of knowledge in order to accelerate the improvement of poor households' livelihoods.

11. **Sub-component 3.1: Competitive Agricultural Schemes for Technology Generation and Dissemination:** Under this sub-component, the project will provide: (i) technical assistance and resources to continue the operations of the regional CARGS, managed by CORAF/WECARD and the national CARGS in each country; (ii) financing, through small grants, for adaptive research teams and private or public extension agencies for the completion of the ongoing research and dissemination activities; and (iii) financing of a limited number of new on-demand projects that may be commissioned.

12. **Sub-component 3.2: Accelerated Adoption of Released Technologies.** To bridge the gap between farmers' yields and the yields obtained by researchers, this sub-component will scale up the dissemination and adoption of the 188 technologies that have already been released by the program, particularly for the strategic value chains (rice, maize, cassava, meat/livestock and milk, fruits and vegetables, aquaculture, banana plantain, and roots and tuber).

13. This sub-component will support: (i) strengthening of the regional technology market, and scaling-up the adoption of existing technologies and innovations (through the organization of technology fairs and implementation of technology dissemination plans) with a much greater emphasis on nutrition-sensitive and climate smart agriculture technologies that have high potential for accelerating job creation for youth and women; (ii) implementation of an action plan to scale-up commercialization of promising technologies in close partnership with the private sector; (iii) the upgrading of the private and public extension services through participatory training in released technologies for extension service providers, including national extension services, non-governmental organizations (NGOs), input providers, farmers' organizations; and (iv) introduction of information technology (E-extension) and scaling up of improved extension tools such as the innovation platforms, farmers field schools, and field demonstrations of released technologies.

14. **Sub-component 3.3: Facilitating Access to Improved Genetic Material.** This sub-component is aimed at increasing the availability, and producers' access to improved genetic materials (seed, planting materials, fingerlings, and animal breeds) for the identified strategic value chains.

15. This sub-component will continue to support: (i) consolidation of the regional seed market through the upgrading of the West Africa Seed Information Exchange (WASIX), managed by CORAF/WECARD; (ii) completion of the upgrading of the national seed systems in order to improve their capacity to produce more certified seeds; (iii) all relevant stakeholders along the supply chains (CGIAR and national research institutions for the production of breeder and foundation seed; the private sector and farmers for multiplying and marketing foundation and certified seeds) to scale up the production of breeder, foundation, and certified seed and planting materials and quality animal stocks; and (iv) upgrading of public research stations through investment in additional irrigation and storage facilities, and provision of additional seed lab equipment.

16. **Component 4: Project Coordination, Management, Monitoring and Evaluation (US$7.8 million)**. This component aims to strengthen the coordination, management, and M&E system for the project at the national and regional levels. The AF will continue to finance the operational costs, reporting and M&E activities of the existing PCUs both at regional level (CORAF/WECARD) and country-level (in Togo, Niger, Benin and Guinea). In addition, the country-level PCUs will be reinforced with additional staff including a technology marketing

specialist and an environmental/social safeguard specialist. Moreover, the AF will also finance independent supervision missions and reporting by civil society.

Appendix 2A: Countries' summaries

2A-1: Benin Country Summary

Country	Benin
Source of Funds and Amount	IDA- US$20 million equivalent
Project Duration	3 years (2017-19)
Priority commodities	Maize (Center of Specialization), Rice, Poultry, Small ruminant Aquaculture, Cashew, Pineapple

Impact Evaluation (summary of the results)		
Impact evaluation ongoing (expected to be finalized in March 2017).		
Results Framework –PDO-level indicators		
Description	**Baseline (Achievements as of Nov. 2016)**	**End-target (2019)**
1. Number of direct project beneficiaries	432,849	900, 000
- 40% of whom are female	165,505	360,000
2. Number of technologies generated by the project with at least 15% productivity increase over the control technology	14	20
3. Area under the improved technologies, disseminated under the project (in hectares)	290,040	600,000
4. Number of processors/producers who have adopted at least one new improved technology, made available by the project	219,023	500,000
5- Number of beneficiaries who are using technology generated/released by other countries' NCoS (at least 3) —NEW INDICATOR	1,500	150,000
6- Percent of producers with knowledge of technologies, generated/released by the project—NEW INDICATOR	NA	75%

Component 1: Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies (US$1.3 million equivalent).	**Achievements of the initial phase**	**Activities under the Additional Financing**
Regional regulations	• ECOWAS regulations on fertilizers, sanitation and food safety adopted, and under implementation	• Scale up the dissemination of regulatory texts related to pesticides, fertilizer and seeds. • Develop an action plan for nutrition and food safety, which will be implemented in collaboration with the PHRD financed Nutrition Project under preparation. • Prepare an action plan to disseminate the new ECOWAS guidelines on animal genetic resources.

		• Organize training for border customs staff to facilitate cross border exchange of seeds and other technologies.
Sustainable financing of research and development (CARGS)	• 29 research projects financed (FCFA 850 Millions)	• Support additional studies and workshops to put in place a sustainable funding mechanism for the National Fund for Agricultural Development (FNDA).
National strategies and action plans	• Strategies and action plans for communication, gender, and climate change developed and being implemented	• Update the climate change action plan to include new approaches and technologies on climate smart agriculture (rice varieties resistant to water-logging; short/medium cycle maize tolerant to drought, SRI approach, etc.). • Acquisition of six meteorological stations for populating the national network for collection of rainfall and meteorological data; MOU with the Agency for the Safety of Aerial Navigation in Africa (ASECNA) for the generation and use of climatology data • Preparation of an action plan to mainstream integrated soil management practices (ISFM) with partner projects (International Fertilizer Development Center (IFDC) and German Society for International Cooperation (GIZ)). • Update the gender action plan and the communication action plan with a focus on communication for development. • **NEW:** Support the elaboration of a nutrition and food safety action plan including nutritional education, dissemination of technologies for enriched diets (03) through the school canteens (about 20). **NEW:** Elaborate and implement an action plan for youth employment and private sector investment.
Complementarity with other projects		• Develop MOU with the Agricultural Development Support Project (PADA) and the forthcoming PHRD funded

		nutrition project (Support Project for Agricultural Diversification). • Scale up partnership with relevant CGIAR centers and other public institutions as well as NGOs, etc. with particular emphasis on integrated soil fertility management (ISFM), climate change, gender, and agriculture mechanization.
Component 2: National Centers of Specialization/Strengthening of the Research System (US$4.1 equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing** *(Gradual evolution of NCoS to RCoE)*
Infrastructure	• Construction of Soil Science Laboratory, Water and Environment. • Rehabilitation of infrastructure of the South Research Center (NCoS for Maize).	• Acquisition of additional equipment for the research lab and for the upgrading of research and seed multiplication fields
Human capacity	• Academic Training: 26 Ph.D. and 36 M.Sc./DEA.	• Completion of ongoing Ph.D. and Master's training programs. • Support new training programs mainly for research technicians. Support the preparation and implementation of a capacity building plan for researches.
Research activities	• 14 development research projects (R&D) and 2 dissemination projects have generated 21 technologies of maize and 21 scientific knowledge products.	• Prepare an action plan for the NCoS to upscale the transfer of released technologies. • Support completion of the ongoing research activities • Funding of a limited number of new on-demand research activities.
Component 3: Funding of Demand-driven Technology Generation and Adoption (US$12.6 equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
Applied research through the CARGS	• 18 research projects (have generated 53 technologies and 31 scientific and technical knowledge packages).	• Scale up the transfer of the technologies released through competitive selection of advisory service providers including dissemination of processing equipment. • Provide training, seed fund and kits for young entrepreneurs. • Support the completion of ongoing research activities.

		• Finance a limited number of priority commissioned and competitive research projects on the basis of new constraints identified.
Technologies dissemination	• 115 Innovation Platforms (8 value chains) Maize NCoS. • Field days, demonstrations plots, 15 technology review workshops. • Dissemination through community radios, exhibitions (more than 5,000 visitors), publication of 35 scientific papers, 6 posters and 2 scientific papers, 6 success stories disseminated, 16 scientific booklets produced, and a web-site established.	• Improve extension services capacity to scale up technology adoption by beneficiaries through E-extension, Innovation Platforms and other extension tools. • Organize technology fairs and develop MOUs to nurture partnerships with programs/projects working on the same themes. • Prepare business plans and farm budgets and organize workshops for private investors and young entrepreneurs, and develop PPP to facilitate the release of their investment. • Support the organization of stakeholders exchange visits and technology fairs to enable Benin to benefit from the regional technology market.
Seed system	• 615 tons of seed produced comprising 426 tons of maize, 190 tons of rice and 600 cashew grafted plants	• Scale up the production of breeder and foundation seeds planting material by research institutes. • Complete the upgrading of the national seed system including equipment and operation cost for the seed lab. • Strengthening of the Seed Council and seed inspection system. • Upscale adoption of certified seeds and other planting materials as well as fingerlings through: (i) support to private and public seed producers to scale up the production; and (ii) procurement of certified seeds through the West Africa Electronic Seed Platform (WASIX). • Conduct feasibility studies for the establishment of production units of vitro plants by the private sector (in collaboration with PADA). • Scale up the supply of improved seed kits to vulnerable seed producers.

Component 4 : Project Coordination, Management, Monitoring and Evaluation (US$2 million equivalent)	• Project management and M&E was carried out satisfactorily.	• Strengthen capacities of national M&E staff to improve the management of data bases. • Conduct impact studies and beneficiary assessments studies. • Strengthen PCU with additional staff (see below).

Lessons learned during the initial phase and reflected in the AF design
• Efficacy of innovation platforms in the dissemination of technologies • Strengthening of collaboration of National Agriculture Research Systems' (NARS) researchers through the NCoS • Efficacy of NGOs and Producers' Organizations (PO) in the dissemination of technologies • Need to provide open seed certification to certified private sector enterprises

Institutional Changes/Implementation Arrangements
No change in the implementation arrangements • The Project Implementation Manual has been updated to take into account the activities under the AF • Involvement of the private sector in the dissemination and use of technologies generated: financing of PPPs to facilitate private sector investment, and scale up technology adoption • Open certification of seeds to certified private sector enterprises • Strengthening the Project Management Unit with additional staff comprising: 1 Accountant, 1 Technology Marketing Specialist, 1 Environmental Safeguards Specialist, 1 Social Safeguards Specialist
Fiduciary
• Recruitment of an accountant (see above)
Environmental/Social Safeguards
• Safeguard instruments (ESMF and PPM) updated and disclosed both in-country and at regional level (on CORAF/WECARD website) • Recruitment of an Environment Safeguards Specialist and a Social Safeguards Specialist (see above) • Signing of a MOU with Agency for the Safety of Aerial Navigation in Africa (ASECNA) for the collection and dissemination of rainfall data to producers

2A-2: Guinea Country Summary

Country	Guinea
Source of financing and amount	US$23 million equivalent (IDA – US$8 million, CRW-US$15million)
Duration of the Project	3 years (2017-19)
Priority commodities	Rice – and additional value chains: maize, cassava, aquaculture, poultry, small ruminants, plantain

Impact Evaluation (summary of the results)

Final impact survey conducted in 2015/2016. Results showed that:

- Implementation of the WAAPP contributed to the increase of certified seed production capacity from 1,000 tons in 2011 to about 5,000 tons in 2016.
- The distribution (through WAAPP) of more than 5,000 tons of certified seed to farmers between 2013 and 2015 contributed to: (i) increase in the rate of utilization of the seed of improved crops' varieties from 15 to 35 percent in 2015 (Barry et al.); (ii) improvement of yields in up-lands (from 1 to 2.35 tons/ha) and alluvial plains (from 1.7 to 2.55 tons/ha), and in other ecological zones, namely Mangrove (from 2 to 3.9 tons/ha) and low-lands (from 2 to 2.98 tons/ha).
- The use of certified seed allowed 30 percent increase in yields, and generated significant income for farmers. Farms which have used certified seed gained GNF 1.2 million per ha (US$150).
- At the national level, additional production of 70.000 tons paddy corresponding to GNF 120 milliards (US$ 4 million) was observed.
- With regard to food security, 86.2 percent of households have experienced food shortage in 2016 compared to 97 percent in 2013. This corresponds to 9.7 percent of food security improvement in the project intervention zones.
- The double-difference analysis of socio-economic data shows on average 5 percent of livelihood improvement. It means that despite the two years of Ebola crisis and unsatisfactory socio-political situation experienced by the country during the period 2013-2015, the implementation of the program did indeed mitigate the worsening livelihood conditions in the project's target areas.

Results Framework –PDO-level indicators

Description	**Baseline (Achievements as of Nov. 2016)**	**End-target (2019)**
1. Number of direct project beneficiaries	123,929	800,000
- 40% of whom are female	41.7%	42%
2. Number of Technologies generated by the project with at least 15% productivity increase over the control technology	6	15
3. Area under the improved technologies, disseminated by the project (in hectares)	69,150	600,000
4. Number of processors/producers who have adopted at least one new improved technology, made available by the project	26,487	500,000
5- Number of beneficiaries who are using technology generated/released by other countries' NCOS (at least 3) —NEW INDICATOR	5,000	200,000
6- Percent of producers with knowledge of technologies generated/released by the project—NEW INDICATOR	N/A	75%

Component 1 : Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies (US$0.9 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
Regional regulations	• ECOWAS regulation on seeds, fertilizer and pesticides adopted and being implemented	• Scale-up dissemination of the regulations. • Organize workshops with border customs staff to facilitate cross-border exchange of seeds and other technologies.
Sustainable financing of research and development (CARGS)	• Contacts were established between the Ministries of Agriculture of Guinea and Côte d'Ivoire for the establishment of an inter-professionals sustainable financing mechanism similar to the "*Fonds Interprofessionel pour la Recherche et le Conseil Agricole*" (FIRCA) in Cote d'Ivoire.	• Support feasibility studies, workshops and dialogue among stakeholders to establish the sustainable funding mechanism
National strategies and action plans	• National action plans for communication, gender and climate change developed and being implemented • Production and dissemination/broadcasting of information sheets and documentary films • Tools for supporting social and environmental safeguard strengthened for pesticide use and gender mainstreaming • Implementation of national action plan strengthened in collaboration with national farmers' organization to enhance their resilience for adaptation to climate change	• Support updating and scale up dissemination and implementation of communication, gender and climate change action plans. • Support the integration of ECOWAS markets through the funding and technical backstopping of the Guinea market information system (SIPAG), in particular production of technical notes to guide decision makers on markets development. • **NEW:** Develop a strategy and an action plan for nutrition and food safety, and support implementation. • **NEW:** Develop a strategy and an action plan to scale up youth self-employment in agriculture in particular and in the rural sector in general.

Complementarity with other projects	Collaboration with IFAD, FAO and the mining companies in the development of the rice sector	• Develop MOU with the World Bank-funded Agricultural Sector Support Project, IFAD projects, Islamic Development Bank-funded project and all relevant stakeholders to scale up dissemination and adoption of improved technologies. • Support the preparation of the Presidential initiative on agricultural development and develop an action plan to implement agricultural campaigns.
Component 2 : National Centers of Specialization/Strengthening of the Research System (US$5.3 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
Infrastructure	• Rehabilitation of infrastructure to strengthen the capacities of Agriculture Research Institute of Guinea (IRAG), mainly for research on rice cropping (lands, laboratories, transportation facilities and offices), at Kilissi, Bareng and Bordo.	• Support additional works and equipment provision for IRAG (laboratories, buildings, experimental lands, and seed multiplication fields).
Human capacity	• Within the framework of the PHRD Grant, only short- term training was provided to one rice sector scientist.	• Develop and implement a training plan for researchers including academic training for young scientists, and training for research technicians.
Research activities	• Support to 12 adaptive research sub-projects on development of improved rice varieties and relevant technical practices. • Support for conducting a rice value chain study .	• Support IRAG to develop an action plan to scale up adoption of the released technologies • Support IRAG for completion of ongoing research activities on rice. • Support IRAG to participate in the networks of the NCoS and develop research activities to adapt technologies, imported from the sub-region for targeted value chains. • Support IRAG to implement, in collaboration with the private sector, a pilot operation through

		an « *agropole* » approach in two selected zones (*N'Zérékoré and Kankan*) to scale up the production of parboiled rice.
Component 3: Funding of Demand-driven Technology Generation and Adoption (US$14.2 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
Applied research through the CARGS	• 8 competitive sub-projects, managed by FORSEGUI (Center for Scientific Research in Conakry Rogbane) with the involvement of key partners of national agriculture research system (NARS), directly implemented by the end-users, have addressed constraints specific to the development of rice value chain.	• Organize stakeholders' exchange visits to WAAPP participating countries to identify relevant key technologies for Guinea. • Support the launching of call for proposals opened to universities, NGOs, and all relevant private and public sector institutions to adapt and disseminate improved technologies of cassava, maize, aquaculture, small ruminant and poultry value chains.
Technologies dissemination	• Use of diverse communication channels, namely knowledge-sharing workshops, participatory training of dissemination service providers on improved technologies, and ICT. • Distribution of the improved rice parboil system (including 116 parboil kits, and 58 rice fresher (of which 10 big models with operating capacity of 800 kg/hour, equivalent to 7 tons per day) among smallholders. • Construction of 5 multifunction warehouses with 50 Mt of capacity and drying areas (Kaback, Bendougou, Soumansso, Fatako, Kinièran) • Training of 51 women groups in the use and maintenance of handicrafts, and management and governance of the handicrafts business.	• Support capacity building for public and private advisory services to scale up multi-actors innovation platforms for priority value chains. • Support preparation and implementation of dissemination action plans to scale up adoption of improved technologies including post-harvest, mechanization, and climate smart and nutrition sensitive innovations • Organize technology fairs and develop MOUs with other development partners, rural development projects, NGOs, and farmer organizations as a strategy for mass adoption. • Introduce ICT in agriculture mainly E-voucher and E-extension to modernize extension approaches with the objective of achieving large scale adoption of technologies. • Implement an action plan to support priority activities of the

		Presidential Initiative on Agriculture. • Rehabilitate the agricultural training centers' facilities. • Prepare business plans and farm budget and organize workshops for private sector and youth to scale up youth employment in agriculture.
Seed system	The project has undertaken the following activities to build the seed system: • Supported (between 2012 and 2014) the production of 11,5 tons of G2 breeder seed, 114,5 tons of foundation seed (G3), and 14,137 tons of certified seeds of which 5,286 Mt were directly or indirectly collected for distribution among the rice producers. • Facilitated: (i) the revival of seed centers (4 at national level), (ii) strengthened seed treatment capacities through rehabilitation of the seed center at Guéckédou, and provision of two mobile units; (iii) strengthened seed producers' organization at the national level.	• Support activities to complete the upgrading of the national seed system in order to scale up production and adoption of certified seeds and other genetic materials (e.g. plant and animal seeds, planting material, fingerlings, etc.) for targeted value chains. • Support research in collaboration with CGIAR institutes (AfricaRice and, International Institute of Tropical Agriculture (IITA), etc.) for scaling up the production of breeder seeds. • Support community-based seed multiplication and private seed companies to scale up production of certified seeds and quality planting materials. • Provide mini-kits of seeds and genetic materials to facilitate producers' access and adoption of improved technologies.
Component 4 : Project Coordination, Management, Monitoring and Evaluation (US$2.6 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
	• The PHRD was satisfactorily implemented by the Project Coordination Unit (PCU). • Impact evaluation of the project has been conducted.	• Continue to support the PCU and the Steering Committee. • Strengthen the PCU with additional staff.

Lessons learned during the initial phase and reflected in the AF design
• The WAAPP approach for rice seed production, which was based on the distribution of inputs at the beginning of the agricultural campaign and the purchase of the seed produced, has led to

commercialization of seed production in the country. Thus, compared to the 1,400 tons of seed produced in 2012, the project, working through seed centers and the National Farmers' Organization of Guinea-Conakry (CNOP-G), has succeeded in establishing a seed production cycle that produces more than 3,000 tons of R1 seed per year. This is a great achievement for the improvement of rice productivity in view of the use of certified seed for paddy production.

- Another important achievement is the provision of support to the up-stream actors in the form of infrastructure and equipment for processing and commercialization, which encouraged the production enhancement because of improved market opportunities provided by the project, and improved quality of rice produced for the market.
- This particular approach, based on a perennial structure, helped the forging of partnerships with other actors such as FAO and Rio Tinto Foundation for implementation of rice production processing projects.
- In addition, collaboration was strengthened between relevant services namely research, extension and plant protection, to operate on a more efficient and sustainable basis.
- The implementation of competitive sub-projects facilitated the collaboration between research and education institutions, which formed multi-disciplinary research teams from different institutions.
- The regional approach of the WAAPP contributed to strengthening regional integration in the domains of research, technologies and innovations transfer and accelerated the up-scaling.

Institutional Changes/Implementation Arrangements

No change to the implementation arrangements.

- The Project Implementation Manual has been updated to take into account the activities planned under the AF.
- Up-scaling of innovations on rice, maize, cassava, aquaculture and short cycle livestock breeding at the regional level emerged as a priority for the country, using market oriented innovation platforms.
- Strengthening the PCU with additional staff: 1 Communication Specialist,1 Technology Marketing Specialist, 1 Environmental/Social Safeguard Specialist and 2 Accountants, and 1 Financial Management Specialist, for the management of the component 2 at IRAG.

Fiduciary

- Recruitment of an Accountant (see above)

Environmental/Social Safeguards

- Safeguard instruments (ESMF, PPM, and RPF) updated and disclosed both in-country and at the regional level (on CORAF/WECARD website).
- Recruitment of an Environment/Social Safeguards Specialist (see above).

2A-3: Niger Country Summary

Country	Niger
Source of financing and amount	IDA- US$15 million equivalent
Duration of the Project	3 years (2017-19)
Priority commodities	Cattle, small ruminants, cowpea, sorghum/millet, onions, rice, poultry

Impact Evaluation (summary of the results)		
Impact evaluation on-going (expected to be finalized in March 2017).		
Results Framework –PDO-level indicators		
Description	**Baseline (Achievements as of Nov. 2016)**	**End-target (2019)**
1. Number of direct project beneficiaries	383,670	700,000
- 40% of whom are female	43%	43%
2. Number of technologies generated by the project with at least 15% productivity increase over the control technology	6	10
3. Area under the improved technologies, disseminated by the project (in hectares)	578,655	1,000,000
4. Number of processors/producers who have adopted at least one new improved technology, made available by the project	257,052	500,000
5- Number of beneficiaries who are using technology generated/released by other countries' NCOS (at least 3) —NEW INDICATOR	11,500	150,000
6- Percent of producers with knowledge of technologies, generated/released by the project—NEW INDICATOR	N/A	75%

Component 1 : Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies (US$1.2 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
Regional regulations	• ECOWAS regulation on seeds, fertilizer and pesticides adopted and under implementation.	• Scale-up dissemination of the regulations. • Develop regulation on animal genetic material and support dissemination.
Sustainable financing of research and development (CARGS)	• Exchange visit to FIRCA (Côte d'Ivoire). • 3 feasibility studies conducted, and validated by the government to establish the sustainable Investment Fund for Food and Nutrition Security (FISAN).	• Continue to support activities to speed up the establishment of the sustainable funding mechanism for the FISAN.

National strategies and action plans	• Development and implementation of action plans related to communication, gender, and climate change	• Update the national action plans on: (i) the plan on gender with the consideration of physically handicapped persons (such as deaf, blind); (ii) the plan on climate change with a focus on climate-smart agriculture (CSA) in collaboration with the Niger Climate Change Project; and (iii) the plan on communication with a focus on communication for development. • **NEW:** Develop/Implement an action plan on nutrition. • **NEW:** Develop/implement an action plan on job opportunities and/or youth self-employment in the agricultural and rural sector.
Complementarity with other projects		• Develop MOU with Growth Skills Development Project (PRODEC) and Agro-sylvo-pastoral Exports and Markets Development Project (PRODEX) on development of the meat sector including production and processing. • Develop MOU with Climate-Sensitive Agriculture Support Project (PASEC) to upscale climate-smart technologies. • Develop MOU with PRODEX for operationalization of the production units of dried meat, processed cowpea and dried onion. • Develop MOU with National Genetic Improvement Program/Local Cattle (PNAG/BL) to up-scale artificial insemination with improved breeds. • Develop MOU with Niger Farmers Platform to scale up the use of the technology training centers at Winditan (Tillabéri). • Develop MOU with all relevant projects from other donors targeting the same value chains.

Component 2 : National Centers of Specialization/Strengthening of the Research System (US$2.4 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
Infrastructure	• Building / rehabilitation infrastructure of the National Center of Specialization in Livestock (CNS-EL) and National Center for Agriculture Research (CNRA) (4 building for lectures and offices; 4 laboratories of which 2 for artificial insemination (1 for production of vaccine-I2, and 1 laboratory for freeze-dried vaccines production); 01 water facility; 1 treatment area). • Procurement of 2 freeze-dryers. • 545 zebus of which 360 Azawak and 185 M'Bororo.	• Support completion of works and provision of additional equipment for the Livestock NCoS facilities. • Standardization and Certification of Livestock NCoS laboratories. • Build and operationalize an animal feed quality control laboratory.
Human capacity	• Training of 75 students of which 44 M.Sc. and 31 Ph.D. • Within the framework of competitive projects, supervision of students of which 38 M.Sc., 14 Ph.D., 35 B.Sc. and 29 agriculture technicians. • Creation of a Master's program on animal science and biotechnologies (with a first batch of 18 students trained).	• Complete the ongoing academic training programs. • Support an additional training program focused on training for research and lab technicians.
Research activities	• 6 commissioned sub-projects implemented.	• Support completion of on-going research activities. • Support priority research activities, based on national and regional demand.
Component 3: Funding of Demand-driven Technology Generation and Adoption (US$9.5 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**

Applied research through the CARGS	• 16 national competitive sub-projects funded and implemented. • 3 regional competitive sub-projects ongoing.	• Support studies and workshops to finalize the establishment of the competitive grant system to support demand-driven technologies generation and dissemination. • Support completion of ongoing adaptive research and financing for a limited number of new on-demand research activities. • Support stakeholder study tours in other countries, and an action plan for adaptation and dissemination of stock of technologies from the sub-region.
Technologies dissemination	• 6 technologies generated and disseminated by the project. • 25 technologies (early varieties of cowpea, sorghum, groundnut, processing, pest and diseases control, etc.). • Rehabilitation of training centers.	• Scale up dissemination of improved technologies and best practices. • Support implementation of the action plan to promoting youth employment in agriculture on cost-shared basis (80/20) between the project (80%) and beneficiaries (20%). • Support capacity building for public and private extension services to scale up dissemination of technologies through innovation platforms, Farmer Field Schools and other improved extension tools. • Support the piloting of E-extension and E-voucher in collaboration with other Bank projects. • Scale up technology transfer through supporting the 5 technologies transfer centers, similar to the Indian model KVK. • Establish mass coalition through technology fairs and MOUs with other projects and NGOs to scale up adoption of promising technologies. • **NEW:** Support introduction of E-Voucher and E-extension systems.

		• **NEW:** Support establishment of incubation centers for agricultural micro-enterprises.
Seed system	• Settlement and operationalization of seeds committee. • 3,902 Mt of seeds (cowpea and sorghum) produced and distributed.	• Build/rehabilitate and equip the laboratory for seeds and fertilizers analysis and quality control • Create enabling conditions for in vitro seed multiplication of potatoes. • Equip the genes bank for plant and animal genetic material conservation. • Develop an MOU with CGIAR centers for provision of breeder and foundation seeds. • Scale-up certified seed import from the sub-region. • Strengthen the national seed certification system.
Component 4 : Project Coordination, Management, Monitoring and Evaluation (US$1.9 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
	• Project implementation has been satisfactory.	• Strengthen the PCU with additional staff. • Strengthen the M&E system and support the establishment of a panel for impact analysis.

Lessons learned during the initial phase and reflected in the AF design
• The implementation of the project through contracting several private and public actors requires more capacity building up-stream and more follow-up. • The development and implementation of a communications strategy at the beginning of the project allowed for good visibility of the actions of the project. Nevertheless, experience has shown that the project visibility would be better if there is a focus on communication for development • The project suffered from weak information flow between the direct implementing partners and the coordination unit. Sensitization efforts must continue with more resources allocated to support technical monitoring and evaluation and financial management.

Institutional Changes/Implementation Arrangements
No change in the implementation arrangements. • The Project Implementation Manual has been updated to take into account the activities under the AF • Strengthening the PCU with additional staff: 1 Internal Auditor, 1 Technologies Transfer Specialist, 1 Social and Environmental Safeguards Specialist.
Fiduciary
• Recruitment of an internal auditor (see above)
Environmental/Social Safeguards

- Safeguard instruments (ESMF and PPM) updated and disclosed both in-country and at regional level (on CORAF/WECARD website)
- Recruitment of an Environment/Social Safeguards Specialist (see above)

2A-4: Togo Country Summary

Country	Togo
Source of financing and amount	IDA- US$10 million equivalent
Duration of the Project	3 years (2017-19)
Priority commodities	Maize, rice, poultry, small ruminant, soybean, aquaculture

Impact Evaluation (summary of the results)		
Impact evaluation on-going (expected to be finalized in March 2017).		
Results Framework –PDO-level indicators		
Description	**Baseline (Achievements as of Nov. 2016)**	**End-target (2019)**
1. Number of direct project beneficiaries	238 461	500 000
- 40% of whom are female	37%	40%
2. Number of technologies generated by the project with at least 15% productivity increase over the control technology	N/A	N/A
3. Area under the improved technologies, disseminated by the project (in hectares)	114 483	350 000
4. Number of processors/producers who have adopted at least one new improved technology, made available by the project	148 638	350 000
5- Number of beneficiaries who are using technology generated/released by other countries' NCOS (at least 3) —NEW INDICATOR	6,000	100,000
6- Percent of producers with knowledge of technologies generated/released by the project—NEW INDICATOR	N/A	75%

Component 1 : Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies (US$0.8 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
Regional regulations	• ECOWAS regulation on seeds, fertilizer and pesticides adopted and being implemented. • Set-up of regulatory organs (National Center for the Supervision and Protection of Fisheries (CNSP), National Center for Planned Management (CNGP), Agriculture Fund for Seed Sector Promotion (FASS) and institutionalization of national crops species and varieties catalog.	• Scale-up dissemination of the regulations. • Set up and support the functioning of the fertilizers quality control and agreements committee. • Edit and scale up dissemination of the directory of released pesticides. • Support the functioning of the national seed committee, and national committee for pesticides management. • Strengthen the capacity of village brigades of plant protection.

	• Strengthening the structure in charge for enforcement of regulations. • Development of enforcement tools, namely: (i) manual of procedures for the release and registration of crop varieties in the official catalog of crop species and varieties; (ii) manual of quality control and seeds certification; (iii) 7 technical regulations on sorghum, maize, rice, cowpea, groundnut, cassava and yam species and varieties analysis; and (iv) national pesticides management policy.	
Sustainable financing of research and development (CARGS)	• Visit to FIRCA in Côte d'Ivoire conducted to learn from their experience in the subject matter • Participation in the regional meeting on sustainable funding of research and development, held in Abidjan, Côte d'Ivoire and development of new legal document to replace the law on the existing funding National Fund for Agricultural Investment (FNAIA).	• Support feasibility studies, workshops and stakeholder consultations to implement the law on sustainable development fund for technology generation and adoption.
National strategies and action plans	• Development and implementation of action plans related to communication, gender, and climate change.	• Update the national action plans on gender, communication, and climate change. • Update the national agricultural extension and advisory strategy. • **NEW:** Develop/Implement an action plan on nutrition. • **NEW:** Develop/implement an action plan on job opportunities and/or youth self-employment in the agricultural and rural sector.
Complementarity with other projects	• MOU with the Agricultural Sector Development Project (ASDP).	• Strengthen collaboration with the ASDP (periodic meetings, synergy on annual work plan and budgets, and joint

		implementation support mission, etc.). • Develop an MOU with all projects intervening in the targeted value chain.
Component 2 : National Centers of Specialization/Strengthening of the Research System (US$2.0 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
Infrastructure	• Rehabilitation of building and infrastructure at three research stations and three agricultural centers. • Equipped the quality control laboratory at the Agricultural Research Institute of Togo (ITRA) with atomic absorption spectrophotometer and accessories. • Equipped the research institute (ITRA), extension institute (ICAT) and agronomic high school with transportation facilities and computers.	• Provide additional equipment for laboratories and training centers rehabilitated by the parent project. • Rehabilitate the research and seed production fields of ITRA for the production of cereals roots and tuber, coffee and cocoa.
Human capacity	• 32 Ph.D. trained of which 1 completed and returned to former position. • 32 M.Sc. trained, of which 23 completed and 21 returned to former positions. • Various types of short-term training of actors (researchers, extension agents and farmers).	• Support the completion of on-going academic training programs. • Support training plan for research technicians. • Organize R&D stakeholders' regional workshops to assure collaboration and synergy between researchers and other actors. • Train extension agents in new tools, extension approaches and farm management.
Research activities	• 11 technology adaptability tests conducted: - Rice (3) from NCoS-Mali, rain-fed rice varieties from Guinea, rice varieties from AfricaRice.	• Continue support to technology adaptation tests, conducted under Integrated Research for Development (IAR4D) approach.

	- Maize varieties (2) from Burkina Faso and NCoS-Benin. - Cassava variety (1) from NCoS-Ghana. - Banana plantain variety (1) from NCoS-Côte d'Ivoire. - Sorghum, millet groundnut, cowpea varieties from NCoS-Senegal. • 4 varieties of maize, 2 of rice and 2 of cassava distributed.	• Strengthen adaptive research on mechanization, post-harvest and processing.
Component 3: Funding of Demand-driven Technology Generation and Adoption (US$5.9 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
Applied research through the CARGS	• 13 competitive sub-projects and 1 commissioned sub-project on SRI funded. • Six technologies generated and five disseminated.	• Support the completion of on-going competitive sub-projects on research and development. • Scale up transfer, adaptation and dissemination of technologies from other countries, using calls for proposal opened to public and private service providers.
Technologies dissemination	• 4 improved maize varieties. • 2 improved rice varieties. • Improved cassava varieties. • SRI and biological rice production. • Goat and sheep improved breed parent. • Goat and sheep feed technology. • Weed control technique with limited herbicide use. • Speeding of compost production with the fungus *Mycotri spp*. • Integrated *Striga management.* • Planting canes, parboilers, pics bags, drip-irrigation. • Tank aquaculture.	• Scale up the dissemination of improved technologies through Farmer Field Schools, innovation platforms, ESOP and a pilot program of E-extension, focusing on gender, climate-smart technologies, and integrated soil fertility. • Scale up agricultural mechanization and post-harvest service providers. • Introduce E-extension • Organize technology fairs in collaboration with other projects for mass adoption of technologies. • Involve the private sector for the dissemination of technologies (collaboration with farmers' organizations, NGOs, agro-industry, etc.).
Seed system	• Supported production of 102 tons of breeder, foundation	• Scale-up the production of breeder and foundation seeds for

	and certified seeds of maize and rice. • Training of seed producers. • Creation of three seed enterprises (ESOP). • Supported the seed field control and certification. • Procurement of three mobile units of seed treatment.	cereals and R&T; support the production of improved genetic materials for goat and sheep, poultry and aquaculture. • Strengthen the seed certification system including construction and equipment provision for the f seed laboratory. • Support the involvement of private sector in the seed value chain. • Support the development of a national strategy for fish certification.
Component 4 : Project Coordination, Management, Monitoring and Evaluation (US$1.3 million equivalent)	**Achievements of the initial phase**	**Activities under the Additional Financing**
	• Project implementation has been satisfactory.	• Strengthen the PCU with additional staff. • Support the preparation and implementation of a training action plan for the staff, involved in project implementation. • Support M&E activities and impact study. • Involve regional agriculture, livestock and water directorates in the planning, implementation, and monitoring and evaluation of the project activities at the regional level.

Lessons learned during the initial phase and reflected in the AF design
• In the absence of an NCoS, new technologies generation relies on technologies available in other WAAPP countries, and for this reason, active participation of Togo researchers in the NCOS networks is crucial to speed up technology transfer from other countries. • Procurement of improved technologies in the participating countries need specific procurement process • Adoption of common regulations facilitate exchange of technology and mainly seeds among the participating countries.

Institutional Changes/Implementation Arrangements
No change in the implementation arrangements. • The Project Implementation Manual has been updated to take into account the activities under the AF.

• Strengthening the PCU with additional staff: 1 Internal Auditor, 1 Technologies Transfer Specialist, 1 Social and Environmental Safeguards Specialist, 1 Communication Specialist.
Fiduciary
• Recruitment of an internal auditor (see above)
Environmental/Social Safeguards
• Safeguard instruments (ESMF and PPM) updated and disclosed both in-country and at regional level (on CORAF/WECARD website). • Recruitment of an Environment/Social Safeguards Specialist (see above) • Collaboration with the national agency of environment in the implementation of activities

Annex 3: Implementation Arrangements and Support

1. The proposed AF does not foresee any changes with regard to implementation arrangements. The AF will be placed under the technical responsibility of the ministry in charge of agriculture in each of the participating countries and under the responsibility of CORAF/WECARD for the regional-level activities. The PCUs in each country and CORAF/WECARD will, therefore, continue to coordinate project activities, prepare the annual work program and budgets (AWP&B), organize the implementation support missions (ISM) and ensure project monitoring and evaluation (M&E). The PCUs have a solid track record for procurement, FM and M&E, which have been consistently rated Satisfactory or Moderately Satisfactory during the parent project implementation. CORAF and each PCU will be strengthened with additional staff who will be specialized in technology marketing and commercialization. The Guinea PCU will be reinforced with additional staff including an FM specialist, a procurement specialist and a technical expert. Implementation of the AF activities will also be supported by strategic institutional and technical partners, as well as service providers (staff of other agencies, and NGOs, which will be contracted through: i) results-based MOUs for public service providers and other projects; and ii) results-based contracts for private service providers and NGOs).

Financial Management

2. The FM arrangements of the original projects in Benin, Guinea, Niger and Togo remain adequate overall and will apply to the AF.

3. **Benin -** The FM performance of the original project in Benin is rated as Moderately Satisfactory. The FM risk remains Moderate. Some weaknesses were noticed in the areas of internal control and timely justification of activities, implemented at the decentralized level. An internal auditor has been recruited to strengthen the project internal control environment. The project's FM staff members have the required experience and qualifications. The project's existing manual of procedures and accounting system remain adequate for the AF. Quarterly interim unaudited financial reports and annual audit reports have been submitted on time. The audit opinion on the most recent audit report was unqualified and there are currently no open accountability issues.

4. Guinea - The FM system of the Guinea component is adequate for implementation of the AF. An experienced and qualified accountant is in place, and the project accounting system as well the FM manual are still current to be used for the additional financing. FM implementation support mission was carried out in May, 2016. The FM risk is Moderate and the FM performance Satisfactory. Unaudited FM reports have been submitted on time with acceptable quality, and an unqualified opinion was issued by the external auditor.

5. **Niger -** Overall the FM arrangements of the original project remain adequate. The project FM staff is qualified, and financial monitoring reports (interim financial reports) with good quality are generated on a timely basis. However, the Implementation Status Report FM rating remains Moderately Satisfactory, and the overall FM residual risk for the project is still "Substantial" mainly due to the weak internal controls environment both at the country and implementing entity levels. An internal audit function will be established and funded under the proposed AF. The audit opinion on the financial statements for the year, which ended on December 31, 2015, was qualified due to, among other things, the absence of relevant documentation supporting some expenditures

incurred by the project. However, the project lacks comprehensive procedures for physical inventory of fixed assets, which hampers the principle of assets safeguarding. The Bank FM team will closely follow-up with the project FM unit to ensure proper accounting of the project's physical assets.

6. **Togo -** The FM performance of the Togo components of the WAAPP project is rated Satisfactory as a result of the most recent supervision mission conducted in May, 2016. The FM risk remains Moderate. FM arrangements, including staffing and internal controls are adequate. The project complies with financial management requirements such as timely submission of quarterly interim unaudited financial reports and annual audit reports. The latest external audit opinion was unqualified and there are currently no significantly open accountability issues.

7. CORAF - The fiduciary unit has been implementing satisfactorily a large portfolio of six projects financed by the World Bank and other donors. The overall financial management system, including staffing, accounting, and funds flow arrangements is rated Satisfactory. In addition, there are no overdue external audits as well as interim financial reports from the unit; both reports were submitted on time, reviewed and found to be satisfactory. The existing financial management arrangements are, therefore, suitable for implementation of this new additional financing.

Procurement

8. *Procurement.* Procurement activities under the original project were carried out in accordance with the World Bank's "*Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers*, published in May, 2004 and as revised in October, 2006 and May, 2010; "*Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers"*, published in May, 2004 and revised in October, 2006 and May, 2010; *"Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants"* dated October 15, 2006; and the provisions stipulated in the FA. The same guidelines will continue governing the additional financing as approved by the World Bank Management as a waiver to the New Procurement Framework (including Procurement Regulations for Borrowers) that applies to projects with the PCN held after July 1st, 2016. The AF would, however, benefit from the rolling out of the Systematic Tracking of Exchanges in Procurement (STEP), one of the features of the New Procurement Framework that will apply to all active projects.

9. *Procurement capacity and risk*. The PCUs and CORAF/WECARD have conducted procurement activities for the parent project in a satisfactory manner. Since there are no changes being proposed to the institutional arrangements, the AF will take advantage of the existing PCU capacity in implementation of the new procurement activities. With regard to risk, given the experience under the parent project, procurement risk is rated Moderate except in Togo, where it is rated Substantial.

10. *Scope of procurement and selection under the AF*. The major contracts will consist of: i) works for rehabilitation of some labs, storage facilities and other research facilities; ii) goods related to procurement of inputs (seeds, fertilizer) and of improved technologies in the framework of the regional exchange of technologies and innovations; and iii) consultant services for technical studies and supervision. Based on their estimated small amounts (maximum of US$1 million per contract) and manageable risks (previous procurement processes have shown acceptable competition), they will be procured by approaching the local market.

11. *Procurement plan*. See Appendix 3A for the draft procurement plans for the first 18-months.

Safeguards

12. **Environmental Safeguard**. The activities covered by the AF and the intervention area remain the same as in the parent project except in Guinea where the parent project supported the rice sector while the AF will extend project activities to cover additional agricultural sectors including roots and tuber, cereals, livestock and aquaculture. Therefore, a new set of safeguard documents has been prepared for Guinea.

13. The safeguard rating of category B and the type of policies, initiated under the original project, will be maintained for the AF. The WAAPP-1C safeguards instruments - Environmental & Social Management Framework (ESMF), the Pest Management Plan (PMP), and a Resettlement Policy Framework (RPF) for Guinea – have been updated separately for each country and re-disclosed in the Bank INFOSHOP as well as in the regional website managed by CORAF/WECARD and in the website managed in each country.

14. Implementation of the safeguards measures for the parent project has been rated Satisfactory by the social and environmental safeguards specialists of the World Bank during the Implementation Support Mission (ISM) in June 2016. Each country and CORAF/WECARD have dedicated social and environmental safeguards Focal Points who oversee implementation of the social and environmental safeguards and identify mitigation measures. A capacity building plan was also implemented including two regional training workshops in Dakar (April, 2011) and Freetown (April, 2013) for all safeguards focal points. Additional training sessions were conducted in each country by the local Bank offices. A recent assessment study 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.

15. In addition, as the recently completed assessments revealed, some countries are experiencing a high turn-over of the Focal Points. A provision has, therefore, been included in the AF to recruit environmental/social safeguards specialists as additional project staff in each country. Moreover, the ESMF includes further provisions for capacity building at all levels for e successful implementation of the project safeguards measures, in compliance with the national and Bank safeguard policies. The PMP sets forth the basic principles each member country would follow to properly handle the possible usage of pesticides especially since the additional financing focuses mostly on the dissemination of agricultural technologies.

16. **Social safeguards.** The WAAPP is a well-known program and highly appreciated by many farmers and stakeholders in all ECOWAS countries, and especially in the four targeted countries (Niger, Benin, Togo and Guinea). The hundreds of new agricultural technologies developed by WAAPP over the past decade (2007-present) are fully in use and have shown an increasing and far-lasting positive impact on the livelihoods of beneficiary communities. The AF will, therefore, build on these achievements.

17. The overall activities of the AF are expected to provide significant positive socio-economic benefits to hundreds of thousands of Guinean, Togolese, Beninese and Nigerien beneficiaries whose main livelihoods depend largely on agricultural research and development. The scaled-up dissemination of the new released technologies will enable the producers, agricultural cooperatives, and/or the private sector to enormously benefit from the AF.

18. Outcomes of the rounds of participatory citizen consultation and engagement will influence final designing of the AF sub-activities, thereby creating beneficiary ownership and fostering social accountability (full determination to ensure that the project is successfully implemented), which altogether are meant to encourage sustainable development among and within beneficiary communities in the project areas in particular, and in each of the participating countries in general.

19. A recently completed assessment revealed that some countries are experiencing a high turn-over of the Focal Points. Therefore, a provision has been included in the AF to recruit environmental/social safeguards specialists as additional project staff in each country.

Policy Exceptions and Readiness

20. A waiver to apply the World Bank's Procurement and Consultant Guidelines of 2010, as referred to in the Financing Agreement instead of the New Procurement Framework so that the AF can be processed on time and implemented to create the necessary synergies and continuity with the original project, was sought and has been granted.

21. All conditions are in place to ensure that implementation of the proposed activities can be scaled-up as soon as the credits are declared effective.

Appendix 3A Procurement Plan for the first 18-months of WAAPP-1C Additional Financing

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract (Description)**	**Estimated Cost (US$ millions)**	**Procurement Method**	**Prequalification (yes/no)**	**Domestic Preference (yes/no)**	**Review by Bank (Prior / Post)**	**Expected Bid-Opening Date**	**Comments**
Procurement Plan for Togo								
	Works and Goods							
1	Works for the construction of the seed Lab	900,000.00	NCB	No	Yes	Prior	13/03/2017	
2	Rehabilitation of the sanitation system of the research stations	80,000.00	NCB	No	Yes	Post	10/04/2017	
3	Rehabilitation work for ISRA research facilities	300,000.00	NCB	No	Yes	Post	30/03/2017	
4	Rehabilitation work for cocoa and coffee seed production facilities	60,000.00	NCB	No	Yes	Post	17/04/2017	
5	Lab equipment for ISRA	554,000.00	NCB	No	Yes	Post	21/04/2017	
6	Vehicles for research and extension services	1,392,000.00	NCB	Yes	Yes	Prior	20/03/2017	
7	Office equipment for implementing agencies	190,000.00	NCB	No	Yes	Post	29/05/2017	
8	Equipment for the E-extension system	310,354.00	NCB	No	Yes	Post	05/01/2018	
	Total	**3,786,354.00**						
	Consultancy Services							
1	Consultancy for the control and monitoring of rehabilitation of the sanitation system of research stations	120,000.00	LCS	No	Yes	Post	30/03/2017	
2	Recruitment of an architectural firm to monitor the rehabilitation work, construction of the national seed laboratory and the construction of the ITRA	110,000.00	LCS	No	Yes	Post	09/03/2017	
3	Study for mechanisms of levies on import and export goods f for the sustainable funding scheme	40,000.00	IC	No	Yes	Post	18/10/2017	
4	Consultant for the design of the E-extension scheme	120,000.00	QCBS	No	Yes	Post	22/08/2017	
5	Study on the new strategy for technology transfer and extension system	50,000.00	CQS	No	Yes	Post	22/06/2017	
6	consultancy for value chain studies on priority commodities	72,000.00	IC	No	Yes	Post	25/12/2017	
7	Recruitment of external audit firm	48,000.00	LCS	No	Yes	Prior	07/06/2017	
8	Recruitment of a communication officer	30,000.00	IC	No	Yes	Prior	19/12/2017	
9	Recruitment of a procurement specialist	32,000.00	IC	No	Yes	Prior	19/12/2017	
	Total	**622,000.00**						
	Grand Total (Togo)	**4,408,354.00**						

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract (Description)**	**Estimated Cost (US$ millions)**	**Procurement Method**	**Prequalification (yes/no)**	**Domestic Preference (yes/no)**	**Review by Bank (Prior / Post)**	**Expected Bid-Opening Date**	**Comments**
Procurement Plan for Guinea								
	Works and Goods							
1	Procurement of computers for the PCU	70,000.00	Shopping	NO	NO	Post	15/12/2016	
2	Procurement of computers for implementing agencies	210,000.00	NCB	NO	NO	Post	13/03/2017	
3	Procurement of TOMPRO software	45,000.00	Direct contracting	NO	NO	Post	05/12/2016	
4	Equipment for the Seed Lab	85,000.00	Shopping	NO	NO	Post	09/01/2017	
5	Supply and installation of laboratory equipment for the quality control of fertilizers in favor of SENASOL Fertilizer control laboratory	120,000.00	NCB	NO	NO	Post	08/03/2017	
6	Procurement of two mobile seed processing unit	350,000.00	NCB	NO	NO	Post	10/02/2017	
7	Lab Equipment for the Bordo research station	95,000.00	Shopping	NO	NO	Post	13/03/2017	
8	Procurement of 8 agro-meteo stations	130,000.00	NCB	NO	NO	Post	12/04/2017	
9	Office Equipment for IRAG facilities	75,000.00	Shopping	NO	NO	Post	27/03/2017	
10	Procurement of fertilizer and pesticides	1,400,000.00	ICB	NO	NO	Prior	27/03/2017	
11	Procurement of various mechanization equipment and tools	450,000.00	NCB	NO	NO	Prior	24/04/2017	
12	Procurement of Storage bags for cereals	90,000.00	Shopping	NO	NO	Prior	01/05/2017	
13	MOU with Kankan seed production Unit for the production of 1000 tons of certified rice seeds	600,000.00	Direct contracting	NO	NO	Post	24/02/2017	
14	MOU with Kilkisi seed production Unit for the production of 1000 tons of certified rice seeds	600,000.00	Direct contracting	NO	NO	Post	24/02/2017	
15	MOU with Koba seed production Unit for the production of 1000 tons of certified rice seeds	350,000.00	Direct contracting	NO	NO	Prior	24/02/2017	
16	MOU with Gueckedou seed production center for the production of 600 tons of certified rice seeds	350,000.00	Direct contracting	NO	NO	Prior	24/02/2017	
17	Procurement transportation equipment for the rice processing innovation platforms	120,000.00	NCB	NO	NO	Post	30/06/2017	
18	Procurement of vehicles for implementing agencies	1,550,000.00	ICB	NO	NO	Prior	29/05/2017	
19	Procurement of aquaculture improved technologies	400,000.00	NCB	NO	NO	Prior	15/05/2017	
20	Procurement of incubators for poultry chicks production	400,000.00	NCB	NO	NO	Prior	15/05/2017	
21	Procurement of improved threshers for rice and maize	60,000.00	Shopping	NO	NO	Post	27/07/2017	
22	Procurement of 100 improved parboiled processing equipment	250,000.00	Direct contracting	NO	NO	Post	30/08/2017	
23	MOU with WAAPP Cote d'Ivoire for the Importation of improved attieke processing equipment	200,000.00	Direct contracting	NO	NO	Post	11/09/2017	
24	MOU with WAAPP Burkina Faso for the Importation of improved mangoes processing equipment	200,000.00	Direct contracting	NO	NO	Post	11/09/2017	
25	Equipment for the Tissue culture Lab	300,000.00	NCB	NO	NO	Post	25/09/2017	
26	Equipment for the training centers	90,000.00	Shopping	NO	NO	Post	09/10/2017	
27	Irrigation facilities for the Seredou CRA seed production unit	80,000.00	Shopping	NO	NO	Post	13/10/2017	
28	Various Equipment for the aquaculture centers in 5 regions	250,000.00	NCB	NO	NO	Post	16/10/2017	
29	MOU with Africa rice for the supply of rice foundation seeds	1, 040,000.00	Direct contracting	NO	NO	Prior	13/03/2017	

30	MOU with WAAPP Nigeria for the Importation of brodstock fish	400,000.00	Direct contracting	NO	NO	Post	13/03/2017	
31	MOU with WAAPP Nigeria for the Importation of improved fish processing technologies	200,000.00	Direct contracting	NO	NO	Post	13/03/2017	
32	MOU with AFRICARICE for the supply of 4 improved rice processing equipment	120,000.00	Direct contracting	NO	NO	Post	20/04/2017	
33	MOU with IRAG for the supply of 200 tons of improved cajoux seeds	400,000.00	Direct contracting	NO	NO	Post	13/03/2017	
34	MOU with WAAPP Cote d'Ivoire for the Importation of 360 000 improved palm tree seedlings	300,000.00	Direct contracting	NO	NO	Post	20/02/2017	
35	MOU with WAAPP Cote d'Ivoire for the Importation of 360 000 improved coffee seeds	200,000.00	Direct contracting	NO	NO	Post	20/02/2017	
36	MOU with WAAPP Cote d'Ivoire for the Importation of new cocoa varieties seeds	300,000.00	Direct contracting	NO	NO	Post	20/02/2017	
37	MOU with WAAPP Cote d'Ivoire for the supply of 4 million plantain improved varieties seedlings	300,000.00	Direct contracting	NO	NO	Post	20/02/2017	
38	MOU with IRAG for the supply of improved mangoes varieties seeds	350,000.00	Direct contracting	NO	NO	Post	20/03/2017	
39	MOU with WAAPP Togo for the Importation of certified soybean seeds	100,000.00	Direct contracting	NO	NO	Post	20/03/2017	
40	MOU with WAAPP Cote d'Ivoire for the Importation of 300 porc breeds	100,000.00	Direct contracting	NO	NO	Post	20/03/2017	
41	MOU with WAAPP Ghana to introduce improved vaccines for poultry	200,000.00	Direct contracting	NO	NO	Post	08/05/2017	
42	Procurement of feed and chicks of improved breeds for the poultry program	100,000.00	Shopping	NO	NO	Post	22/05/2017	
43	Building Rehabilitation Works with Water Supply of the Yatia Agricultural Training and Promotion Center (Faranah)	130,000.00	Shopping	NO	NO	Post	01/03/2017	
44	Rehabilitation works for the buildings of the Labé Breeding and Training Center	100,000.00	Shopping	NO	NO	Post	20/03/2017	
45	Building rehabilitation works (shop, hangar and administrative block) with water supply from Dalaba Horticulture Training and Promotion Center	120,000.00	Shopping	NO	NO	Post	03/04/2017	
46	Development of 40 ha of shoals in favor of the Kilissi agronomic research station	170,000.00	Shopping	NO	NO	Post	31/07/2017	
47	Connection of the Kilissi Research Center and Seed Center to the national electricity grid (EDG)	100,000.00	Shopping	NO	NO	Post	12/06/2017	
48	Rehabilitation of the greenhouses, the vitro plant laboratory, the nursery, the drying and storage facilities of the Foulayah CRA	180,000.00	Shopping	NO	NO	Post	21/08/2017	
49	7,000 linear mesh fencing of the Bordo CRA (Kankan)	150,000.00	Shopping	NO	NO	Post	04/09/2017	
50	Construction work of a laboratory of Vitro Plants for the multiplication of horticultural seeds at the Center of Agricultural Research of Bareng (Pita)	350,000.00	NCB	NO	NO	Post	24/08/2017	
51	Restoration work on the agricultural estate of the Yatia Agricultural Training and Promotion Center (Faranah) Works rehabilitation of buildings, plots and greenhouses with water supply from the Center of Production and Multiplication of plant material of Macenta (Ex RC2)	170,000.00	Shopping	NO	NO	Post	13/11/2017	
52	Works of rehabilitation of buildings, plots and greenhouses with water supply of the Center of Production and Multiplication of plant material of Badala (Guéckédou)	150,000.00	Shopping	NO	NO	Post	22/11/2017	

53	Rehabilitation of buildings, plots and greenhouses with water supply from the Gbaya (N'Zérékoré) Plant Production and Multiplication Center	110,000.00	Shopping	NO	NO	Post	22/11/2017	
54	Construction of the Boffa-Koba fish farm / ENAE	135,000.00	Shopping	NO	NO	Post	30/10/2017	
55	Construction of two (2) poultry slaughtering and chicken processing plants	100,000.00	Shopping	NO	NO	Post	09/07/2017	
56	Construction of food storage warehouses, small slaughter areas and outlets with small cold rooms	750,000.00	NCB	NO	NO	Prior	11/12/2017	
	Total	**15,745,000.00**						
	Consultancy Services							
1	MOU with the National Directorate of Agriculture (DNA) for the implementation of seed certification and stakeholder training in the seed production chain	190,000.00	Direct contracting	NO	NO		08/03/2017	
2	MOU with the National Service for the Protection of Plants and Stored Foods (SNPV-DS) for the implementation of pest and pesticide management activities	80,000.00	Direct contracting	NO	NO		08/03/2017	
3	MOU with the Information Service on Agricultural Products in Guinea (SIPAG) for the implementation of information gathering activities on agricultural products	80,000.00	Direct contracting	NO	NO		20/03/2017	
4	Recruitment of an Office / Cabinet to carry out studies, monitoring and supervision of planned rehabilitation and construction works	75,000.00	CQS	NO	NO	Post	16/01/2017	
5	Recruitment of a Bureau / Cabinet to carry out the studies, the monitoring and the supervision of the works of development of the planned rice estates	75,000.00	CQS	NO	NO	Post	09/01/2017	
6	Recruitment of a Bureau / Cabinet control, follow-up and supervision of the development of planned rice estates	70,000.00	CQS	NO	NO	Post	31/03/2017	
7	MOU with the Agronomic Research Institute of Guinea (IRAG)	450,000.00	Direct contracting	NO	NO	Prior	31/01/2017	
8	MOU with FORSEGUI for the coordination and management of the competitive fund for agricultural research at national level	620,000.00	Direct contracting	NO	NO	Prior	10/04/2017	
9	MOU with the National Agency for Rural Promotion and the Agricultural Council (ANPROCA)	250,000.00	Direct contracting	NO	NO	Prior	27/03/2017	
10	MOU with the National Soil Service for the Implementation of Soil Fertility Analysis Activities	150,000.00	Direct contracting	NO	NO	Prior	27/03/2017	
11	Recruitment of additional Project staff including: One (1) Communication Officer, One (1) Marketing Officer, Two (2) Accountants, One (1) Procurement Analyst, One (1) M &	108,000.00	ICS	NO	NO	Prior	24/03/2017	
12	Recruitment of a Cabinet to audit the Project accounts for fiscal years 2017, 2018 and 2019	45,000.00	QCBS	NO	NO	Prior	22/02/2017	
13	MOU with ANASA for the collection of baseline data and monitoring of the panel	90,000.00	Direct contracting	NO	NO		08/05/2017	
	Total	**2,283,000.00**						
	Grand Total (Guinea)	**17,983,000.00**						

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract (Description)**	**Estimated Cost (US$ millions)**	**Procurement Method**	**Prequalification (yes/no)**	**Domestic Preference (yes/no)**	**Review by Bank (Prior / Post)**	**Expected Bid-Opening Date**	**Comments**
Procurement Plan for Niger								
	Works and Goods							
1	Translation and editing of community language regulations	25,000.00	Shopping	No	No	Post	10/02/2017	
2	Edition of the catalog of plant varieties	23,333.00	Shopping	No	No	Post	10/02/2017	
3	Edition of Fertilizer Control Manual	25,000.00	Shopping	No	No	Post	10/02/2017	
4	Develop communication tools (brochures, caquemono, ,,,,)	33,333.00	Shopping	No	No	Post	10/02/2017	
5	Elaboration of technological references	33,333.00	Shopping	No	No	Post	10/02/2017	
6	Development of FISAN management and procedural manuals	25,000.00	Shopping	No	No	Post	10/02/2017	
7	Computers for Livestock research centers	145,000.00	NCB	No	Yes	Post	12/03/2017	
8	Works for the Food Safety Laboratory	324,400.00	NCB	No	Yes	Post	22/04/2017	
9	Equipment for the Food Safety Lab	97,000.00	NCB	No	Yes	Post	24/08/2017	
10	Acquisition of Generator for the NCOS	48,700.00	Shopping	No	No	Post	07/04/2017	
11	Equipment for the E-voucher scheme	133,333.00	ED	No	Yes	Post	28/05/2017	
12	Rehabilitation works for the Seed Laboratory	500,000.00	NCB	Yes	Yes	Post	11/06/2017	
13	Equipment for the DGA Laboratory	166,667.00	NCB	No	Yes	Post	28/05/2017	
14	Laboratory Equipment for INRAN	83,333.00	NCB	No	Yes	Post	28/05/2017	
15	Equipment for the Private Laboratories	166,667.00	NCB	No	Yes	Post	11/06/2017	
16	Equipment for potatoes seed production	166,667.00	NCB	No	Yes	Post	28/05/2017	
17	MOU with WAAPP Ghana to introduce improve Greenhouses scheme	100,000.00	Direct contracting	No	Yes	Post	28/05/2017	
18	Procurement of vehicles	116,667.00	NCB	No	Yes	Post	21/12/2017	
19	Procurement of PICS bags for storage	300,000.00	Direct contracting	No	Yes	Post	28/05/2017	
20	Procurement of improved technologies from the sub region	166,667.00	Direct contracting	No	Yes	Post	26/06/2017	
21	Procurement of mobile seed processing equipment	166,667.00	NCB	No	Yes	Post	18/03/2017	
22	Procurement of improved compost processing equipment	83,333.00	NCB	No	No	Post	13/05/2017	
23	Acquisition of vehicles	112,800.00	NCB	No	Yes	Post	11/06/2017	
	Total	**3,042,900.00**						
	Consultancy Services							
1	Stock taking on the use of mineral fertilizer	33,333.00	IC	Yes	No	Prior	16/02/2017	
2	Study on the different models and best practices for Job creation for use.	25,000.00	IC	Yes	No	Prior	16/02/2017	
3	Architectural design for the food safety lab	39,300.00	QCBS	Yes	No	Prior	09/03/2017	
4	Feasibility studies and value chains	58,400.00	CQS	Yes	No	Prior	09/03/2017	
5	Study on the development of a mechanism of mass multiplication and diffusion of performing animals	42,600.00	CI	Yes	No	Prior	09/06/2017	
6	Consultancy firm for the SMQ	96,900.00	CQS	Yes	No	Prior	09/06/2017	
7	Study on animal feed processing units	48,000.00	QCBS	Yes	No	Prior	07/06/2017	
8	Preparation of soil fertility map	30,000.00	IC	Yes	No	Prior	07/06/2017	
9	Audit firm consultant	35,200.00	LCS	Yes	No	Prior	07/06/2017	
	Total	**408,733.00**						
	Grand Total (Niger)	**3,451,633.00**						

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract (Description)**	**Estimated Cost (US$ millions)**	**Procurement Method**	**Prequalification (yes/no)**	**Domestic Preference (yes/no)**	**Review by Bank (Prior / Post)**	**Expected Bid-Opening Date**	**Comments**
Procurement Plan for Benin								
	Works and Goods							
1	Building of a cold chain for seed conservation	51,282.00	Shopping	No	Yes	Post	02/02/2017	
2	Procurement of vehicles	341,880.00	Shopping	No	Yes	Post	02/02/2017	
3	Procurement of plastic mulch for conservation agriculture	470,085.00	NCB	No	Yes	Post	03/03/2017	
4	Works for the extension of research and seed multiplication fields	341,880.00	NCB	No	Yes	Post	03/04/2017	
5	Electricity network of the NCOS	51,282.00	Direct contracting	No	Yes	Post	01/04/2017	
6	Procurement of 1000 animal feed improved processing equipment	1,025,641.00	NCB	Yes	Yes	Post	01/05/2017	
7	Laboratory equipment for the LSSEE	1,025,641.00	NCB	No	Yes	Post	02/06/2017	
8	Procurement of two seed processing equipment	299,145.00	NCB	No	Yes	Post	02/07/2017	
9	procurement of 500 tons of fertilizer	512,821.00	ISCB	No	Yes	Post	03/08/2017	
10	Laboratory equipment for the FSA	76,923.00	Shopping	No	Yes	Post	28/05/2017	
11	Procurement of 500 climate smart improved cooking technology	76,923.00	Shopping	No	Yes	Post	28/05/2017	
12	Procurement of 6 meteor stations	76,923.00	Shopping	No	Yes	Post	22/08/2017	
13	office furniture for the NCOs	85,470.00	Shopping	No	Yes	Post	22/09/2017	
14	Poultry vaccines	42,735.00	Shopping	Yes	Yes	Post	22/09/2017	
15	water sanitation works for the CNS	170,940.00	Direct contracting	No	Yes	Post	01/09/2017	
16	equipment for the E-extension/E-voucher	128,205.00	NCB	No	Yes	Post	31/08/2017	
17	Equipment for solar vegetable gardens	51,282.00	Shopping	No	Yes	Post	23/10/2017	
	Total	**4,829,058.00**						
	Consultancy Services							
1	Recruitment of E-voucher service provider	256,410.00	CQS	Yes	Yes	Prior	05/06/2017	
	Total	**256,410.00**						
	Grand Total (Benin)	**5,085,468.00**						

Annex 4: Estimated Costs of the Additional Financing

A- Project Costs Summary by Component

Overall Project

Components	(US$ Thousand)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total		
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	3,667	540	4,207	14	6
2. National Centers of Specialization/Strengthening of the Research System	10,417	5,974	16,391	35	23
3. Funding of Demand-Driven Technology Generation and Adoption	32,054	10,965	43,019	24	60
4. Program Coordination, Management, Monitoring and Evaluation	6,399	1,130	7,530	15	11
Total BASELINE COSTS	**52,537**	**18,610**	**71,147**	**32.5**	**100**
Physical Contingencies	221	48	269	10	0
Price Contingencies	111	515	625	-16	4
Total PROJECT COSTS	**52,868**	**19,173**	**72,041**	**30**	**104**

Benin

Components	(US$ Thousand)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total		
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	1,001.2	290.8	1,291.9	23	7
2. National Centers of Specialization/Strengthening of the Research System	2,838.6	1,168.3	4,006.9	29	20
3. Funding of Demand-Driven Technology Generation and Adoption	9,548.6	2,758.2	12,306.8	22	63
4. Program Coordination, Management, Monitoring and Evaluation	1,757.9	287.7	2,045.6	14	10
Total BASELINE COSTS	**15,146.3**	**4,505.1**	**19,651.4**	**23**	**100**
Physical Contingencies	64.5	16.1	80.6	20	0
Price Contingencies	226.5	41.5	267.9	15	1
Total PROJECT COSTS	**15,437.3**	**4,562.7**	**20,000.0**	**23**	**102**

Guinea

Components	(US$ Thousand)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total		
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	926	0	926	0	4%
2. National Centers of Specialization/Strengthening of the Research System	3,254	2568	5,823	44	25%
3. Funding of Demand-Driven Technology Generation and Adoption	9,656	5453	15,109	36	64%
4. Program Coordination, Management, Monitoring and Evaluation	1,846	299	2,145	10	9%
Total BASELINE COSTS	**15,683**	**8320**	**24,003**	**33**	**100**

Physical Contingencies	0	0	0	0	0
Price Contingencies	-767	386	-381	-101	-2%
Total PROJECT COSTS	**14,915**	**8,706**	**23,622**	**35**	**98**

Niger

Components	(US$ Thousand)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total		
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	1,191	0	1,191	0	7
2. National Centers of Specialization/Strengthening of the Research System	2,142	783	2,925	27	19
3. Funding of Demand-Driven Technology Generation and Adoption	8,741	1,212	9,953	12	62
4. Program Coordination, Management, Monitoring and Evaluation	1,764	111	1,875	6	12
Total BASELINE COSTS	**13,837**	**2,106**	**15,943**	**42**	**100**
Physical Contingencies	28	0	28	0	0
Price Contingencies	395	37	433	16	12
Total PROJECT COSTS	**14,261**	**2,144**	**16,404**	**30**	**6**

Togo

Components	(US$ Thousand)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total		
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	549	250	798	31	7
2. National Centers of Specialization/Strengthening of the Research System	2,182	1,454	3,637	40	31
3. Funding of Demand-Driven Technology Generation and Adoption	4,108	1,542	5,650	27	49
4. Program Coordination, Management, Monitoring and Evaluation	1,032	433	1,465	30	13
Total BASELINE COSTS	**7,871**	**3,679**	**11,549**	**32**	**100**
Physical Contingencies	128	32	160	20	0
Price Contingencies	256	49	306	7	3
Total PROJECT COSTS	**8,255**	**3,760**	**12,015**	**31**	**104**

B- Project Costs Summary by Financiers

Overall Project

	(US$ Thousand)							
	The Government		IDA		Beneficiaries		Total	
Components	Amount	%	Amount	%	Amount	%	Amount	%
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	0.0	0	4,251.2	86	0.0	0	4,251.2	6
2. National Centers of Specialization/Strengthening of the Research System	2,885.5	19	13,772.5	81	0.0	0	16,658.0	23
3. Funding of Demand-Driven Technology Generation and Adoption	783.9	2	42,140.2	98	176	0.6	43,099.9	59.5
4. Program Coordination, Management, Monitoring and Evaluation	583.3	7	7,836.1	93	0.0	0	8,419.4	11.6
Total costs	**4,252.7**	**7.1**	**68,000.0**	**92.6**	**176**	**0.37**	**72,428.5**	**100**

Guinea

	(US$ Thousand)							
	The Government		IDA		Beneficiaries		Total	
Components	Amount	%	Amount	%	Amount	%	Amount	%
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	0.0	0	888.4	100	0.0	0.0	888.4	3.7
2. National Centers of Specialization/Strengthening of the Research System	511.7	8.8	5,305.8	91.2	0.0	0.0	5,817.5	24.2
3. Funding of Demand-Driven Technology Generation and Adoption	241.9	1.7	14,191.4	98.3	0.0	0.0	14,433.4	60.1
4. Program Coordination, Management, Monitoring and Evaluation	266.4	9.2	2,614.4	90.8	0.0	0.0	2,880.8	12
Total costs	**1,020.0**	**4.2**	**23,000.0**	**95.8**	**0.0**	**0.0**	**24,020.1**	**100**

Benin

	(US$ Thousand)							
	The Government		IDA		Beneficiaries		Total	
Components	Amount	%	Amount	%	Amount	%	Amount	%
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	0.0	0	1,310.1	100	0.0	0	1,310.1	3.7
2. National Centers of Specialization/Strengthening of the Research System	0.0	0	4,052.0	100	0.0	0	4,052.0	24.2
3. Funding of Demand-Driven Technology Generation and Adoption	0.0	0	12,558.7	100	0.0	0	12,558.7	60.1
4. Program Coordination, Management, Monitoring and Evaluation	0.0	0	2,079.1	100	0.0	0	2,079.1	12
Total costs	**0.0**	**0**	**20,000.0**	**100**	**0.0**	**0**	**20,000.0**	**100**

Niger

	(US$ Thousand)							
	The Government		IDA		Beneficiaries		Total	
Components	Amount	%	Amount	%	Amount	%	Amount	%
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	0.0	0	1225.4	100	0.0	0	1,225.4	7.5
2. National Centers of Specialization/Strengthening of the Research System	657.7	21.6	2,390.5	78.4	0.0	0	3,048.2	18.6
3. Funding of Demand-Driven Technology Generation and Adoption	510.5	5	9,524.2	93.4	159.5	1.6	10,194.2	62.1
4. Program Coordination, Management, Monitoring and Evaluation	76.7	4	1,859.9	96			1,936.6	11.8
Total costs	**12,44.9**	**7.6**	**15,000.0**	**91.4**	**159.5**	**1**	**16,404.4**	**100**

Togo

	(US$ Thousand)							
	The Government		IDA		Beneficiaries		Total	
Components	Amount	%	Amount	%	Amount	%	Amount	%
1. Enabling Conditions for Sub-regional Cooperation in Generation, Dissemination, and Adoption of Agricultural Technologies	0.0	0	827.3	45.9	0.0	0	827.3	6.9
2. National Centers of Specialization/Strengthening of the Research System	1,716.1	45.9	2,024.2	54.1	0.0	0	3,740.3	31.2
3. Funding of Demand-Driven Technology Generation and Adoption	31.5	0.5	5,865.8	99.2	16.4	0.3	5,913.6	49.3
4. Program Coordination, Management, Monitoring and Evaluation	240.2	15.8	1,282.8	84.2	0.0	0	1,523.0	12.7
Total costs	**1,987.8**	**16.6**	**10,000.0**	**83.3**	**16.4**	**0.1**	**12,004.1**	**100**

Annex 5: Economic and Financial Analysis of the West Africa Agricultural Productivity Program (WAAPP-1C-AF)

I. Foreword

1. This annex presents the economic and financial analysis (EFA) of the World Bank-funded WAAPP-1C AF for Benin, Niger, Togo and Guinea. The analysis focuses on returns from the investments under Component 2 (NCOS) and Component 3 (Funding of Demand-Driven technology generation and adoption). More specifically, the analysis estimates returns at the national and regional levels from improved efficiency in value chains supported by the Project. Benefits are expected to be due to: (i) the generation, diffusion, and adoption of new or improved technologies; and (ii) enhanced technology spillovers between ECOWAS countries arising from an integrated policy environment with regard to agricultural cooperation.

2. The EFA describes in some detail the methodology for assessing benefits from increasing agricultural productivity in the four countries. The EFA demonstrates that the proposed investments of the AF are financially and economically justified at the regional and country levels. The financial analysis aims to demonstrate that proposed on-farm income generating activities are profitable and sustainable for farmers. The economic analysis aims to demonstrate that, from a socio-economic perspective, the program as a whole is viable, taking into account all quantitative and non-quantitative benefits in situations with and without the program. Results, expressed in terms of the project's economic internal rate of return (EIRR) and net present value (NPV), are presented for the baseline scenario and for the sensitivity analysis.

3. The analysis shows that the project is profitable. Under the presented assumptions, NPVs are positive and IRRs are in the order of 29 percent for a 20-year project lifecycle. The project's returns are nevertheless sensitive to several scenarios (changes in yields, decreases in prices, more severe droughts) as reflected by the sensitivity analysis presented at the end of this study.

II. Introduction

4. The development objective of the WAAPP-1C AF is to generate and accelerate adoption of improved technologies in the participating countries' top agricultural commodity priority areas that are aligned with the sub-region's top agricultural commodity priorities, as outlined in the ECOWAP.

5. To achieve this objective, the project will invest in: (i) enabling conditions for sub-regional cooperation in the generation, dissemination, and adoption of agricultural technologies; (ii) strengthening NCoS/national centers of specialization/strengthening of the research system; (iii) funding of demand-driven technology dissemination and adoption; (iv) project coordination, management and M&E.

6. To measure the efficiency of the project and assess the Project Development Objective (PDO), the analysis calculates economic and financial IRRs and their corresponding NPV. The analysis uses farm models and mainly focuses on the returns from the investments on proven technologies and targeted priority value chains under the first three components. The project also creates a number of positive externalities under all components, which have not been fully quantified because of the difficulty to assess in monetary terms, among others, the effects of institutional strengthening and capacity building.

7. During implementation of the parent project (WAAPP-1C), the countries have expanded the range of values chains and interventions in line with the agro-ecological potential, dietary behaviors and the people know how. The project therefore supported various agriculture, forestry and pastoral value chains such as livestock/meat, milk, poultry, small ruminants, fish, rice, maize, sorghum, millet, cowpea, groundnut, soybean, plantain, cassava, fruit and vegetables. The parent WAAPP-1C supported this process by catalyzing technologies generation, dissemination and adoption and also by supporting technologies and knowledge transfer between the participating countries.

8. The initial financial and economic analysis conducted on the rice sector, maize and small ruminants indicated a productivity and production increase, especially for the rice. These results led to determining an initial productivity target of 15 percent for the parent project. This goal was exceeded in all participating countries (WAAPP Report, August, 2016), due to the combined effect of the good quality of seeds and favorable rainfall during the project period.

III. Economic and Financial Rationale for Investing in WAAPP-1C

9. **Rationale for public sector provision.** There is a strong economic rationale for the World Bank to invest in increasing beneficiaries' access to improved production and post-harvest technologies to increase productivity, enhance quality and reduce food losses for key value chains.

10. The WAAPP-1C AF will consolidate and scale-up the tools developed under the parent project to strengthen the regional integration dimension of the project, and speed up adoption of improved technologies and innovation including new varieties, certified seeds, improved and climate-smart cropping practices, new mechanical tools, improved processing and other relevant technologies by the producers.

IV. Identification of WAAPP-1C-AF's benefits

11. The project activities are expected to generate three main benefit streams at three levels. The primary project beneficiaries include farmers, agricultural producers and processors, and other key value chain actors. The benefits expected at this level are increased crop yields, increased animal and fish productivity, increased product quality and marketability and improved beneficiaries' access to improved production and post-harvest technologies, targeting specific regions along their agro-ecological and market potentials. Secondly, the beneficiaries also include the key participants in the generation and dissemination of technology, and the project is expected to contribute to their capacity building, which will cover researchers, public and private extension services and advisory agencies, research institutions, universities, NGOs, and government agencies involved in value chains management and public regulatory services provision. Thirdly, more global intangible social benefits are also expected, such as improved nutrition, human capital strengthening and women's empowerment, natural resources protection, enhanced bio-diversity and reduced GHG emissions, which contribute to achieving the INDC discussed at COP21 and contributing to the global goal of limiting mean global warming to 2°C above pre-industrial temperatures.

12. The AF financial analysis focuses on returns from the investments supported at the country level by the parent project under the Component 2 (NCoS). Specifically, the analysis estimates returns at the national and regional levels from improved efficiency in value chains supported by the project. Benefits are also expected from the improved production and use of equipment / improved agriculture inputs (seeds, seedlings, and animals) and agro-processing units.

13. The analysis focuses on returns arising from enterprises having the highest potential to generate food security, exports, and income in the considered countries. Based on the achievements of the initial phase, the following models articulated with the National Center of Specialization priorities were, therefore, analyzed:

i. Niger : (a) dried meat (kilichi) production, (b) cow milk production, (c) dairy processing, (d) production of camel milk.

ii. Togo (a) levelers rods, (b) rice steaming, (c) rice production with SRI techniques combined to improved seeds.

iii. Benin, (a) production of aklui corn with the Tchikiti2 electric motor wheeler calibrator, (b) grading seed cleaning with the cleaner-sizer, (c) maize seed production, (d) rice production with SRI techniques combined to improved seeds, (e pineapple production with polyethylene film, (f) production of fry tilapia mono sex.

iv. Guinea : (a) certified rice seeds production, (b) rice cropping, (c) cassava seedling production, (d) cassava cropping, (e) vegetables production (onion, pepper, potato), (f) maize cropping.

V. Methodology, Limitations and Assumptions

14. **Methodology.** The approach follows that of Gittinger (1982)[9] and Belli et al. (2001)[10], and is in line with recent guidelines published on economic and financial analysis[11]. The particular challenges in conducting an economic analysis of agricultural R&E projects include: (i) uncertainty of the effectiveness of investments in research, technology generation and adoption, as well as the difficulty in establishing timetables for technology generation, dissemination, and adoption; (ii) the difficulty in capturing important direct and indirect outcomes, such as contributions to poverty reduction, natural resource conservation, regional economic integration and the policy framework (enabling conditions for trade and technology products), overall economic growth, food security and institutional development (building research and certification systems, medium- and long-term human resource capacity building, knowledge management); (iii) the attribution of specific impacts to diverse external factors, such as positive externalities from other investments by the Bank, other donors, or the private sector or from rural credit institutions, input supply systems, and marketing systems, all mainly beyond the project's direct control; and (iv) the lack of reliable national agricultural statistical data, particularly in fragile and post-conflict countries.

15. Investments in research, advisory services, and the establishment of seed systems are very much interrelated, and if they are successful, they lead to increases in farm productivity and revenues, which are measured in this analysis. Although the costs of research and advisory services are easy to disaggregate, their benefits for farmers are much harder to separate, especially because the marginal impacts of research and advisory services are complementary. The joint efforts should lead to a continuum of technology provision and dissemination and eventually to greater productivity and competitiveness of agriculture. The analysis thus assumes that the two types of

[9] Gittinger, P., 1982, Economic Analysis of Agricultural Projects
[10] 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.
[11] IFAD, 2015, Economic and Financial analysis of rural investment projects, basic concepts and rationale.

investment have a compounding effect on the productivity of commodities supported under WAAPP- 1C.

16. **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 when adopting the promoted technologies and uses market prices.

17. **The economic analysis**, in turn, was performed at WAAPP level from the society/country viewpoint. The analysis aggregated incremental benefits to the total number of beneficiaries, including benefits from rural roads and environmental co-benefits arising from reduced GHG emissions (positive externalities), 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.

18. **Limitation of the EFA.** Some activities of the WAAPP-1C 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 by stakeholders, and supported by the project under different components.

19. **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.

20. **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 price (CIF) 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).

21. **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 WAAPP 1C.

VI. Results

Regional Analysis

22. **EIRR and NPV.** Based on these assumptions, the analysis shows that the Additional Financing is economically viable at the regional level. The Net Present Value (NPV), consolidated at the regional level is approximately US$104.8 million against a projected cost allocation of US $ 68 million. The Economic Rate of Return (EIRR) for the entire project is estimated at 29 percent.

23. **Sensitivity analysis.** A sensitivity analysis was performed using some of the main variables affecting the model. The results are also encouraging even when one considers rising cost of 50 percent, decrease benefits of 50 percent and a two-year delay in the generation of benefits. The corresponding EIRR with these three scenarios are respectively 15.9 percent, 12.4 percent and 16.6 percent, and the corresponding NPV are US$57.1 million US$21.8 million and US$52.0 million US. The sensitivity analysis is summarized below:

Table 5.1: Sensitivity Analysis:

	EIRR	**NPV**	
		Millions F CFA	Million US$
Costs increase by 10%	19.8%	40,048.9	67.9
Costs increase by 30%	17.7%	36,870.0	62.5
Costs increase by 50%	15.9%	33,691.1	57.1
Costs decrease by 10%	20%	35,885.1	60.8
Costs decrease by 30%	19.7%	24,378.5	41.3
Costs decrease by 50%	12.4%	12,871.9	21.8
Project benefits delayed by 1 year	18.6%	36,012.5	61.0
Project benefits delayed by 2 years	16.6%	30,705.2	52.0

24. **Summary of Country analysis :** The Financial and Economic Analysis per country is hereinafter summarized:

<table>
<tr><td>Country</td><td colspan="4">Benin</td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td>Financial Analysis</td><td></td><td>FIRR</td><td>NPV (FCFA)</td><td>Gross margin (FCFA)</td></tr>
<tr><td></td><td>Production of aklui corn with the Tchikiti electric motor wheeler calibrator</td><td>52%</td><td>3, 937,983</td><td>932,066.6</td></tr>
<tr><td></td><td>Maize seed cleaner-sizer,</td><td>231.15%</td><td>8 085 218</td><td>2033725</td></tr>
<tr><td></td><td>Maize seed production,</td><td>67%</td><td>24,015,465</td><td>1,853,404.5</td></tr>
<tr><td></td><td>Pineapple production with polyethylene film</td><td>49.70%</td><td>77,956</td><td>140,113.8</td></tr>
<tr><td></td><td>Production of fry tilapia mono sex</td><td>37%</td><td>11782953</td><td>2124750</td></tr>
<tr><td>Economic Analysis</td><td colspan="4"></td></tr>
<tr><td></td><td></td><td>EIRR</td><td colspan="2">NPV</td></tr>
<tr><td></td><td></td><td></td><td>Millions F CFA</td><td>Million US$</td></tr>
<tr><td></td><td>Base (NPV = 0)</td><td>18%</td><td>3,191.31</td><td>5.4</td></tr>
<tr><td></td><td>Costs increase by 10%</td><td>16.2%</td><td>2,848.1</td><td>4.8</td></tr>
<tr><td></td><td>Costs increase by 25%</td><td>13.8%</td><td>2,333.4</td><td>4.0</td></tr>
<tr><td></td><td>Costs increase by 40%</td><td>11.7%</td><td>1,818.6</td><td>3.1</td></tr>
<tr><td></td><td>Gross margin decrease by 10%</td><td>16.0%</td><td>2,529.0</td><td>4.3</td></tr>
<tr><td></td><td>Gross margin decrease by 25%</td><td>12.6%</td><td>1,535.5</td><td>2.6</td></tr>
<tr><td></td><td>Gross margin decrease by 40%</td><td>8.5%</td><td>542.1</td><td>0.9</td></tr>
<tr><td></td><td>Project benefits delayed by 1 year</td><td>11.2%</td><td>1,261.3</td><td>2.1</td></tr>
</table>

	Project benefits delayed by 2 years	4.0%	-403.0	-0.7

Country	**Guinea**

Financial Analysis

	FIRR	NPV ( )
Lowland certified rice seeds	182%	1230
Lowland rice cropping	176%	422
Maize seed production	271%	476
Maize production	211%	414
Cassava seedlings production	135%	909
Cassava production	258%	774
Tomato	157%	1858
Potato	135%	1739

Economic Analysis

	EIRR	NPV
		Millions FG
Base (NPV = 0)	54%	670,987
Costs increase by 10%	49%	912,635
Costs increase by 20%	44%	856,534
Costs increase by 50%	33%	688,234
Benefits increase by 10%	59%	1, 271,708
Benefits increase by 20%	64%	891,279
Benefits decrease by 10%	48%	560,841
Benefits decrease by 20%	42%	450,695
Benefits decrease by 50%	37%	344,703
Project benefits delayed by 1 year	37%	583,931
Project benefits delayed by 2 years	28%	465,865

Country	**Niger**

Financial Analysis

	FIRR	NPV (FCFA)	Gross margin (FCFA)
Kilichi	43%	183 227 165	52 606 944
production of camel milk	78%	63 095 373	14 871 000
Dairy processing	60.46%	40 833 930	9 065 750
Cow milk production	51.62%	9 333 303	2 277 500

Economic Analysis

	EIRR	NPV	
		Millions F CFA	Million US$
Base (NPV = 0)	23.1%	15 059,24	25,5
Costs increase by 10%	21.6%	14 279,0	24,2
Costs increase by 25%	19,7%	13 108,6	22,2
Costs increase by 50%	16,8%	11 158,0	18,9
Gross margin decrease by 10%	21,5%	12 773,1	21,6
Gross margin decrease by 25%	18,6%	9 343,8	15,8
Gross margin decrease by 50%	12,2%	3 628,4	6,1

	Project benefits delayed by 1 year	18,4%	10 511,7	17,8
	Project benefits delayed by 2 years	14,0%	6 467,5	11,0

Country	**Togo**

Financial Analysis

	FIRR	NPV (FCFA)	Gross margin (FCFA)
levelers rods,	77%	4 904 837	1 206 538
rice steaming	77%	4 904 837	1 206 538
rice production	81%	248400	45325

Economic Analysis

	EIRR	NPV Millions F CFA	NPV Million US$
Base (NPV = 0)	15%	5 447,18	9,2
Costs increase by 10%	14%	4 981,2	8,4
Costs increase by 20%	13%	4 515,1	7,7
Costs increase by 30%	12%	4 049,1	6,9
Gross margin decrease by 10%	14%	4 436,4	7,5
Gross margin decrease by 20%	12%	3 425,7	5,8
Gross margin decrease by 30%	11%	2 415,0	4,1
Project benefits delayed by 1 year	11%	2 519,8	4,3
Project benefits delayed by 2 years	9%	1 585,9	2,7

Annex 6: Greenhouse Gas Accounting (GHG)

1. **GHG emissions from agriculture, which are contributing to global warming, continue to rise.** The Inter-governmental Panel on Climate Change (IPCC) acknowledges that climate change is very likely due to anthropogenic GHG emissions, which include those arising from agriculture, forestry and land use change (AFOLU). GHGs emissions from AFOLU account for 24 percent of the global GHG emissions, while agriculture alone contributes 10-12 percent (IPCC, 2014). According to FAO (2014), emissions from crop and livestock production grew globally from 4.7 billion tons of carbon dioxide equivalent (CO_2e) in 2001, to over 5.3 billion tons in 2011, a 14 percent increase, mainly originating from deforestation and agricultural emissions from livestock, soil and nutrient management (IPCC, 2014a). Various studies done in some WAAPP-1C countries like Niger, show that the agriculture sector (comprising farming, agriculture, livestock and forestry) is the largest GHG emitter that contributes to 78 percent of the national CO_2-e emissions (GoN, 2015).

2. **On the positive side, the economic mitigation potential of agriculture is high.** Agriculture offers cost-effective mitigation options to increase carbon stocks, decrease soil carbon losses and reduce non- CO_2 emissions. The mitigation potential is estimated at 3 to 7.2 giga tons of CO_2e per year in 2030 at a social price of carbon (that captures the marginal global damage of an additional unit of CO_2e emitted) averaging US$20 - 100 per ton of CO_2e (FAO, NAMA, 2015)[12].

3. **The WAAPP 1C AF will support climate-smart agriculture interventions which are also profitable solutions from the farmers' (private) viewpoint.** Binam et *al* (2015)[13] assessed the effects of tree-based systems, that is farmer managed natural regeneration (FMNR) (or also called Assisted Natural Regeneration- ANR), on selected outcomes among 1,080 rural household farmers in the Sahel. Their results indicate that keeping, protecting and managing trees in the farmlands have significant benefits on the livelihoods of the rural poor, Binam et *al* report that adopting farmer-managed natural regeneration practices result in an increase in the gross income by US$72,000 per year for a community of 1,080 households.

4. Positive financial impacts of conservation agriculture (CA) on farmers' gross margins, mainly through increased yields and labor costs savings, have been revealed by the research work carried out by CYMMIT/ CGIAR[14] in Malawi and Zimbabwe (Thierfelder, Bunderson and Mupangwa 2015)[15]. At a more global scale, FAO reports that farmers can save between 30–40 percent of time, labor and fossil fuel inputs (FAO- NAMA, 2015).

5. Other studies (World Bank, 2011; Tittonnell, 2008; Musahara, 2007) showed that integrated soil fertility management approaches are more profitable (in terms of benefit/ cost ratio and NPV) than the techniques using either mineral fertilizer or organic soil fertility management practices alone. In Kenya, Tittonell et *al.* (2008) showed that maize yields were substantially larger when manure was combined with synthetic fertilizer, with increases of 100

[12] Food and Agriculture Organization (FAO), 2015. Nationally Appropriate Mitigation Actions (NAMA) in the AFOLU sector

[13] Joachim N. Binam, Frank Place, Sigue Hamade, Moussa Boureima, Abasse Tougiani, Joseph Dakouo, Bayo Mounkoro, Sanogo Diaminatou

[14] CYMMIT=International Maize and Wheat Improvement Center. CGIAR= Consultative Group on International Agricultural Research.

[15] Thierfelder C., Trent Bunderson W., Mupangwa W. (2015), *Evidence and Lessons Learned from Long-Term On-Farm Research on Conservation Agriculture Systems in Communities in Malawi and Zimbabwe*. Environments 2015, 2(3), p 317-337.

percent above control groups using chemical fertilizer alone. Studies from Musahara (2007) in Rwanda indicate that on-farm soil conservation investments alone can increase marginal productivity of land over 30 percent. In Nigeria, tests combining different farming options showed that ISFM practices produced the greatest maize and rice yields, benefit-cost ratios (in the order of 5-6.6 for maize) and NPV (World Bank, 2011).

6. **Mitigation benefits.** The EX-ACT tool was used to assess the mitigation impact of the WAAPP-1C AF. The tool, developed by the FAO, provides estimations of the impact of AFOLU projects and policies on the carbon-balance. The carbon-balance is defined as the net balance from all GHGs expressed in CO_2 equivalents (CO_2e) that were emitted or sequestered due to project implementation (WP) as compared to a business-as-usual scenario (WOP). EX-ACT is a land-based accounting system, estimating CO_2e stock changes (that is emissions or sinks of CO_2) expressed in equivalent tons of CO_2 per hectare and year (expressed in $mTCO_2e.ha^{-1}.year^{-1}$). EX-ACT has been developed using mostly data from the Intergovernmental Panel on Climate Change (IPPCC) Guidelines for National Greenhouse Gas Inventories (NGGI-IPCC, 2006) that furnishes EX-ACT with recognized default values for emission factors and carbon values in soils and biomass (the so-called "Tier 1 level" of precision). EX-ACT can accommodate more site-specific emission factors, when available (so called Tier 2 level data).

7. EX-ACT models carbon balance calculations based on (i) the dominant soil types in Niger, Benin, Togo and Guinea; (ii) the climatic conditions in the project areas; and (iii) land use and land management practices. Changes in land use brought by the project were inserted in the different "modules" of EX-ACT.

8. Emissions due the use of inputs (manure, micro-doses of chemical fertilizers and pesticides) and due to the functioning of the project coordination unit (for example fuel consumption for the NCU/RSUs) were included in the "Inputs and Investment" module of EX-ACT (assumptions based on PAC and Binam et al., 2015), 2/ technology adoption rate was estimated at 75 percent at the end of the "implementation phase" of EX-ACT; 3/ dynamic of change was chosen as "linear" in EX ACT.

9. **Carbon balance.** The analysis indicates that the activities foreseen by the WAAPP 1C AF lead to a carbon balance of -5.0 million tons of CO_2e (for Benin), -8.7 million tons of CO_2e (for Guinea), -4.3 million tons of CO_2e (for Niger), and 4,874,201t CO_2e, that are mitigated over the period of 20 years starting from project implementation. This is equivalent to the annual mitigation of roughly -0.9t CO_2e per hectare annually (for Benin), -1.2t CO_2e per hectare annually (for Guinea), -1.3t CO_2e per hectare annually (for Niger) and -2t CO_2e per hectare annually (for Togo). With these values of annual mitigation per hectare, PASEC can thus be characterized as an investment that comparatively strongly benefits GHG mitigation.

Table 6.1: Carbon balance results

Item	Results			
	Benin	**Guinea**	**Niger**	**Togo**
Total balance, 20yrs	-5,013,356t CO_2e	- 8,768,629t CO_2e	- 4,335,320t CO_2e	- 4,874,201t CO_2e
Balance/ha	- 18t CO_2e	- 23t CO_2e	- 25t CO_2e	- 41t CO_2e
Balance/ha/year	- 0.9t CO_2e	- 1.2t CO_2e	- 1.3t CO_2e	- 2t CO_2e
Total balance/year	- 478,434t CO_2e	- 438,431t CO_2e	- 216,766t CO_2e	- 243,710t CO_2e

Annex 7. Risk Analysis and Assessment

Risks Ratings Summary Table

1. Table 7.1 below summarizes the perceived risk for the proposed AF. The overall project risk is rated as Moderate. The rating takes into account the experience gained as part of implementation of the WAAPP, and the strong commitment demonstrated by the governments of beneficiary countries in implementing the original project. In general, the rating for each element follows mostly the rating of the WAAPP-1C in the most recent Implementation Status and Results Report (ISR), issued in June, 2016, except overall rating which is Moderate following the recommendation of the Decision Meeting.

Table 7.1: Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Low
5. Institutional Capacity for Implementation and Sustainability	Low
6. Fiduciary	Low
7. Environment and Social	Moderate
8. Stakeholders	Low
OVERALL	**Moderate**

Overall Risk Rating Explanation

2. Political and Governance risks are considered to be Moderate in the four countries in light of their political stability, the clear commitment to the project, demonstrated by the recipient governments, and the well performing implementing agencies of the project.

3. With regard to 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 Low for Benin, Guinea and Niger. Togo has a weak implementation unit with Moderate risk due to slow process of procurement, but the overall institutional capacity is Low.

5. Environmental and Social risks are considered to be Moderate. The project has already shown that its impact on the environment is low while on the social side, it will most likely be positive.

6. Stakeholder risks are considered to be Low. The project is in high demand by the stakeholders and they are committed not only to implementation of the proposed AF but also to sustainable development of the targeted value chains. Expansion of the innovation platforms will scale up all value chain actors' involvement in the project activities as they will be empowered to plan and implement development of the value chains.